



NBP

National Bank of Poland

REPORT
ON FULL MEMBERSHIP
OF THE REPUBLIC OF POLAND
IN THE THIRD STAGE
OF THE ECONOMIC
AND MONETARY UNION

WARSAW, 2009

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Introduction

The idea of integration is inherent in the history of the European continent. Yet, only the establishment of the European Economic Community (EEC) after World War II proved the belief of many that the process should take place in a peaceful manner, observing the principle of social and economic solidarity between European states. The belief stemming from negative consequences of armed conflicts was an important impulse for tightening cooperation in Europe. Apart from the economic reasons behind the idea to unite and deepen economic integration of European states, the political factor was also of major importance. Even though it is difficult to distinguish between direct effects of the two intertwined and mutually strengthening processes, the assessment of the significance of integration in the form it assumed under the auspices of the EEC and later the European Union is positive. Both factors contributed to the fact that European integration has become one of the most important peaceful projects of the 20th century in Europe and globally. The single euro currency complements the economic and social consequences of the Single Market.

Poland has been a Member State of the European Union since May 2004. It also participates in the third (i.e. definitive) stage of establishing the Economic and Monetary Union with the status of a participant with the so-called derogation¹. The derogation concerns particularly the obligation of introducing the single currency – the euro – in the given Member State.

As it has signed the Accession Treaty, Poland is under the obligation to create conditions necessary to introduce the euro. By acceding the European Union, Poland *de facto* entered the path leading to replacing the zloty with the single European currency. This translates into an obligation to adopt the euro, although the precise date has not been set. As the issue of introducing the euro remained open in the Accession Treaty, Polish economic authorities enjoy the possibility of influencing the scenario and the pace of progress in this area as well as all chances and threats the process brings about.

Accepting the idea of introducing the European currency in Poland was the condition for the country's accession to the European Union on the one hand, and on the other hand a result of the initial conviction that the decision made by old EU Member States to establish not only an economic but also a monetary union was right. It also expressed acknowledgement for the project of European and monetary integration as the optimal way of facing economic challenges of today. The conviction coincided with the expectation that Poland's future participation in the venture would guard the long-term interests of the Polish economy best.

¹ In this case “derogation” refers to a temporary suspension of certain rights and obligations resulting from formal participation in the group.



Purpose and structure of the Report

The purpose of the *Report* is a deepened analysis of the costs and benefits of Poland's adoption of the single European currency. The long-term perspective of the decision to participate in the monetary union demands to view the accompanying flows of costs and benefits taking into account the potential differences in time horizons. Both the theory of economics and experience of Member States show that it is worth to balance costs and benefits in the short, medium, and the long run.

The nature of the purpose of the *Report* substantiates recapitulating the essence and rules of functioning of the Monetary Union and the position of the single currency in the process of European economic integration in Chapter 1. The issues of monetary integration are introduced by a general assessment of the initial years of the euro area existence against the background of developed countries.

Subsequently, an attempt is made to answer the question on, firstly, the degree of Polish economy's ability to draw benefits and, secondly, exposure to costs resulting from replacing the domestic currency with the euro, using the results of an extensive empirical research program. Chapter 2, whose purpose is to present the degree to which Poland meets the criteria of nominal and real convergence, paves the way for the analysis. Experience of euro area Member States shows that the quality and sustainability of meeting the criteria could largely determine both the scale of benefits and costs of participation in the monetary union.

Chapter 3 undertakes to estimate the benefits and chances for the Polish economy connected with accession to the euro area. As literature frequently underscores, the benefits can be divided into those visible directly after adopting the single currency and those manifesting themselves gradually later on.

Chapter 4 presents the potential costs and threats connected with monetary union participation. First of all, analysis will concern the long-term costs of losing the ability to pursue independent monetary policy, i.e. resigning from interest rate and exchange rate tools as well as its consequences. Subsequently, the costs which may materialise in the short run on the way to the euro area will be presented.

Chapter 5 of the *Report* will be devoted to efficiency of shock accommodation mechanisms as their significance increases in the face of losing independent monetary and foreign exchange policy. Experience of euro area countries shows that the efficiency of the above mechanisms of shock absorption could have determined the total scale of costs and benefits connected with the monetary integration process throughout euro area's existence.

The final part of the *Report* features a short summary of the analyses of costs and benefits of Poland's accession to the euro area.

Methodology of drafting the Report and the consultation process

Work on the *Report* was conducted based on openness and transparency of communication and consultation. The *Report* sums up research conducted by the personnel of the National Bank of Poland and by external experts².

² A list of all research projects implemented for the needs of the *Report* can be found in Annex 1 hereto.



Bureau for the Integration with the Euro Area (BISE) observed the principle of openness at every stage of work by consulting the idea of the document and the results of analyses with external experts and by commissioning experts from outside the bank to conduct research projects.

When drafting the *Report*, the National Bank of Poland invited social partners to cooperation: employer and employee organisations, academic centres, scientific institutes, public administration bodies, and experts from Poland and from abroad. Research involved, *inter alia*, the Center for Social and Economic Research, Institute for Structural Research, and the Research Institute for Economic Development of the Warsaw School of Economics.

Research projects conducted for the needs of the *Report* were accompanied by an extensive consultation process with a cycle of seminars at the NBP as its main element. The seminars were open; they were divided into creative seminars, those with initial results, and final seminars. The seminar cycle started in December 2007 and ended in October 2008. A total of 69 seminars were held during which the methodological assumptions and results of projects implemented by NBP personnel and external experts were presented and discussed. Seminar participants had the opportunity to submit their opinions and comments on the presented materials which were analysed by project authors.

BISE has been organising meetings with representatives of circles of economists, entrepreneurs, and finance experts, in order to discuss issues connected with research, since September 2007. Seminars with researchers of the Institute of Economic Sciences at the Polish Academy of Sciences (INE PAN) and the Polish Economic Society (PTE) were held. Conference entitled “Economic, social, and political reasons of introducing the euro in Poland,” which inaugurated work on the *Report*, was held on 11 October 2007.

In the framework of cooperation with external experts, the NBP was visited by: Natalia Tamirisa from the Research Department of the International Monetary Fund, professor Ronald MacDonald from University of Glasgow, professor Jesus Crespo Cuaresma from University of Innsbruck, Christopher Rosenberg, PhD, and Elena Kohutikowa, former Vice-Governor of the Národná banka Slovenska. Economists presented their achievements and research in monetary integration. The results of discussions and consultations were used to draft the *Report*.

BISE started consultation meetings, during which a synopsis of the *Report* was presented, in January 2008. The synopsis was approved by the NBP Management Board on 13 December 2007. BISE representatives held consultations with, *inter alia*, business economists, and scientists from the Institute of Economic Sciences at the Polish Academy of Sciences, Monetary Policy Council, and the NBP Scientific Council.

Upon BISE’s initiative, an international conference entitled “Common Currency and its Future: Lessons for the New Member States” was held on 15 October 2008. The conference initiated the fourth final stage of drafting the *Report* which comprised analytic, synthesising, and editorial work.

Implementing the principle of openness and close cooperation with other organisation, BISE started cooperation with social partners, such as employer organisations (Business Centre Club, Polish Confederation of Private Employers “Lewiatan,” Confederation of Polish Employers (KPP), Polish Craft Association (ZRP)), employee organisations (NSZZ Solidarność, All-Poland Alliance of Trade Unions (OPZZ), Trade Unions Forum (FZZ)), and the Polish Bank Association (ZBP). Representatives of the organisations

actively participated in drafting the *Report*. Cooperation with social partners took place on three levels:

- Official – in the period between December 2007 and December 2008 five meetings of heads of the organisations with the President of the NBP and the Office management; the meetings were devoted to setting cooperation framework and roles of social partners in drafting the *Report*;
- Working – social partners received studies and documents prepared by BISE on an ongoing basis, including the synopsis of the *Report* they commented on;
- Expert – experts appointed by social partners participated in research seminars where they monitored the progress of work and results of projects implemented for the needs of the *Report*.

Engaging so many people and institutions in drafting the *Report* was conducive to conducting a multi-aspect analysis of effects of entering the euro area by the Republic of Poland. The National Bank of Poland would like to thank the Authors of research projects, Reviewers, Social Partners and all those engaged in research for their help and support in the process of drafting the *Report*.



Chapter 1

Single European Currency. Origin and function

Chapter purposes

The first chapter introduces the issues of monetary integration in Europe on the basis of euro area experience to-date. It is worthwhile to get to know the framework of the euro area operation in its initial ten years prior to discussing the costs and benefits of adopting the euro in Poland. The structure of the chapter follows the implementation of the four following postulates.

Firstly, the opening part of the chapter presents the idea of the single currency in Europe crowned by the introduction of the single euro currency. Looking at the European experience in a longer perspective, it is good to remember that introducing the euro is not an autonomous process; it is strictly correlated with economic and political integration.

Secondly, internal and external macroeconomic stability of the euro area will be assessed against the background of developed countries. This results from the fundamental significance of this factor to economic growth and its role set forth by the Maastricht criteria. The chapter also depicts shaping the common monetary policy by the ECB and inflation processes in the euro area. The problem is important as the initial years of ECB's operation were the period of building its credibility.

Thirdly, the establishment of the euro area resulted in creating the second most important international currency. Euro area experience shows that the above was one of the results of monetary integration which stimulated flows of capital and commodities both inside and outside the euro area.

Fourthly, the final part of the chapter discusses the functioning of euro area Member States against the United States, Japan, and the three countries of the so-called "old" EU (EU-15) which have not adopted the euro (Denmark, Sweden, and Great Britain). The comparative analysis concerns the most important economic categories connected with GDP, employment, and output.

1.1 European economic integration

Establishing the euro area crowns the process of economic and political integration in Europe to-date.

Establishing the euro area was preceded by almost 50 years of deepening economic and political cooperation. In the process, EU countries have gone through many stages of integration: from free trade area, through customs union and the single market, to monetary union. Apart from economic motives accompanying subsequent stages of integration, it is also worthwhile to stress the political aspects of the venture. The major stimulus was to ensure peace in the European continent using economic integration mechanisms. Experience of Member States shows that economic, social, and political ties, which strengthened over the years, were conducive to developing co-responsibility of respective countries for the future of Europe and its inhabitants.

The collapse of the Bretton Woods system, which guaranteed foreign exchange stabilisation till the beginning of 1970s, constituted an important impulse to launch monetary integration processes in Europe. The increase in significance of European currencies (particularly the German Mark) since the end of 1960s prompted the EU to strengthen cooperation for stabilising mutual exchange rates. The Werner Plan was announced in 1970 and 1972 saw the creation of the *snake in the tunnel*. Although the ambitious plans to introduce the single currency in 1980 turned out impossible to carry out (mainly due to oil crises and the resulting period of stagflation), work on further monetary integration continued. Establishing the European Monetary System at the end of 1970s paved the way to the euro area (Kowalewski, 2001).

Finally, the euro replaced the currencies of 11 countries since 1 January 1999 in non-cash form and in the form of notes and coin in 12 countries – since 2002. Introducing the single currency was preceded by a complex process of reaching nominal convergence set forth in Maastricht in December 1991 by the Treaty establishing the European Community (TEC).

Since 2009, the euro area comprises 16 EU Member States. Apart from the 11 states-founders, the euro area was acceded by Greece (2001), Slovenia (2007), Cyprus and Malta (2008), and Slovakia – in the beginning of 2009.

From among the EU-27 states which do not belong to the euro area as of 1 January 2009, only two countries (United Kingdom and Denmark) avail of the so-called opt-out clause which gives them the right to choose their monetary future. The remaining countries which do not belong to the euro area and do not avail of the opt-out clause, including Poland, are called states with a derogation.

1.2 Macroeconomic stability of the euro area

Macroeconomic stability is one of the fundamental factors of economic growth.

Economic stability is an important driver of economic growth whose quality is influenced by, *inter alia*, monetary and fiscal policy, as substantiated by high inflation and unemployment in 1970s and 1980s, as well as regular economic and financial crises which confirm negative consequences of instability in the nominal sphere of economy. This is also substantiated by the science of economics (Satyanath, Subramanian, 2004)¹. The requirement to guarantee macroeconomic stability on an ongoing basis was also mirrored by the Maastricht criteria which constitute the basis for qualifying countries

¹ Lack of monetary stability forces entities to constantly adapt their prices and contracts; it also increases the inflation margin of prices and interest rates. Moreover, high inflation makes prices lose their function connected with informing about consumer preferences and scarcity of resources (Oręziak, 2004). This discourages long-term planning of investment projects (particularly in innovative branches of the economy where the risk level is usually higher).



to the euro area. The main purpose of their formulation was providing monetary and fiscal policy with a transparent institutional framework.

The nominal anchor mechanism is applied to increase efficiency and reliability of macroeconomic policy. In monetary policy, the nominal anchor usually takes the form of a quantitative limit, i.e. limit imposed on the quantity of money in circulation, setting the value of paper notes in units of other good, e.g. gold in a gold standard or a foreign currency (Mishkin, Jonas, 2003). The widespread practice of central banks at the turn of the 20th and 21st centuries was applying the strategy of direct inflation target based on independence of central banks as an anchor of inflation expectations. In fiscal policy, the anchor usually assumes the form of rules setting forth the admissible value of deficit, debt, or budget spending as a percentage of GDP. Lack of reliable economic policy rules may induce decision-makers to apply fiscal expansion instruments too frequently and irresponsibly, which leads to losing control of the deficit and public debt.

The need for macroeconomic stability and a reliable nominal anchor is particularly important in the euro area as centralised monetary policy (established by the common central bank) is accompanied by decentralised fiscal policy (established by Member State governments). As there is no way to coordinate them fully, the risk of incoherence between objectives of the policies is particularly high when there are no principles to ensure reliability and transparency. Thus, the idea of the authors of Maastricht nominal convergence criteria was to build an independent central bank and eliminating the risk of excessive indebtedness of Member States. Excessively expansive fiscal policy may prevent public finance from implementing its stimulating and stabilising mission; it may also lead to higher premium for increasing credit risk inherent in long-term rates. The negative consequences of the increase in the cost of money may then impact also the countries which pursue a disciplined fiscal policy (Wyplosz, 2002). Yet, financing state spending with public debt may not only negatively impact the level of interest rates, but also the exchange rate of the single currency towards its appreciation as excessive supply of treasury securities stimulates the influx of foreign capital.

The Maastricht criteria played the role of the nominal anchor which introduced discipline to economic policy.

The Maastricht convergence criteria constituted a strong nominal anchor which facilitated transition of countries with volatile and relatively high inflation to the area of more stable prices and public finance in the period preceding introduction of the euro. In the years 1999-2008, inflation reached its historical low in euro area countries. Annual price dynamics in the euro area amounted to about 2% (Chart 1.1), i.e. the level assumed to be price stability by the ECB. Also, inflation volatility was insignificant against the background of previous decades. In the 1970s and 1980s, the consumer price index increased by up to 10% and in certain large economies of the euro area to be (such as Spain and Italy) it even exceeded 20%.

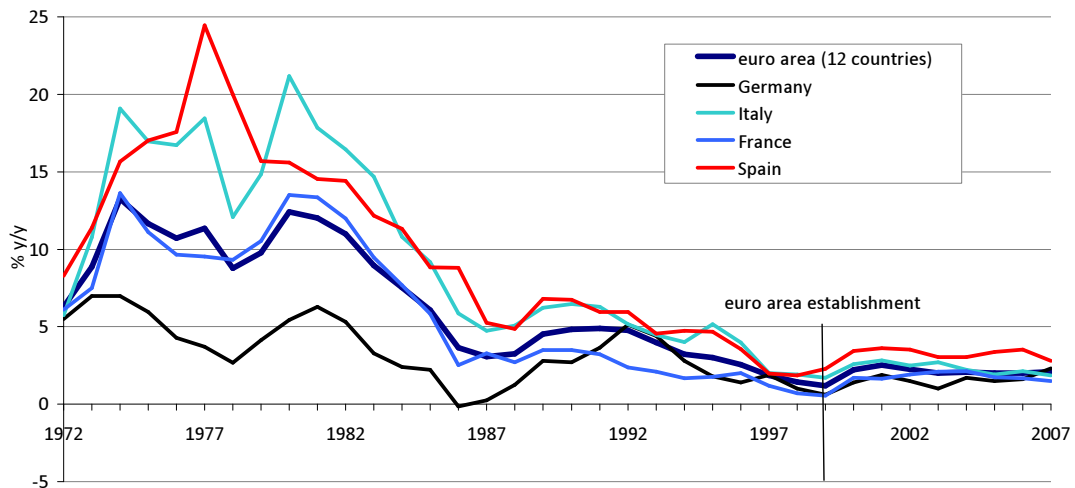
The years with the euro were a period of historically low inflation.

In the countries which now belong to the euro area, disinflation took place largely in the 1980s and 1990s. It was mainly the result of a decrease in the growth rate of prices in Spain, Portugal, Greece, and Italy. The trend was less visible in France and Germany saw a decrease not in the level but in volatility of annual inflation rates. The period of euro area's existence may thus be called the period of price stability in its Member States.

However, the significant decrease in inflation in the last twenty years took place not only in the euro area. Comparison with other important monetary areas (Chart 1.2) shows that low inflation was a global phenomenon at that time. Price dynamics underwent a similar reduction in the United States, Japan, or EU-15 countries which did not adopt the euro. European Commission (2008b) points to the fact that a moderate increase

Disinflation was a global phenomenon in the 1980s and 1990s.

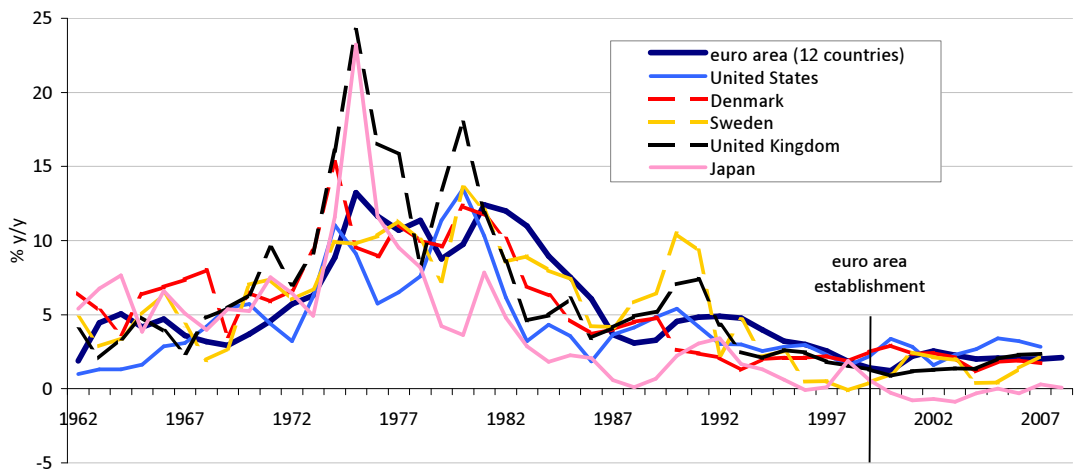
Chart 1.1 Euro area inflation rate



Source: AMECO.

in prices on global markets was conducive to retaining low inflation in the euro area thanks to stable import prices².

Chart 1.2 “Great Moderation” – the global inflation decrease since the 1980s



Source: AMECO.

Fiscal criteria enhanced public finance discipline and were conducive to implementing structural reforms at the stage of preparations to accede the euro area.

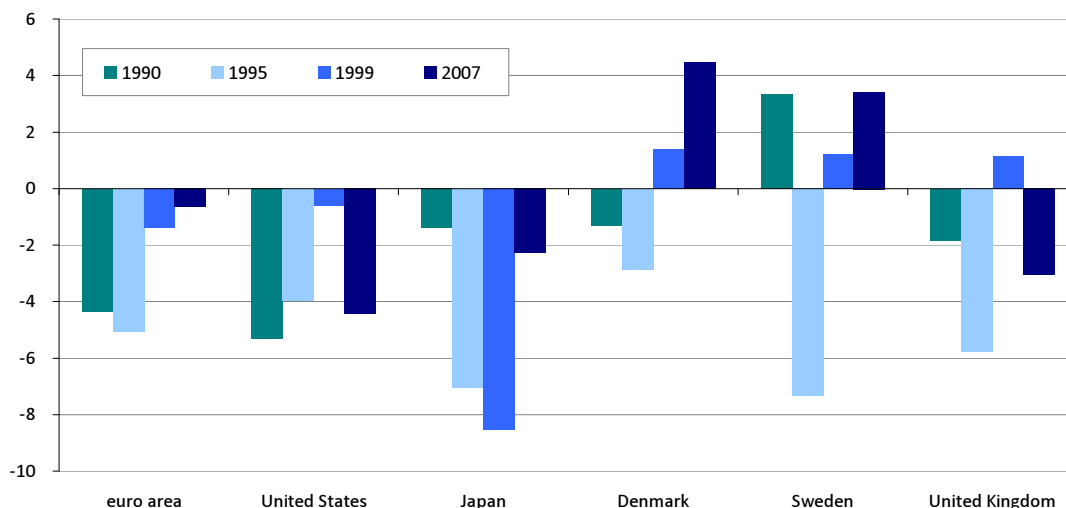
Improvement of quality of fiscal policy was also a factor supporting macroeconomic stability of euro area countries. The values of the public debt ratio show that the Maastricht criteria imposed discipline on countries in respect of public finance reforms (Leiner-Killinger et al., 2007) and allowed stopping the sudden increase in public debt in previous decades. In the 1980s and in the beginning of the 1990s, budget deficit

² The discussion on the reasons behind global disinflation referred to as the “Great Moderation” can be divided into two basic trends (Rybiński 2007a). The first one attributes the situation to a series of circumstances favourable to global economy, such as no serious shocks (good luck). The second trend attributes it to an improvement of monetary policy and the resulting price globalisation (good policy). Despite their respective significance, both reasons were global. The impact of shocks on global economy was insignificant as compared to the 1970s. Many banks decided to adopt the direct inflation target strategy.



amounted to an average of 4–5% of GDP³ in the euro area. This led to fast accumulation of public debt in relation to GDP which increased from 35% of GDP in 1980 to about 75% of GDP in mid-1990s for the euro area as a whole (cf. Chart 1.3).

Chart 1.3 Budget deficit in the euro area and in selected OECD countries



Source: European Central Bank (2008b).

Establishing and application of rules stemming from nominal convergence criteria only allowed reversing the negative trend. While the scale of debt reduction in the euro area was lower than in EU-3 countries, euro area deficit generally did not exceed 1.8% of GDP in the years 1999–2007; in the United States it exceeded 2.2% and in Japan it amounted to almost 6% of GDP. This means that even despite problems faced by certain economies when achieving the requirements of the Stability and Growth Pact, which recommends that deficit be less than 3% of GDP, the euro area as a whole met the requirement upon its establishment (apart from 2003 when deficit amounted to 3.1% of GDP). In 2007, euro area budget deficit amounted to 0.6% of GDP and public debt was 66.4% of GDP, i.e. less than in 1999 by 0.8 pp and 6 pp, respectively.

General assessment of internal balance of the euro area indicates stability comparable to that of developed countries.

Analysis of the degree of external macroeconomic balance in the euro area as a whole as compared to other developed economies shows its ability to retain competitive position in trade. In the years 1999–2007, the euro area retained the current balance close to equilibrium with a surplus tendency (0.8% of GDP in 2002 and 2004). In the period, while the United States experienced deficits exceeding 4–5% of GDP, Japan posted a surplus of 3.3% of GDP against 2.2% in the years 1990–1998. As concerns EU-3 countries, Denmark and Sweden's surplus increased from the average level of ca. 1% of GDP in the years 1990–1998 to 2.5% and almost 6% of GDP in the years 1999–2007, respectively (cf. Chart 1.4).

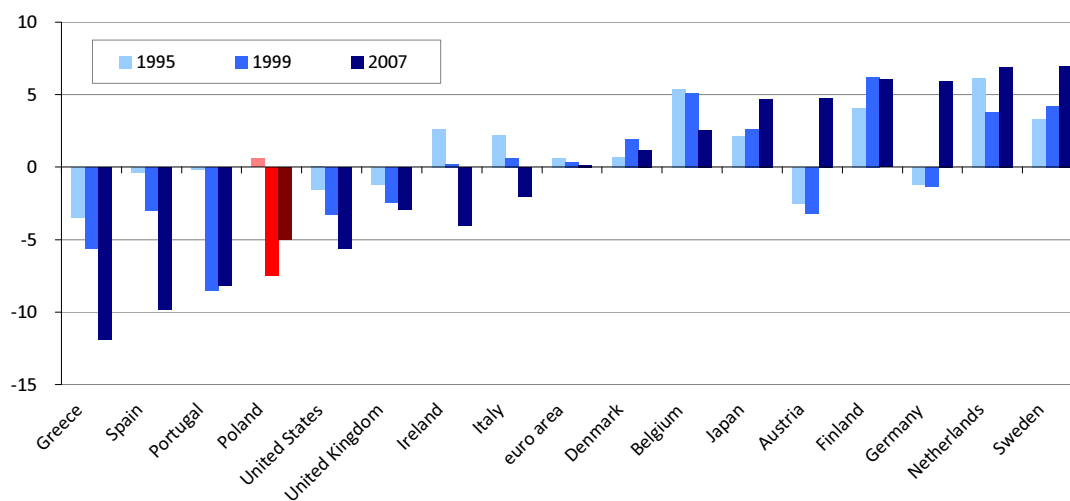
The euro area has relative external stability.

Despite the visible impact of monetary integration on trade and investments, changes in this respect resulted from a number of factors unconnected directly with the process. Comparison of euro area foreign trade growth rate with other developed countries in the years 1999–2006 shows it increased at a slower pace than global trade. This was a result of lower economic growth of the euro area than that of the global economy as well as of widespread intensification of the role of countries with low production costs in international trade (cf. Diagram 1.1).

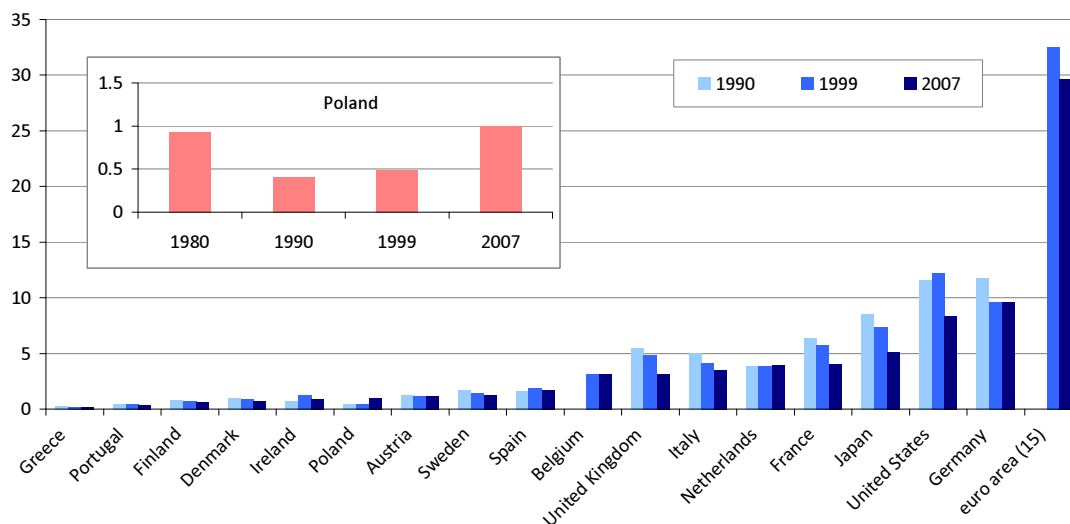
Changes in euro area trade were influenced by a number of external factors.

³ In 1990 for example, the budgetary deficit amounted to 15% of GDP in Greece and 11% of GDP in Italy.

Chart 1.4 Current account in selected OECD countries and their share in global exports



(a) Current account as a percentage of GDP



(b) Share in global exports

Source: OECD.

They resulted from including countries with low production costs in international trade.

It is worthwhile to stress the increasing role of China in global trade and exchange with the euro area⁴. While in 1999 the share of import from China constituted almost 5% of total euro area imports, it reached the level of slightly over 10% in 2006. Russia, Czech Republic, Poland, and Turkey also increased their connections with euro area economies. Economic motivations behind finding less expensive suppliers from outside the euro area triggered higher increase of imports from third countries than exports to those countries.

It is worth considering that the decline in the share of euro area countries in global exports as compared to developed countries was relatively lower, despite appreciation of the euro since 2002. Analyses of export structure by type indicate that euro area countries have been increasing their share in global trade in the group of high-tech goods since 2001, which confirms the moderate improvement in their non-price

⁴ In 2006, China was the third largest trade partner of the euro area, following United Kingdom and the United States.



Diagram 1.1 Major determinants of euro area trade in the years 1999–2006

	Trade within the euro area	Exports to third countries	Imports from third countries
Higher economic growth in the external environment of the euro area	↓	↑	■
Euro exchange rate appreciation	↓	↓	↑
Operations of multi-national corporations (production delocalisation)	↓	↑	↑
Increase in prices of raw materials	■	↑	↑
Extending the process of European integration	↓	↑	↑
Increase in significance of countries with low production costs in international trade	↓	↓	↑
Introduction of the euro	↑	↑	↑

The thickness of arrows indicates the strength of potential impact of the given factor on trade.

Source: Mroczek (2008).

competitiveness. Yet as compared to developed countries, euro area countries still display a relatively high specialisation of labour-intensive goods (di Mauro, Forstner, 2008).

Despite the generally favourable assessment of internal and external stability of the euro area as compared to developed countries, it is worth noticing the differences in economic processes taking place in certain economies the area comprises. As concerns the inflation rate (Greece, Ireland, Portugal, Spain, and Italy) and budget deficit (Greece, Portugal, Italy, Germany, and France), the convergence process came to a halt (European Commission, 2008b). Even as the Maastricht Treaty stipulates sustainable meeting of nominal criteria, the only instrument to discipline economic policy after adoption of the euro is the Stability and Growth Pact (SGP). Introduction of the euro was nevertheless accompanied by a sudden weakening of global economic growth and the condition of the largest economies of the euro area deteriorating since 2000 hindered the enforcement of SGP rules. A strong institutional anchor which would spur countries to further restructure their economies was missing. Also in certain cases, as a result of cumulating differences in inflation, the single monetary policy brought about different effects in respective countries due to inconsistency of real interest rates (Lane, 2005b; Roubini, Parisi-Capone, Menegatti, 2007). Real interest rates were low (frequently negative) in countries with high growth rate, which stimulated further increase in inflation. Yet, the increase in efficiency of economies measured with total factor productivity was not high enough, which led to appreciation of the real exchange rate index, despite its rigidity in nominal terms⁵. The factors were mostly visible in peripheral countries (Spain, Portugal, and Greece) and frequently led these economies to lose their external equilibrium expressed as the current account balance and, more generally, as the investment position of the country (Fagan, Gaspar, 2007).

Despite internal and external stability of the euro area, certain countries suffered negative consequences of the lack of nominal convergence sustainability.

⁵ Diversification of inflation rates or labour costs may lead to diversification of the real exchange rate index expressed by price relations, leading to higher external imbalance, despite lack of mutual exchange rates.

1.3 Inflation processes and monetary policy in the euro area

As a new entity, the ECB began to determine euro area monetary policy in 1999.

Establishing the euro area triggered the supra-national ECB to take over the competence of national central banks in respect of monetary policy. Despite the global improvement of stability and of the quality of monetary and fiscal policy, changing the entity in charge of monetary policy was a cause for concern. The prerequisite for success understood as strong anchorage of inflation expectations around the target is reliability of monetary authorities. In 1999, the European Central Bank started its operations having to refute accusations of system intransparency. In this situation, gaining credibility took time, efficient communication, and taking right decisions. Answering the question to what degree has ECB managed to win credibility over the decade of euro area's existence requires analysis of the manner in which monetary policy has been conducted, its objectives formulated, and an assessment of the degree to which they have been achieved.

A decrease in inflation was attributable to convergence criteria...

Regardless of favourable global context, establishing the euro area impacted inflation processes of its Member States for a number of reasons.

Firstly, the convergence criteria stipulated by the TEC played the role of the anchor to introduce discipline in the 1990s. Determination of efforts to ensure price stability displayed by respective states (see Wyplosz 2006), led to lowering inflation rates from about 20% in Greece and about 10% in Portugal at the beginning of the 1990s to the level close to today's euro area average. As claimed by Angeloni, Aucremanne, Ciccarelli (2006), the process was linked with simultaneous decrease in inflationary expectations (cf. Chart 1.7).

...disappearance of devaluation-inflation spirals...

Secondly, the volatility of nominal exchange rate towards trade partners in the euro area vanished irrevocably. Lack of shocks connected with depreciation and appreciation (particularly devaluation and revaluation) of the nominal exchange rate prevents them from transferring onto the price level in the country affected by the change. Honohan, Lane (2004) show that in case of relatively small economies with high share of trade with partners from outside the euro area (such as Ireland), the single currency might have generated shocks to a certain extent as a result of considerable values of the euro in international markets. As global currency, the euro can play the role of the invoicing currency better than national currencies, which also stabilises import prices.

...enhanced transparency and efficiency of markets.

Thirdly, euro area countries enhanced their transparency and efficiency of markets. According to the intentions of the authors of monetary union, the single currency was to enhance comparability of prices on the extensive European market (European Commission, 2008b), and thus create incentives for faster flow of resources between sectors and countries, which facilitates their efficient reallocation and supports competition.

One of the benefits indicated by the theory of economics, connected with establishing a common currency area by a group of countries, is limiting deviations from the law of one price, which may emerge in a short period due to nominal rigidities and exchange rate liquidity⁶. Due to these factors, the relative price of the given good changes influenced by fluctuations of nominal exchange rate. The phenomenon is unfavourable if economies are strongly integrated. After establishing the monetary union and eliminating foreign exchange risk, arbitration efforts should accelerate price convergence.

⁶ Certain differences between product prices in different countries result nevertheless from fundamental factors, such as preferences of local consumers, market structures, production costs, or taxes.

1.3 Inflation processes

The hypothesis on accelerated nominal convergence due to monetary integration is also justified from the macroeconomic point of view. Impact analysis of exchange rate volatility on profit of enterprises applying different price segmentation of markets (Anderton, Baldwin, Taglioni, 2003) indicates that establishing a monetary union may result in accelerated transmission of price movements between countries because of enterprises changing their price strategies. Under two extreme variants, an enterprise can: (1) apply pricing to market strategies, i.e. set different prices at different markets to maximise profit, or (2) refrain from price diversification. The difference between corporate profits in the two variants consists in the function of the exchange rate. In the case of high exchange rate volatility, the tendency of enterprises to apply price discrimination is high and decreases accordingly.

Fourthly, apart from enhanced market transparency and efficiency, establishing the monetary union scaled up the need for market flexibility due to the necessity to absorb potential asymmetrical shocks (see Chapter 5). In many cases, this resulted in structural reforms, although the degree of flexibility of Western European markets is still perceived as low.

Fifthly, changing the entity in charge of monetary policy (from national central banks to the European Central Bank) was important to inflation processes in respective countries. The change, which was barely visible and discussed mainly theoretically in literature, concerned the method of pursuing monetary policy, the mechanism of its transmission into real economy, and the mechanism of forming expectations by economic operators.

Establishing the ECB presumably impacted the process of forming expectations.

Single monetary policy as a factor determining the development of inflation processes

In the long run, inflation is believed to be a monetary phenomenon, i.e. to depend on the method of pursuing monetary policy (Angeloni, Aucremanne, Ciccarelli, 2006). One of the goals of the ECB is to retain price growth slightly below 2% a year (see Box 1.1). Chart 1.5 shows that euro area inflation did not diverge from the target set by the ECB, although it exceeded the 2% threshold for the most part. Short-term effects of the price increase connected with switching between currencies in Europe in the beginning of 2002 (see Section 4.3.2) were not mirrored by long-term inflation levels either (cf. Caporale, Kontonikas, 2006).

Euro area prices increased at almost 2%, but frequently faster than that.

The ECB also set a reference value (4.5%) of the annual growth rate of M3 money supply. As the value was exceeded from the very beginning, the bank was criticised and the prestige of the measure diminished (see Box 1.1). Currently, it is used by the ECB for analytical purposes. Berger, Österholm (2008) presented econometric evidence for causality connection between an increase in money supply and euro area inflation, pointing also to quantitatively insignificant scale of the phenomenon as well as its instability in the long run.

M3 growth remained well above the target.

Box 1.1 ECB monetary policy strategy

The ECB conducts monetary policy in an independent way with a view to ensure medium-term price stability in the euro area as a whole. Stability was defined as price increase below 2% a year, but in 2003 the definition was amended to say price

increase close to, but below 2% a year^a. Price stability is nonetheless just one of the two pillars of ECB strategy. The bank also set a reference value of the annual growth rate of M3 money supply at 4.5% (the second pillar).

Both benchmarks have been subject to criticism. The initial version of definition of price stability did not refer to the potential threat of deflation in any way, particularly in the light of economic slowdown at the time and experience of Japan. The reference value of M3 money supply growth rate was constantly exceeded in the initial years of the strategy; its adequacy was limited by an increase in euro use by non-residents, global changes to portfolio structures, and mergers and acquisitions (European Commission, 2008b). A report by Aghion et al. (2008) proposes to resign from the two-pillar strategy. Moreover, Caporale, Kontonikas (2006) point e.g. to an increase in uncertainty as to the long-term inflation level and to the collapse of the relation between the degree of uncertainty and inflation level.

ECB's reply to criticism was supplementing the price stability definition with "close to" (see European Central Bank, 2003c). Annual growth rate of M3 became the second, not the first pillar, it was also assigned the task of supporting long-term inflation phenomena analysis. As stressed by the European Commission (2008b), market interpreted the amendment as diminishing the prestige of the pillar.

Source: own study.

The ECB changed interest rates in reply to macroeconomic shocks.

Analysing the interest rate path (Chart 1.6) as well as other indices and rules used to analyse monetary policy as a standard, the European Commission (2008b) distinguished four periods of the monetary policy to-date. The first period (1999) was marked with ECB anxiety over the aftermath of crisis in Russia and Asia. As a result, the main policy rate was cut from 3% to 2.5% but reverted to the initial level at a later stage. In the second period, which started in October 2000, the ECB moved the main policy rate up to 4.75% due to the emergence of inflation pressure in a prosperous economy, euro depreciation, and increasing oil prices. The bursting of the dotcom bubble in the United States marked the beginning of the third period when monetary authorities decided to gradually decrease the main policy rate to the level of 2% in June 2003. The European Commission (2008b) stressed that the efficiency of the decrease for the real economy was limited, *inter alia* by the gradual appreciation of the euro in the period. December 2005 saw the beginning of the fourth period deemed the period of interest rate normalisation by the ECB. The rate increased to 4% by mid-2007 and reached the level of 4.25% in September 2008. 2008 was particularly difficult due to increasing inflation combined with the aftermath of credit crisis in the United States.

Low euro area inflation also resulted from favourable monetary policy.

The above events indicate that inflation stability in the euro area was not wholly attributable to good luck as there were also macroeconomic shocks. Yet, when comparing their scale to the scale of shocks in the 1970s and 1980s, it is difficult to resolve the dispute between the followers of good luck and good policy to the benefit of the latter in an explicit way⁷.

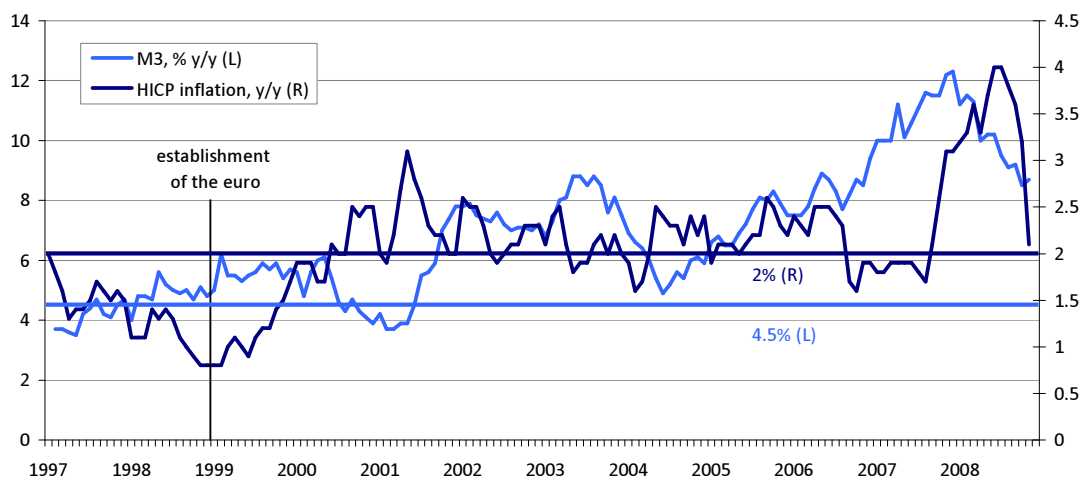
Anchoring expectations and mitigating inflation persistence could be deemed measures of ECB success.

Inflation processes to-date, M3 growth rate, the reformulation of the monetary policy strategy, and ECB reactions to events taking place in the European and global economy constituted the basis for the assessment of the reliability of ECB conducted step-by-step by financial markets and economic operators. It is a truth universally acknowledged that the new monetary policy entity won its good reputation

⁷ Cf. footnote No 2.

1.3 Inflation processes

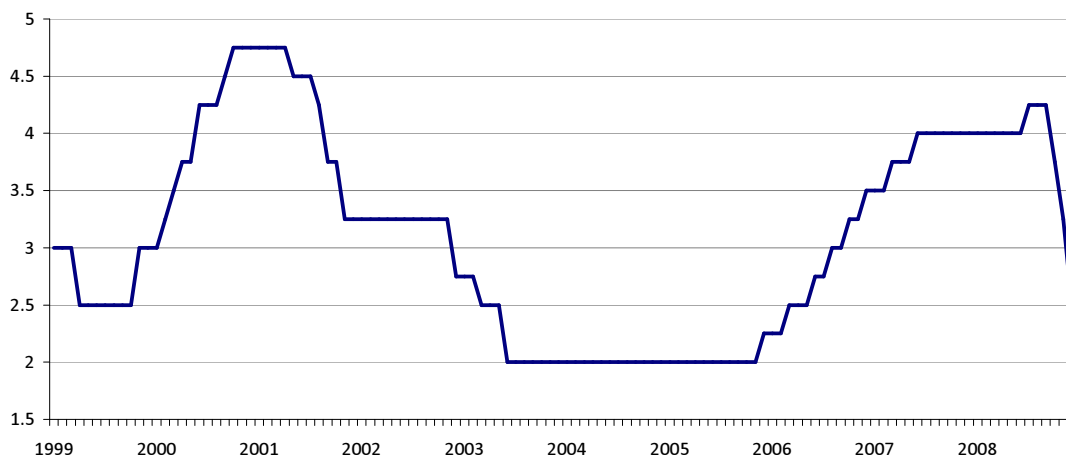
Chart 1.5 Increase in prices and M3 money supply in the euro area and ECB targets in the years 1999–2008



L – left hand scale, R – right hand scale

Source: Eurostat.

Chart 1.6 ECB main policy rate in the years 1999–2008



Source: Eurostat.

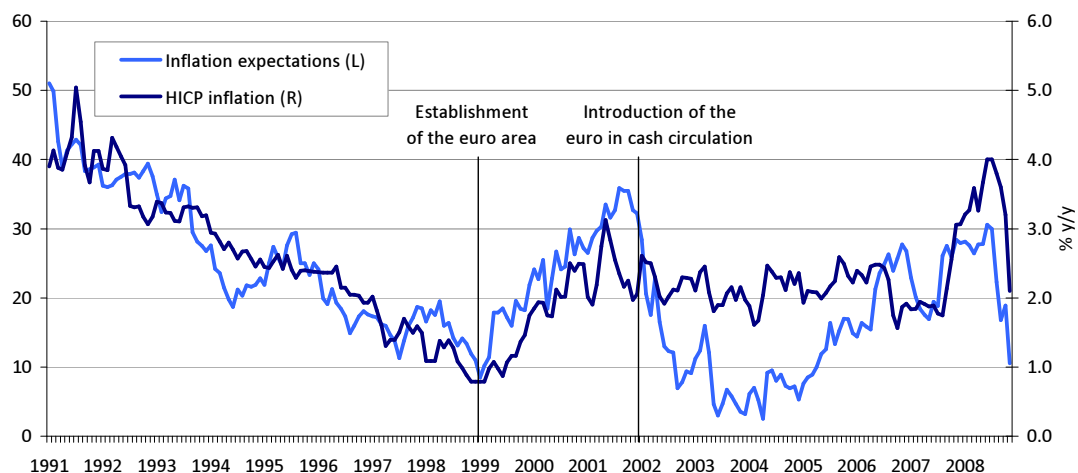
in a relatively short time. The assessment may be based on (1) anchoring inflation expectations around the ECB target, and (2) decrease in inflation persistence. Empirical assessment of both phenomena is hindered by the fact that neither is observable and measurement methodologies differ widely. Inflation expectations are measured with expert projections, surveys, and financial market data. Table 1.1 presents a review of methodology used to measure inflation persistence.

Data from various countries provided Benati (2008) with empirical evidence for the impact of changes in the monetary regime on expectations. In the case of the euro area, the disappearance of strong ties between inflation dynamics and inflation expectations dynamics from the 1990s which took place at the turn of centuries was very characteristic (see Chart 1.7). In the first years following the introduction of the euro in cash circulation, inflation expectations lowered while inflation remained relatively stable. Chart 1.7 based on data from the European Business and Consumer Survey of the European Commission and analysis of financial market data (see European

Anchoring inflation expectations by the ECB is deemed successful.

Commission, 2008b) suggest that expectations in the euro area as a whole were close to the 2% target. ECB's successful anchorage of inflation expectations was praised by Aghion et al. (2008), Angeloni, Aucremanne, Ciccarelli (2006), and Mongelli, Vega (2006).

Chart 1.7 Inflation expectations in the euro area



Left hand scale (L) corresponds to the index calculated by the European Commission using the following formula: $100 \cdot [(RR + 0,5R) - (0,5N + NN)]$, where respective symbols stand for groups of respondents who expect that: RR – price growth rate within subsequent 12 months will be higher than last year, R – the price growth rate will remain unchanged, N – prices will remain unchanged, NN – prices will decrease.

R – right hand scale.

Source: European Commission.

Introduction of the euro could also impact inflation persistence.

Literature devotes much attention to the impact of monetary integration in Europe on inflation persistence, i.e. strong positive relation between current inflation and inflation in previous periods. The phenomenon hinders central bank's efforts aimed at bringing inflation to the target level after its increase; adjustments take longer and cost more in terms of output and employment volatility. Statistical data and a number of empirical studies (see Table 1.1) show that such changes take place at a slower pace than expected. Significance of inflation persistence in discussion on monetary integration boils down to two issues. The first one consists in obstacles to conducting single monetary policy resulting from inflation persistence at the national level. The section devoted to inflation divergence in the euro area (4.2.3) touches upon the issue. The second issue is the potential impact of the European Central Bank taking over the conduct of monetary policy on the decrease in persistence, which would substantiate ECB's reliability.

Inflation persistence is not a one-dimensional phenomenon. Research distinguished a number of its types and conclusions on its impact on the operation of the monetary union require distinguishing between its sources (see Box 1.2). Intrinsic inflation persistence or impact of past inflation on the current inflation stronger than that resulting from autoregressive qualities of variables influencing inflation, such as the GDP gap, is a particular monetary policy impediment (Fuhrer, 2006).



Box 1.2 Notion and types of inflation persistence

The notion of inflation persistence is connected with strong relation between the current inflation rate and inflation rates in previous periods. Angeloni, Aucremanne, Ciccarelli (2006) used the Phillips hybrid curve (1.1) to analyse this phenomenon:

$$\pi_t = \omega_b \pi_{t-1} + \omega_f E_t \pi_{t+1} + \gamma y_t + \varepsilon_{\pi,t} \quad (1.1)$$

In reply to doubts as to whether every autoaggressive inflation structure may be deemed persistence with all the negative effects on monetary policy, they divide inflation persistence into the following:

1. Intrinsic inflation persistence connected with the price and pay setting mechanism; in equation (1.1) it corresponds to the non-zero value of parameter ω_b , which results from slow adjustment of inflation to the level which corresponds to long-term balance;
2. Expectation-based inflation persistence which results from the method of formulating inflation expectations $E_t \pi_{t+1}$ and their slow adjustment to the target set forth by monetary policy;
3. Extrinsic inflation persistence connected with persistence of other variables y_t influencing inflation (GDP gap, real marginal cost);
4. Error-term inflation persistence connected with sampling error $\varepsilon_{\pi,t}$ which may be subject to autocorrelation (shocks lasting for a number of periods).

Fuhrer (2006) distinguishes only between intrinsic and inherited inflation persistence, connected with persistence of inflation regressors. In this *Report*, the object of analysis (unless otherwise stated) is intrinsic inflation persistence (connected with parameter ω_b in equation (1.1) and with the method of formulating inflation expectations), i.e. that which does not result from the slow process of closing the GDP gap or prolongation of unexpected economic disturbances to a number of periods.

Source: Angeloni, Aucremanne, Ciccarelli (2006), NBP study.

According to Angeloni et al. (2006), establishing the euro area could have impacted all dimensions of inflation persistence. Intrinsic persistence was to be reduced in the aftermath of product market reforms supporting competition and reducing inclination of producers to perform price indexation automatically. The influence of an increase in international comparability of prices expressed in the single currency took place at a much faster pace. Establishing a new central bank, which was able to conduct monetary policy in a different way than national central banks, influenced forming inflation expectations in euro area countries. In the opinion of Angeloni et al. (2006), the institutional basis of the ECB and a change in the conduct of monetary policy in many countries could have altered the process of forming inflation expectations by providing them with stronger anchorage around the inflation target and weakening

Monetary integration influences respective types of inflation persistence to a different extent.

their dependency on past inflation. Similarity of monetary transmission mechanisms in respective countries (the endogenous effect of the monetary union) may in turn impact the external aspect of persistence.

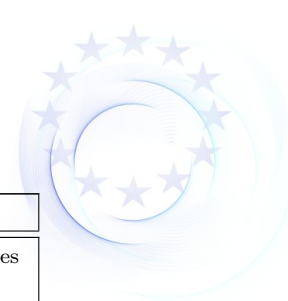
Inflation persistence in the euro area is lower, according to more recent studies.

Is euro area inflation persistent and are there really grounds to view establishing the euro area as a breakthrough in fighting inflation persistence?⁸ Diversity of conclusions formulated by a number of authors indicates that they strongly depend on the quantitative method applied, yet it seems that the review of studies featured in Table 1.1 presents certain regularities. Firstly, the degree of inflation persistence is assessed to be lower by more complex structural studies which take into account a higher number of relations and changes of the perceived inflation target in time. Secondly, more recent studies (such as Benati, 2008) indicate a lower degree of inflation persistence in the euro area. Thirdly, comparative studies conclude that persistence in the euro area is close to persistence in the United States, sometimes even lower.

Table 1.1 Empirical studies of inflation persistence in the euro area

Study	Methodology	Degree of persistence	Comments
Gadzinski, Orlandi (2004)	UwTaking into consideration structural changes to the constant in the inflation equation estimated on a longer sample. In the authors' opinion, not taking them into consideration leads to overestimation of the autoregressive parameter connected with persistence.	Moderate persistence, euro area result (0.63) comparable to that of the United States (0.40).	Analysis of the autoregression parameter demands supplementing with half-life index which informs about the relative shock absorption period.
Marques (2004)	The author is sceptical about structural breaks in the inflation equation and applies a moving average instead. The author also proposes a non-parameter measure of persistence based on the pace at which inflation reverts to the average.	Results are ambiguous and depend on the selection of price indexation, average inflation, and period.	The author claims that inflation persistence depends on the monetary regime and the average to which inflation reverts is moving due to changes in monetary regimes and the process of adapting expectations.
O'Reilly, Whelan (2004)	Estimation of the autoregressive inflation process with the use of Hansen's <i>grid bootstrap</i> method.	High inflation persistence in euro area countries since the 1970s. Establishing the euro area did not change that significantly.	The authors confirmed stability of inflation persistence parameter but expect it may change in the future.

⁸ The majority of research results presented herein have been published by *Inflation Persistence Network* – a research Network connected with the European System of Central Banks. Paper by Altissimo, Ehrmann, Smets (2006) presents the most important conclusions from research in the network.



Study	Methodology	Degree of persistence	Comments
Dossche, Everaert (2005)	One- and two-dimension approach. Persistence is treated as permanence of inflation deviation from the inflation target perceived by the market and moving in time. State space representation, Kalman filter, Bayes methods.	Intrinsic and extrinsic inflation persistence in the euro area lower than in the United States. Significant role of extrinsic and expectation-based persistence.	The authors equate changes in the degree of inflation persistence with shifts in inflation target of central banks. It is lower in countries where central bank's inflation target is fixed and the perception of the target by the society is well-entrenched.
Angeloni, Aucremanne, Ciccarelli (2006)	Autoregressive inflation model supplemented with analyses on the sectoral level.	Decrease in inflation persistence in euro area countries in mid-1990s. No significant changes in 1999 or 2002.	The authors acknowledge that the approach does not differentiate between respective types of persistence. Significant inter-sectoral diversification of persistence makes them nevertheless believe that it is mainly a result of the intrinsic component.
Benati (2008)	DSGE model with hybrid Phillips curve. In estimation, the author applied the Bayesian approach with full information and Hansen's <i>grid bootstrap</i> method.	In the euro area, intrinsic inflation persistence decreased significantly past 1999. It also plays a minor role in other stable monetary regimes with a defined inflation target.	The persistence parameter is not structural in Lucas' sense; it does not significantly improve the quality of model adaptation to data in a stable monetary regime with a defined inflation target.

Source: NBP compilation.

1.4 International role of the euro, trade, investment, and financial markets

In the wake of the third stage of EMU, economists were divided as to the assessment of the euro's perspectives as the international currency. Certain American economists, such as Milton Friedman or Rudiger Dornbusch who described the single currency as "Euro Fantasies" in 1996, are sceptical about the success of monetary union in Europe and the future of the euro area. The expectations were built on historical experience that changes in the international monetary system came about gradually. They also resulted from a number of decades when the international monetary system was dominated by the American dollar, namely since the Second World War. There were also more optimistic prognoses indicating that the euro would win a status of an international currency relatively fast as it replaced such important currencies as German mark, French franc, or Dutch guilder (Portes, Ray, 1998).

International currency is one which can play the role of a value measure, means of exchange, and safekeeping of values (accumulation) not only in the area where

Using an international currency brings about many benefits.

it is issued but also globally due to its reliability (European Commission, 2008b). Holding the function of an international currency requires meeting conditions connected with economic potential of the currency area it represents, its share in global trade, macroeconomic stability, and development of financial markets. Only a number of currencies may thus play the role. Universal use of the currency allows revealing positive network effects. As a result, the inclination of economic operators to use the currency is the higher, the more frequently they use the currency (see Box 1.3)⁹.

International currency benefits on network effects.

Box 1.3 Network effect and international currency

Having a globally acknowledged and accepted currency brings about benefit of its wider use thanks to network effects. The effects concern many phenomena and processes subject to standardisation (the language in which people communicate, phone, internet, etc.) and results from the fact that usefulness of the currency increases in line with the increase in the number of its users and transactions in which it is used. This also means that changes to international use of a currency are characterised by certain degree of inertia. If a certain currency plays the role of a global currency, changes in habits and motives of its use take place rather gradually (Chinn, Frankel, 2008).

International currency also brings about certain risks.

The main risk resulting from having an international currency is connected with the possibility of destabilizing capital flows, which may bring about high exchange rate volatility and hinder conducting monetary policy. In the case of euro, the very process of winning the status of an international currency may lead to costs connected with euro appreciation. Sudden takeover of the function performed by American dollar by the euro could result in tensions in the international monetary system and negatively impact competitiveness of exports from euro area countries – the symptom of burden of the role of international currency (Bordo, Harold, 2008).

Euro area meets the most important conditions of an international currency area.

The most important international currencies are issued by countries with high economic potential (absolute GDP), high share in global exports, and highly developed liquid financial markets. Thanks to establishing the monetary union, the euro area largely met the conditions necessary for the single currency to play the role of international currency (see Table 1.2). This results mainly from high potential of euro area economy which generated almost 17% of global GDP in 2007 (United States 22.3%, Japan 6.9%). This means that the euro area is the second largest currency area in the world and the largest exporter. The euro area (15) posted 29.6% of global trade, including intra-euro trade. Half of the trade took place between Member States, which means that mutual trade constitutes a significant channel for integration of euro area economies. Omitting intra-euro transactions in statistics indicates that the euro area remains the world's

⁹ Currency area whose currency plays the role of international currency may also benefit from the so-called seigniorage. It is monetary authority's income from money creation as the central bank does not pay interest on liabilities constituting components of monetary basis, such as cash or banks' current accounts. In other words, seigniorage is a benefit resulting from the fact that various entities globally agree to accumulate the given currency and do not demand payment (interest) instead. In the case of the United States, the benefits are estimated at ca. 0.1% of GDP a year on the assumption that 50–60% of all dollars issued are in circulation outside the American economy. Having an international currency allows financing debt by issuing obligations in a globally-accepted currency. This is the so-called exorbitant privilege used by the United States for a number of years to finance increasing payment and budget deficit.

1.4 International role of the euro

largest trade partner and is relatively more open to trade with the rest of the world than such economies as Japan or the United States.

Table 1.2 Basic indicators of the euro area, United States, EU, and Japan in 2007

	Euro area (15)	United States	Japan	EU
Population (million)	320	302	128	495
Share in global GDP (% , at PPP)	16.7	22.3	6.9	22.9
Share in global trade (% , excluding exchange within the euro area)	16.4	15.2	6.6	21.9
Inflation	2.1	2.8	0.1	2.4
Budget deficit	-0.6	-3.0	-2.4	-0.9
Public debt	66.6	49.2	159.5	58.7
Current account	0.0	-5.1	4.8	-0.9

Source: European Commission, ECB, OECD.

Experience to-date shows that the euro's position of an international currency is connected with a number of benefits. Firstly, the euro has taken over the functions of the second international currency thanks to macroeconomic stability which ensures its purchasing power (see Box 1.4). Stimulating cross-border asset ownership, the euro also positively influenced the development and integration of financial markets, which currently constitute a very important element of global financial markets.

The euro was conducive to enhancing stability in countries which adopted it and in countries neighbouring the euro area.

The impact of the euro on the international financial system is mostly visible in immediate neighbourhood of the euro area. Denmark, Sweden, and the United Kingdom use the euro as a means to store value and obtain capital on debt securities markets. New EU Member States enhance their credibility and stability thanks to linking their currencies with the euro and use the extensive credit market of the euro area. In the public sphere, the euro is relatively universally used as a settlement unit (nominal anchor), a means to store value (reserve currency), and (to a lesser extent) as an intervention currency. Similar to private trading, the euro is used mainly in geographical vicinity of the issuer, i.e. in the EU and in European countries, and to a lesser extent in Africa, Asia, or South America. The use of the euro to accumulate currency reserves is relatively high and increasing. In mid-2007, reserves denominated in euro constituted about 25% of total global reserves, as compared to 18% in 1999, which corresponded to total shares of currencies of euro area Member States' currencies. In EU countries, the degree of accumulation of currency reserves in the euro is significantly higher and fluctuates within the band of 40-85%. The euro also plays a significant role as the anchor currency with which about 40 currencies (mainly European ones) are linked (European Commission, 2008b).

Box 1.4 Functions of an international currency

The most popular method of establishing the role of the given currency in the international monetary system is to invoke the functions performed by money, i.e. a medium of exchange (allows commodity exchange), a store of value (accumulation of savings), and a measure of value (reflecting a given value).

Table Functions of an international currency

	Private sector	Euro experience	Public sector	Euro experience
Store of value	Denomination of financial instruments, portfolio allocation	Increase in international issues of debt securities from 30% to 48% – a wide measure (mid-2007) Low capitalisation of euro stock exchanges	Denomination of official international reserves	Increase in global currency reserves maintained in euro from 18% in 1999 to 25% in 2007
Settlement unit	Invoicing in foreign trade and financial transactions, price quotations of commodities and raw materials	Over 50% of trade outside the euro area is invoiced in euro (2006) Limited role of the euro in quotations of raw materials and commodities	Point of reference for foreign exchange systems of other currencies (nominal anchor role)	About 40 countries have fixed or linked their currencies with the euro. They are mainly European countries
Medium of exchange	Trade and financial liabilities settlement, vehicle currency in currency markets	Limited role of the euro as vehicle currency	Investments in currency markets, official financial flows	Significance of the euro depends, <i>inter alia</i> , on implementing the function of a settlement unit

Source: European Commission (2008b) with own additions.

The euro was conducive to integration of financial markets.

Secondly, the introduction of the single currency was one of the most important factors of development and integration of euro area financial markets thanks to eliminating exchange rate risk as the main reason behind market fragmentation. Financial markets linked with a single currency are characterised by a relatively high degree of development, expressed as high diversity of financial instrument offered, and financial market capitalisation (market of bonds, shares, and banking sector assets)¹⁰. Thus, the financial system provides wider opportunities to invest capital and assume obligations (wider choice of financial instruments with different risks and maturity) and implements its capital transformation functions more efficiently (thanks to enhanced

¹⁰ Although the financial markets of the euro area, Japan, and the United States are comparable in terms of size, their specialisation is visible. While the United States dominate in terms of stock exchange capitalisation and obtaining capital from the market, euro area countries prevail in respect of bank capital transformation. This is directly mirrored by capitalisation of stock exchanges where assets are quoted. In 2007, capitalisation of dollar stock exchanges was almost twice as high as capitalisation of euro exchanges. Also, the progressing process of deregulation, liberalisation, and globalisation of financial markets resulted in strong convergence of financial systems.

competition), which attracts investors and borrowers. Introduction of the euro was conducive to creating markets whose capacity in certain segments is comparable to that of the dollar market (Kapopoulos, Siokis, 2005). Changes in the scope of euro use were soon visible in the private sector in the form of intensive development of the money market and the market of euro-denominated bonds (see Box 1.5).

Box 1.5 Use of the euro in the private sector

Two measures are universally used to assess the role of the euro in issuing debt securities: (a) a measure which takes into account the total issue of debt securities denominated in euro by all entities globally (wide measure), and (b) a measure which takes into account issues of debt securities denominated in euro by entities from outside the euro area (narrow measure). In the first case, the euro, which debuted in 1999 with less than 30% share in international issue of debt securities, outdistanced the American dollar in 2004; the share of the euro was 48% in mid-2007 (the dollar's share was 36%). In the narrow understanding of the international role of the euro as a store of value, the share of the euro in the market of debt securities issue is lower and second to American dollar (an increase from 22% in 1999 to 32% in 2006; the share of the dollar as at the end of 2006 was 44%).

From among European countries, EU-15 countries from outside the euro area (Denmark, Sweden, and the United Kingdom) effect considerable issues in euro. So do new EU Member States. From among the functions of the international currency, the euro has relatively lesser significance as a medium of exchange, i.e. the so-called vehicle currency in the currency market. Thanks to its universal use and liquid market, holding an international currency playing the role gives access to other currencies thus lowering transaction costs. The euro remains the second vehicle currency (the American dollar being the first one). Yet after the increase in the role of the euro in the years 1998–2001, its share in turnover on the international currency market remains broadly unchanged. This means that the euro plays a limited role in performing the function as low transaction costs are the main determinant of the choice of the vehicle currency (the function is fulfilled also outside the currency market). Due to long history of the dollar being the vehicle currency and the infrastructure thus established, the benefits of using the American currency are higher. Nevertheless, wide application of the euro as the invoicing currency should be conducive to increasing its use as the vehicle currency (Kamps, 2006).

Source: own study.

Thirdly, the euro was conducive to development of trade inside and outside the euro area. The single currency to replace a number of currencies positively impacts trade and direct investment as it enlarges the market in which a single currency is used (Mroczek, 2008). This motivates external entities to enter the area thanks to lower transaction costs connected with reaching it. Having a universally accepted means of payment also facilitates expansion into foreign markets as it allows invoicing a considerable part of exports and imports in your own universally accepted currency¹¹. The euro has become

The euro was conducive to creation of trade inside and outside the euro area.

The euro launched a strong effect of invoicing trade transactions outside the euro area.

¹¹ Contrary to local currencies, the euro is used as a currency with the use of which it is easier to express the value of commodities and contracts as well as to compare prices. Common practice in foreign trade shows that the currency used to issue invoices is also used for settlement. This means

the trade invoicing currency in the case of transactions with partners from outside the euro area (in 2006 slightly above 50% of trade was invoiced in the single currency). Benefits of euro introduction were mostly visible in countries whose national currencies in circulation prior to the adoption of the euro were traditionally of lesser importance (Spanish peseta, Portuguese escudo). The euro is used for price quotations of raw materials and bulk commodities to a lesser extent as the field has been dominated by the American dollar for years. This results from stronger stock exchange positions of commodity markets in the United States than in Europe.

International currency also enhanced openness to outside the euro area.

To sum up, full assessment of the euro area experience to-date must take into account the euro as an international currency. The legitimacy of such combination is further enhanced by the fact that the monetary integration theory does not devote much attention to the issue, even as the benefits of using the single currency seem important. The euro had a significant influence on the integration of financial markets. The impact of the single currency on trade and investment was also viewed as positive, but lower (European Commission, 2008b). The significant role of the euro as a global currency also partly solves the problem of low mutual exchange inside the euro area visible in certain Member States¹². According to the theory of monetary integration, the fact that the introduction of the euro did not trigger a marked shift in trade may have certain negative consequences to the functioning of monetary union. The optimum currency area theory indicates that an assessment of a country's capacity to abandon its own currency must take into account not only the openness level of its economy but also the degree of its trade relations with the currency area it accedes. Entering a monetary union, an economy should direct the majority of its exports to (obtain the majority of its imports from) countries which also use the single currency. Otherwise, despite the monetary unification, most of its exports and imports will continue to be exposed to fluctuations of the exchange rate of the single currency on the international market. Due to the relatively high and increasing use of the euro in trade invoicing, even if euro area countries trade with external partners, they largely use the single currency anyway.

1.5 Economic growth, productivity, and employment

In the years 1999–2007, average economic growth of the euro area amounted to 2.2%, a result similar to the ten-year period prior to its establishment (1989–1998). In both periods, the growth was slower than in the United States and quicker than in Japan. Decomposition of aggregated values for the euro area in the period of its functioning shows that certain Member States developed at a much faster pace than the average and found their place among the fastest developing OECD countries (Ireland, Luxembourg, Greece, Spain, and Finland). In the case of EU-3 countries, higher economic growth than the average of the euro area countries in the years 1999–2007 was posted by Sweden and the United Kingdom. In the decade 1989–1998, these economies developed slightly slower than the euro area average (see Chart 1.8).

In the long run, an increase in total factor productivity is a synonym of economic growth.

Experience of OECD countries since the 1970s shows that economies post above-average increase in GDP per capita in periods of significant increase in productivity. The

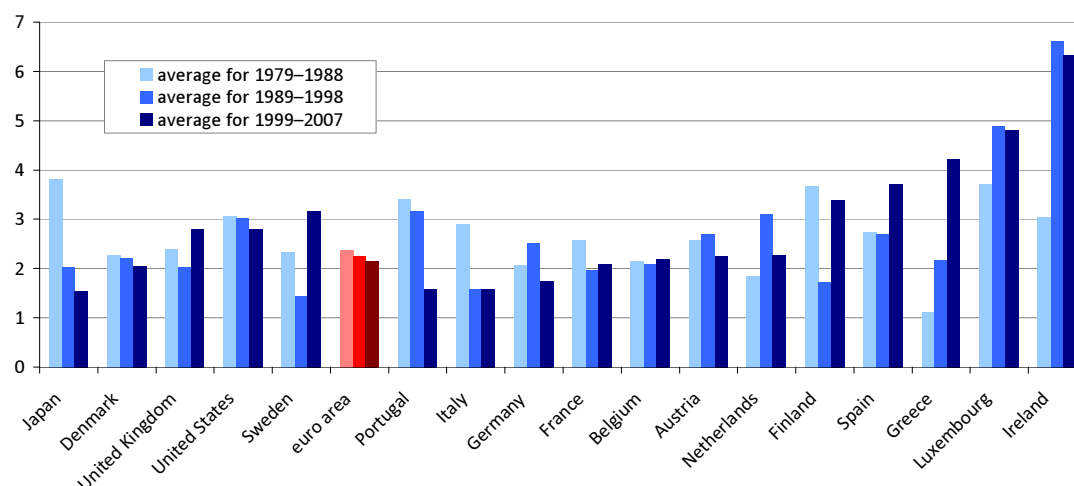
that the single currency protects euro area exporters against foreign exchange risk quite well, as they effect most of foreign trade outside the euro area with the use of the currency.

¹² In Finland, the share of the euro area in exports was lower than 30% in 2006. In Greece, Germany, and Italy the ratio was 35–45%.

1.5 Economic growth



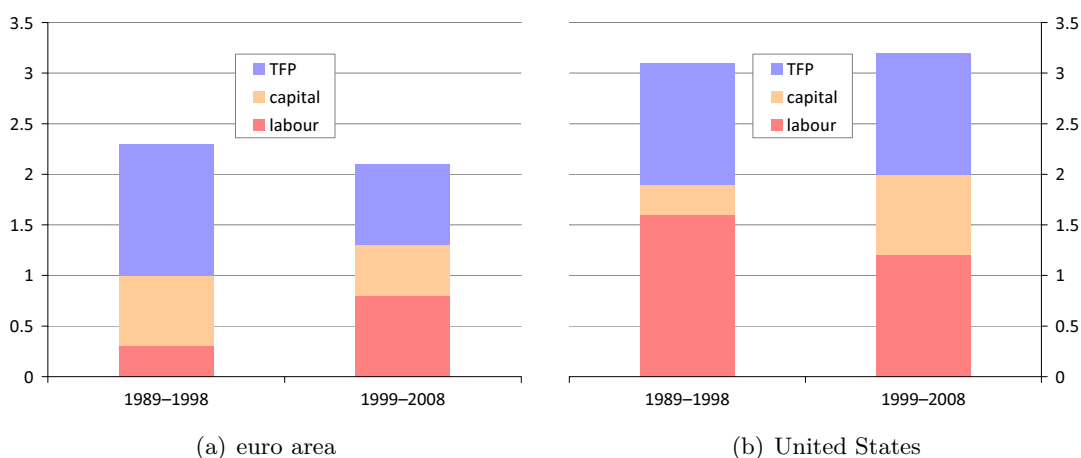
Chart 1.8 Pace of changes to GDP in selected OECD countries



Source: AMECO.

so-called economic growth accounting serves to find out to what extent economic growth results from increasing the involvement of resources (physical capital and/or labour) and from productivity resulting from their better use. It assumes that $GDP = \text{labour} + \text{capital} + \text{total factor productivity (TFP)}$ – cf. Chart 1.9.

Chart 1.9 Supply decomposition of GDP of the euro area and the United States



Source: European Commission (2008b).

The supply composition of GDP of euro area countries indicates that in the years 1999–2006, the increase in labour involvement and higher capital outlays were the main factors behind an increase in GDP, while an increase in productivity of involved factors of production played a relatively lesser role. It is noteworthy that two out of the four major euro area economies (Italy and Spain) developed in conditions of slight decrease in productivity in the years 1999–2006. In Germany and France productivity was, in turn, lower than in the United States, Japan, United Kingdom, or Sweden.

Relatively low productivity of labour in the euro area was mainly due to the regulation level of the market of goods and services and of the labour market.

Lack of transparent competition principles in the services sector is particularly severe

...as is lack of efficient use of IT.

Literature on the subject and a number of analyses by the European Commission, the OECD, and the ECB¹³ usually underscore two categories of mutually influential potential reasons behind lower labour productivity in the euro area than in other developed countries. On the one hand, they concern the quality of factors of production (measured universally with the level of education and qualifications of employees and the level of technical and organisational advancement).

High regulation level concerns particularly the services sector, which is usually less productive than the industrial sector, universally equated with tradables¹⁴. Sectoral composition of euro area GDP shows nevertheless that services comprise about 70% of GDP¹⁵. The sector also involves a similar part of all those employed in the economy. This means that the increase in respect of an increase in productivity in the so-called third sector sets the overall increase in productivity of the economy as a whole. Services remain largely under the influence of sectoral and national regulations which make it impossible to establish a single integrated market of goods and services¹⁶. Poor adjustment of achievements in ICT and modern techniques of organisation of work and management may be the frequently indicated reason behind low productivity of the euro area services sector. This hinders full integration of markets, cross-border provision of services, and using economies of scale (OECD, 2008b).

The second group of barriers which may limit productivity of factors of production is connected with the quality and degree of use of labour resources. They concern, among others, the education level and qualifications. Apart from labour supply conditioned by demographic considerations, labour force participation is also influenced by factors such as the structure of wage negotiations, replacement rate, minimal wage, the scope of social transfers, the so-called tax wedge, and the level of employment regulation (OECD, 2007b).

Low employment ratio¹⁷ may be considered an approximate measure of structural inadjustments resulting from the above-mentioned institutional conditions. If the institutions fail to function efficiently enough, they provide stimuli to remain outside the labour market or to use the available resources only partially. Rigidity of labour markets in continental European countries was generally higher. Thus, young people entered the labour market relatively late and those aged 65+ exited it quite quickly. This translated into an employment rate relatively lower than in other developed countries (cf. Chart 1.10). Also, euro area countries used their labour resources to a lesser extent, as proven by a lower number of hours worked within a year: in the years 1999–2006, the number was 10–15% lower in the euro area than in the United States (OECD, 2007b).

In the period of euro area's existence, employment rate increased by 5.3 pp and unemployment decreased from the average level of 9.4% in the years 1989–1998 to 7.4% in 2007. In 2007, the employment rate was close to 66%, i.e. over 4 pp below the target set by the Lisbon Strategy. In EU-3 countries, United States, Austria, Finland, and the Netherlands, the employment rate exceeds 70%. The increase in employment

¹³ See e.g. European Commission (2008b), Duval, Elmeskov (2006), OECD (2008b).

¹⁴ Industry is usually more productive as it is bound to operate in an international and more competitive environment. One must nevertheless remember that an arbitrary division into products and services is difficult as products include components of services and services are frequently accompanied by material products.

¹⁵ The remaining part is industry (about 25-28% of GDP) and agriculture (2% to 5% of GDP) – cf. Eurostat database.

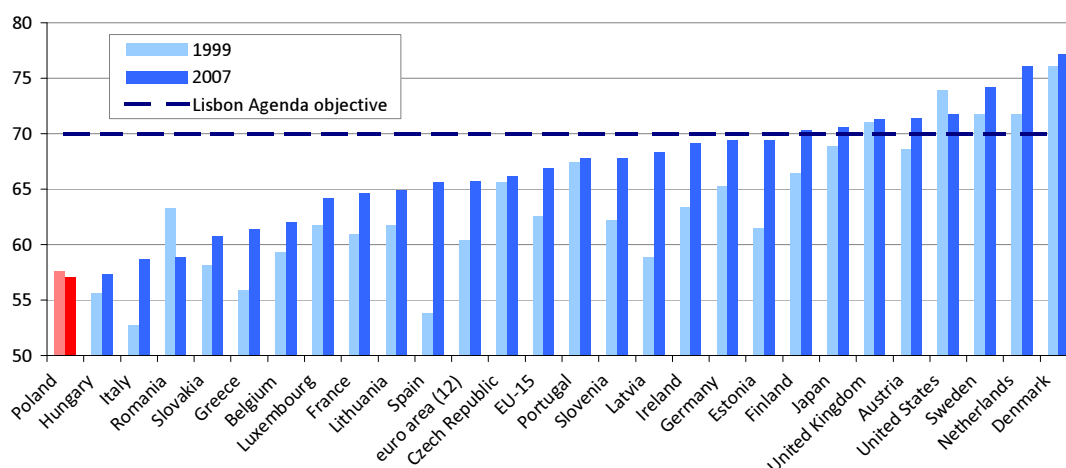
¹⁶ The Directive on free provision of services adopted by the European parliament in 2006 assumes that building the Single Market in the area is to be completed in 2010.

¹⁷ It illustrates the relation of the number of the employed to the number of those in productive age (15–64).

1.5 Economic growth

by 15 million in the years 1999–2007 in the euro area resulted mainly from an increase in employment of those aged 55+ and those with little qualifications, as well as from an increase in employment for an unspecified period or part-time. In the short run, an increase in such employment is usually connected with lower labour productivity. This is mainly due to the fact that productivity of employees with lower qualifications and professional experience increases only in the medium and long run.

Chart 1.10 Employment rate



Source: Eurostat.

Maastricht nominal anchor and competitiveness of economies

Experience gathered during the initial years of the euro area shows that the requirements of nominal convergence criteria are not enough to ensure sustainable economic growth. Thus, other factors influencing sustainable economic development of economies must be taken into account. After stabilising the operating conditions on the level of fiscal and monetary policy (as a result of nominal criteria implementation), the significance of factors such as human capital resources, stability and enforceability of the law, degree of creditor protection, corruption level, conditions of running a business determined by the scope of administrative regulations, and technical and organisational progress increases.

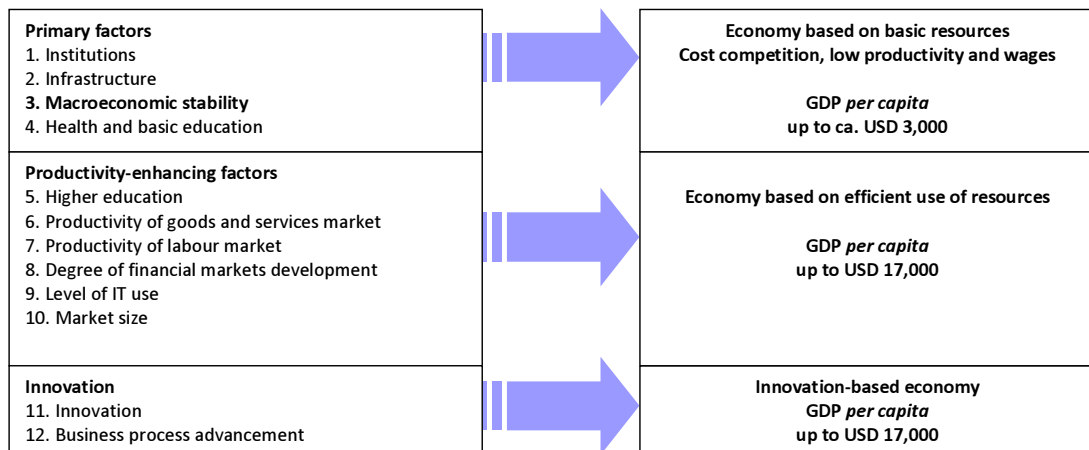
The factors are linked with competitiveness of economies defined by the World Economic Forum as a set of institutions, policy instruments, and factors influencing the productivity of an economy. According to the World Economic Forum, there are 12 pillars of competitiveness (cf. Diagram 1.2). They include: institutions, infrastructure, macroeconomic stability, health and basic education, higher education and trainings, efficiency of market mechanisms, productivity of labour markets, degree of financial markets development, technological advancement, market size, degree of business development, and innovation. This confirms that only one dimension of assessment of competitiveness of economies directly concerns Maastricht criteria (namely macroeconomic stability).

In the beginning of the 1990s when the Maastricht criteria were defined, the global economy was not as integrated as it is now. The modern-time competition between businesses, regions, and economies is based on intangible resources such as innovation or ability to continuously perfect skills and deepen knowledge to a greater extent.

Maastricht criteria were not enough to ensure economic growth.

In the long run, the quality of factors of production impact economic growth prospects.

Diagram 1.2 The twelve pillars of competitiveness



Source: (World Economic Forum, 2007).

Factors of production may move more freely, thus being able to select more favourable locations. The argument for not including indices concerning quality of factors of production or the scope of structural convergence in convergence criteria was enormous heterogeneity of euro area economies in this respect and thus difficulty when selecting a reference model. The criteria concern nominal values only also because they have been formulated after a number of years during which the EU (and world) economies experienced problems retaining price stability, reliability of fiscal policy, and frequent abuse of national currency devaluation as a way to improve competitiveness. Also, central banks were not independent in the period, which hindered control of inflation expectations.

To sum up, Member States enjoyed greater price stability since establishing the euro area than before introducing the single currency. It was surely a significant input in ensuring conditions for economic growth. The basic parameters of internal and external stability show that the euro area matches the United States and Japan in many aspects and even outpaces them. This is determined by the credibility of the ECB, an independent entity, pursuing its anti-inflation policy, and the fiscal policy of the euro area retained by the reformed Stability and Growth Pact. Although the budget discipline weakened in certain states after the period of achieving the Maastricht criteria, the level of public debt and budget deficit remained lower than in the previous decade since the euro area was established. Macroeconomic stability was nevertheless not a sufficiently strong stimulus of faster economic growth in the euro area than in other developed countries. Moreover, despite the generally favourable assessment of the euro area as a whole, internal and external imbalances deepened in individual Member States. It manifested itself as increasing inflation divergences, difficulties in retaining public finance stability, suddenly increasing current account deficits, and negative net investment positions (Spain, Portugal, and Greece).

Chapter summary

The establishment of the euro area in 1999 crowned the long process of economic integration in Europe. Introduction of the euro should also be perceived as a



consequence of strengthening political cooperation. These factors contributed to the fact that European integration is one of the most important peaceful projects of the 20th century in Europe and globally.

Joining the European Union, Poland has become a member of the Economic and Monetary Union with the so-called derogation. This translates into an obligation to replace the national currency with the single currency, but at no specific deadline. Countries which aspire to enter the euro area must nevertheless meet nominal convergence criteria which confirm stabilisation of the economy expressed with values of basic macroeconomic parameters.

The experience of euro area countries shows that Maastricht nominal convergence criteria constituted a strong nominal anchor introducing countries with volatile and relatively high inflation to the area of more stable prices and greater attachment to public finance discipline. Observations of euro area countries in respect of long-term price stability reveal that since establishing the euro area inflation achieved stability unheard of since the beginning of the 1970s. Price increase indices in other OECD countries (United States, Japan, and EU-3) show, however, that the phenomenon took place on a global scale. In the years 1999–2007, economies of those countries functioned in a relatively stable macroeconomic environment. Due to the principles imposed by nominal convergence criteria, the credibility of the German mark, and subsequently of the euro, was an additional anchor of monetary stabilisation, particularly fiscal stabilisation, in Europe.

Experience gathered during the ten years of the euro area also shows that the ECB won the credibility necessary for conduct of monetary policy thanks to global macroeconomic stability, lack of serious shocks, and improvement of the quality of monetary policy. This allowed effective anchoring of inflation expectations at the level of the inflation target, which is considered as ECB's success. Having replaced such currencies as the German mark, French franc, or Dutch guilder, the euro has relatively quickly become the second most widely accepted international currency (the first being the American dollar). This undoubtedly confirms high confidence of international entities in the macroeconomic stability of the euro area. As a currency which is universally accepted in the world, the euro was conducive to enhanced price comparability and thus to the creation of trade inside and outside the euro area. The single currency also enhanced access of foreign entities to euro area market, which has thus become larger and more attractive. The euro was also conducive to considerable progress of integration and globalisation of European and global financial markets (Kapopoulos, Siokis, 2005).

The euro area enjoyed greater price stability since its establishment than before introducing the single currency. It was surely a significant input in ensuring conditions for economic growth. Macroeconomic stability was nevertheless a sufficiently strong stimulus of faster economic growth of the euro area than of other developed countries. In the period of euro area's existence, its Member States developed relatively slower than the United States, United Kingdom, or Sweden¹⁸. Also, despite the generally favourable assessment at the level of the monetary union as a whole, internal and external imbalance deteriorated in certain Member States due to impermanence of compliance with the Maastricht criteria after entering the euro area.

This means that in the long run, economic growth depends on the quality of factors of production and the ability of states to include them in the international division of labour. Flexibility of factors of production in respect of changing competition conditions

¹⁸ However, certain Member States of the euro area developed at a faster pace than the euro area and OECD average (Greece, Ireland, Spain, and Luxembourg).

is also of considerable importance. On the whole, euro area countries have worse-quality and less mobile human capital and knowledge capital than the economies of the United States, Japan, or the EU-3. The ongoing lack of a single market of services remains a significant problem as the sector is of crucial influence on the structure of GDP and employment of euro area countries.



Chapter 2

Polish economy as compared to the euro area – the starting point

Chapter purposes

The purpose of Chapter 2 is to discuss the level of nominal and real convergence of the Polish economy with the euro area and the Polish society's opinion on the monetary integration.

The first part of Chapter 2 discusses formal requirements that Poland has to fulfil before adopting the common currency and assesses their fulfilment as compared to other countries with derogation. The second part is an attempt to evaluate the level of real convergence of Poland with the euro area. The third part presents the opinions of the Polish society on monetary integration, as compared to the opinions expressed by the societies of the Member States.

Poland participates in the third stage of the EMU as a country with derogation. It means that Poland is obliged to fulfil the convergence criteria and adopt the euro in the future. Accession of a country with derogation to the euro area entails two procedures, namely, the inclusion of the national currency in the ERM II system and the abrogation of the derogation. The condition for the adoption of the euro is the durable fulfilment of nominal and legal convergence criteria. The latter involves the analysis of compatibility of national legislation with the Community law with regard to the independence of the central bank and the integration with the Eurosystem. The achievement of a high degree of nominal convergence by a Member State is assessed on the basis of the fulfilment of criteria concerning price stability, long term interest rates, budgetary discipline and exchange rate stability.

Durability of the fulfilment of nominal criteria depends on the high degree of real convergence. It may be ensured by a high level of economic structures' similarity between Poland and the euro area countries, high intensity of trade, as well as high synchronization of business cycles. The listed structural conditions not only determine the durability of the fulfilment of nominal convergence criteria, but may also, to a large extent, be translated into the balance of benefits and costs of the membership in the euro area. Therefore, description of the starting point of the Polish economy may be a point of departure for reforms preparing the economy for efficient functioning in the common currency area.

Nation-wide consensus on the adoption of the euro is a prerequisite for success. Governments are responsible for social reception of the monetary integration process,

as well as the preparation of the economy. The perception is related to the provision of reliable information on the costs and benefits of the euro adoption. It is thus worth paying particular attention to the opinions concerning the perception of concerns and hopes of the society in relation to Poland's accession to the euro area.

2.1 Current state of monetary integration in Europe

2.1.1 Formal requirements for the adoption of the euro

The current members of the euro area include 16 Member States of the European Union (Austria, Belgium, Cyprus, Finland, France, Greece, Spain, Netherlands, Ireland, Luxembourg, Malta, Germany, Portugal, Slovakia, Slovenia and Italy). The remaining 11 Member States do not participate fully in the Economic and Monetary Union. Two of them (Denmark and United Kingdom) have the so-called opt-out clauses which give them the right to choose their monetary future. However, if they wish to join the euro area, they will be subject to the same procedure as any other EU Member State.

Poland belongs to a group of the EMU Member States with a derogation.

The other 9 Member States (Bulgaria, Czech Republic, Estonia, Lithuania, Latvia, Poland, Romania, Sweden¹ and Hungary) have the status of Member States of the Economic and Monetary Union with a derogation. The Treaty establishing the European Community (TEC) imposes an obligation on those countries to meet all convergence criteria and adopt the euro in the future.

Pursuant to Article 122 (2) of the Treaty establishing the European Community, in order to assess the readiness of Member States with a derogation to adopt the euro, the Commission and the European Central Bank (ECB) shall prepare independent reports “on the progress made in the fulfilment by the Member States of their obligations regarding the achievement of economic and monetary union” at least once every two years, or at the request of a Member State with a derogation, (cf. European Central Bank, 2008g).

Ecofin decides about the abrogation of the derogation.

On the basis of both *Convergence Reports* and the Commission's proposal, after consulting the European Parliament and after discussion in the Council of the European Union (consisting of heads of states or governments), the Economic and Financial Affairs Council (Ecofin Council), acting by a qualified majority, makes the decision to abrogate the derogation (Article 122 (2) of the TEC, cf. also the Ministry of Finance, 2005a). After such a decision is made, the Council, acting unanimously (pursuant to the decision of the Member States without a derogation and the Member State concerned), on a proposal from the Commission and after consulting the ECB, adopts the rate at which the euro shall be substituted for the currency of the Member State concerned, and takes other measures necessary for the introduction of the single currency in the Member State concerned (Article 123 (5) of the TEC, cf. also the Ministry of Finance, 2005a).

The Treaty of Lisbon (TL)² adds yet another element to the above procedure. According to the TL, the decision of the Ecofin Council to abrogate a derogation will depend on

¹ Sweden is the only country among those without the opt-out clause which joined the European Union before the creation of the euro area. According to the EU law, Sweden is a Member State with a derogation. However, the Swedish authorities think otherwise and believe that if the euro area had existed at the moment Sweden joined the EU, the result of the referendum on accession could have been different.

² The ratification of the Treaty was suspended. However, due to the fact that there was a similar provision in the Treaty establishing a Constitution for Europe, this additional element of the procedure may be expected to be implemented in future.

2.1 Current state of integration

the receipt of the recommendation adopted by the members of the Council representing the Member States having the euro as their currency (the so-called Euro Group). The recommendation will be adopted by a qualified majority of those Member States and should be issued within six months from the receipt of the European Commission's proposal to abrogate a derogation by the Council (cf. Szymczyk, 2008).

The achievement of durable nominal and legal convergence is a formal condition for the adoption of the single currency by a Member State of the European Union. In the *Convergence Reports* the Commission and the ECB evaluate the degree of economic convergence and compatibility of national legislation with the Treaty requirements, and check whether statutory requirements concerning national central banks are met so that the banks could become the members of Eurosystem (European Central Bank, 2008g).

The achievement of durable nominal and legal convergence is a condition for the adoption of the euro.

Pursuant to Articles 104 and 121 of the TEC, the Protocol on the convergence criteria referred to in Article 121 of the TEC, and the Protocol on the excessive deficit procedure the Commission and the ECB evaluate the level of economic convergence of a Member State on the basis of the fulfilment of criteria on price stability, long-term interest rate, budgetary discipline and exchange rate stability (cf. Ministry of Finance, 2005a).

Convergence criteria

The criterion of price stability defined in Article 121 (1) of the Treaty requires “the achievement of a high degree of price stability; this will be apparent from a rate of inflation which is close to that of, at most, the three best performing Member States in terms of price stability”.

Country with a derogation has to have a high degree of price stability.

Article 1 of the Protocol on the convergence criteria referred to in Article 121(1) of the Treaty stipulates that “the criterion on price stability referred to in the first indent of Article 121 (1) of this Treaty shall mean that a Member State has a price performance that is sustainable and an average rate of inflation, observed over a period of one year before the examination that does not exceed by more than 1½ percentage points that of, at most, the three best-performing Member States in terms of price stability. Inflation shall be measured by means of the consumer price index on a comparable basis, taking into account differences in national definitions” (cf. European Commission, 2008a or European Central Bank, 2008g).

The provisions of the Treaty are applied by calculating the inflation rate using “the increase in the latest available 12-month average of the Harmonised Index of Consumer Prices (HICP) over the previous 12-month average” (European Central Bank, 2008g). It should be emphasized that the Protocol on convergence criteria requires not only a high degree of price stability but also its sustainability, in particular, a guarantee that the achieved price stability will be maintained in the Member State concerned in the following months and after the adoption of the euro.

The fiscal convergence criterion defined in the second indent of Article 121 (1) of the Treaty requires “the sustainability of the government financial position; this will be apparent from having achieved a government budgetary position without a deficit that is excessive, as determined in accordance with Article 104 (6)” (cf. European Central Bank, 2008g).

The fiscal criterion requires stable government financial position.

Article 2 of the Protocol on the convergence criteria referred to in Article 121 of the Treaty stipulates that “The criterion of government budgetary position referred to in

the second indent of Article 121 (1) of this Treaty shall mean that at the time of the examination the Member State is not the subject of a Council decision under Article 104 (6) of this Treaty that an excessive deficit exists”.

The excessive deficit procedure (EDP) is described in Article 104 of the Treaty, which stipulates that the Commission prepares a report when a Member State fails to meet the budgetary discipline requirements, in particular if:

(a) the ratio of the planned or actual general government deficit to gross domestic product exceeds a reference value (specified in the Protocol on the excessive deficit procedure as 3% of the GDP³), unless:

- either the ratio has declined substantially and continuously and reached a level that comes close to the reference value,
- or, alternatively, the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value;

(b) the ratio of government debt to gross domestic product exceeds a reference value (specified in the Protocol on the excessive deficit procedure as 60% of the GDP), unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace (cf. European Commission, 2008a or European Central Bank, 2008g).

The evaluation of the fiscal position of a Member State with a derogation is based on convergence programmes and fiscal notifications. If the European Commission finds that a Member State does not observe fiscal discipline, then, pursuant to Article 104 (5) of the TEC, it shall address an opinion on the occurrence of excessive deficit to the Ecofin Council. Taking into account the opinions and recommendations of the European Commission, the Ecofin Council decides whether an excessive deficit exists, makes recommendations to the Member State concerned with a view to bringing the deficit below the reference level within a given period (Article 104 (6) and (7)).

Pursuant to Article 104 (12) of the TEC, the Council makes decisions to end the excessive deficit procedure, on an earlier recommendation of the Commission and after consultation with the European Parliament and the ECB. The Council should make the decision as soon as possible and not later than within two months from the date of the fiscal notification which indicates that the deficit was reduced below the reference value.

The exchange rate convergence criterion requires the participation in the ERM II system.

The exchange rate criterion defined in the third indent of Article 121 (1) of the Treaty requires: “the observance of the normal fluctuation margins provided for by the exchange-rate mechanism of the European Monetary System (Exchange Rate Mechanism, ERM), for at least two years, without devaluing against the currency of any other Member State.”

Article 3 of the Protocol on the convergence criteria referred to in Article 121 of the Treaty stipulates that “the criterion on participation in the exchange-rate mechanism of the European Monetary System referred to in the third indent of Article 121 (1) of this Treaty shall mean that a Member State has respected the normal fluctuation margins provided for by the exchange-rate mechanism of the European Monetary System without severe tensions for at least the last two years before the examination.

³ The analysis of the fiscal position is based on data prepared on the basis of national accounts, in accordance with the European System of National and Regional Accounts 1995 (ESA 95).

2.1 Current state of integration

In particular, the Member State shall not have devalued its currency's bilateral central rate against any other Member State's currency on its own initiative for the same period"⁴ (cf. European Commission, 2008a or European Central Bank, 2008g).

While describing the application of the Treaty, the EBC states that the evaluation of the exchange rate stability against the euro focuses on whether the exchange rate was close to the central exchange rate in ERM II, taking into account the factors which could cause its appreciation (European Central Bank, 2008g). It also declares that the width of fluctuation margins in ERM II does not have a negative impact on the evaluation of the criterion of the exchange rate stability. The issue of "severe tensions" is generally addressed by:

- (a) examining the degree of deviation of exchange rates from the ERM II central rates against the euro;
- (b) using such indicators as exchange rate volatility against the euro and its trend, as well as short-term interest rate differentials vis-à-vis the euro area and their evolution; and
- (c) considering the role played by foreign exchange interventions.

Box 2.1 ERM II mechanism^a

ERM II was launched on 1 January 1999 pursuant to the European Council Resolution on the establishment of an exchange-rate mechanism in the third stage of economic and monetary union and replaced the earlier European Monetary System and the ERM. ERM II is a system associating national currencies of the EU Member States and the euro, which is to help meet the requirement of treating the exchange rate policy as a matter of common interest by the Member States (Article 124 of the TEC).

ERM II is a multilateral arrangement of fixed but adjustable exchange rates with a central rate and a standard fluctuation band of $\pm 15\%$, based on multilateral agreement between the Member State concerned, the euro area member countries, the ECB and other Member States participating in the mechanism.

At the request of the Member State concerned, fluctuation bands narrower than the standard one may be officially arranged. Such decisions are taken on a case-by-case basis and are exceptional, since the standard band is considered appropriate for Member States that are engaging in a convergence process. Multilaterally agreed narrower bands can only be considered for countries at a very advanced stage of convergence.

Interventions at the margins of the band are in principle automatic and unlimited, unless they conflict with the primary objective of price stability in the Member State or the euro area. Very short-term financing facility (VSTF) can be made available to support such interventions. Each participant of ERM II, including the ECB, has the right to initiate a confidential procedure aimed at reconsidering central rates.

Accession to the ERM II is not subject to a set of pre-established criteria. However, the ECB believes that a smooth participation in ERM II may require major policy adjustments (for example with regard to price liberalisation and fiscal policy) to be

⁴ The Treaty of Lisbon replaces the ban on devaluation against any other Member State's currency with the ban of devaluation against the euro (cf. Szymczyk, 2008).

made prior to the participation in the mechanism and a credible fiscal consolidation path to be followed (European Central Bank, 2003b).

^a Cf. Ministry of Finance, 2005a.

Source: NBP study.

The interest rate criterion examines the durability of the convergence process.

The interest rate criterion defined in the fourth indent of Article 121 (1) of the Treaty requires: “the durability of convergence achieved by the Member State and of its participation in the exchange-rate mechanism of the European Monetary System being reflected in the long-term interest-rate levels”.

Article 4 of the Protocol on the convergence criteria referred to in Article 121 of the Treaty stipulates that “the criterion on the convergence of interest rates referred to in the fourth indent of Article 121 (1) of this Treaty shall mean that, observed over a period of one year before the examination, a Member State has had an average nominal long-term interest rate that does not exceed by more than 2 percentage points that of, at most, the three best performing Member States in terms of price stability. Interest rates shall be measured on the basis of long-term government bonds or comparable securities, taking into account differences in national definitions”⁵.

According to the Treaty provisions, “an average nominal long-term interest rate” observed over “a period of one year before the examination” is calculated as an arithmetic average over the latest 12 months for which HICP data are available. The notion of “the three best performing Member States in terms of price stability” refers to the unweighted arithmetic average of the long-term interest rates in the three EU countries whose data were used for calculating the reference value for the price stability criterion.

A candidate country must also meet the legal convergence criterion.

The legal convergence criterion includes the analysis of the compatibility of national legislation with Article 108 and 109 of the TEC and with the Statute of the European System of Central Banks (ESCB) and the ECB, in particular:

- functional, institutional, personal and financial independence of the central bank (Article 108 of the TEC, Article 7 and 14 (2) of the Statute);
- cohesion of central bank objectives with the objectives formulated in Article 105 (1) of the TEC and Article 2 of the Statute⁶.

Both the European Commission and the European Central Bank use several guiding principles to assess whether the convergence criteria are met (cf. European Central Bank, 2008g). Firstly, individual criteria are interpreted and applied rigorously to ensure that only those Member States with economic conditions favourable to durable price stability and economic cohesion of the euro area will join the euro area. Secondly, convergence criteria are a coherent, integral whole and as such must be fulfilled at the same time - the Treaty lists them as equal and does not suggest any hierarchy.

⁵ In the case of a country for which data on harmonised long-term interest rates are unavailable, the most comprehensive possible analysis of financial markets is carried out, taking into account the level of public debt and other important indicators, to evaluate the durability of convergence achieved by a Member State and its participation in ERM II (European Central Bank, 2008g).

⁶ More information on the subject may be found in Olszak, Porzycki (2008).

2.1 Current state of integration

Thirdly, they have to be met taking into account the actual data. Fourthly, they should be applied in a consistent, transparent and simple way. Fifthly, compliance with convergence criteria has to be durable not temporary.

As earlier mentioned, the main objective of using convergence criteria is to verify whether the examined country is able to function smoothly, despite the limited freedom of conducting monetary and budget policy. At the same time, the ERM II is to examine the durability of nominal convergence and support its advancement (Papasprou, 2004).

The inflation criterion reflects the cohesion of inflation rates in short and medium term. Long-term interest rates on financial markets, i.e. yields on Treasury securities, are used for verifying inflation expectations in the long term. The interest rate criterion allows to establish whether a decrease in inflation rate is sufficiently durable.

The assessment is performed by the financial market. The conviction of the market participants on durability of disinflation leads to the reduction of long-term inflation expectations which in turn contributes to lower yields on long-term Treasury securities. Yields on Treasury securities change depending on inflation expectations and amount of risk premium. They become a reliable “barometer” of inflation expectations in the long term (Lutkowski, 2003). All signs weakening the credibility of the macroeconomic policy, whose main objective should be to maintain stable inflation and safe level of deficit and public debt as compared to GDP, will be reflected in an increase of yields. Weakening of the zloty as a result of the loss of confidence of financial markets (even if the limit of $\pm 15\%$ is not exceeded) may cause the risk of inflationary pressure and increased costs of foreign debt servicing, which leads to the growth of its share in the GDP.

A prudent fiscal policy is needed in each economy the aim of which is to ensure sustainable economic growth. In addition, due to the fact that monetary policy in the euro area is conducted by the ECB at the central level and fiscal policy is decentralized, there is a particularly high risk of conflict between those two policies. Due to the above, fiscal policy, and also economic policy within the EMU, is to a certain extent subject to supervision and coordination.

Restrictions on budget policy in individual countries are imposed not only because negative consequences of excessive budget deficits may pose a threat to the efficiency of monetary policy in the countries belonging to ERM II or the ECB. Aiming at the reduction of debt and the role of the state in the economy is necessary to increase the efficiency of the economy, as well as to stabilise framework conditions for its functioning. High level of debt leads to high debt servicing costs and thus results in reduced freedom of government’s operations in the field of fiscal policy. Large budget deficits are usually also related to the so-called effect of pushing the private sector out of the loan market by the public sector, as a result of offering high interest on loans granted by the budget. In addition, reduction of debt usually requires a decrease of the state’s share in the redistribution of generated national product.

Procedure of entry into ERM II

The fulfilment of the exchange rate criterion of convergence requires the inclusion of the national currency in the ERM II. In the case of new Member States, the process comprises two independent stages (cf. Ministry of Finance, 2005a). First, the central bank of a new EU Member State is obliged to sign the ERM II Central Bank Agreement⁷. After signing the agreement, the bank may begin the procedure of inclusion

⁷ The NBP joined the agreement on 29 April 2004 (the agreement entered into force upon the enlargement of the European Union on 1 May 2004).



The objective of convergence criteria is to assess the ability of the economy to function smoothly in the monetary union.

The inflation criterion is used to examine the cohesion of inflation rates in short and medium term.

The interest rates criterion is used for assessing the correlation of inflation expectations in the long term.

Fiscal criteria are to be used for supervising fiscal policy at the national level.

The Minister of Finance and the president of the central bank jointly send an application for entry into the ERM II.

of its currency in the ERM II. All stages of the procedure are subject to a confidentiality clause.

The entry of the national currency into the ERM II takes place as follows (cf. Ministry of Finance, 2005a):

- The Minister of Finance and the president of the central bank of the country with a derogation send a confidential joint request to the President of the Ecofin Council for the accession into the ERM II. The request should include the proposed central interest rate and acceptable fluctuation band of the market exchange rate with regard to the central parity.
- At the same time, the member of the Economic and Financial Committee (EFC)⁸ from the initiating country informs about it the President of the EFC who calls a meeting of the EFC in the form of the ERM II Committee⁹ to discuss the request. The ERM II Committee prepares a decision on the inclusion of the national currency in the ERM II. The decision specifies the central exchange rate and the acceptable fluctuation band of the market exchange rate with regard to the central rate, taking into account the macroeconomic situation and economic policy of a given country.

If the meeting of the ERM II Committee results in the preliminary agreement on the central rate and the fluctuation band of the market rate with regard to the central rate, the President of the EFC suspends the session to allow the members to obtain confirmations of the relevant ministers of finance, central bank governors and the ECB President. Then the participants meet again as representatives of ministers, central bank governors and the ECB President and as such sign the agreement and adopt a communiqué.

If consensus is not reached on the central rate and (or) the fluctuation band of the market rate with regard to the central rate, the President of the EFC tries to broker an agreement on the elements of an oral report which will be presented at the meeting on the ERM II¹⁰. Then the President of the Ecofin Council, notified by the EFC member who represents his country, calls a meeting on the ERM II. The participants of the meeting are informed by their representatives in the EFC about the arrangements and course of discussion of the ERM II Committee. Following a successful conclusion of the meeting, a communiqué is issued:

⁸ The Economic and Financial Committee is an auxiliary body of the EU, established to replace the Monetary Committee pursuant to the TEC. At the request of the EU Council, the Commission or at its own initiative, the Committee presents them with opinions on the structure and functioning of the monetary union, monitors the economic and financial situation of the Member States and the Union and regularly informs the Council and the Commission on the subject.

⁹ The meeting of the ERM II Committee is attended by the EFC members representing the government administration, the EFC members representing the central banks of the countries outside the euro area, two representatives of the ECB, two representatives of the Commission, the President of the EFC and the President of the EFC Alternates. If an EFC member cannot participate in the meeting, he/she may delegate his/her alternate (EFC Alternates).

¹⁰ The meeting on the ERM II is chaired by the President of the Ecofin Council. The Council convenes in the following composition: ministers of finance of the euro area countries, ministers of finance and central bank governors of the Member States from outside the euro area, the ECB President, two members of the European Commission and the EFC President and Secretary. The ministers of finance and central bank governors of the EU Member States from outside the euro area which do not participate in the ERM II can participate in the procedure, but have no voting right. On the other hand, the ministers of finance and central bank governors of the countries from outside the euro area which participate in the ERM II when the decision is made, participate in the meeting with the right to vote.

2.1 Current state of integration



The communiqué should include:

- the party initiating the procedure;
- the parties making the decision;
- the decision,
- the central rate against the euro, in the following format: the number of national currency units for one euro, expressed with six significant digits¹¹,
- the fluctuation band,
- an announcement on the economic policy,
- a statement saying that points of obligatory intervention will be announced by the ECB and the central bank of the country acceding to the ERM II before the opening of foreign exchange markets on the nearest working day.

Time framework of procedures related to the adoption of the euro

The analysis of the procedures in place shows that the period between the strategic decision of the national authorities to join the euro area and the adoption of the common currency lasts at least three years (excluding the possible prolongation of the procedure provided for in the TL) – cf. Diagram 2.1. The length of the period depends mainly on the following elements of the procedure (Ministry of Finance, 2005a):

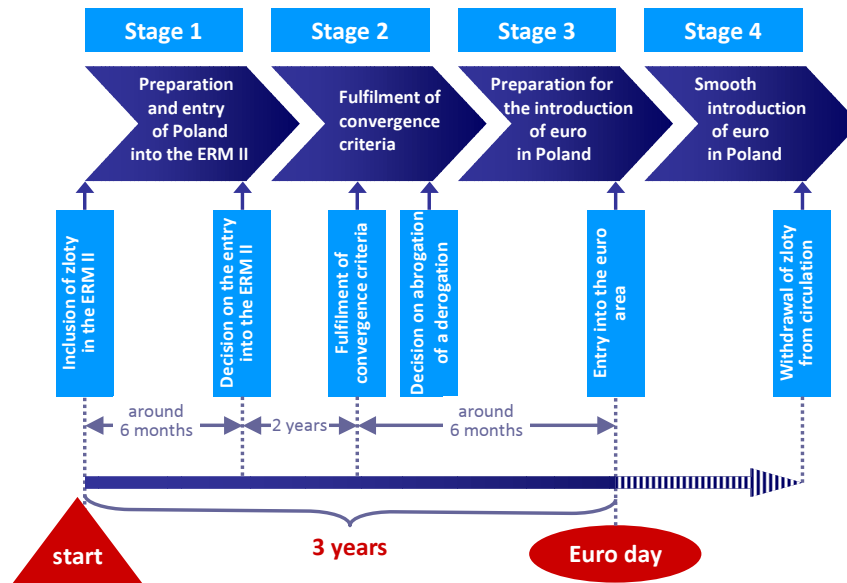
The procedure of entry to the euro area lasts at least 3 years.

1. The preparations for the decision to join the ERM II, carried out together with the Commission and the ECB, should begin around six months before the official entry of the national currency into the ERM II. In particular, the Commission and the ECB should be informed about the intention and the planned date of joining the ERM II in order to initiate the process of informal consultation with those institutions on the date of the entry into the ERM II and the central rate under the mechanism.
2. The exchange rate stability criterion requires the national currency to be in the ERM II system for at least two years. The remaining convergence criteria have to be fulfilled within that period.
3. The Commission and the ECB prepare the *Convergence Reports* in which they assess whether a high degree of nominal convergence has been achieved and whether the relevant elements of the national legislation are compatible with the Community law.
4. The reports of the Commission and the ECB are presented to the Ecofin Council which then makes a decision on the abrogation of the derogation of a Member State of the European Union and sets the date when the derogation will be abrogated.

Informal consultations must begin around 6 months before the entry into the ERM II.

¹¹ If the adopted central parity is related to the devaluation or revaluation of the exchange rate, the communiqué should contain such information.

Diagram 2.1 Road to membership in the euro area



Source: Ministry of Finance, 2005a.

2.1.2 Degree of nominal convergence of Poland and the euro area

Assessment of the degree of nominal convergence of countries with a derogation

The fulfilment of nominal and legal convergence criteria is the condition for the accession to the euro area.

As earlier mentioned, the achievement of the degree of economic convergence by a Member State is assessed on the basis of the fulfilment of the criteria on price stability, long-term interest rate, budgetary discipline and exchange rate stability.

The purpose of this part of the report is to present the assessment of the degree of fulfilment of formal criteria by Poland and other European Union Member States with a derogation on the basis of *Convergence Reports* published by the European Commission and the European Central Bank in May 2008. In addition, the most recent data for October 2008 were presented to enable the assessment of the current situation¹².

Inflation criterion

The inflation rate in Poland for a long time remained below or at the reference level.

According to the *Convergence Reports* for 2008, over the reference period (from April 2007 to March 2008) the 12-month average HICP inflation rate¹³ in Poland stood at 3.2% i.e. was at the reference value¹⁴ specified in the TEC (European Central Bank, 2008g).

¹² Prepared on the basis of the NBP's internal materials.

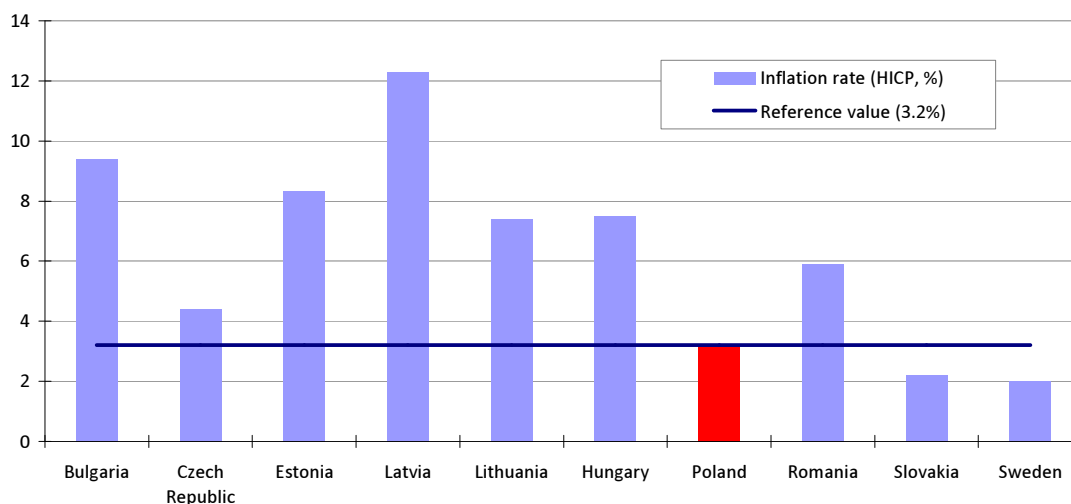
¹³ With regard to "an average rate of inflation, observed over a period of one year before the examination", in both *Convergence Reports* from May 2008, the inflation rate was calculated using the change in the 12-month average of the Harmonised Index of Consumer Prices (HICP) over the previous 12-month average. The reference period was from April 2007 to March 2008.

¹⁴ The reference value was defined using unweighted arithmetic average of inflation rates in the following three EU countries with the lowest inflation rates: Malta (1.5%), the Netherlands (1.7%) and Denmark (2.0%). The average rate of inflation in those countries amounted to 1.7%, which means that the reference value (after adding 1.5 percentage point) was 3.2%.

2.1 Current state of integration

Among other Member States with a derogation only two (Slovakia¹⁵ and Sweden) had the inflation rates below the reference value (cf. Chart 2.1). In other examined Member States the interest rates were above the reference value, with the largest deviations observed in Latvia and Bulgaria.

Chart 2.1 Assessment of the fulfilment of the inflation criterion in countries with a derogation (over the reference period from April 2007 to March 2008)



Source: Own study on the basis of the *Convergence Report* (European Central Bank, 2008g).

The fact that the inflation rate in Poland remained below or at the reference value over the whole reference period examined in both *Convergence Reports* is to a large extent the result of the stabilisation of the price growth rate which took place in recent years due to the implementation of the strategy of direct inflation targeting (DIT, cf. Table 2.1) with the target for Poland set at $2.5\% \pm 1$ percentage points¹⁶.

In order to assess in detail the sustainability of the price stability achieved in individual countries, the average HICP inflation rate over the 12-month reference period from April 2007 to March 2008 is compared to the results of individual Member States in this category in the last 10 years.

A significant decrease in the inflation rate has been recorded in Poland in recent years (cf. Chart 2.2). The inflation has stabilised and remains at a level close to the figure for the euro area countries. In terms of price stability, Polish economy looks well also as compared to other Member States from central and eastern Europe (cf. Chart 2.2). The inflation rate in Poland (measured by HICP) is below its average level in other countries of the region.

As earlier mentioned, the condition for the fulfilment of the inflation criterion is not only the inflation being below or at the reference value, but also the conviction about the durability of the fulfilment of the criterion in future.

The European Commission and the ECB had doubts concerning the durability of the fulfilment of inflation criterion in future.

¹⁵ The *Convergence Reports* were published in May 2008 when Slovakia was not a member of the euro area yet and had a status of a Member State with a derogation.

¹⁶ In order to increase the transparency of monetary policy and thanks to the determination in pursuing the disinflation strategy, in 2008 the Monetary Policy Council adopted the strategy of direct inflation targeting (DIT). In the *Monetary policy strategy after 2003*, the Monetary Policy Council stated that the stabilisation of inflation at a low level allows to abandon annual targets set at the end of a given calendar year for a continuous inflation target (2.5% with a fluctuation band of ± 1 percentage points). According to the Council, this target in Poland is coherent with fast economic growth and close to the expected reference value of the inflation criterion. It was also pointed out that, after the final decision about the date of entry into the euro area, if the reference value was to be lower than 2.5%, an additional short-term inflation target will be set to meet the inflation criterion.

Table 2.1 Inflation targets in selected EU countries applying direct inflation targeting

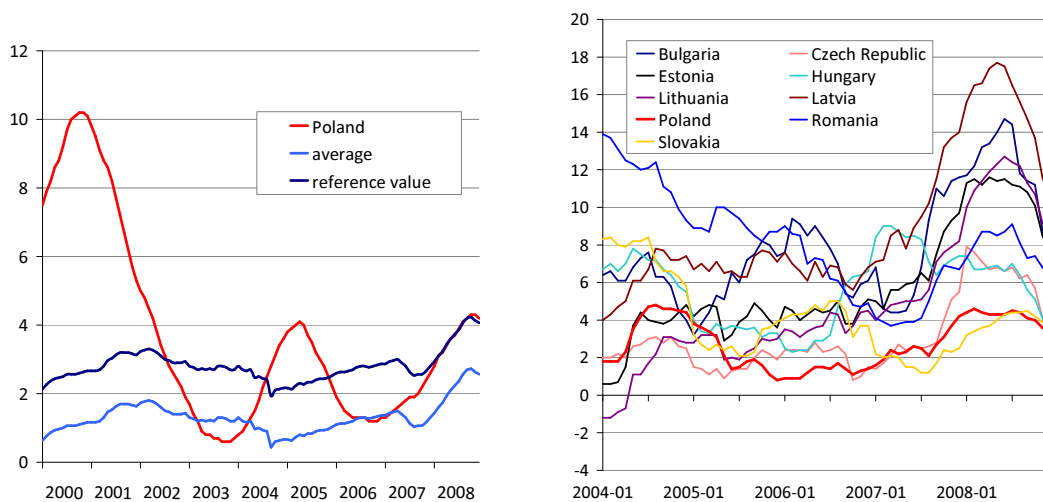
Country	Inflation Target	Time horizon
Czech Republic	3% ± 1 percentage point ^a from 2010: 2% ± 1 percentage point ^a	medium-term ^b
Poland	2.5% ± 1 percentage point ^a	continuous
Slovakia	at the end of 2006.: below 2.5% at the end of 2007 and 2008: below 2%	medium-term ^b
Euro area	below but close to 2%	medium-term
Sweden	2% ± 1 percentage point ^a	continuous
Romania	3.8% at the end of 2008 3.5% at the end of 2009	medium-term
Hungary	3%	medium-term
United Kingdom	2% ± 1 percentage point ^a	continuous

^aFluctuation band.

^bUntil the accession to the euro area.

Source: Central banks.

Chart 2.2 HICP inflation rate in Poland, the price stability criterion and the inflation rate in Poland as compared to the countries of the region



Source: own calculations on the basis of the Eurostat.

Looking at the changes in the inflation rate in Poland in the reference period and in particular its constant rise since the end of 2006, as well as the forecasts for 2008, both the European Commission and the European Central Bank negatively assessed the durability of the fulfilment of the inflation criterion by Poland. Both *Convergence Reports* from May 2008 emphasize that the HICP inflation rate in Poland in 2008 may rise over the reference value (cf. European Commission, 2008a and European Central Bank, 2008g).

Poland currently does not fulfil the inflation criterion.

The risk of exceeding the reference value occurred in October 2008 when the 12-month moving average HICP inflation rate, taken into account for the Maastricht inflation criterion, amounted to 4.3% in Poland. The reference value¹⁷ was 4.2%¹⁸. As a result, in October 2008 the 12-month moving average HICP inflation rate in Poland exceeded the reference value for the inflation criterion (by 0.1 percentage point) for the first time

¹⁷ Calculated according to the NBP estimates on the basis of the Eurostat data.

¹⁸ The reference group included the Netherlands, Portugal and Germany.

2.1 Current state of integration

in three years (i.e. from October 2005). A similar situation occurred in all new EU Member States outside the euro area, except for Slovakia.



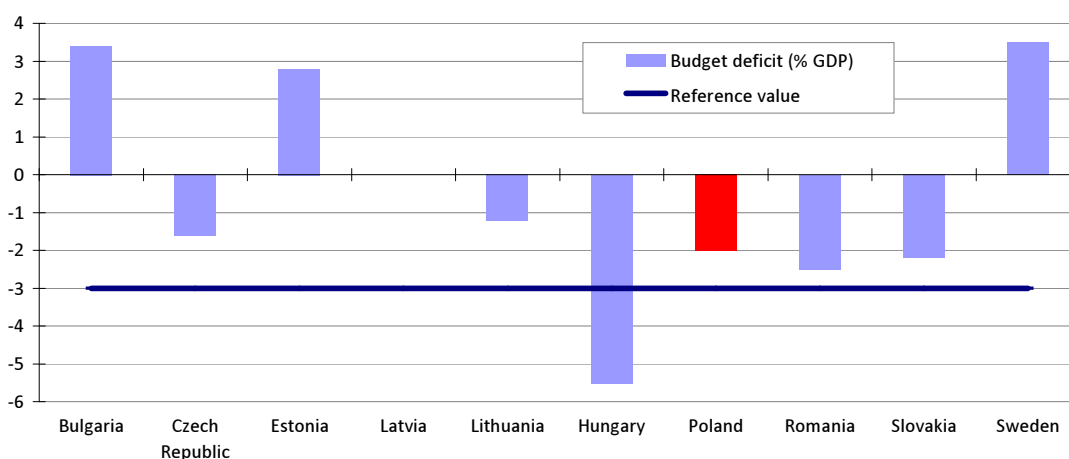
Fiscal criterion

According to the *Convergence Reports* of the European Commission and the ECB, the budget deficit in Poland in 2007 was at 2% of the GDP, i.e. below the reference value (3%).

In 2007 Poland did not fulfil the fiscal criterion

From among all countries with a derogation assessed in the *Convergence Reports*, only Hungary had a budget deficit above the reference value (cf. Chart 2.3). Bulgaria, Sweden and Estonia recorded surpluses in their budgets. In other countries (Czech Republic, Slovakia, Lithuania and Romania), the budget deficit was below 3% of the GDP. The budget of Latvia in 2007 was balanced (cf. also European Central Bank, 2008g).

Chart 2.3 Budget deficit in the EU Member States with a derogation in 2007 (% GDP)



Source: Own study on the basis of the *Convergence Report* (European Central Bank, 2008g).

In terms of the amount of the public finance deficit in 2007, Poland did relatively well as compared to both the euro area countries, and new EU Member States (cf. als Darvas, Szapáry, 2008). In 2007 the budget deficit was reduced to 2.0% of the GDP, i.e. by 1.8 percentage point as compared to 2006. However, due to the fact that Poland was under the excessive deficit procedure imposed by the Council of the European Union on 5 July 2004, it did not fulfil the fiscal criterion. In July 2008 the Council of the European Union decided to abrogate the excessive deficit procedure.

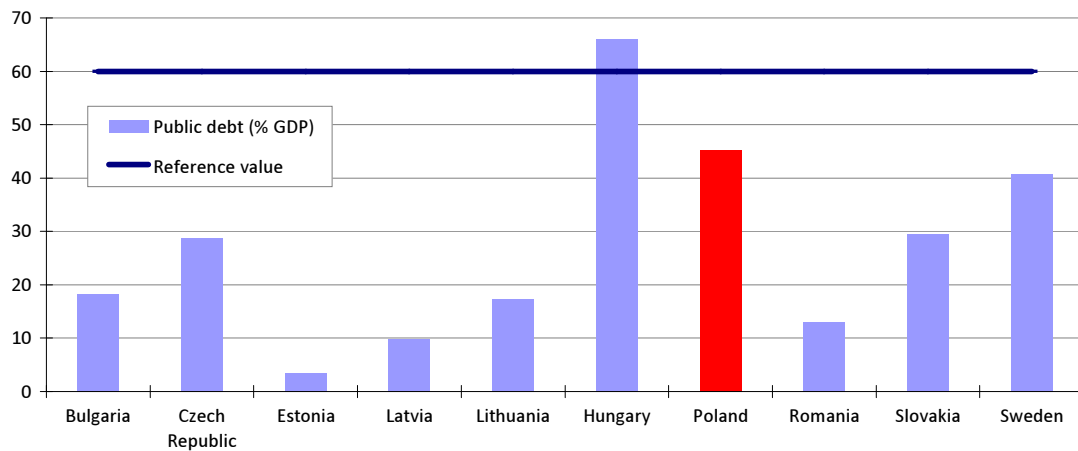
...since it was under the excessive deficit procedure,

abrogated in July 2008.

The general government debt in Poland in 2007 amounted to 45.2%, i.e. was below the reference value. From among the countries evaluated in the *Convergence Reports*, the general government debt exceeded 60% only in Hungary (cf. Chart 2.4). Other assessed countries did not have problems with meeting this criterion (European Central Bank, 2008g).

Both the European Commission and the ECB assess that in 2008 the general government debt ratio in Poland will decrease. At the same time the ECB emphasizes that Poland needs further consolidation to keep the deficit ratio below the reference value and to comply with the medium-term objective specified in the Stability and Growth Pact, which in the convergence programme is specified as a cyclically adjusted deficit net of cyclical and temporary factors of 1% of GDP after 2010.

Chart 2.4 General government debt in the EU Member States with a derogation in 2007 (% GDP)



Source: Own study on the basis of the *Convergence Report* (European Central Bank, 2008g).

The ECB points out that the improvement in the public finance to a large extent resulted from the relatively high economic growth rate prevailing in recent years. Therefore, the ECB emphasizes the need for further tightening of the fiscal policy. Economic slowdown may lead to the deterioration of the fiscal policy and thus to the increase in the general government debt. It raises doubts of the ECB concerning durable fulfillment of the fiscal criterion by Poland (European Central Bank, 2008g).

Exchange rate criterion

Poland does not meet the exchange rate criterion,

since it does not participate in ERM II.

From among Member States with a derogation only four participated in ERM II in March 2008, namely Estonia, Latvia, Lithuania and Slovakia which became a member of the euro area on 1 January 2009 (cf. Table 2.2).

Within the two-year reference period adopted in both *Convergence Reports* (from 19 April 2006 to 18 April 2008), the zloty did not participate in ERM II but followed the floating exchange rate. The floating exchange rate regime is in place in Poland since 12 April 2000.

The floating rate regime is compliant with the direct inflation targeting strategy adopted by the Monetary Policy Council since the regime allows to avoid the dilemmas resulting from the so-called impossible trinity (Mundell 1962, 1963; Broz, Frieden, 2001) which states that with free capital movement it is impossible to control the exchange rate and pursue independent monetary policy at the same time.

The increase in the flexibility of the Polish exchange rate regime in 2000 resulted in a high volatility of the nominal zloty exchange rate (cf. Chart 2.5). However, the volatility decreased between 2005 and 2007, especially with regard to euro¹⁹ (cf. also Sławiński, 2008). At the same time, since Poland's accession to the European Union in 2004, the zloty exchange rate exhibited a clear real appreciation trend²⁰.

Despite the fact that the Polish exchange rate regime was the most flexible among the countries from the region, after its introduction the zloty exchange rate recorded the

¹⁹ A detailed description of the developments in the zloty exchange rate in 2008 was presented in the part updating the *Report*.

²⁰ The changes in the zloty exchange rate in the second half of 2008 was discussed in the additional updating material.

2.1 Current state of integration



Table 2.2 Exchange rate regimes in new EU Member States before the entry into ERM II

Country	Exchange rate regime before the entry into ERM II	Date of entry into ERM II
Cyprus*	±15% fluctuation band vis-à-vis a currency basket	2 May 2005
Czech Republic	managed floating	–
Estonia	currency board	28 June 2004
Lithuania	currency board	28 June 2004
Latvia	±1% fluctuation band around euro	2 May 2005
Malta*	fixed rate vis-à-vis a currency basket	2 May 2005
Poland	floating	–
Slovakia	managed floating	28 November 2005
Slovenia*	managed floating	28 June 2004
Hungary	floating from 26 February 2008; ±15% fluctuation band vis-à-vis euro between 4 May 2001 and 25 February 2008	–

* Euro area Member State

Source: NBP study.

smallest real effective appreciation among all currencies of the region (exchange rate weighted with geographical structure of foreign exchange, deflated by CPI; cf. Chart 2.6). The average annual real effective appreciation of zloty in recent 9 years (i.e. from the introduction of the floating rate) amounted only to 3.5%, while the appreciation of the Hungarian forint amounted to 4.7%, Czech koruna to 5.1% and Slovak koruna to 6.4%.

Long-term interest rate criterion

According to *Convergence Reports* of the European Commission and the ECB of May 2008, Poland met the long-term interest rate criterion, measured with interest on 10-year Treasury bonds (cf. Chart 2.7). In the reference period from April 2007 to March 2008, the average long-term interest rates in Poland amounted to 5.7%, i.e. was below the reference value of 6.5% (European Central Bank, 2008g). From among the examined countries with a derogation, only Hungary and Romania did not comply with the criterion in March 2008²¹.

Poland meets the long-term interest rate criterion.

The long-term interest rate convergence resulted from the advancement of the disinflation process in 1990s which allowed for decreasing the level of interest rates in Poland. In addition, the expectations of continued price stability in the future were reflected in the decline of yields on long-term Treasury securities²² (cf. Chart 2.8).

In October 2008 the average annual yield on 10-year Treasury bonds in Poland amounted to 6.0% and was 0.3 percentage point below the reference value amounting to 6.3% which means that Poland still meets the long-term interest rate criterion. In the group of remaining new Member States, Romania and Hungary in October 2008

²¹ In the case of Estonia, the assessment of the durability of the nominal convergence process is difficult due to the lack of a developed market of Treasury bonds in Estonian kroons and the low level of general government debt (low supply of bonds).

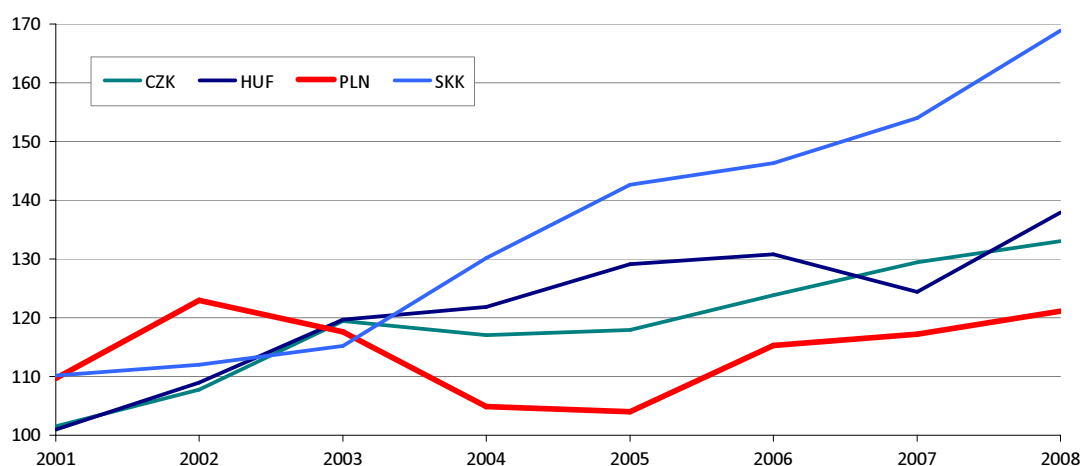
²² Long-term Treasury bond yields are also discounted by a decrease in interest rates in Poland to the level of the euro area upon the expected accession of our country to the single monetary area.

Chart 2.5 Nominal zloty exchange rate, 2000–2008



Source: Eurostat.

Chart 2.6 Real effective zloty exchange rate



Index > 100 – real effective appreciation of the currency (CPI deflated rate, 1999=100)

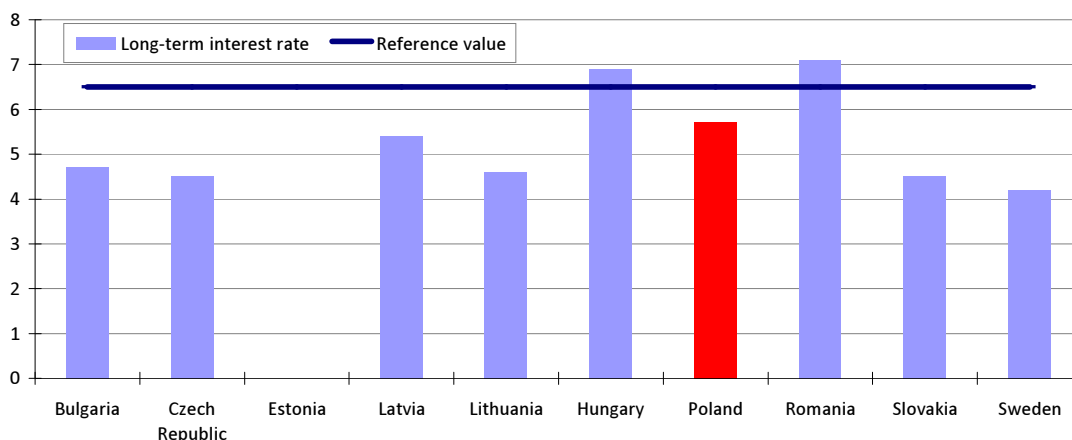
Source: NBP study based on Eurostat data.

recorded average annual yields on 10-year Treasury bonds higher than the reference value. In addition, the interest rate indicator of monetary financial institutions in Estonia (published by Eurostat) exceeded the reference value by 1.4 percentage point in September 2008²³ (NBP internal materials).

²³ The monetary financial institutions (MFI) interest rate indicator is used for evaluating the fulfilment of the long-term interest rate criterion by this country. The indicator represents a weighted average interest rate on new EEK-denominated loans to households and non-financial corporations. Despite the fact that the indicator includes the interest rates with short, medium and long fixation period, currently 90% of the abovementioned loans are linked to interest rates with fixation periods of up to one year (Source: ECB, <http://www.ecb.int/stats/money/long/html/index.en.html>).

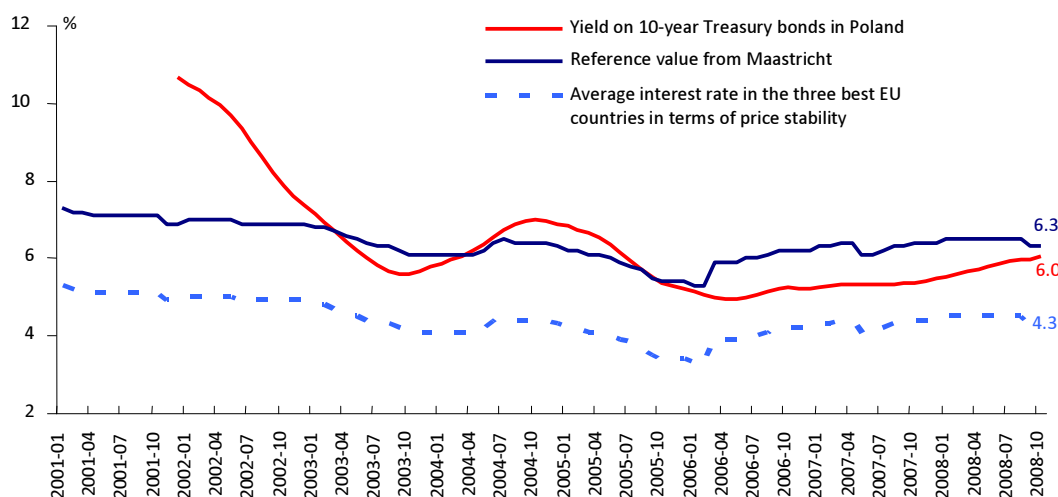
2.1 Current state of integration

Chart 2.7 Assessment of the fulfilment of the long-term interest rate criterion in the EU Member States with a derogation (over the reference period from April 2007 to March 2008, in %)



Source: NBP study based on European Central Bank, 2008g.

Chart 2.8 Yield on Polish Treasury bonds and the long-term interest rate criterion



Source: NBP calculations based on Eurostat data.

Legal convergence criterion

In its *Convergence Report* of 2008 the ECB states that Polish law does not comply yet with the requirements of central bank independence and legal integration into the Eurosystem (European Central Bank, 2008g).

Poland does not meet the legal convergence criterion.

The Polish legislator did not implement new regulations in respect of the issues mentioned in the previous report of December 2006 and therefore the remarks from the report of 2008 repeat the remarks of the ECB from 2006. A similar mention was included in the report of the European Commission of May 2008. The report states that the amendment of the Act on the National Bank of Poland of January 2007 did

not remove any inconsistencies indicated in the previous report of December 2006²⁴. Therefore, Poland does not meet the legal convergence criterion.

2.2 Degree of real convergence of Poland and the euro area

Production and demand structure

Nominal convergence requires real convergence to be durable.

The durable fulfilment of nominal convergence criteria depends on the degree of real convergence. Therefore, the degree of real convergence of Poland with the euro area to a large extent determines the opportunities and threats related to the adoption of a single currency. The degree of structural similarity between the Polish economy and the euro area determines the risk of asymmetric shocks (cf. Box 2.2) and the adequacy of the ECB's common monetary policy for Poland.

Box 2.2 Symmetric and asymmetric shock

A symmetric demand shock is a sudden change in demand which is evenly distributed in space, i.e. it affects all countries (regions) to a similar extent. In case of a symmetric shock, the central bank takes actions to mitigate its consequences.

If a sudden change in demand affects one or more countries (regions) to a larger extent than others, it is an asymmetric demand shock. If, for example, a given economic sector has a significantly higher share in production or employment in country A which belongs to the monetary union than in other countries of the monetary union, then a sudden decline in the demand for the products of the sector causes a relatively higher decrease in production and employment in that country. Country A belongs to the monetary union, thus the monetary policy conducted for the whole monetary area cannot be used to alleviate the effects of the shock (monetary expansion could initiate inflationary pressure in other countries).

Supply shocks can also be divided into symmetric and asymmetric. Supply shocks are of lesser importance for the balance of opportunities and threats related to the participation in the euro area, since monetary policy is ineffective in mitigating the effects of such crises. For example, a negative supply shock means the decline in production on the one hand, and the increased inflationary pressure due to the imbalance between demand and supply, on the other hand. In such a situation, an expansive monetary policy leads to the further increase in inflation, while the tightening of the monetary policy will deepen the decline in production and employment. From this point of view, the transfer of competence to conduct the monetary policy to the ECB is neutral for the economy.

Source: NBP study.

According to the classic theory of optimum currency areas (TOCA), countries creating a monetary union should be characterised by a diversified and similar structure of production, demand and exports (Kenen, 1969), as well as high intensity of mutual trade (McKinnon, 1963). The compliance with the above criteria contributes to the

²⁴ More information on legal preparations of Poland for the entry into the euro area may be found in the publication of Olszak and Pokrzycki (2008) prepared for the purposes of the *Report*.

2.2 Degree of real convergence

reduction of the risk of asymmetric shocks on the one hand and increases the benefits stemming from the reduction of transaction costs and foreign exchange risk, on the other hand.

Similar economic structures, in particular the structure of production and consumption, not only reduce the risk of asymmetric shocks (both demand and supply shocks), but also contribute, by means of monetary transmission and inflation creation mechanisms, to increased business cycle synchronisation (cf. Frieden, Gros, Jones, 1998; European Central Bank, 2004b) which is sometime referred to as the “metacriterion” of optimum currency area (Fidrmuc, Korhonen, 2006). It is worth emphasizing that a high degree of widely understood real convergence facilitates the functioning within the monetary union, but the participation in a monetary union may (according to the hypothesis of the endogeneity of optimum currency areas) accelerate the real convergence process (cf. Frankel, Rose, 1998).

Economic structures to a certain extent depend on the level of a country’s economic development. Therefore, it is worth taking a closer look at the distance between Poland and developed countries of the euro area. Polish economy is a developing economy, catching up with the developed countries. From the economic point of view, the economy is small (Aghion et al., 2008 or Schadler et al., 2005). The share of Poland in total production of the euro area countries amounts to around 3.3% (cf. Chart 2.9) which is less than the production of the Netherlands, i.e. the country with a significantly smaller area and population. However, increased importance of the Polish economy is a positive phenomenon. In 1996 its share in the total production of the countries currently belonging to the euro area stood at 2.1%.

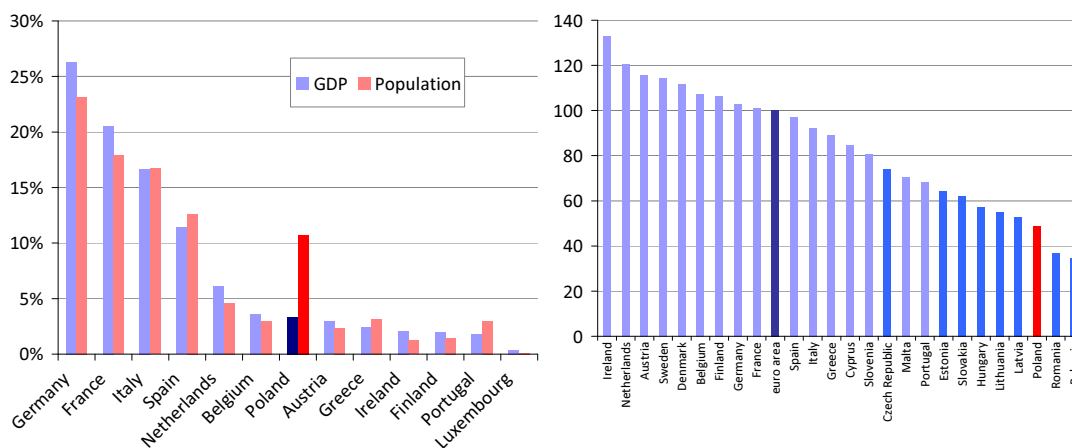
A relatively small production, with a large population, points to a significantly smaller labour productivity as compared to other euro area countries and a low level of economic development. The production per capita in Poland in 2007 amounted to around 49% of the average GDP *per capita* in the euro area (cf. Chart 2.9).

The fulfilment of OCA criteria facilitates the functioning within the monetary union.

From the economic point of view, Polish economy is small...

...with low labour productivity and low level of economic development.

Chart 2.9 Polish economy vs. euro area countries in 2007 in terms of population, GDP and GDP *per capita* (euro area countries and Poland = 100%)



Source: Eurostat.

In terms of size of production, the Polish economy is different not only from the euro area countries but also from new Member States. Poland is the poorest economy among the countries which joined the European Union in 2004, and takes third place in this regard in the European Union (after Romania and Bulgaria; cf. Chart 2.9).

The production structure in Poland is significantly different than in the majority of the euro area countries.

The studies conducted for the purposes of the *Report* show that the production structure in Poland is significantly different than in the euro area countries. Differences between the structure of production and demand in Poland and in the euro area, measured by the Stattev and Raleva indicator²⁵, were illustrated in Table 2.3²⁶. The largest differences are observed in comparison with the economies of Germany and France, i.e. countries belonging to the so-called core of the euro area. It is largely the result of different share of four NACE sections. Poland is characterised by a high share of the output of agriculture, mining and quarrying, as well as trade and repair (sections A, C and G) and a low share of real estate and business services and other service sector: section H – transport, section J – financial intermediation, and in particular K – real estate services (cf. e.g.: Adamowicz et al., 2008; Gajewski, Gawlikowska-Hueckel, Umiński, 2008). The first groups of sectors is vulnerable to supply shocks which may be a source of concern since the listed service sectors, which are relatively poorly developed, are unable to offset the results of economic shocks (Adamowicz et al., 2008).

Table 2.3 Differences between the structure of production and demand in Poland and the euro area countries (SR indicators)

Structure of	production	aggregated demand	consumption	investment
Reference point	2006	2007	2006	2006
Euro area	-24.2	-7.8	-16.3	-23.8
Germany	-53.6	-12.8	-17.5	-28.3
France	-79.3	-2.0	-14.5	-39.3
Italy	-25.4	-7.2	-19.6	-13.0
Spain	-33.7	-5.8	-28.5	-38.1
Ireland	-39.2	-18.6	-54.4	-94.7
Portugal	-24.0	-5.0	18.7	-14.4

Source: Adamowicz et al. (2008).

The structure of production in Poland is quickly becoming similar to the structure of production in the euro area.

Studies (Adamowicz et al., 2008) show that the pace of adjusting the production structure in Poland to the structure in the euro area is much higher than e.g. in the economies of Ireland and Portugal which are also significantly (though to a lesser extent than the Polish economy) different from the euro area and the largest Member States. This positive trend results in a decreasing risk of asymmetric shocks over time.

The comparison of the structure of consumption outlays, and even more importantly, investment outlays, also points to the existence of significant structural discrepancies (cf. Table 2.3). Poland, along with peripheral economies (of Ireland and Spain) creates a “club” with similar distance to the structure of consumption in the larger euro area countries (Germany, France and Italy). The “peripheral club” is becoming more similar to the “core” (cf. Adamowicz et al., 2008).

A different structure of consumption in Poland results to a large extent from lower income.

A different structure of consumption in the Polish economy and the economies of the euro area to a large extent results from a relatively high share of basic goods in Poland

²⁵ The similarity of structures may be illustrated by e.g. relative Stattev and Raleva indicator with the following formula (cf. Stattev, Raleva, 2006):

$$SR = - \sum \frac{(w_{ij} - w_{i,eur})^2}{w_{i,eur}}$$

where w_{ij} – share of section i in country (or region) j , $w_{i,eur}$ – share of section i in the euro area. If the indicator is 0, it means that the structures are identical. The less similar structure in a given country or region to the euro area, the lesser (more negative) value of the indicator.

²⁶ The compared structures were defined as follows: production structure according to the generated gross value added in 17 NACE sections, aggregated demand structure according to the distribution of the GDP among 4 institutional sectors (households and non-commercial institutions, general

which are characterised by low income flexibility of the demand. At the same time, share of superior goods with high demand flexibility is relatively low. On the one hand, such a situation may cause asymmetry of the consumption demand's response to demand shocks in Poland and the euro area. On the other hand, it makes the Polish economy less vulnerable to those shocks since the decrease in income has a lesser impact on the reduction of consumption demand in Poland than in the majority of the euro area countries. In addition, the discussed analyses show that the share of goods with a higher price and income flexibility of the demand will increase in the following years and the structure of consumption demand will be increasingly similar to the structure in the euro area. Along with the economic growth and the progress of integration, the problem of different consumption structure in Poland and the euro area will be gradually eliminated. It is an important conclusion as the consumption demand is to a relatively high extent determined by the monetary policy. Growing similarity of the consumption structures decreases the cost of the transfer of competence to conduct the monetary policy to the ECB.

Somewhat different conclusions may be drawn from the analysis of the structure of aggregate demand (according to the GDP distribution between four institutional sectors) in Poland and the euro area countries. It turns out that the structure of aggregate demand in Poland is more similar to the demand structures of the euro area economy and large economies of France, Germany and Italy (cf. Table 2.3). There is less similarity with Portugal and Ireland which belong to the euro area. The results of analyses show, however, that the structure of aggregate demand is similar in all economies of the euro area, though a low degree of disaggregation of the structure of analysed expenditure must be taken into account (cf. Adamowicz et al., 2008).

The structure of aggregated demand is relatively close to the analogous structure in the euro area.

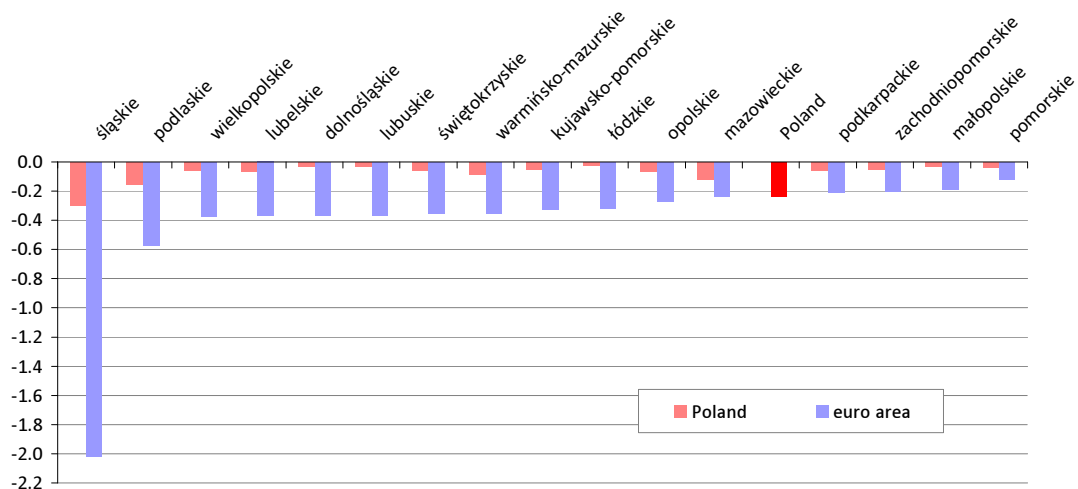
In the case of Poland, which is characterised by internal diversification of the level of economic development, it is also worth looking at the economic structure at the level of provinces (voivodeships), since the adequacy of the ECB's monetary policy for different regions may be different than it is now.

The production structure by region is indeed significantly diversified, which is demonstrated by the SR indicators presented on Chart 2.10. Moreover, all provinces are less similar to the euro area than to Poland in terms of the production structure. It means that the probability of higher frequency of asymmetric shocks of regional nature will increase in the whole country as a result of the accession to the euro area. However, the spatial distribution of this effect is uneven. The Śląskie province has by far the most specific structure of the value added generation, both when compared to Poland as a whole and (even more) to the euro area (cf. e.g. Gajewski, Gawlikowska-Hueckel, Umiński, 2008). On the other hand, the production structure in Pomorskie, Małopolskie and Zachodniopomorskie provinces, as well as in Podkarpackie province, is similar both to the national average and (as compared to other provinces) to the euro area average. Results of the analyses, however, point to the need to develop regional mechanisms of protection against asymmetric shocks (cf. e.g. Gajewski, Gawlikowska-Hueckel, Umiński, 2008). It would be desirable to improve the flexibility of regional labour markets and increase the scope of fiscal federalism thanks to which the province authorities could use the regional fiscal policy to stabilize the fluctuations of the demand. The reduction of specialization in such provinces as Śląskie or Podlaskie requires the creation of new jobs outside mining and quarrying, and agriculture, respectively.

The production structure is significantly diversified in individual provinces which creates a need for developing regional mechanisms for shock absorption.

government institutions, corporations, abroad; consumption structure according to 12 product groups of COICOP classification; investment structure according to 6 groups of fixed assets of CPA classification.

Chart 2.10 Regional diversification of the production structure in Poland as compared to the euro area (SR indicators)

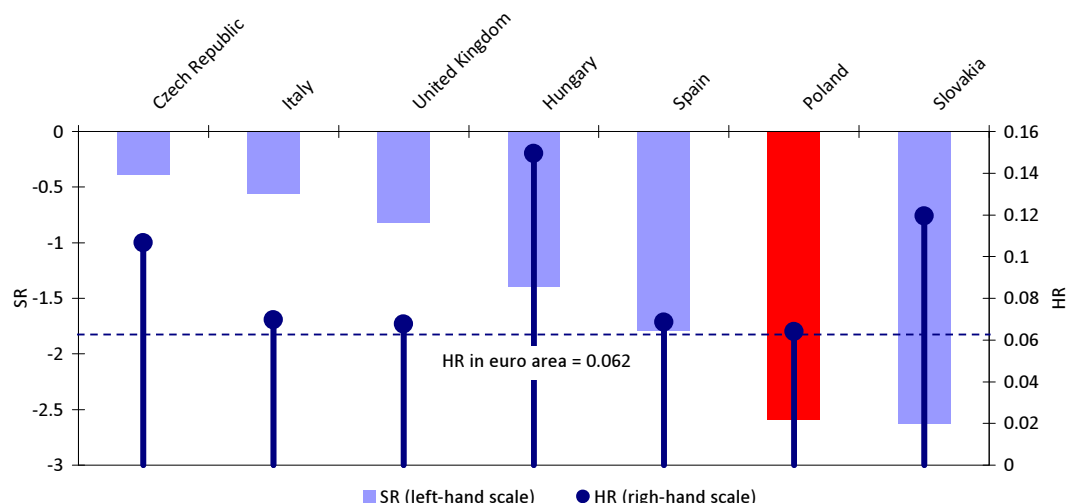


Source: NBP study based on the Central Statistical Office data.

Similarity of trade structure

Another aspect of real convergence which is important for the balance of costs and benefits related to the membership in the euro area is the similarity of trade structure. On the one hand, the similar structure of trade between Poland and the euro area makes it easier for the ECB to respond to potential changes in external demand. On the other hand, highly diversified export structure to a certain extent protects the economy *ex ante* against asymmetric shocks and minimizes their potential consequences for the economy (cf. Lavrac, Zumer, 2003).

Chart 2.11 Export structure and its diversification in selected countries as compared to the euro area



SR – Stattev-Raleva index, measuring the distance of the export structure from the same structure in the euro area;

HR – Herfindahl index, measuring the degree of product diversification of exports.

Source: Own analysis on the basis of Eurostat data.

2.2 Degree of real convergence

The product structure of Polish exports is less similar to the export structure of the euro area than to the structure of its member countries (cf. Chart 2.11)²⁷. However, some new European Union Member States aspiring to the euro area (including Slovakia which acceded to the area on 1 January 2009) are characterised by even less similarity of the export structure.

The structure of Polish exports is significantly different than in the euro area...

It turns out that the degree of diversification of the Polish exports measured by the Herfindahl index²⁸ is high, even if compared with more developed European Union countries (cf. Chart 2.11). Therefore, the consequences of potential asymmetric shocks for Polish exports may be mitigated.

...but its diversification is high.

High share of intra-industry trade, i.e. parallel export and import of goods with similar characteristics (within one industry), in foreign trade is a factor which decreases the risk of asymmetric shocks. The euro area countries are characterised by high indicators of intra-industry trade which results both from the strong economic integration linked to the removal of trade barriers and from increasing similarity of the economic development and structures. A factor which supports intra-industry trade on the supply side is the lack of technological gap, and on the demand side small disproportions in GDP *per capita* (National Bank of Poland, 2004a, pp. 36–37).

Table 2.4 Share of intra-industry trade in the euro area countries and in Poland (in % of trade)

	1996	2001	2006
Austria	73.0	71.6	83.8
Belgium and Luxembourg	72.6	73.7	80.1
Finland	38.5	38.4	47.5
France	77.1	81.0	86.7
Greece	39.6	43.4	68.6
Spain	64.8	70.1	83.0
Netherlands	74.7	77.8	88.9
Ireland	50.6	59.9	58.1
Germany	73.8	75.1	84.2
Portugal	48.7	58.3	76.5
Italy	55.4	55.2	67.2
Unweighted average	60.8	64.0	75.0
Poland	41.3	48.1	65.1

Source: Own analysis on the basis of National Bank of Poland (2004a) and Eurostat-Comext data.

Between 1996 and 2006, Poland significantly increased the share of intra-industry trade in its trade, over the average value of this indicator in the euro area of 2001 (cf. Table 2.4). It is worth noticing that in the first years of the functioning of the single currency area the highest growth rate of intra-industry trade was recorded in the countries with low level of this index and lower level of development (mainly Greece and Portugal) which indirectly confirms the hypothesis about the occurrence of endogenous convergence.

The share of intra-industry trade in Polish trade is increasing quickly.

²⁷ The indicators were calculated on the basis of 97 industries according to the HS-2 classification.

²⁸ The Herfindahl concentration index has the following formula: $HR = \sum_i (w_{ij})^2$, where w_{ij} – share of section i in country (or region) j . The Herfindahl index is within the range of (0, 1) and the higher value indicates higher specialization (concentration).

Business cycle synchronisation

Business cycle synchronisation is a “metacriterion” of an optimum currency area.

Due to the multitude of optimum monetary union criteria proposed in literature and the potential conflict between their recommendations (Tavlas, 1993), the theory of optimum currency areas is inconclusive in empirical applications. Therefore, the symmetry of shocks and responses to shocks and business cycle synchronisation perform the function of the so-called “meta” OCA properties. Such an approach is largely justified since in the case of the majority of criteria, their fulfilment increases the likelihood of symmetry of shocks and response to shocks in the future, which in turn leads to increased cycle adjustment in the monetary union member countries (Mongelli, 2008).

There are a number of determinants of business cycle synchronisation,

The cyclical convergence determinants which are most often analysed in literature include: (1) intensity of trade, (2) financial market integration, (3) exchange rate volatility, (4) fiscal policy coordination and (5) integration of monetary policy.

but their importance and even direction of impact are debated in literature.

Literature provides different views on the impact of international trade intensity on business cycle synchronisation, both theoretical and empirical. There are two contradictory standpoints in this regard (De Grauwe, 1997). The first (European Commission, 1990) states that international trade is one of the channels propagating shocks, since the changes in income in one country influence the external demand of another country. This theory is a source of optimism related to net benefits from the establishment of the common currency area. According to the second standpoint, the so-called Krugman specialization hypothesis (Krugman, 1993b), trade intensity has a desynchronizing impact on business cycles, since due to the effect of scale it leads to the specialization of the countries in line with their comparative advantages. Therefore, the structures of economies become less similar and industry-specific shocks began to play an increasing role among the shock affecting those countries.

Empirical evidence points to synchronizing potential of international trade.

The divergence of views on the impact of trade on cycle synchronisation is related to the opposing impacts of two types of international trade. The first type is intra-industry trade which is a channel of shock transmission, the other is the inter-industry trade which increases specialization. It is also related to the difficulties with estimating the net effect of the impact. The majority of empirical studies points to the synchronizing potential of international trade (de Haan, Inklaar, Jong-A-Pin, 2008), which is demonstrated by the fact that intra-industry trade accounted for the overwhelming majority of the trade increase after the creation of the euro area (cf. e.g. Imbs, 2004; Mroczek, 2008).

Financial integration probably has a positive impact on cycle synchronisation.

As in the case of trade, literature is inconsistent also with regard to the impact of capital flows on cycle synchronisation. On the one hand, the financial market integration leads to more effective allocation of resources and thus increases the specialization of regions (Kalemli-Ozcan, Sørensen, Yosha, 2001) but, on the other hand, multinational structures of assets result in a situation where a shock affecting a given country has an automatic impact on incomes in other countries. Moreover, globalisation of capital flows which facilitates investors' access to markets worldwide results in an additional mechanism of shock transmission, called the contagion effect (Forbes, Rigobon, 2000). The empirical studies so far point to the positive net impact of financial integration on cycle synchronisation (Imbs, 2004).

Cycle synchronisation is increased by the integration of fiscal policy...

Another potential determinant of cycle synchronisation is the integration of macroeconomic policy in different countries. Fiscal policy convergence may lead to more synchronisation since it eliminates idiosyncratic shocks which result from discretionary decisions of the governments of individual states. Independent fiscal policy may be used as a tool of macroeconomic stabilisation. Nevertheless, the results of empirical studies

2.2 Degree of real convergence

suggest that the similarity in the field of fiscal policy contributes to a larger symmetry of shocks and cycle correlation (among others Darvas, Rose, Szapáry, 2005).

The creation of a common currency area is by definition related to a common monetary policy in all member countries. It means full symmetry of monetary shocks. The symmetry may contribute to desynchronisation of business cycles, if the monetary transmission mechanisms are different. Moreover, if the countries are affected by idiosyncratic shocks, such shocks cannot be accommodated by means of changing interest rates, which may cause further cycle divergence (the so-called Walters' critique).

Apart from levelling nominal interest rates, the creation of a monetary union entails irreversible rigidity of exchange rates. From theoretical perspective, the relationship between the floating exchange rates and synchronisation is ambiguous. On the one hand, the elimination of exchange rate risk should contribute to higher intensity of trade (Rose, 2000), which may have a different net effect, as it has been mentioned earlier. On the other hand, the impact depends on the effectiveness of nominal exchange rate as a tool for shock accommodation, which may be slight, particularly in the case of small open economies. The literature on the subject is also inconsistent with regard to empirical aspects. The comparison of the cycle correlation in subperiods with different degrees of exchange rate volatility (Bretton Woods period, floating exchange rate period between 1973 and 1978, European Monetary System between 1979 and 1987, the years 1987–1992 and the period covering the preparations to create the euro area and first years of its functioning, i.e. 1993–2002) shows that the exchange rate plays a stabilizing role in the case of asymmetric shocks (Bergman, 2006). At the same time, the results of the study of Massmann, Mitchell (2003) show that high indicators of cycle components correlation were recorded in the periods of relatively fixed exchange rates.

The concept of cycle convergence includes numerous different issues. In the context of monetary integration in the euro area, those issues may be equated with the following research questions:

1. Do turning points of cycles of the euro area member countries coincide?
2. Are the deviations of economic activity from the potential activity in individual countries materially correlated with the euro area as a whole?
3. Is there a common cycle for the whole euro area?
4. Are shocks in individual economies and responses to those shocks symmetric?
5. What is the share of a “common factor” in fluctuations of the member countries?
6. Has cycle convergence occurred in the member countries after the creation of the euro area?

Cycle correlation of Poland and the euro area

The problem of potential insufficient cycle convergence of Poland and the euro area may be related to the risk of pro-cyclical impact of the ECB monetary policy on the Polish economy (cf. e.g. Frankel, 2004). The increased risk of pro-cyclical ECB policy would occur in the case of shift of Poland's business cycle with regard to the euro area or other frequency of fluctuations. This would cause a situation where the monetary policy would be inappropriate for Poland, as was the case in several other euro area countries (cf. Sławiński, 2008). Similarly negative consequences may occur



...and monetary policy, unless there are differences in the transmission mechanism.

The impact of exchange rate regime on cycle synchronisation is not explicit.

Insufficient cycle correlation causes a risk of inadequate ECB monetary policy.

because of different shocks affecting the Polish economy, as well as other responses of the Polish economy for demand and supply shocks than in the euro area. An important risk is also different depth of individual stages of the cycle. For example, higher amplitude of cycle fluctuations in Poland as compared with the euro area would result in insufficient responses of the common monetary policy. In the case of smaller amplitude of fluctuations, the reactions of the monetary policy would be excessive, which could lead to destabilisation of the economy.

As compared to other central and eastern European countries, the degree of synchronisation between Poland and the euro area is high.

The studies on the synchronisation of Poland's business cycle with the euro area bring vastly divergent results. The majority of the studies from between 1998 and 2005 confirm the conclusion that from among the countries of the central and eastern Europe Hungary, Poland and Slovenia demonstrate the highest synchronisation with the euro area (cf. Table 2.5). The cycle correlation was significantly smaller in the Baltic states and Slovakia, as well as those Balkan states which belong to the European Union.

Table 2.5 Results of studies on synchronisation of business cycles of the central and eastern European countries with the euro area, 1998–2005 (correlation ratios)

	Number of estimations	Minimum	Average	Median	Maximum
Hungary	57	-0.400	0.359	0.320	0.930
Slovenia	54	-0.460	0.257	0.263	0.980
Poland	58	-0.690	0.249	0.290	0.880
Czech Republic	58	-0.390	0.166	0.141	0.840
10 Central and Eastern Europe countries	463	-0.740	0.153	0.140	0.980
Estonia	53	-0.570	0.141	0.110	0.980
Latvia	51	-0.490	0.104	0.110	0.960
Bulgaria	17	-0.593	0.075	0.030	0.480
Slovakia	54	-0.740	0.014	0.020	0.900
Romania	14	-0.193	0.069	-0.010	0.860
Lithuania	47	-0.660	-0.069	-0.120	0.920

Source: Fidrmuc, Korhonen (2006).

The analyses prepared for the purposes of the *Report* also show that the changes of economic activity in Poland and the euro area in the examined period preceded the cycle of the euro area and had a higher amplitude (cf. Adamowicz et al., 2008; Skrzypczyński, 2008).

Results point to certain differences in business cycles of Poland and the euro area...

It is difficult to explain the fact that the changes in economic activity precede the business cycle of the euro area. One of the hypotheses points to the specificity of shocks influencing the cycle in Poland and the euro area between 1995 and 2007 and the mechanism of the transmission of those shocks in the two economies (cf. Skrzypczyński, 2008). The hypothesis of different character of shock is supported by the data according to which shocks (in particular demand shocks) in the Polish economy are asymmetric with regard to the euro area (cf. e.g. Stażka, 2008; Konopczak, 2008a). The problem of low correlation of shocks occurs in the majority of small economies of the euro area, such as Greece, Portugal, Ireland, Luxembourg, Austria, Netherlands and Belgium (Konopczak, 2008a). Similar justification may be found in the case of interpretation of results concerning significant amplitude of the Polish business cycle fluctuations as compared to the euro area.

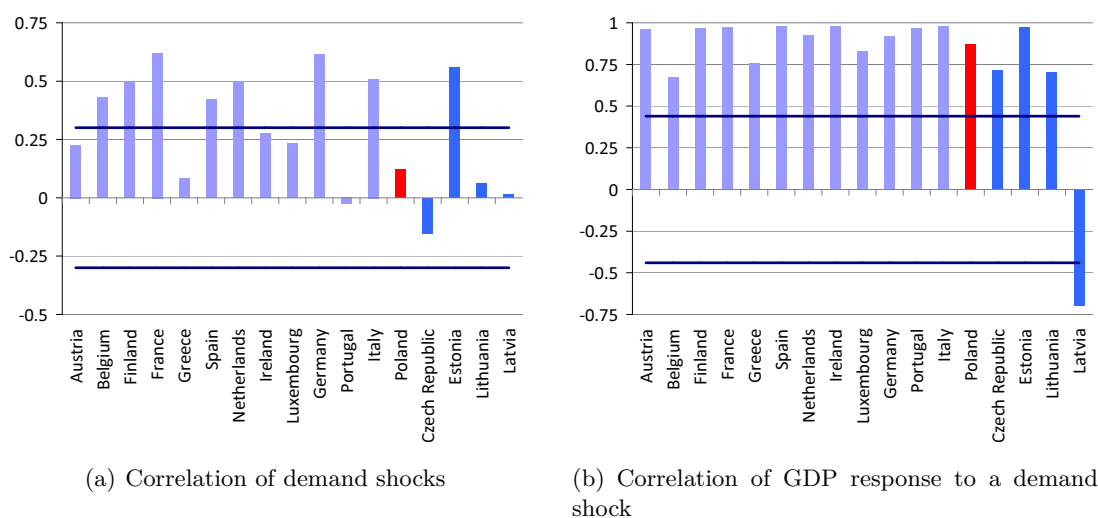
2.2 Degree of real convergence

The argument of asymmetry of shocks as the reason for systematic cycle of Poland which precedes the cycle in the euro area and the reason for higher fluctuation amplitude should be treated with caution. It should be emphasized that empirical analyses of the degree of synchronisation of Poland's business cycle with the euro area may be affected by specific situation of the Polish economy, especially in the 1990s. Firstly, the results may be distorted since for the most of the analysed period Poland was a transforming economy which underwent numerous structural and institutional changes. Secondly, fluctuations of economic activity in Poland were to a certain extent determined by two shocks, namely, the Russian crisis which had a lesser impact on the euro area and the boom related to Poland's accession to the European Union which did not have a direct impact on the business cycle in the euro area countries. Taking into account the short time series which may be used for analysing cyclical fluctuations of the GDP and its components, the impact of those factors on obtained results may be significant which is confirmed by e.g. Adamowicz et al. (2008).

The cyclical fluctuation amplitudes which are higher in Poland than in the euro area may also result from technical reasons. As argued by, among others, Skrzypczyński (2008), the majority of the euro area countries are characterised by higher amplitudes of cyclical fluctuations than the euro area as a whole since the business cycle in the euro area is an aggregate consisting of the cycles of the common currency area member countries. The phase shifts of cyclical fluctuations in individual countries naturally lead to the decrease in the amplitude of the aggregate cycle. The conclusion is confirmed by the analyses of Adamowicz et al. (2008), which show that the comparison of business cycles in Poland and in individual euro area member countries does not reveal higher amplitudes of the Polish cycle (in the majority of cases).

Another aspect of cyclical synchronisation is symmetry of shocks and responses to shocks. While the conclusions from analyses suggest (as it was earlier mentioned) that shocks affect Poland and the euro area asymmetrically, at the same time the results point to a strong synchronisation of Poland (to a similar extent as in many member countries) in terms of reaction to structural shocks (cf. Chart 2.12).

Chart 2.12 Correlation of demand shocks and responses to shocks in Poland and the euro area countries



Source: Konopczak (2008a).

... which may partly result from the shocks related to the system transformation...

...and partly from technical aspects.



The cyclical convergence of Poland and the euro area may increase.

The asymmetry of shocks revealed by the conducted studies remains a threat related to Poland's membership in the euro area, though it must be remembered that the accession to the currency union is related to the integration of some shocks, including those resulting from the common monetary policy and fiscal policy coordination. Due to a strong correlation of responses of the Polish economy and the euro area economies to shocks, as well as the integration of some shock as a result of accession to the monetary union, the cyclical convergence process may be expected to occur and the optimum common currency area criteria are likely to turn out endogenous in the case of Poland. It results from the process of trade integration (reflected in the increasing share of intra-industry trade, cf. Table 2.4) and the proceeding convergence of economic structures (cf. Adamowicz et al., 2008). The Polish business cycle may therefore be subject to further synchronisation with the euro area in the coming years. More recent studies, based on extended time series, suggest a higher degree of cyclical convergence of Poland with the common currency area countries (cf. Konopczak, 2008a). The increasing cycle synchronisation may to a certain extent coincide with the finalisation of the system transformation period in Poland²⁹, as a result of which the fluctuations of economic activity of Poland are to a lesser extent distorted by structural changes.

The experience of Slovakia in the euro area should provide valuable information. Potential problems resulting from inadequacy of the ECB monetary policy and the method of solving them in Slovakia may be important for Poland. It is worth emphasizing that according to the overwhelming majority of analyses Poland is better synchronised with the euro area than Slovakia.

Cycle correlation in the euro area

There is a significant divergence in the results concerning the degree of synchronisation of the euro area countries.

The results of studies on cyclical convergence in the euro area are divergent in many aspects. It concerns both the degree of cycle synchronisation, as well as its sources and evolution. Some studies point to a strong correlation and the possibility to identify a common cycle for the whole euro area. Others draw attention to a very poor synchronisation of certain countries, at the level of correlation with Japan or the United States (de Haan, Inklaar, Jong-A-Pin, 2008). The divergence of results may be partly explained by a wide range of problems analysed and a large number of quantitative methods used for the analysis of business cycle synchronisation and cyclical convergence which leads to the identification of various types of information on the basis of the data (see: Box 2.3).

Box 2.3 Methodology of determining the degree of business cycle correlation

Business cycle synchronisation. The studies on synchronisation refer to two definitions of business cycles, namely, the “classic” cycle and the “growth cycle” or, in other words, the “deviation cycle”. The first concept, which is based on the Burns and Mitchell’s studies (1946)^a, entails the analysis of economic activity changes in absolute terms, while the second and more modern one concentrates on deviations of current economic activity from the trend^b.

As regards “classic” cycles, modern empirical studies are dominated by two approaches. The first one is the automation of business cycle dating procedure

²⁹ The World Bank announced the end of the transformation period in Poland in May 2008.

used by the National Bureau of Economic Research (NBER) by means of the Bry, Boschan (1971) algorithm for monthly data and the Harding and Pagan (1999) algorithm for quarterly data. Turning points are identified by comparing the economic activity changes in a given quarter (month) with two preceding and two following quarters (five preceding and five following months). If the activity in a given period is a local optimum, then the period is a turning point of the cycle.

A more modern approach to the identification of business cycle turning points is the Markov Switching Model proposed by Hamilton (1989). The methodology is based on the assumption of non-linear character of business cycles; the parameters of the process generating the economic activity changes are different depending on another, hidden process, i.e. the phase of the cycle. Different parameters of regression equation may be subject to change, including the intercept, parameters of explanatory variables^c, as well as the random component variation. It allows to capture asymmetry between the phases of the cycle in terms of its duration, volatility and amplitude. Homogenous Markov chain is an unobserved process steering the phase changes (“switches”). According to the algorithm proposed by Kim (1994), each observation may be assigned with the probability of the economy being in a certain condition (recession or expansion) in a given period. The cycle phase is assigned to individual observations according to the highest probability principle.

The convergence of „classic cycles” is analysed with the use of two indices, namely, the concordance index of Harding and Pagan (2003) and the diffusion index of Artis et al. (2002). The first reflects the percentage share of the number of periods when two series are in the same cycle phase in the sample. The second is its generalization for a group of more than two countries; it reflects the percentage of economies in the same phase as the whole group. In the case of cycles identified by means of switching models, the correlation ratio between the series of probability that individual countries are in a given cycle phase may also be calculated.

The extension of the Markov model to a group of several countries (Markov-Switching Vector Autoregressive model – MS-VAR) allows to verify the hypotheses of the existence of common factors responsible for cycle synchronisation in individual countries. The specification of the model assumes that switching takes place simultaneously in all analysed countries. A hypothesis is verified on the basis of significance test of differences between the average economic activity changes in both phases for individual economies. A positive verification means that the common business cycle correctly reflects the course of economic processes in the analysed countries.

Under the “deviation” concept of business cycles the synchronisation analysis consists in the analysis of correlations of cyclical components, i.e. fluctuations in the preset frequency range, separated from original series using frequency filters^d or other series decomposition techniques^e. More thorough analysis in this regard is possible thanks to the application of spectral analysis techniques. The analysis allows to isolate the fluctuations with a specific frequency, including the cycles which are the most important from the point of view of monetary transmission mechanism, and to test the degree of correlation between the countries. Moreover, the methodology allows to estimate the size of phase shift of the cycles and differences between their amplitudes.

Analysis of symmetry of shocks and responses to shocks. A different approach to business cycle synchronisation analysis (within the framework of their “classic” and “deviation” definition) is offered by the analysis of shock symmetry and the symmetry of economies’ response to shocks (shock accounting). This type of analysis allows to abstract a “net” synchronisation measure, i.e. the part of common fluctuations resulting from common shocks (de Haan, Inklaar, Jong-A-Pin, 2008). This is an advantage over the analysis of the correlation of “deviation” cycles and the convergence of “classic” cycles which do not determine whether the similarities of variables reflecting the economic activity in both countries result from similar responses to common shocks (“net” synchronisation) or from similar responses of the economies to idiosyncratic shocks (“ostensible” synchronisation). Therefore, the results of cycle synchronisation analysis are usually more optimistic than in the case of shock accounting approach. However, analysis of cyclical convergence is more useful for practical reasons, since it allows to synthetically determine whether a common monetary policy would be appropriate for a given group of countries (de Haan, Inklaar, Jong-A-Pin, 2008).

The symmetry of shocks and responses to shocks are most often analysed using the structural vector autoregression models (sVAR) as well as dynamic factor models.

The analyses under the vector autoregression models are based on Blanchard and Quah (1989) decomposition which consists in the identification of structural shock series by applying identification restrictions to the VAR model. The restrictions are compliant with long-term consequences of the shocks for the economy described in the theory of economy.

The most often applied specification is a two-equation model with the GDP growth rate and price level as endogenous variables. The identification in such a case is based on the assumption that in the long-term a positive demand shock leads only to the increase in price level, and a positive supply shock results in both the increase in product and decrease in price level.

The basic model may be expanded by adding another variable to the endogenous variables vector (it is usually the real effective exchange rate). This allows to analyse the similarity of economies’ responses to a monetary policy impulse.

The analysis of structural shock symmetry for two countries consists in establishing bilateral correlation ratios of identified series. The symmetry of the economies’ responses to shocks as a measure of similarity of flexibility of the economies is analysed by means of the series of responses of endogenous variables of the VAR model for individual countries to single shocks. The sVAR methodology also allows to analyse the transmission of shocks between economies and determine its channels and contribution to the fluctuations of economic activity in a given country.

Analogous analysis of shock symmetry and transmission may be carried out with dynamic factor models. That methodology has an advantage over sVAR models, since it does not require a priori assumptions concerning the structure of the economy and allows to take into account a very large number of variables. It is also possible to estimate common trends for a group of countries and a part of economic activity variation caused by those factors.

^a According to this definition, business cycles are fluctuations of aggregates representing economic activity (GDP and its demand and supply components, as well as industrial production, are analysed most often) with a duration of 1.5 year to 10–12 years (Burns, Mitchell, 1946).

^b This approach is compliant with the definition of the cycle proposed by Lucas (1977), according to which cyclical fluctuations are irregular oscillations around the path of long-term economic activity growth.

^c In empirical applications, explanatory variables in switching models are ordinary delays of dependent variables; thus the models are autoregressive which is recorded as MS-AR.

^d The most often used filters include the high-pass Hodrick-Prescott filter and the approximations to the ideal band-pass filter by Baxter-King and Christiano-Fitzgerald.

^e Including the Beveridge-Nelson decomposition and unobserved component model.

Source: NBP study.

The use of different methodology cannot account for all the discrepancies, since they occur also in the studies conducted with similar techniques, which demonstrates a high vulnerability of results to the scope of sample and model specifications. To add more robustness to the conclusions, the chapter presents an extensive overview of the results of the most recent studies on business cycle synchronisation in the euro area countries (Table 2.6).

Despite a significant divergence of the study results, they may be used as a basis for some general conclusions. The main conclusion is the division of member countries into the “core” and “peripheries” due to the degree of cycle synchronisation with the euro area as a whole. Although there is no agreement in literature as to the composition of the two groups, some countries may be explicitly classified into one of them. Traditionally the “core” included Germany, Italy, France, Austria and the Benelux countries (approximately the so-called mark block). The “peripheries” include the catching up countries of southern Europe (Portugal, Spain and Greece), as well as Ireland and Finland. It is important to ask whether this division is adequate according to the most recent studies.

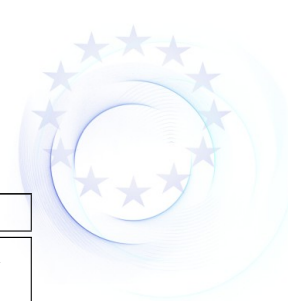
The results concerning synchronisation allow to divide the euro area into the “core” and “peripheries”.

Table 2.6 Overview of studies on business cycle synchronisation in the euro area countries

Authors	Methodology	Period	Conclusions
Skrzypczyński (2008)	Spectral analysis techniques; Christiano-Fitzgerald filter	1995–2007; quarterly and monthly data	In general a high degree of cyclical correlation of the member countries with the euro area as a whole. In the case of cyclical component separated from the GDP series, the correlation ratios are within the range from 0.6–0.7 in Slovenia and Portugal to 0.97 in Germany. As regards industrial production, the highest ratio is recorded in Germany (0.98). Correlation ratios exceed 0.75 for all countries, except for Portugal which is irrelevantly correlated with the reference cycle. Almost all member countries are characterised by higher amplitudes than the cycle of the euro area as a whole. The lack of explicitly preceding or delayed cycles with regard to the euro area.
Adamowicz et al. (2008)	Blanchard-Quah decomposition	1995–2007; quarterly data	The symmetry of the response of economic activity (GDP) of the euro area countries to a single supply shock is very high (correlation ratio above 0.9). As regards the responses of economies to a demand shock, significant heterogeneity is visible.

Authors	Methodology	Period	Conclusions
Konopczak (2008a)	Bry-Boschan algorithm, Markov switching models, structural models of vector autoregression (Blanchard-Quah decomposition; decomposition into symmetric and asymmetric shocks)	1996–2007; quarterly and monthly data	<p>The cycles of Germany and Italy have the highest correlation with the cycles in the euro area. France is synchronised moderately. The lowest correlation, and even signs of desynchronisation, were observed in Greece. Synchronisation is also relatively low in the Netherlands. In the case of Portugal, Belgium, Finland and Ireland, the results are inconclusive.</p> <p>Only in a part of member countries there is a significant positive correlation of shocks with the euro area. Only France, Spain, Germany, Italy and Finland demonstrate positive correlation with regard to both types of shocks (demand and supply). In the case of Greece, Portugal, Luxembourg and Ireland, in both cases the correlation with the shocks affecting the euro area is statistically irrelevant. The responses of the economies to single structural shocks, as well as the shocks affecting the euro area, are very similar in all countries with the exception of Greece.</p>
Gouveia, Correia (2008)	Spectral analysis techniques	1980–2004; quarterly data	<p>The highest degree of cycle synchronisation with the euro area and the lack of phase shift were recorded in Italy, Belgium, Netherlands, Germany and France. Cycle delay and medium synchronisation were recorded in Portugal and Greece, while the leading cycle was observed in Spain (medium synchronisation) and in Finland (the lowest correlation in the whole group).</p>
Xiaoshan (2007)	Harding-Pagan algorithm; Markov switching model	1970–2006; quarterly data	<p>A clear division of countries into the “core” (Germany, France, Belgium, Austria and the Netherlands) and the “peripheries”.</p>
Eickmeier (2006)	Dynamic factor models	1982–2003; quarterly data	<p>The analysis of the degree in which common factors account for the volatility of economic activity of the euro area countries shows that those factors are responsible for the largest variation of the product dynamics in France and Germany, as well as in Belgium Austria and Portugal (share between 51% and 56%), and the smallest in Greece, Luxembourg and Ireland (13%–16%). In the case of inflation, common factors were the most relevant in Germany, Luxembourg, Belgium and France (45%–55%), and the least relevant in Greece, Portugal and the Netherlands (4%–9%).</p>
Skrzypczyński (2006)	Spectral analysis techniques; Christiano-Fitzgerald filter	1997–2005; quarterly data	<p>It is possible to identify several groups of the euro area member countries, namely, (1) Germany, Austria and France with very high synchronisation with the euro area, lack of phase shift and similar amplitudes; (2) Italy, slightly less synchronised, with higher amplitudes; (3) Belgium, Netherlands and Spain with largely synchronised but leading cycles; (4) Portugal with medium correlation and delayed cycle; and (5) Finland with no signs of synchronisation.</p>

2.2 Degree of real convergence



Authors	Methodology	Period	Conclusions
Crowley, Lee (2005)	Wavelet analysis; VAR-GARCH model	1970–2004; quarterly data	France has the cycle which is best correlated with the euro area for all ranges of frequencies. The analysed countries may be divided according to frequencies for which they demonstrate correlation with the euro area: (1) Denmark, Sweden and the United Kingdom for high frequencies; (2) Greece and Ireland for low frequencies; (3) Finland for none; (4) other countries are relatively well synchronised for all frequencies.
Breitung, Eickmeier (2005)	Dynamic factor models	1993–2003	Common factors explain the highest part of the volatility of series in the case of France and Germany and the lowest in the case of Greece and Portugal (GDP), as well as the Netherlands and Portugal (inflation). Common factors account for the volatility in the euro area in 44% on the average in the case of GDP and in 37% in the case of inflation.
Ide, Moës (2003)	Structural VAR models (Blanchard-Quah decomposition; decomposition into symmetric and asymmetric shocks)	1971–2000; quarterly data	In the majority of the euro area countries (except for Finland and Ireland), symmetric shocks are the main source of fluctuations. An increase in the symmetry of responses to common shocks was observed. The responses to shocks in Portugal, Ireland, Finland and Greece were the least symmetric as compared to the euro area. It is asymmetric shocks, and not different responses to common shocks, that are the main source of asymmetry. France proved to be the least symmetric country as compared to the euro area as a whole, both in terms of GDP and inflation. France is followed by Germany, Austria, Belgium and the Netherlands, and then by Italy and Spain, Finland, Portugal and Greece. Ireland proved to be an outlier.
Frenkel, Nickel (2002)	Blanchard-Quah decomposition	1993–2001; quarterly data	Belgium, Germany, France and Italy, as well as Denmark and France are the best correlated with the euro area in terms of demand shocks. Relatively high negative correlations are recorded in the Netherlands (-0.6) and the United Kingdom (-0.2). Supply shocks in almost all euro area countries, apart from Greece, Netherlands and Portugal, are to a large extent synchronised. The GDP responses to the demand incentive are in all countries strongly positively correlated, while the changes in prices are characterised by a higher dispersion with high negative indicators.

Authors	Methodology	Period	Conclusions
Krolzig (2001)	Markov switching models	1979–2001; quarterly data	The verification of the hypothesis about the existence of a common business cycle for the euro area. The common cycle for the whole euro area to a large extent reflects the fluctuations of economic activity in Germany, Spain, France, Italy, Austria and the Netherlands. It is not significant in the case of the cycle in Finland and Belgium.

Source: NBP study.

Cyclical convergence after the creation of the euro area

Despite the earlier theoretical dispute on the impact of the euro area creation on the cycle synchronisation...

As it has been mentioned earlier, the dispute about the impact of monetary union on the business cycle synchronisation started in literature even before the euro area was created. According to one of the hypotheses, the economic and monetary integration leads to the sectoral specialisation of production in individual countries. As a result, the diversification of the productions structure and trade is increasing which causes the cycle divergence of the economies constituting the monetary union (cf. e.g. Krugman, 1993b). The predicted increase in specialisation as a result of the adoption of a common currency results from the facilitated flow of factors of production (capital and labour) with growing effects of scale. Another hypothesis claims that the scale of intra-industry trade increases as a result of deeper integration, which is why the structures of production and foreign trade become similar to one another. As a result, common currency contributes to the increased synchronisation of cycles in individual countries (cf. Frankel, Rose, 1998). The resolution of the above dispute is important for a country acceding to the euro area, since the country has to determine the time of being at risk of inadequate monetary policy of the ECB. It is therefore worth referring to the studies which examined the relation between the monetary integration and business cycle synchronisation.

The conclusion stemming from the majority of analyses is that the degree of business cycle synchronisation was higher in the period of the ERM functioning than it was before (cf. e.g. Artis, Zhang, 1995; Garnier, 2003). The majority of the studies (with the exception of Camacho, Perez-Quiros, Saiz, 2006) show that the convergence of business cycles of the future member countries took place during the preparations to create the euro area. However, the literature is not consistent as regards the impact of the euro area functioning on the degree of cycle synchronisation. Some studies point to the decreased degree of synchronisation after the creation of the euro area, among others, as a result of increased asymmetry of fiscal policy (cf. e.g. Amador, Cuaresma, 2006; Camacho, Perez-Quiros, Saiz, 2006). Other analyses show that cyclical convergence occurred and may be treated as a results of monetary integration (cf. e.g. Bergman, 2006; Massmann, Mitchell, 2003). According to yet other analyses, the overall degree of cycle synchronisation increased from the moment of the common currency area creation, but the individual countries of the euro area experienced the periods of both convergence and divergence (cf. de Haan, Inklaar, Jong-A-Pin, 2008).

...although the conviction about the convergence of “peripheries” to the “core” is not common.

At the beginning of its membership in the euro area Poland would be a peripheral country of the common currency area (among others due to structural differences and a significantly lower level of development). Therefore, it is worth paying attention to the experiences related to the synchronisation of cycles between peripheral countries (e.g. Portugal, Greece, and Finland) and the “core” of the euro area. While the results

2.2 Degree of real convergence

of the majority of studies confirm the increase or stabilisation of cycle synchronisation in the “core” countries (cf. Darvas, Szapáry, 2004; Xiaoshan, 2007; Gouveia, Correia, 2008), the results concerning cyclical convergence between the peripheral countries and the core are unequivocal. Skrzypczyński (2006) points to the lack of increased synchronisation of the cycles of Portugal and Finland with the euro area and to the periods of cyclical convergence and divergence, as do Gouveia, Correia (2008). The results of studies concerning the degree of the synchronisation of Greece’s business cycle with the euro area are divergent as well.

The studies on the cycle synchronisation at the regional level (cf. de Haan, Montoya, 2007) also reveal different patterns of cyclical convergence. The synchronisation increased in some regions and remained the same in other, both those with low and high initial correlation ratios. Overall convergence with regard to average correlation and the dispersion of correlation ratios was observed only in the period from the adoption of the Maastricht Treaty to the creation of the euro area.

However, the ambiguity of conclusions concerning the impact of the euro area on cyclical convergence, which stem from the analyses conducted 5–8 years after the creation of the common currency area, should not be a surprise. The endogeneity of optimum currency area criteria is considered to be one of medium or long-term consequences of the monetary area which could not be fully revealed yet. Empirical evidence shows, however, that the process of monetary integration influences the determinants of business cycle synchronisation. A significant increase in the share of intra-industry trade observed in recent years in the euro area (cf. Table 2.4), which translates into a growing similarity of economic structures, allows to think that the hypothesis about the increased cycle synchronisation in the euro area will be confirmed in the longer term. It will also be supported by a better coordination of fiscal policy (thanks to the revised Stability and Growth Pact). It will probably eliminate one of the indicated possible reasons for cycle desynchronisation which is asymmetric fiscal policy in the euro area countries (cf. Amador, Cuaresma, 2006).

Cycle synchronisation is a long-term effect of monetary integration.

Membership in the euro area and the “catching-up process”

Convergence *sensu stricto* (the so-called sigma-convergence) consists in the reduction of dispersion of labour productivity (or GDP *per capita*) in a group of countries. A prerequisite for sigma-convergence is beta-convergence (cf. e.g. Barro, Sala-i-Martin, 1992), i.e. the catching-up process. It consists in achieving higher economic growth rates by the countries with lower starting level of the GDP per employee and *per capita*. The potential impact of the euro area membership on the convergence process is very important for Poland. The possible consequences of the fact that Poland is a catching-up economy for the functioning within the common currency area is equally important.

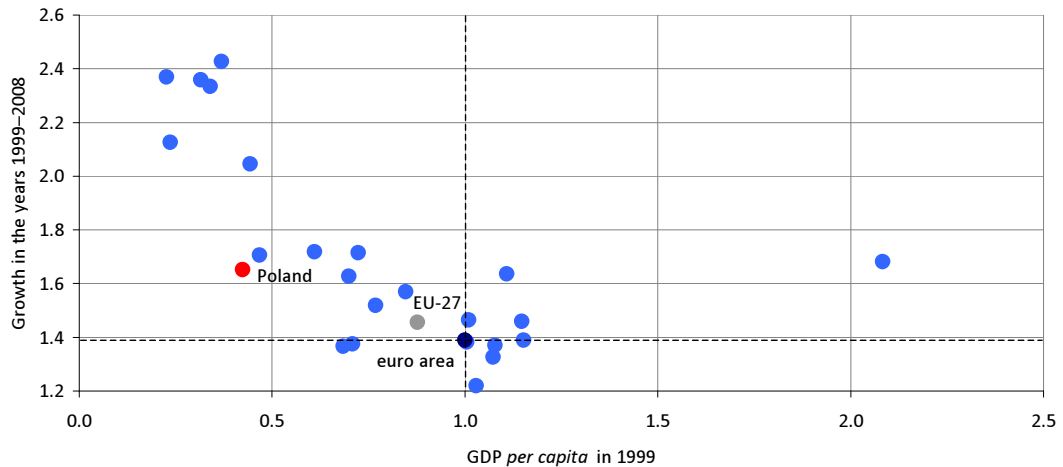
The basic mechanism of the catching-up process is the levelling of marginal productivity of factors of production. Its occurrence (in absolute form or depending on certain fundamental similarities of the economies) was confirmed by numerous empirical analyses. Abreu, de Groot, Florax (2005) carried out a meta-analysis which showed that only a small percentage of 619 tests on various groups (most often the OECD countries, the European Union and the regions in larger countries) between 1992 and 2003 concluded in the rejection of the hypothesis about the occurrence of beta-convergence.

Economists agree that Poland is one of the countries subject to the catching-up process which is demonstrated by a higher average economic growth rate in Poland as compared to the euro area countries (cf. Chart 2.13). Between 1999 and 2008 the average annual

Poland is a “catching-up” country; it grows faster than the euro area.

GDP growth rate in Poland was over two times higher than in the euro area, thanks to which the distance measured by GDP per capita (calculated according to the purchasing power parity) declined by 8 percentage points³⁰.

Chart 2.13 GDP per capita in 1999 and economic growth between 1999 and 2008 in the EU-27 as compared to the euro area



Source: Own analysis on the basis of Eurostat data.

Poland needs to maintain a high economic growth rate.

It is possible to make up the distance in development separating us from the euro area countries, but it requires the economic growth rate in Poland to remain on a much higher level than in the highly developed countries. The theory of economy emphasizes that it requires large outlays of factors of production.

The functioning in the euro area is influenced by both the low GDP per capita...

Both the disparity of the economic development level and the reduction of this gap may have specific consequences in the context of the euro area membership. On the one hand, differences in GDP *per capita* and in incomes influence the structure of consumption. As it has been emphasized earlier, Poland, whose GDP *per capita* is significantly lower than in the euro area, is characterized by a relatively high share of basic goods in consumption and a low share of superior goods. The resulting difference of consumption demand structure may increase the risk of asymmetric shocks after the adoption of the common currency. The catching-up process may therefore influence the gradually growing similarity of demand structures (in particular consumption demand) which would contribute to the reduction of shock asymmetry. This would make the responses of the common monetary policy more adequate for Poland.

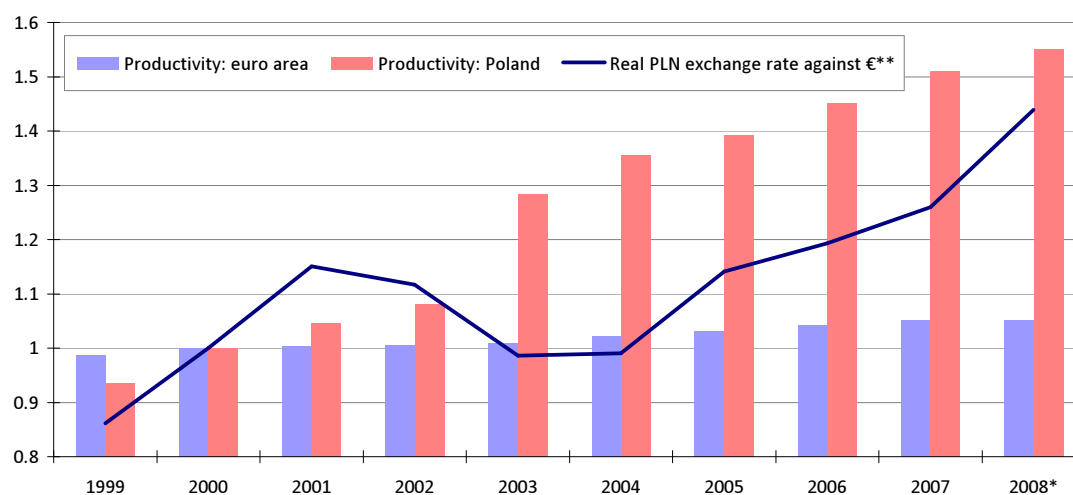
...and the fast labour productivity growth in Poland...

The catching-up process may also be a source of threats. A fast growth of labour productivity in the sectors manufacturing tradables results, in accordance with the so-called Balassa-Samuelson effect (cf. Box 2.4), in the increase in wages, not only in those sectors, but also in the entire economy. It gives rise to the risk of increased inflationary pressure in the country with a fast labour productivity growth. Labour productivity in Poland grew in recent years significantly faster than in the euro area, which was indeed accompanied by real appreciation of the zloty (cf. Chart 2.14).

³⁰ Polish GDP per capita increased from 42.1% of the level of the euro area in 1999 to 50.4% in 2008 (according to preliminary estimations of Eurostat).



Chart 2.14 Growth rate of labour productivity and real PLN exchange rate (2000 = 1)



* Data for 2008: labour productivity – forecast; real exchange rate – average for the period between January and August.

** Growth means PLN appreciation.

Source: Own analysis on the basis of the ECB and Eurostat data.

Box 2.4 Balassa-Samuelson effect

The Balassa-Samuelson model is a model of a small open economy with two sectors, namely, a sector producing tradables (T) and a sector producing nontradables (NT). The model assumes the following (cf. Balassa, 1964 and Samuelson, 1964):

1. Labour productivity (a) in the open sector (tradables sector) grows faster than in the nontradables sector;
2. Wage levels (w) are determined in the open sector, where wages are directly related to the labour productivity:

$$w^T = a^T + (1 - \alpha)(k^T - l^T),$$

where k is the capital input and l is the amount of labour;

3. There is a tendency in the economy to equalise the wages in tradables and nontradables sectors, as a result of competition between the employees from individual sectors:

$$w^{NT} = w^T;$$

4. There are constraints on the international mobility of labour force (l) with its simultaneous perfect inter-sector mobility;
5. There is perfect capital mobility (k) between the countries and sectors in a given country, which implies the exogeneity of interest rates.

According to the Balassa-Samuelson's hypothesis, the catching-up process in developing economies will contribute to the increase in labour productivity in the nontradables sector. The productivity increase in the open sector results in the growth of wages in this sector, at the same time contributing to the increase in

wages in the nontradables sector (e.g. numerous types of services) where the labour productivity did not increase. Wage increase in the nontradables sector translates directly in the discussed model into the growth of prices (p) of nontradables which, as a result of price index growth, leads to real appreciation of the national currency. The Balassa-Samuelson effect may be thus formulated as follows:

$$(p^{NT} - p^T) = \gamma a^T - a^{NT}.$$

Source: NBP study.

Labour productivity increase may cause the growth of inflation and current account deficit.

Price increase as a result of the Balassa-Samuelson effect, which causes real appreciation of the national currency, is currently partly absorbed by the nominal appreciation, i.e. increase in the value of currency. In the case of fixed exchange rate, the real appreciation would be entirely revealed in the form of higher inflation (cf. e.g. Buti, 1998, p. 204). It would mean the risk of failing to maintain price stability after the adoption of euro for Poland, and further on, the deterioration in the competitiveness and growth of current account deficit. A restrictive fiscal policy, forced by the necessity to curb inflation, may then have an additional negative impact on the pace of economic growth (cf. e.g. Frankel, 2004).

The degree of price convergence between Poland and the euro area is increasing,

The results of empirical studies show that the real convergence process taking place in the new EU Member States leads to the levelling off of price levels (Lein-Rupprecht, León-Ledesma, Nerlich, 2007, p. 7), and the impact of the changes in relative level of GDP per capita in new Member States on the relative price level was much higher than in the group of “old EU” states (Woźniak, 2008). It points to the greater importance of real factors in the process of establishing prices in new Member States as compared to the EU-15 countries.

though remains low.

The average level of prices of goods and services in Poland, as compared to the price levels in the euro area countries, is still relatively low. The average level of prices of goods and services included in the GDP in Poland in 2007 amounted to 59% of the average price level in the euro area countries (cf. Chart 2.15). The convergence of goods prices is much higher than in the case of services (74% for consumption goods prices and 48% for consumption services prices, cf. Woźniak, 2008).

Taking into account the GDP per capita, the price level in Poland is relatively high.

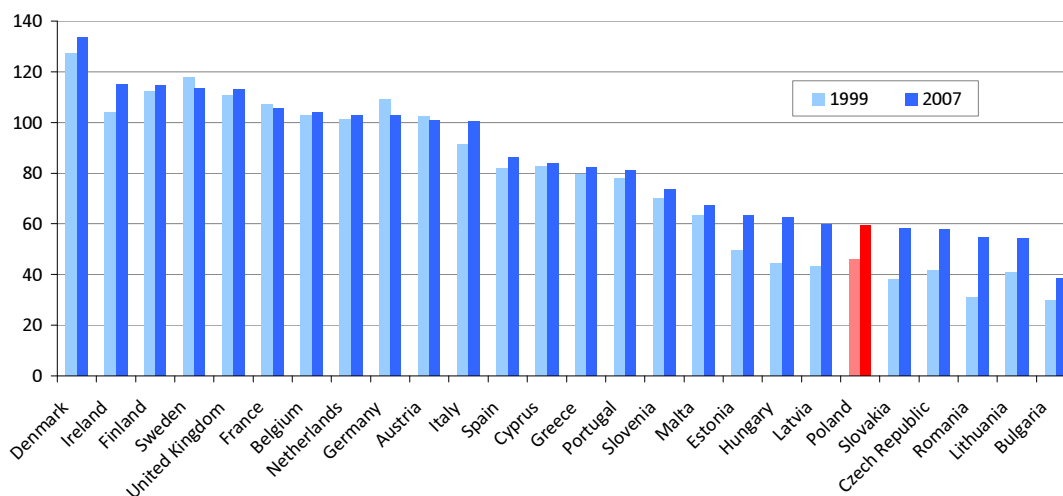
Despite the fact that within the last 10–20 years, the average level of prices of goods and services significantly increased in all new European Union Member States, it is still significantly lower than in the countries of the so-called old Union (cf. Egert, 2007, p. 4). It is worth noticing that the average price level in Poland (59% of the EU countries average) is higher than the GDP *per capita* (49% of the average, cf. Chart 2.16). The average price level in Poland is higher than in Slovakia and the Czech Republic, where the GDP *per capita* is higher than in Poland (63% and 74% of the average, respectively). The results of studies show that a relatively high price level in Poland, as compared to other new Member States, may result from lower competition (measured by the degree of economy openness), as well as from relatively high taxes (Woźniak, 2008). A rather strong nominal appreciation of the Polish currency against the euro was also a very important factor influencing the average price level in Poland in recent years.

The natural rate of interest in Poland is higher,

Summing up, the real appreciation of the zloty, accompanied by a higher economic growth of Poland as compared to the euro area, has some consequences for the monetary policy. In particular, the interest rate guaranteeing stable inflation and economic growth rate equalling potential, i.e. the so-called natural rate of interest, may be different in Poland than in the euro area. Indeed the estimations of the natural rate of interest show that it amounts to around 4% for Poland, and is 2 percentage points lower for the

2.2 Degree of real convergence

Chart 2.15 Average level of prices of goods and services included in the GDP in Poland in 1999 and 2007 (euro area = 100)



Source: Woźniak (2008).

euro area (Brzoza-Brzezina, 2005). The monetary policy in the euro area is construed for the purposes of the common currency area, consisting of developed economies, and may prove inadequate for Poland.

A premature accession to the euro area, related to the adoption of excessively low level of interest rate, may thus lead to the loss of balance between the aggregate demand and total supply. It may increase in particular the risk of loan boom, inflation growth and then the deterioration of competitiveness.

A smaller distance between Poland and the euro area in terms of the GDP per capita would help eliminate the abovementioned threats. There are, however, arguments claiming that the achievement of full convergence of income level does not have to be a prerequisite for Poland's accession to the euro area. According to the endogenous convergence hypothesis which gains increasing support in empirical studies, being inside the monetary union Poland may faster achieve the level of economic development similar to the one recorded in the euro area. In the case of waiting for achieving similar labour productivity and GDP per capita as in the euro area, the plans of monetary integration would have to be put off for several dozen years.

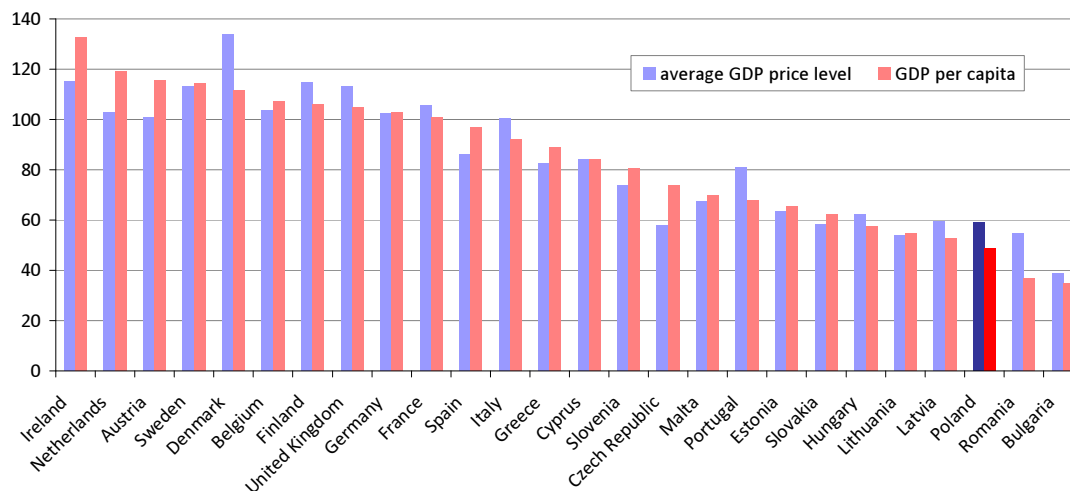
The analysis of the impact of the euro on the catching-up process may be enriched by the analysis of the cases of peripheral countries, in particular Greece, Spain, Portugal and Ireland, the first three of which had a relatively low level of GDP per capita before the adoption of the euro. Nevertheless, the development distance of all those countries was significantly smaller than the current distance between Poland and the euro area (cf. Chart 2.17).

The initial experiences of peripheral economies show, however, that in each case the ability of catching up or deconvergence were determined by specific features of their economies. Nevertheless, convergence was observed in the economies of three of the abovementioned countries, namely, Greece, Spain and Ireland, while Portugal experienced deconvergence (cf. Box 2.5).

which is why low interest rates in the euro area may destabilise the Polish economy.

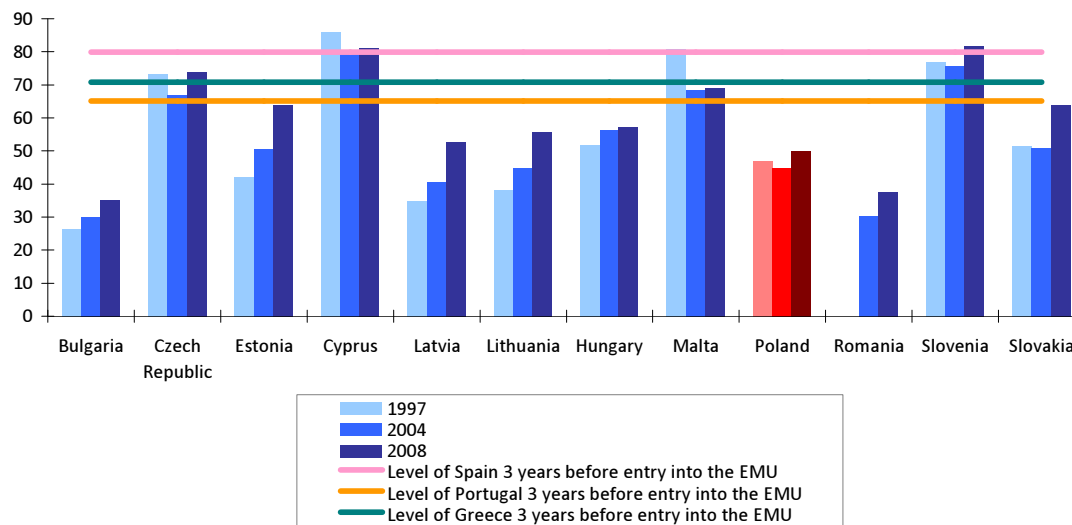
Real convergence may proceed faster after the adoption of the euro.

Chart 2.16 Average price level and the GDP *per capita* in Poland as compared to the euro area countries and other EU Member States in 2007



Source: Woźniak (2008).

Chart 2.17 GDP *per capita* in the countries of central and eastern Europe in 1997, 2004 and 2008 (EU-15 = 100)



Source: Eurostat.

Box 2.5 Reasons for deconvergence in Portugal

It is worth taking a closer look at the case of Portugal where a clear deconvergence process took place between 1999 and 2006. The main sources of the failures of the Portuguese economy include:

- Low quality of factors of production (measured by the level of education and qualifications of employees and the level of technical and organisational advancement). It is a consequence of ineffective education system, frequent giving up on education in the group of people aged up to 24, lack of the

strategy for improvement of the quality of personnel of Portuguese enterprises by means of training and the highest illiteracy ratio in the European Union. The economy is also characterised by a low ability to generate knowledge and technology and by small inclination to import them. Until the end of 1990s, the economy absorbed foreign investment located mainly in services (70–80%) aimed at the penetration of the market, not export activities.

- Very high ratios of the labour market and the goods and services market regulation which led to inefficient use of factors of production, and as a result to maintaining low labour productivity.
- Focus of the economy on production with low added value. With relatively low unemployment and high employment level, it led to the increase in wages in the situation of deteriorating labour productivity and loss of external price competitiveness of exports. The increase in the euro exchange rate in international markets from 2001 and deterioration of the quality and profitability in the textile, shoe and automotive industries as a result of competition from central and eastern European countries and Asia led to the relocation of foreign investment even before the accession to the euro area. Nevertheless, the increase in FDI was visible in Portugal after 2001. Sectors and subsectors important for the economy experienced various external and internal shocks, such as forest fires in the years 2001-2005 which caused losses amounting to around 3% of the GDP.
- Consumption and investment boom as a result of significant reduction of interest rates in the second half of the 1990s. It led to the deterioration of internal balance expressed by a strong rise in inflation and of external balance, measured by a deepening current account deficit (almost 10% of the GDP in 2006) and a negative investment position of the country (debt amounting to around 75% of the GDP in 2006). The relatively efficient banking sector paradoxically contributed to the situation since it efficiently acquired funds on liquid financial markets and transferred them to the country. Strong credit expansion was revealed already in the years 1995-1997. Despite the fact that Portugal was the poorest country of the euro area, it had the most indebted household sector (increase in credits from 30% of the GDP in 1995 to over 80% in 2006).
- Ineffective fiscal policy. The Portuguese path of fiscal consolidation was much worse than the Spanish one, since the activities aimed at reducing the budget deficit and public debt were to a greater extent based on the income increase than on the reduction of budget expenditure. The increased revenues which were the source of tax income (among others as a result of fast economic growth), revenues from privatisation and reduction of interest payments (debt servicing), which decreased from 6.2% of the GDP in 1995 to 3.5% of the GDP in 1998, were largely responsible for the improvement of the debt ratio and the budget deficit ratio. It means that the Portuguese economy could have had problems with meeting the fiscal criteria had it not been for the high economic growth rate and the conviction of the markets that Portugal would join the euro area.

Source: NBP study.

Real convergence can be supported by thoughtful reforms.

In the case of Greece, fast development after the entry into the euro area resulted from a dynamic process of financial deepening, benefits for the tourist sector and sea fleet stemming from the adoption of the international currency and a certain critical mass of reforms implemented before the entry into the euro area. In Spain the main driver of the catching-up process was the increase of the use of labour resources (including the influx of immigrants), opening of the economy to the trade with the EU and a fast development of the construction sector. In Ireland, apart from deregulation and tax reforms conducted even before the preparations to the euro adoption had begun, foreign investment, out of which around 50% came from the USA, proved to be the main development factor.

2.3 Consequences of euro area accession in view of the public – hopes and fears

Involvement of citizens is conducive to gaining benefits from international cooperation.

In order to implement the assumptions of the common monetary policy, the European Union needs strong public support for the process of European integration (Eichenberg, Dalton, 1993; Gabel, 1998b; Anderson, Kaltenthaler, 2001). In the Laeken Declaration of December 2001 on the future of the European Union, representatives of Member States expressed their view that “within the Union, the European institutions must be brought closer to its citizens. Citizens undoubtedly support the Union’s broad aims, but they do not always see a connection between those goals and the Union’s everyday action.” Benefiting from international cooperation depends on the readiness of citizens of respective countries to bear the costs connected with cooperation.

Interest of the public in European integration was slight in the initial decades of the Union’s existence, thus giving rise to an assumption of permissive consensus between the society and decision-makers (political elite) as to the European integration. It furnished politicians with the right to make decisions on European issues regardless of their social perception (Eichenberg, Dalton, 1993; Kritzinger, 2003; Carrubba, 2001). Results of national referenda on issues linked with European integration held in the 1970s and 1980s indicated nevertheless an increasing involvement of the society in the integration process (Eichenberg, Dalton, 1993). The emerging difficulties with reaching a consensus on European issues by political elites resulted in transformation of permissive consensus into constraining dissensus (Domm, 2004; Brinegar, Jolly, 2005; Hooghe, Marks, 2007).

In a number of publications from the 1990s, sociologists strived to prove the thesis that the public limits the process of European integration (Eichenberg, Dalton, 1993; Smith, Wanke, 1993; Anderson, Reichert, 1996; Gabel, Whitten, 1997; Gabel, 1998b; Gabel, 1998a; Anderson, 1998). National referenda held in Denmark (2000) and Sweden (2003) in which citizens voted against entering the euro area confirmed the thesis on the decelerating influence of the public on the process of European integration to a certain extent (Erlandsson, 2002; van Kersbergen, Netjes, 2005; Hobolt, Leblond, 2007). Invoking public debates which accompanied national referenda on the Maastricht Treaty held in Denmark, France, and Ireland, sociologists indicated the need of direct involvement of state authorities in presenting the benefits of European integration to the citizens (Eichenberg, Dalton, 1993).

Governments of candidate states are responsible for appropriate social reception of the monetary integration process.

As a result of handing down the authority to make decisions on the date of the given country’s accession to the euro area from the EU level to the level of Member States, governments of candidate states are responsible for appropriate social reception of the monetary integration process, equated with readiness of the societies to bear the costs of and draw benefits from integration. Due to this, appropriate information imparted

2.3 The euro in view of the public

to citizens about the benefits and costs, chances and threats of replacing the national currency with the single currency constitutes one of the main tasks for the authorities of states-candidates to the EMU.

Communication from the European Commission of August 2004 to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on the implementation of an information and communication strategy on the euro and Economic and Monetary Union says that “information and communication on the euro and EMU remains a top priority, particularly in the new Member States... and the introduction of the euro... needs to be consolidated by increasing public support for the single currency” (COM(2004) 552 of 11 August 2004). Expanding the knowledge of society on the functioning of EMU has an enormous influence on fast and efficient introduction of the euro (Vissol, 1999).

Cooperation of state authorities with social partners, i.e. employers’ and employee organisations, should play an important role in disseminating information on the effects of monetary integration. Directive 2002/14/EC of the European Parliament and of the Council establishing a general framework for informing and consulting employees in the European Community says that “a particular objective of the Community and the Member States is to promote social dialogue between management and labour... Entry into the third stage of economic and monetary union has extended and accelerated the competitive pressures at European level. This means that more supportive measures are needed at national level” (Directive 2002/14/EC of 11 March 2002).

In Poland, the Constitution underscores the need to inform the society on economic effects of decisions by state authorities and to cooperate with social partners. The Preamble of the Constitution of the Republic of Poland refers to social dialogue as one of the basic principles of the Polish state. Article 20 of Chapter I of the Constitution says that “A social market economy, based on... dialogue and cooperation between social partners, shall be the basis of the economic system of the Republic of Poland.”

In the framework of preparations to euro area membership, a state candidate should devise a national communication strategy on the euro aimed at extending general knowledge on monetary integration. Devising an efficient and effective communication strategy requires conducting in-depth research on the level of citizens’ knowledge of EMU and the single currency and identification of factors responsible for positive or negative perception of integration (Anderson, Kaltenhalter, 2001).

Literature which analyses determinants of social support to the process of European integration is dominated by three main interpretations of this phenomenon (Hooghe, Marks, 2005; Henjak, 2007):

Economic. According to this interpretation, citizens base their opinions on integration on the analysis of economic factors, which consists in comparing the scale of costs and benefits resulting from integration (Eichenberg, Dalton, 1993; Anderson, Reichert, 1996; Gabel, 1998b; Gabel, 1998a; Anderson, 1998; Brinegar, Jolly, 2005). Citizens may consider macroeconomic factors impacting the national economy as a whole, as well as determinants of their economic situation (Anderson, 1998; Hooghe, Marks, 2005; Allam, Goerres, 2008).

Psychological. This interpretation indicates relationship between the attitude of a citizen to the European Union and the single currency and national identity or cultural ties with the country (McLaren, 2002; Kaelberer, 2004; Hooghe, Marks, 2004; Domm, 2004; Hübner, 2005).

Political. This interpretation refers to political and ideological preferences of citizens (Sánchez-Cuenca, 2000; Rohrschneider, 2002; Kritzing, 2003).

Cooperation of state authorities with social partners plays an important role in information on the effects of integration.

Elaboration of an efficient communication strategy requires research devoted to the process of informing citizens about the single currency.

Discovering and understanding the reasons behind a positive or negative attitude of citizens towards the euro is particularly important in the case of new EU Member States which are legally bound to adopt the single currency (pursuant to Article 4 of the Accession Treaty). Despite the enormous complexity of the monetary integration process, the majority of citizens of new Member States have already formed an opinion on EMU and the euro (Allam, Goerres, 2008). Citizens of post-communist countries perceive monetary integration as a political initiative essential to continue economic reforms in Central and Eastern Europe (Tucker, Pacek, Berinsky, 2002; Allam, Goerres, 2008).

Approval of the single European currency in the Polish society

According to a Eurobarometer study, support for monetary integration in Poland varies.

The number of supporters of introduction of the euro in Poland equals the number of its opponents. Results of a Eurobarometer survey show (among others European Commission, 2008d) that Poles are not unanimous as to the introduction of the European currency. According to the 2008 Eurobarometer³¹ survey, 41% of Poles are happy with the fact that the zloty will be replaced by the euro, while 46% believe the opposite. In the years 2006–2007 the situation was reverse – there were more supporters than opponents of the euro (cf. Chart 2.18). In nine new EU Member States covered with the survey, the average level of support to the introduction of the euro was 47% in 2008 (European Commission, 2008d).

Results of domestic surveys also show lack of unequivocal opinion on part of Poles about the euro. According to a survey by Public Opinion Research Center (CBOS) from November 2008, replacing the zloty with the European currency is supported by 47% of respondents, with 45% against (Centrum Badania Opinii Społecznej, 2008). According to the Euromonitoring survey commissioned by the NBP in October 2007, 47.5% of Poles supported introduction of the euro and 45.2% were against (Centrum Badań Marketingowych Indicator, 2007). The public opinion is thus divided on the subject almost equally.

Higher support for the euro among social partners.

Additionally, a survey of social organisations³² was conducted in the framework of preparing the *Report*. The survey covered: employers – entrepreneurs associated in the Business Centre Club, Confederation of Polish Employers (KPP), Polish Confederation of Private Employers “Lewiatan,” and the Polish Craft Association (ZRP); as well as employees – members of the Trade Unions Forum (FZZ), National Commission of NSZZ Solidarność, and All-Poland Alliance of Trade Unions (OPZZ). Both representatives of employers’ and employees’ organisations definitely support or rather support the introduction of the euro in Poland – 97.5% of employers (in the case of the Polish Craft Association the ratio is 78.3%) and 64% of union members³³, respectively (see Annex 2). The survey shows that the majority of representatives of both trade unions and employers support Poland’s accession to the euro area.

The assessment of monetary integration in the euro area is high, but declining...

In countries which introduced the euro in cash circulation in 2002, the level of public support for monetary integration is diverse and varies in time. Societies in individual countries assess introduction of the euro positively. In 2002, 59% of Europeans assessed

³¹ The survey was held in May 2008 in 9 new EU Member States: Bulgaria, Czech Republic, Estonia, Lithuania, Latvia, Poland, Slovakia, Romania, and Hungary.

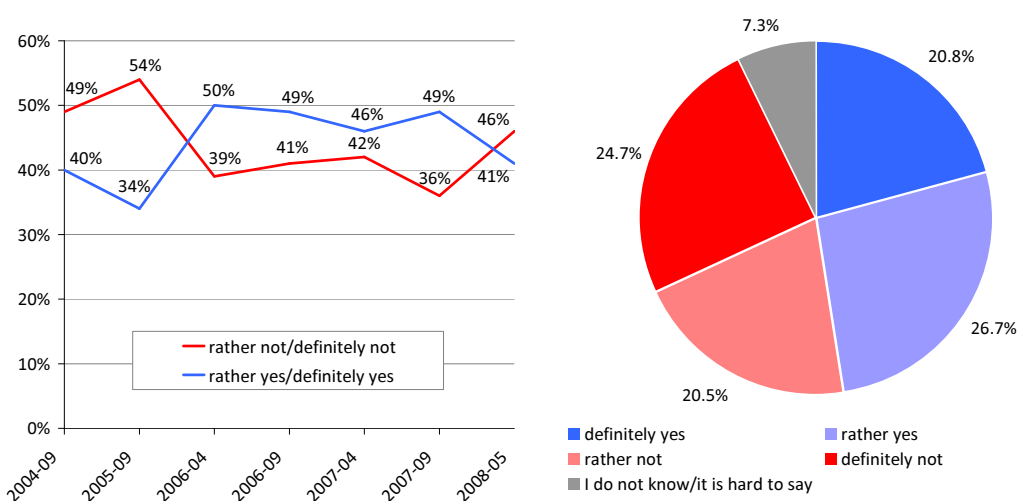
³² The survey was not representative; it is a mere supplement of public opinion surveys with opinions of selected circles. The survey was held between 28 March and 30 June 2008 among members of six organisations and between 6 and 31 October 2008 in the Polish Craft Association.

³³ While 82.9% of entrepreneurs and 30.7% of trade union members definitely support Poland’s accession to the euro area, 14.6% of entrepreneurs and 33.7% of trade union members rather support the introduction of the single currency.

2.3 The euro in view of the public



Chart 2.18 Support to introduction of the euro in Poland



(a) Are you happy with the fact that the euro will replace the national currency?

(b) Would you like the euro to be introduced in Poland?

Source: European Commission (2008d) and Centrum Badań Marketingowych Indicator (2007).

the adoption of the single currency as a beneficial change. In subsequent years, a downward trend was observed. 2006 saw the highest ratio of support since replacing the national currencies with the euro (48%) (European Commission, 2006d)³⁴.

In 2006, the highest acceptance level was posted by Ireland (75%), Finland (65%), and Luxembourg (64%). Societies of the three countries view the euro positively and have assessed its adoption positively since its introduction. Adoption of the euro was least beneficial according to citizens of Greece (38% supporters), the Netherlands (38%), and Italy (41%). The highest percentage of individuals who believe they sustained losses connected with the adoption of the euro was posted by Italy (48%), Greece (46%), Germany (44%), and the Netherlands (43%). Such trend has been visible since introducing the euro into cash circulation, i.e. since 2002. It seems that support for the euro or lack thereof is strongly connected with the economic situation of those countries.

...and differs in respective states.

Knowledge on the euro

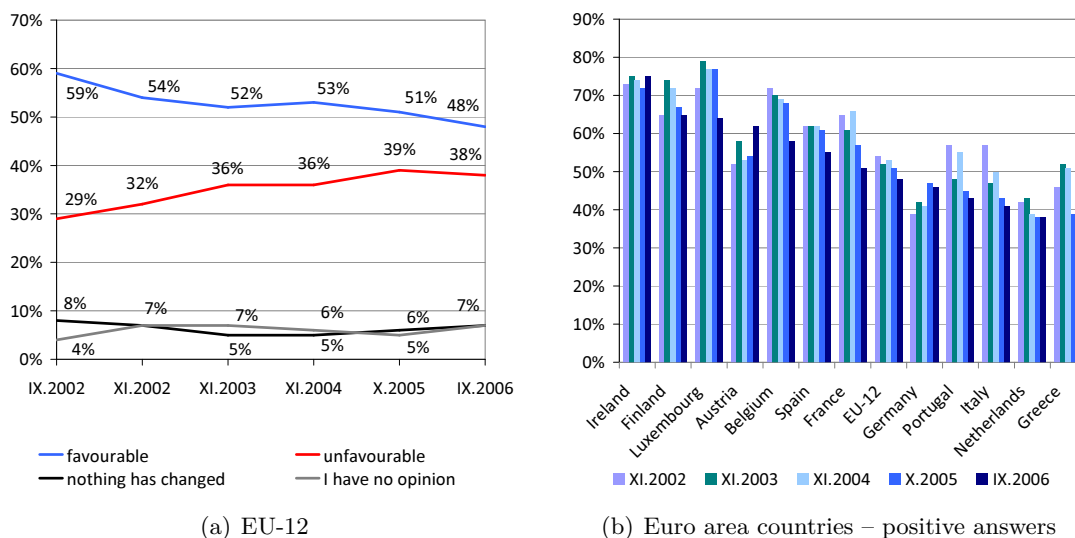
Poles' perception of their degree of knowledge on the single European currency has not changed significantly in recent years. In May 2008, 66% of respondents declared insufficient knowledge on the euro or complete lack thereof. Poland was not an exception among the new Member States in this respect. An average of 59% of citizens in those countries believes they are inadequately informed about the euro (European Commission, 2008d). The situation was similar prior to the introduction of the euro in Slovenia, Malta, Cyprus, and Slovakia as well as in the countries which adopted the euro in 2002. When the informational campaigns started, the citizens' assessment of their level of knowledge on the European currency increased. Opinion polls carried out in Slovenia, Malta, and Cyprus after introduction of the euro show that a definite majority of their citizens were happy with the method of transition into the single currency. In

Poles do not feel well-informed about the euro.

Successful informational campaigns in Slovenia, Slovakia, Malta, and Cyprus.

³⁴ The most recent available Eurobarometer survey for euro area countries was conducted in September 2006.

Chart 2.19 Perception of the euro: *Is introduction of the euro favourable or unfavourable to your country?*



* Most recent available Eurobarometer survey for euro area countries was conducted in September 2006.

Source: European Commission (2006d).

Slovenia in September 2006 (European Commission, 2006e), 83% of citizens believed to be well-informed about the euro (60% in September 2005). The index reached 92% after introduction of the euro. In Malta and Cyprus in September 2007 (European Commission, 2007a), 74% and 67% of citizens, respectively, assessed their knowledge on the euro as high, and in February 2008 the figures were 91% and 92%, respectively. In Slovakia in September 2008, 80% of the society evaluated their level of knowledge on the single currency as high, while in September 2006 and 2007 the figure was 47% (European Commission, 2008e). It seems that some of the practices and tools used in those countries (such as the obligation of double pricing, initiatives for fair price conversion, and holding informational campaigns on a wide scale) could be used for an informational campaign in Poland. Experience gathered by new EU Member States show that efficient informational actions constitute a very important element of successful transmission to the euro (for more on experience of Malta and Cyprus, see Górska et al., 2008).

Consequences of the introduction of the euro

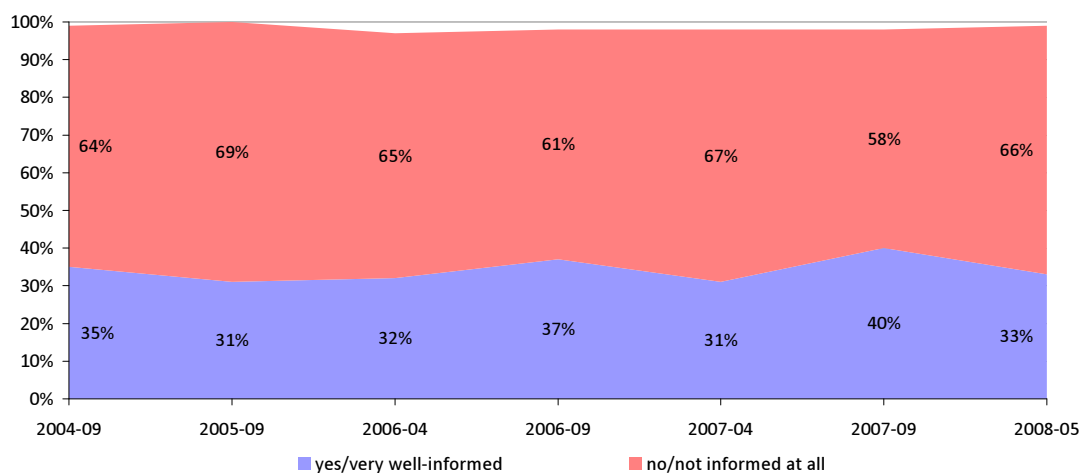
Poles perceive the introduction of the euro as more favourable to the economy than to citizens.

While the majority of Poles (52.7%) believe that euro introduction will bring about positive consequences for the Polish economy, less than half (46.9%) perceive benefits for citizens. According to 38.6% of respondents, introduction of the euro will have negative effects for the economy. Almost half of respondents (48.3%) expressed their concern with negative effects for citizens (Centrum Badań Marketingowych Indicator, 2007). This shows that support for Poland's accession to the euro area results from expected benefits for the economy and lack of support – from concerns with regard to the situation of citizens.

2.3 The euro in view of the public

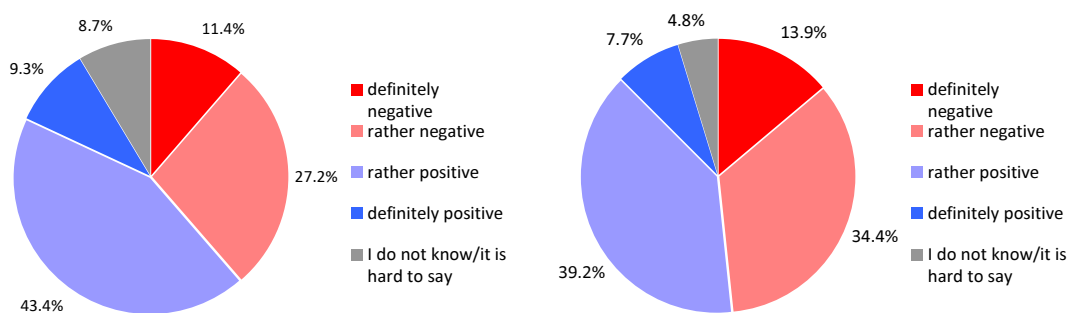


Chart 2.20 Assessment of the level of Poles' knowledge on the euro: Do you feel well-informed about the euro?



Source: European Commission (2008d).

Chart 2.21 Consequences of euro introduction for the Polish economy and for citizens



(a) What will the consequences be of euro introduction for the Polish economy?

(b) What will the consequences be of euro introduction for Polish citizens?

Source: Centrum Badań Marketingowych Indicator (2007).

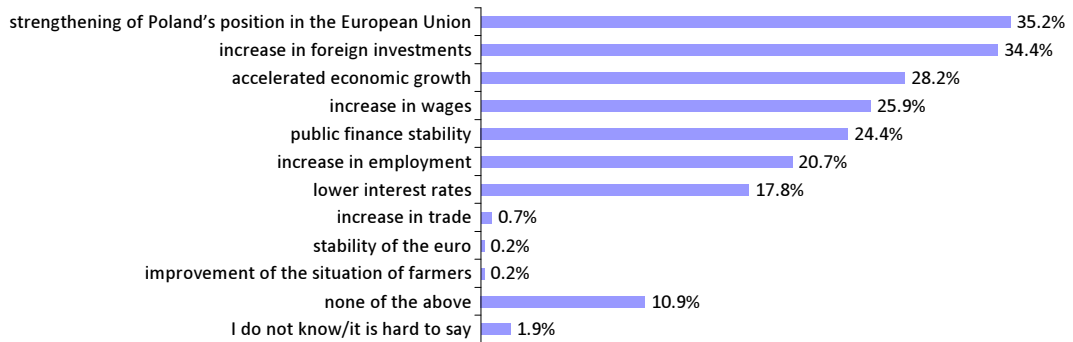
From among the greatest benefits for the Polish economy resulting from introduction of the euro, respondents most frequently invoked the strengthening of Poland's position in the European Union (35.2%), increase in foreign investment (34.4%), and accelerated economic growth (28.2%). The benefits of euro introduction for citizens comprise: facilitated travels to foreign countries (55.9%), facilitated shopping in foreign countries (46.6%), and doing away with the necessity to exchange national currency into the euro and the accompanying costs (45.2%).

Among benefits, Poles most frequently mention strengthening Poland's position and increase in investments...

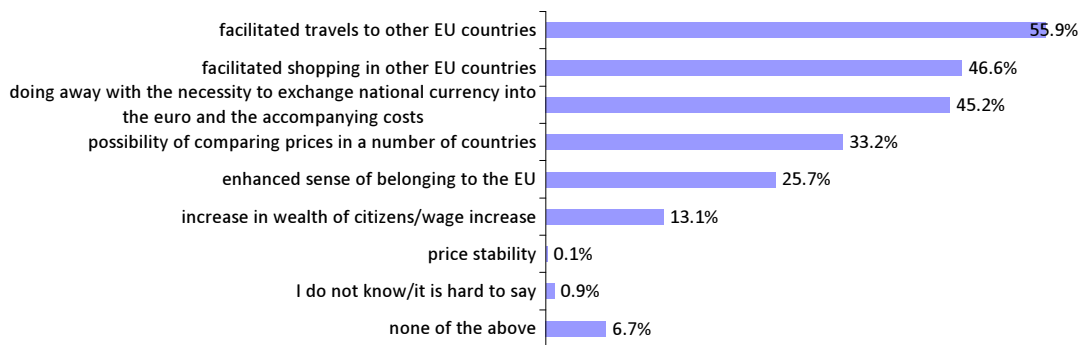
Among the main economic benefits resulting from the adoption of the euro, representatives of entrepreneurs' organisations mentioned a decrease in macroeconomic risk (65.9%), a more efficient financial market (52.4%), and increase in trade with other EU Member States (53.7%). Apart from increase in trade (41.7%) and a more efficient financial market (31.9%), the representatives of trade unions indicated strengthening of Poland's position in the EU (33.7%). Survey results show that the society as a whole and respective social groups perceive similar benefits of Poland's accession to the euro area.

...social partners indicate a decrease in macroeconomic risk and an increase in trade.

Chart 2.22 Benefits of euro introduction for the Polish economy and for citizens*



(a) Benefits for the economy



(b) Benefits for citizens

* Results do not sum up to 100% as respondents were able to provide more than one answer.
Source: Centrum Badań Marketingowych Indicator (2007).

The euro will enhance the sense of European identity.

According to Polish public opinion, the introduction of the euro will make citizens feel even more connected with the EU. Asked whether introduction of the euro would strengthen the sense of Europeanism, in May 2008, 50% of citizens replied 'yes' and 43% said 'no.'

Poles' most serious concern is a price increase.

From among major threats, Poles most frequently pointed to losing the autonomy of the conduct of monetary policy (30.4%), rise in inflation (29.5%), and losing control of economic policy (18.5%) – cf. Chart 2.24. Poles' greatest fear (60%) related to the introduction of the euro is a price rise. They also pointed to: fraud and misappropriations when converting prices of goods and services (47.3%), as well as problems connected with and inconvenience of converting PLN into EUR (34.6%) – cf. Chart 2.24.

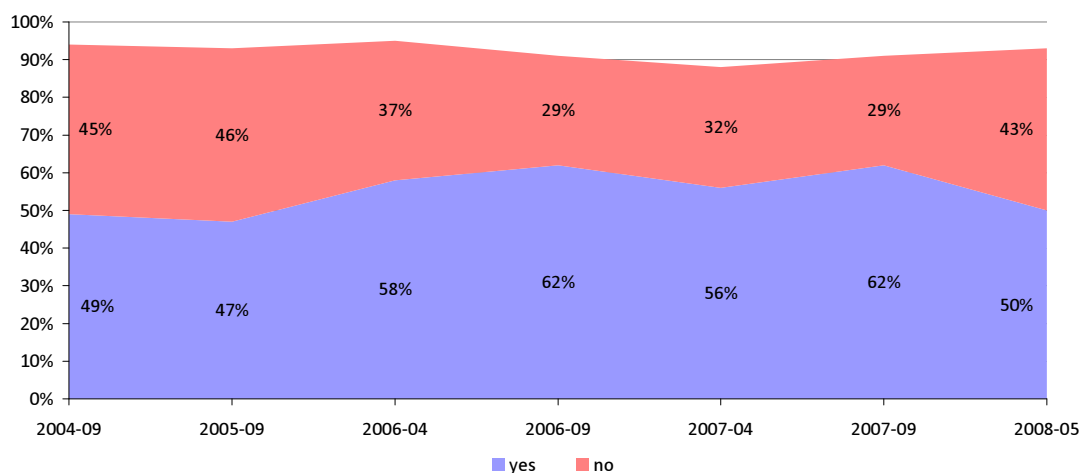
Both entrepreneurs and trade unions share the fears of the majority of Poles. In their opinion, a short-term price increase is the greatest threat to the Polish economy – 90.2% and 72.4% of answers, respectively. Also in the 2008 Eurobarometer survey, asked whether the introduction of the euro would trigger an increase or a decrease in prices, 83% of Poles answered the prices would rise. The percentage has not changed throughout the previous years. 84% of respondents in the same survey are afraid of fraud and misappropriations when converting prices of goods and services.

A survey of the Polish enterprise sector conducted by the NBP shows that 58% of companies expect an increase in prices of raw materials for production and 53% – an

2.3 The euro in view of the public



Chart 2.23 Introduction of the euro and a sense of Europeanism: Will the introduction of the euro strengthen a sense of Europeanism among citizens?



Source: European Commission (2008d).

increase in prices of products offered by sectors where the given company operates (cf. Puchalska, 2008).

Results of surveys held among social organisations also show that representatives of trade unions listed price increase (85.3%), potential fraud and misappropriations when converting prices of goods and services into euro (50.3%), and a decline in affluence of citizens and in wages (41.7%) as major threats for citizens resulting from adopting the European currency.

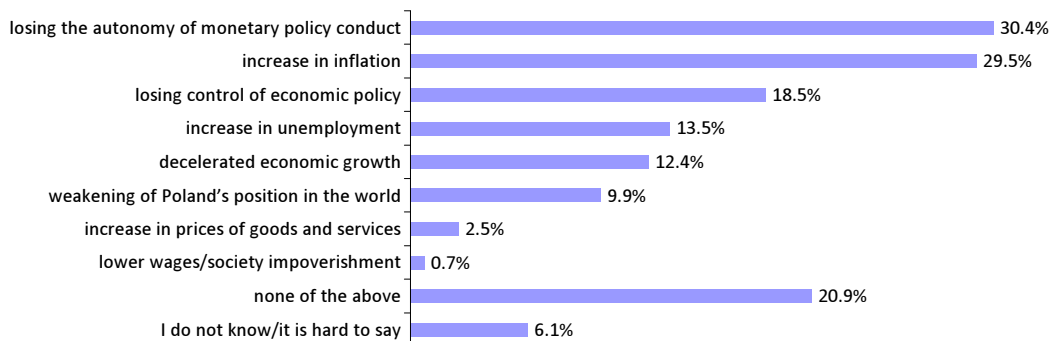
Poles' opinions on the consequences of euro introduction are similar to those of citizens in countries which introduced the single currency in 2002 (cf. Chart 2.25). Poles have similar fears and hopes connected with the introduction of the euro as other European societies.

Poles' hopes and fears are similar to those of euro area citizens.

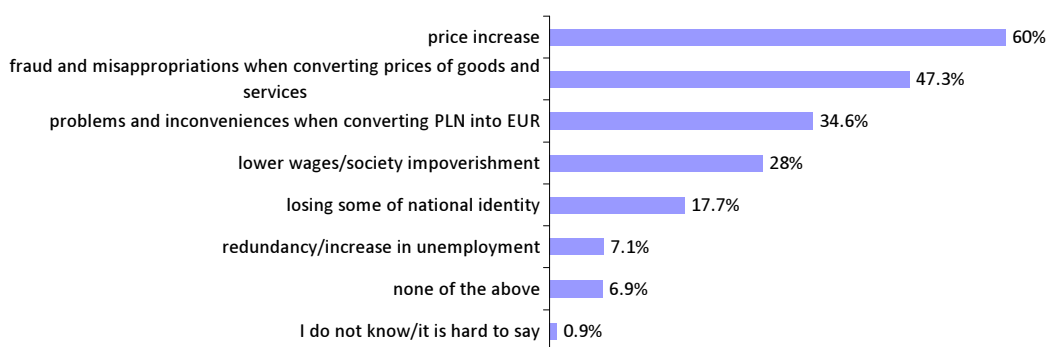
In the majority of euro area countries, citizens form their opinions on the single currency on the basis of the analysis of economic factors, i.e. costs and benefits for citizens. As a 2006 Eurobarometer survey shows, the most frequently mentioned benefits of euro introduction are: facilitated travels (46%), easier price comparison (30%), and strengthening of Europe's position in the world (27%) – cf. Chart 2.26. As far as costs are concerned, Europeans primarily indicate increase in prices (81%). Among all 12 states, Ireland is most interesting as only 22% of its citizens indicated price increase as the major cost of euro introduction. France and Finland follow with a result of 64%. In Italy, Austria, and Portugal the ratio exceeded 90% (European Commission, 2006d).

The negative assessment of euro's impact on the price level also determines Europeans' perception of price alignment in the euro area (cf. Chart 2.27). The percentage of citizens who believe that the single currency is conducive to price alignment has been almost steady since 2003. About a half of respondents believe that the euro was not conducive to reducing price differences between countries where it had been introduced. The percentage of those who do not perceive a reduction in price differences remains similar in individual countries. The hardly positive assessment of this phenomenon is important considering the fact that prior to the introduction of the euro, price alignment was considered to be one of the benefits of the process.

Chart 2.24 Threats of euro introduction for the Polish economy and for citizens*



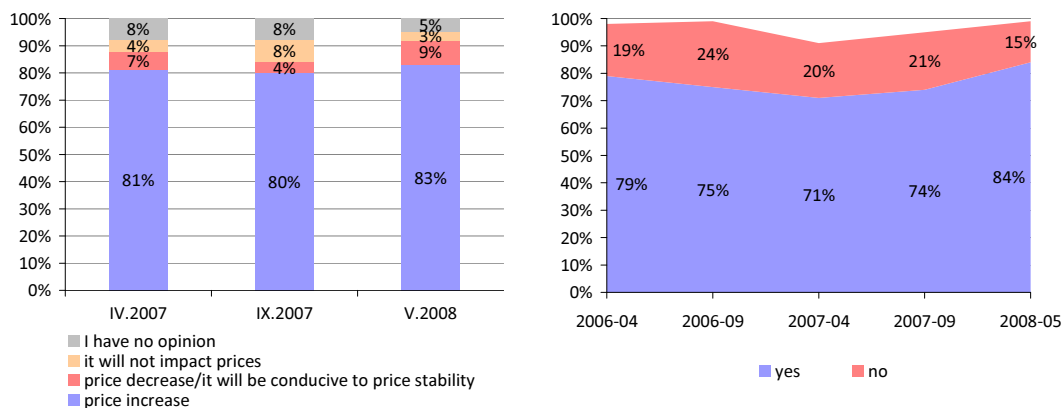
(a) Threats to the economy



(b) Threats to citizens

* Results do not sum up to 100% as respondents were able to provide more than one answer.
Source: Centrum Badań Marketingowych Indicator (2007).

Chart 2.25 Influence of the euro on prices



(a) Will the introduction of the euro translate into a price increase or a decrease?

(b) Are you afraid of fraud and misappropriations when converting prices from PLN into EUR?

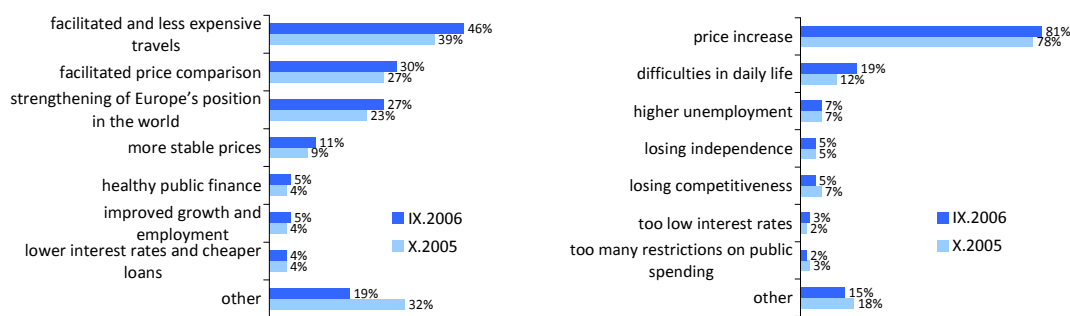
Source: European Commission (2008d).

Positive reception of actions taken in Slovenia, Malta, and Cyprus.

It is worthwhile to notice that the percentage of people who believed that the introduction of the euro would trigger inflation increase decreased after its adoption in countries which took steps aimed at preventing unjustified price increases (Slovenia, Malta, and Cyprus). Eurobarometer surveys show that in Slovenia, the percentage



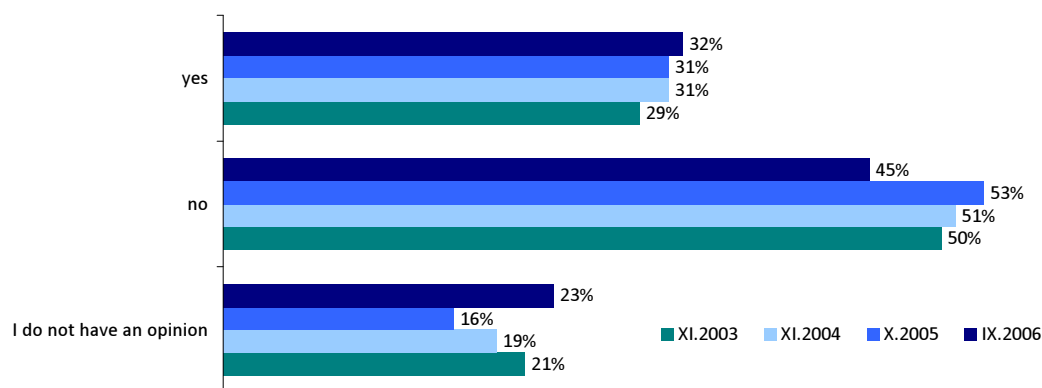
Chart 2.26 Major benefits and costs of euro adoption



(a) Benefits of euro adoption according to public opinion (b) Costs of euro adoption according to public opinion

Source: European Commission (2006d), European Commission (2005).

Chart 2.27 Reduced price differences: Do you think that the introduction of the euro reduced price differences in euro area countries? (EU-12)



Source: European Commission (2006d), European Commission (2005).

declined from 63% in September 2006 to 52% in March 2007. At the same time, the number of people who believe that the euro would help maintain price stability increased (from 24% to 35%, respectively). A similar trend was observed in Malta and Cyprus. In September 2007, 74% of Cypriots believed that the introduction of the euro would trigger a price increase; in February, the percentage was 66%. In Malta, the ratios were 65% and 37%, respectively.

Chapter summary

Poland will have to comply with a number of conditions on its way to the euro area. Requirements include compliance with nominal convergence criteria on a sustainable basis and adaptation of Polish legislation with respect of central banking to Eurosystem requirements.

The assessment of Poland's compliance with nominal convergence criteria against other Member States of the European Union presented in the initial part of the chapter shows that Poland has met the fiscal criterion and the criterion connected with long-term interest rates. Currently, Poland fails to meet the inflation and the exchange rate criteria. Moreover, both Convergence Reports of May 2008 state that Polish legislation

does not yet comply with the requirements of central bank independence and integration with the Eurosystem.

The second part of the chapter attempted to evaluate the degree of Poland's real convergence with the euro area. Particular attention was devoted to comparison of the convergence of economic structures and synchronisation of business cycles. Results of these analyses indicate certain differences of Polish economic structures against the euro area, which is largely the result of Poland's lower level of economic development.

Survey results point to differences in the area of consumer demand structure (which can be attributable, among others, to high share of consumer staples in household spending) and production structure. Nevertheless, certain peripheral euro area countries have indicators of structure distance from the euro area as a whole similar to Polish ones. The product structure of Polish exports is less similar to the export structure of the euro area than the structure of individual countries. However, some new European Union Member States (including Slovakia which acceded to the area on 1 January 2009) are characterised by even less similarity of the export structure. The increasing share of intra-industry trade in total trade, which reduces the risk of asymmetric shocks in the Polish economy on the one hand, and is a symptom of increasing trade integration of Poland with the euro area on the other, constitutes another noteworthy phenomenon. Therefore, the consequences of potential asymmetric shocks for Polish exports may be weaker than in the majority of other countries.

The degree of business cycle synchronisation is an important aspect of real convergence, which translates particularly into the adequacy of ECB monetary policy for Poland. Studies of the degree of convergence of the Polish cycle with the euro area featured in literature are not unambiguous, yet they generally confirm that among Central and Eastern European countries, Poland belongs to the group of countries with the highest degree of cyclical convergence with the euro area. Results show higher level of cyclical convergence as the period of studies is extended. Due to a strong correlation of responses of the Polish economy and the euro area economies to shocks, the cyclical convergence process may be expected to continue and the optimum common currency area criteria are likely to turn out endogenous in the case of Poland. It results from the processes of trade integration reflected in the increasing share of intra-industry trade and the proceeding convergence of economic structures.

As proven by studies concerning the process of catching up, the alignment of price levels may become an obstacle to Poland's efficient functioning in the euro area. Euro area membership may simultaneously constitute Poland's chance for faster economic growth, as evidenced by increasingly extensive empirical material which proves the influence of the single currency on basic determinants of economic growth, such as trade and investments.

The third part of the chapter presented the opinion of the Polish society on Poland's monetary integration with the euro area including, in particular, fears and hopes connected with the adoption of the single European currency. Survey results show that the views of the Polish society on the validity of acceding the euro area are divided. Among the most frequently invoked benefits of euro adoption, Poles indicated the strengthening of Poland's position and the expected increase in investment, while greatest fears relate to increase in prices. A considerable part of society still feels inadequately informed about the consequences of the adoption of the euro.



Chapter 3

Benefits and chances connected with Poland's accession to the euro area

Chapter purposes

The purpose of the chapter is to assess benefits and chances resulting from Poland's membership in the euro area. The benefits were divided into direct ones – visible in the short run and indirect – those which may potentially occur in the medium or in the long term. Another characteristic of direct benefits is that they happen almost automatically as a result of replacing the zloty with the euro, they are also permanent and accumulate in time. Indirect benefits are primarily conditional, so they are analysed as chances as they depend on appropriate use of direct benefits, the quality of macroeconomic policy conducted on the way to and as a member state of the euro area, as well as adaptation capacity of Polish entities.

Introduction of the euro results directly in the reduction of exchange rate risk, and thus in reducing transaction costs, a decrease in nominal interest rates, and enhanced price transparency. Improvement of perception of the national economy due to the introduction of the single currency should also lead to the mitigating macroeconomic risk. Macroeconomic stability and credibility are of key importance to economy as they influence possibilities and willingness of investors to make investment decisions, decide on allocation of economic resources, and impact the pace of economic growth.

In the long run, chances connected with the said benefits may materialise, such as enhanced competition, trade intensification, increase in investments, or tighter integration of financial markets, which may finally translate into accelerated economic growth, increase in employment and income, and an overall increase in prosperity.

Theory of economic integration and experience of euro area countries indicate that the proceeding convergence of the Polish economy with the economies of euro area countries may be conducive to integration processes on many levels, particularly in the area of financial markets, intensification of trade and investment.

Poland's adoption of the euro may significantly accelerate development and integration of financial markets and positively impact financial stability, mainly in the area of institutions and infrastructure, due to direct consequences of introducing the single currency. Making the economy independent of the domestic savings resource and the

stabilising effect on the economy via the risk sharing mechanism is also an undisputable benefit.

Adopting the single currency may enhance trade integration. The scale of the effect will largely depend on the capacity of Polish businesses to internationalise as well as their readiness to fight foreign competitors.

Apart from an increase in international trade, Poland's accession may also bring about an increase in domestic investment (as a result of lowering the cost of capital and extending perspectives of operating in a larger market) and foreign investment (thanks to doing away with exchange rate risk and a more stable macroeconomic environment). Investment and trade may be a significant mechanism to restructure the economy, improve its efficiency and competitiveness, as well as convergence of income towards better-off economies. This is substantiated by neo-classical and endogenous growth models. Yet even despite the expected positive influence of the euro on investments, their level in the long run will depend on the capacity to generate attractive investment projects.

3.1 Direct benefits of euro adoption

3.1.1 Reduction of exchange rate risk and of transaction costs

Exchange rate risk is one of the factors which increase the uncertainty of economic decisions, which in turn triggers an increase in operation costs of businesses and puts them at risk of losses. Costs connected with foreign exchange and protection against exchange rate risk constitute important elements of transaction costs. Introduction of the euro results in eliminating the zloty-euro exchange rate, thus reducing the costs.

Box 3.1 Exchange rate risk and transaction costs

The exchange rate risk results from the volatility of foreign exchange rates; it is connected with uncertainty of market participants with regard to the future of the rates. The uncertainty usually hinders the planning of economic activity, including investments, and the materialisation of the exchange rate risk may put entities engaged in foreign exchange transactions at risk of losses (as well as bring about benefits) resulting from an unexpected decline in the value of assets or an increase in liabilities expressed in a domestic currency. The exchange rate risk occurs in relation to changes in the exchange rate (differences in rates) between the emergence of a receivable or a liability and its settlement (transaction risk), or changes between the emergence of a receivable or a liability and drafting a balance sheet (translation risk)^a.

Transaction costs should be understood as both direct costs (financial costs) and indirect costs (administrative costs). Financial costs are connected with the obligation to pay fees and charges on currency conversion. The group includes also the costs of protection against the exchange rate risk and a decline in utility due to the necessity to exchange currencies in a wide sense. Financial costs are frequently expressed as the difference between the sales price and the purchase price of foreign currencies (the so-called spread, margin). Administrative costs refer to resources in the economy that are engaged in foreign exchange operations, hedging

transactions, or financial reporting. They are expressed as costs of lost possibilities of an alternative use of related resources (among others as a result of decreased efficiency of management of assets dispersed in a number of bank accounts or of spending the funds due to longer currency transfer). They are incurred by all entities engaged in currency transactions: financial intermediaries, enterprises, households, and the state. Financial intermediaries, particularly banks, benefit from currency operations – introduction of the euro may in their case translate into losing a part of the income^b.

^a Sometimes other types of exchange rate risk are also mentioned (see Syczewska, 2007).

^b More information on the costs of the banking sector may be found in the section devoted to technical and organisational costs of euro introduction (Section 4.3.3).

Source: Own analysis on the basis of the National Bank of Poland (2004a).

Characterisation of potential benefits. Introduction of the euro will result in eradicating the zloty-euro exchange rate, permanent elimination of exchange rate risk in transactions settled in euro, and reduction of transaction costs (cf. Box 3.1)¹. The resulting benefits may include the following:

The introduction of the euro will result in a reduction of exchange rate risk and of transaction costs.

- Lowering the costs connected with running a business due to the reduction in transaction costs²;
- An improvement in profitability estimates of investments due to the elimination of uncertainty linked with exchange rate volatility;
- An improvement in profitability estimates of investments due to the elimination of uncertainty linked with exchange rate volatility;
- Improvement of Poland's international position as a trade partner due to the replacement the zloty with a currency of international significance.

From the point of view of households, the lack of the necessity to exchange currencies (and to bear the accompanying fees) as well as converting prices expressed in the euro into zloty will be the most welcome change. Enterprises will benefit from lower costs of running a business, the possibility of more efficient investment planning (higher certainty of economic calculus due to the elimination of exchange rate volatility) and easier accounting. This should stimulate growth in investments, result in an influx of capital and an improvement in its allocation, also as direct foreign investments (Cieřlik, Michalek, Mycielski, 2008)³. Moreover, the introduction of the euro translates into simplification and reduction of costs of financial reporting for a number of entities.

Eliminating the exchange rate risk may also be conducive to trade development, which should stimulate development and increasing international exchange (Mroczek, 2008). Currency unification in the given area enhances market transparency; it may lift entry

¹ Introduction of the euro leads solely to the elimination of the zloty-euro exchange rate, thus reducing the costs. A real exchange rate continues between Poland and individual states.

² A potential increase in costs of protection against exchange rate risk can be expected, particularly in the period of sustained uncertainty in financial markets connected with a significant increase in exchange rate volatility.

³ Occurrence of exchange rate risk is occasionally believed to be a factor attracting investors – additional volatility of exchange rates may be perceived as a chance to obtain above-average profit by investors with considerable inclination to take risks.

barriers and improve its liquidity. Additionally, the accompanying increase in price comparability may positively influence competition in certain sectors of the economy (cf. also Pawłowska, Kozak, 2008)⁴. Although Poland's accession to the euro area eliminates the exchange rate risk in relation to the euro, replacing the zloty with a currency of international significance may positively impact Poland's credibility in trade, also with partners from outside the euro area.

It is impossible to precisely estimate the scale of benefits from the reduction of transaction costs.

Assessment of the scale of potential benefits. Due to limited accessibility of statistical data as well as high degree of complexity of calculations, it is impossible to present the scale of benefits resulting from the reduction of transaction costs in a precise manner⁵. Moreover, even their precise estimation (which requires taking into account their durability) would be of limited cognitive value since an appropriate measure of benefits from the reduction of exchange rate risk and transaction costs may only result from a comprehensive assessment of the degree of use of long-term chances they bring about in the area of increase in investment, competition or integration of financial markets. Medium and long-term benefits which may follow from the said processes include an element of uncertainty and their scale will be conditioned by the emergence and impact of a number of factors.

Transaction costs may be influenced by relatively low development level of the Polish financial market.

Transaction costs may be significantly impacted by, *inter alia*, the development level, liquidity, and degree of integration of Polish financial market with the European one. Relatively low development level of the Polish market limits accessibility of instruments protecting against exchange rate risk, particularly in the case of small and medium-sized entities for which transaction costs constitute a considerable part of turnover (which usually face relatively greater entry barriers in the European market). Also, there are still differences between costs of capital transfers (cross-border transactions are markedly more expensive than domestic ones). Infrastructural maladjustments may be the primary reason behind inconsistencies, such as different payment systems, securities settlement systems, different taxation principles, and incoherent regulatory standards⁶.

To sum up, it is worth to stress the major potential effects of direct benefits of euro introduction: a decrease in nominal interest rates resulting from a decrease in risk premium and – in the long run – an increase in investments, intensification of trade, as well as an increase in competition, which may lead to permanent acceleration of GDP growth rate and prosperity in the long run (as discussed in subsequent chapters). Yet, resources made available as a result of elimination of exchange rate risk must be efficiently used in the economy in order for long-term benefits to occur to the fullest. Enterprises must be able to adapt to altered conditions of conducting economic activity, to operate with increased competition, and to absorb innovations.

⁴ Increase in competition in the market may also manifest itself through e.g. reduced charges in stock or bond trade (Ehrmann, Fratzscher, Rigobon, 2005).

⁵ Estimates quoted in literature make an approximation of potential benefits by juxtaposing information on the value of transactions settled in euro (or other currencies) on the basis of the balance of payments and the structure of foreign trade with average fees for currency exchange (on the basis of survey results). Yet, such surveys are conducted extremely rarely and the available estimates for Poland are broadly based on outdated ones. An approximation of the scale of benefits may be found in: Borowski (2003) and National Bank of Poland (2004a) (which use reports and estimates of the European Commission, 1990 and Ernst & Young, 1990). Values quoted in the above studies are close to estimates for Hungary, Ireland, Slovakia, and Sweden (cf. Csajbók, Csermely, 2002; Baker, Gerald, Honohan, 1996; Calmfors et al., 1997; Hawkesby, Smith, Tether, 2000; Šuster, 2006).

⁶ The introduction and improvement of all-European systems such as TARGET and TARGET2 is conducive to the unification of the European market, which facilitates making payments within the EU and in the euro area. The process is, however, quite slow.



3.1.2 Increase in macroeconomic stability and credibility

Macroeconomic stability and credibility are of key importance to economy as they influence possibilities and willingness of investors to make investment decisions, decide about allocation of economic resources, and impact the pace of economic growth (Montiel, Serven, 2004). The potential impact of Poland's accession to the euro area on stability and credibility of the Polish economy is thus very important.

The level of macroeconomic stability and credibility significantly impacts the pace of economic growth.

Macroeconomic stability is usually assessed by comparing volatility of real output (measured with volatility of economic growth rate), price volatility (measured with inflation rate), and the level of deficit in the current account (Satyanath, Subramanian, 2004). Results of analyses stress nevertheless that the variables are largely conditional on internal factors and their changes may result both from changes in macroeconomic policy and from external shocks.

When assessing macroeconomic stability, also indices mirroring the stability of macroeconomic policy are analysed, such as the condition of public finance (measured with the amount of budget deficit, volatility of government spending, and amount of state debt), the scale of monetisation of the economy, and volatility of real exchange rate. The impact of external environment on macroeconomic stability is assessed by analysing volatility of terms of trade and of net capital flows (Montiel, Serven, 2004).

Current degree of macroeconomic stability and credibility

Observation of the major economic variables in Poland leads to a conclusion that the Polish economy is stable. Intrinsic stability connected with fiscal and monetary policy is high. Budget deficit and public debt are relatively low as compared to euro area countries; the inflation rate is also similar. External stability is on the positive side as well.

Polish economy is relatively stable.

Analyses confirm that macroeconomic stability of Poland and the remaining countries with a derogation increased considerably after their accession to the European Union (De Grauwe, Schnabl, 2004, 2005b). Forecasts anticipate that its further increase will be connected with Poland's accession to the euro area.

A problem which occurs frequently in analyses of stability of developing countries, including Poland, is connected with their external stability, particularly with a stable level of current account deficit. Developing countries with high investment rate (exceeding internal capacity of the economy) determined by national savings rate must seek financing from foreign investors (Sobański, 2006).

Increasing current account deficit leads to an increase in foreign net liabilities and the willingness of foreign investors to lend capital to the given economy depends on the overall level of foreign indebtedness of the country and on the relation of risk to expected return rate. A country is more susceptible to external shocks due to high current account deficit (International Monetary Fund, 2008a).

The problem of a too high current account deficit concerns a number of countries with derogation, against which Poland is evaluated positively. Only the Czech economy posted lower current account deficit at the end of the second quarter of 2008 (cf. Table 3.1).

Current account deficit in Poland is relatively low...

Studies of the International Monetary Fund on the level of current account deficit in equilibrium show that in the past five years the deficit in Poland was lower (in absolute terms) than the equilibrium level resulting from fundamental variables (International

Table 3.1 Current account deficit in Poland and in the remaining EU Member States in the years 2004–2008

	2004	2005	2006	2007	Q1 of 2008	Q2 of 2008
Bulgaria	-5.3	-12.4	-17.8	-21.8	-22.1	-24.2
Czech Republic	-5.2	-1.3	-2.6	-1.8	-1.7	-2.5
Estonia	-11.7	-10.0	-16.7	-18.1	-15.6	-14.1
Hungary	-8.6	-7.5	-7.5	-6.4	-6.6	-6.3
Latvia	-12.9	-12.5	-22.5	-23.8	-22.0	-19.7
Lithuania	-7.7	-7.1	-10.6	-14.6	-15.6	-15.5
Romania	-8.4	-8.6	-10.4	-14.0	-13.9	-13.7
Slovakia	-7.8	-8.4	-7.0	-5.3	-5.5	-6.6
Slovenia	-2.7	-1.8	-2.5	-4.3	-5.6	-6.0
Poland	-4.0	-1.2	-2.7	-4.7	-5.0	-5.0

Source: World Bank, 2008.

Monetary Fund, 2008a). This is also confirmed by analyses of the target current account deficit prepared for the needs of this *Report* (cf. Rubaszek, 2008). Their results show that the current account deficit in the Polish economy has been lower (in absolute terms) than the target level since 2005⁷.

...and mainly financed from direct foreign investments.

In the case of Poland, current account deficit is mainly financed from direct foreign investments. This is of significance to the level of macroeconomic stability as direct foreign investments are more stable than other capital flows (International Monetary Fund, 2008a).

Impact of accession into the euro area on macroeconomic stability and credibility

After accession into the euro area, further increase in stability is forecasted...

Mitigating the risk of sudden capital flows, which destabilise the economy, triggered by factors other than worsening of macroeconomic indices, such as currency speculations or changes in confidence of foreign investors, i.e. unjustified by actual economic situation of the country, is a direct effect of abandoning national currency in favour of an international currency (National Bank of Poland, 2004a).

Additionally, giving up the zloty for the euro, Poland will significantly mitigate the risk of a currency crisis (cf. Box 3.2), thus enhancing long-term macroeconomic stability.

Box 3.2 Currency crises

A currency crisis is usually understood as a sudden decline in the value of money in the currency market due to market pressure (depreciation) or inability of authorities to retain the exchange rate in line with the previously announced parity and the need for a considerable nominal devaluation (cf. Gruszczyński, 2004). Literature is not nevertheless unanimous as to the amount of decline in exchange rate which, once exceeded, translates into a currency crisis.

Literature talks about three types of currency crises.

⁷ The study covers the period starting from Q1 of 2008.



First generation crises. This group includes crises which took place in the 1970s and in the beginning of 1980s. The reasons behind the crises included erroneous macroeconomic policy, particularly lack of appropriate link between monetary and fiscal policy. Conduct of expansive monetary policy accompanied by restrictive fiscal policy resulted in enhanced aggregate demand and emergence of high current account deficit. Losing capacity to finance deficit and mass outflow of capital (and reserves) forced the policy to abandon the fixed exchange rate and, subsequently, resulted in a drastic decline in its value. Such crises took place most frequently in Southern American countries.

Second generation crises. Shocks experienced by Member States in the ERM system in the years 1992–1993 are an example of such a crisis. Foreign currency limitations introduced towards capital transactions prevented simultaneous conduct of fixed exchange rate policy and of monetary policy targeted at internal needs of the given economy. Introduction of full freedom of capital made conduct of the above combination almost impossible. Additionally, unification of Germany prolonged the period of expansion of the German economy, which resulted in Germany conducting a restrictive monetary policy. It was negatively evaluated by other states which were about to enter into recession or already faced it, like the United Kingdom. It turned out that simultaneous conduct of fixed exchange rate policy, independent monetary policy, and policy of free flow of capital is impossible. Speculations started against currencies of countries whose authorities were not determined or altogether unable to defend the exchange rate. Crisis thus defined was experienced by, among others, United Kingdom, Italy, Spain, Ireland, Finland, Sweden, and Norway.

Third generation currency crises. Events which took place in South-Eastern Asia in the years 1997–1998 are referred to as third generation currency crises. Their reasons exceeded macroeconomic factors considerably. The problems stemmed from the financial sector, whose supervision by monetary authorities of the states was insufficient, as well as from underdeveloped capital market, because of which the mechanism of optimum resource allocation did not function well (particularly on a macroeconomic level). Crises were accompanied by the contagion effect, which resulted in crises spreading to other countries. Hong Kong may serve as an example here, as its monetary authorities were forced to take specific preventive measures.

Source: NBP study.

Accession into the euro area is accompanied by import of credibility of the monetary policy conducted by the European Central Bank since its policy is evaluated as more reliable than the policy of respective national central banks⁸.

...as well as increased credibility of macroeconomic policy.

Further increase in the reliability of fiscal policy, resulting from observance of financial discipline in the framework of meeting obligations resulting from the Stability and Growth Pact, is of great importance to enhancing macroeconomic stability and credibility. Additionally, greater transparency of prices and an increase in competition may also boost price stability. All the above factors may positively impact long-term macroeconomic stability after Poland's accession to the euro area.

⁸ Risk of inadequacy of monetary policy conducted by the ECB will be discussed in Chapter 4 of the *Report*.

Mitigating macroeconomic risk

Investment decisions are largely influenced by the degree of macroeconomic risk.

As it was mentioned previously, the reduction of transaction costs and of exchange rate risk may have a significant influence on the size of investments coming to Poland after its accession into the euro area. Macroeconomic risk is yet another important factor considered when making investment decisions (cf. Box 3.3).

Box 3.3 Risk in business activity

Economic risk is connected with pursuing specific goals by economic operators and possibilities of their achievement (Kaczmarek, 2005). The goals include, in particular: achieving pre-established profit, turnover volume, and winning a market share. Thus, risk in the macroeconomic sense determines the plausibility of sustaining unintended losses or the possibility of failing to achieve planned effects (Mączyńska, 2005).

Macroeconomic risk is connected with the general condition of economy and the possibility to change conditions of pursuing business activity (Spedding, Rose, 2008). Its evaluation encompasses, among others, the following: the conduct of economic policy, legal regulations, the inflation rate, the exchange rate fluctuations, the interest rate, the budget deficit, the tax system, and the unemployment rate.

Source: NBP study.

Making investment decisions, investors largely take into account the macroeconomic risk assessments by rating agencies (cf. Box 3.4). Countries with low macroeconomic risk are perceived as more attractive. A decrease in risk would thus trigger an increase in investors' confidence, which translates into an increase in size of investments, output, and employment in the long run (Sławiński, Dusza, 1998). This means that benefits of a potential decline in macroeconomic risk after accession into the euro area are long-term.

Box 3.4 Rating

Rating is an independent and objective assessment of credit risk of an entity which becomes indebted to the market, i.e. opinion on the ability to service liabilities of the given entity (cf. Jaworski, 2002, Bogus, Markiewicz, Szczurek, 2006 or Mączyńska, 2005).

The functions of rating include identification, evaluation, and classification of investment risk. Rating thus constitutes a tool to optimise financial risk for investors. Evaluation concerns individual entities and their products, as well as individual regions and countries. Evaluation is performed by independent specialised institutions (rating agencies).

Ratings may cover both the assessment of entities and groups thereof (issuers) and individual products (issues), the majority of which is evaluated for their short- and long-term solvency. The currency of liabilities is an additional element differentiating between respective types of ratings. Assessments cover the ability to repay liabilities, separately in a foreign currency and in the currency of the given country (cf. among others Jaworski, 2002).

3.1 Direct benefits

National ratings constitute an evaluation of credit quality in relation to the rating of “lowest” credit risk in the given country. In the case of country ratings, apart from long- and short-term rating of indebtedness in a foreign currency, local currency ratings and country ceiling ratings are provided.

Source: NBP study.

As already mentioned, Poland is a country catching up with highly developed economies, with a savings rate lower than investment rate, i.e. a net capital importer. Further large influx of investments is necessary to ensure high economic growth and acceleration of the convergence process. It is thus of importance whether and to what extent Poland's accession to the euro area would influence improving Poland's rating and thus speed up the catching-up process.

Current level of Poland's macroeconomic risk

Evaluation of macroeconomic risk by major rating agencies indicates that the current international position of Poland is high. According to Moody's, Poland's long-term rating is A2, which translates into very high capacity to meet obligations. Fitch Ratings and Standard and Poor's consider it as high (A in national currency, A- in foreign currency; cf. Table 3.2). This stands for vulnerability to unfavourable economic conditions and changes in the situation. All three agencies evaluate the outlook for Poland as stable.

Currently, the level of Poland's macroeconomic risk is only slight.

Table 3.2 Poland's long-term rating in a foreign currency against the new EU Member States according to Fitch Ratings, Moody's, and Standard and Poor's*

	Fitch IBCA	Moody's	Standard and Poor's
Poland	A-	A2	A-
Slovakia	A+	A1	A+
Czech Republic	A+	A1	A
Hungary	BBB	A3	BBB
Estonia	A-	A1	A
Lithuania	BBB+	A2	BBB+
Latvia	BBB-	A3	BBB-
Romania	BB+	Baa3	BB+
Bulgaria	BBB-	Baa3	BBB

* As on 18 November 2008

Source: informational materials issued by rating agencies.

From among new EU Member States, the position of the Polish economy is good as only Slovakia and the Czech Republic enjoy higher ratings. Poland's position is however lower against euro area countries. Among euro area countries, only Greece received A rating (according to Fitch). The majority of states were rated AAA. Belgium was rated AA+, Portugal and Slovenia were rated AA, and Italy and Cyprus were rated AA-.

Impact of accession to the euro area on Poland's rating

Poland's accession to the euro area may result in decline of macroeconomic risk...

As already mentioned, Poland's accession to the euro area may be conducive to improvement of its macroeconomic stability and credibility as a result of mitigation of risk of sudden capital flows which destabilise the economy, mitigation of risk of a currency crisis, as well as an increase in credibility of macroeconomic policy. As all the above factors are taken into consideration by rating agencies when evaluating macroeconomic risk, their changes may trigger improvement of Poland's rating after euro area accession.

...and thus in a rating improvement, as proven by experience of other countries.

This is substantiated by experience of new euro area Member States. Fitch upgraded long-term rating for Cyprus and Malta following their accession: from A+ to AA- in the case of Cyprus and from A to A+ in the case of Malta⁹. Rating of Cyprus was also upgraded by Moody's (from A2 in 1998 to A1 in 2007 and then to Aa3 in 2008) and by Standard and Poor's (from A to A+).

Ratings of countries which have been members of the euro area for a long time also change. According to Fitch for instance, rating of Ireland, Spain, Finland, Belgium, and Greece improved in the years 1998–2008. Germany, Austria, France, Luxembourg, and the Netherlands were assigned the highest rating on joining the euro area. In the sole case of Italy, rating deteriorated slightly in the recent years (according to Fitch and Standard and Poor's) or remained unchanged (Moody's).

Fitch upgraded Slovakia's rating from A to A+ on 8 July 2008 after Ecofin Council made the decision on setting the conversion rate of Slovak koruna at the level of ERM II central parity rate. The country rating ceiling was increased from AA to AAA. On 31 July 2008, Moody's improved the long-term rating of Slovakia from Aa1 to Aaa as well as the evaluation of Slovakia's perspectives from "neutral" to "positive" and justified it with strengthening of Slovakia's economy fundamentals.

Effects for Poland

The scale of rating improvement following accession to the euro area will depend on introducing essential structural reforms.

Representatives of Fitch, Moody's, and Standard and Poor's believe that Poland's accession to the euro area would strengthen its rating¹⁰. They also stress that the scope of changes will be conditional on the scale of structural reforms implemented prior to euro area accession, particularly the reform of public finance, as well as the scale of structural deficit and indebtedness downscaling.

Due to resignation from the conduct of autonomous monetary policy, rating places greater emphasis on fiscal policy and economic structure. At the same time, the size of payment deficit becomes of lesser importance after euro area accession.

Fitch assumes that Poland's rating may increase by two notches following its accession to the euro area, but warns that the rating will be upgraded by only one notch if Poland fails to implement the necessary reforms. On the other hand, if Poland conducts the essential reforms, its rating will improve regardless of whether it joins the euro area.

⁹ All data concerning changes in ratings of respective euro area countries origin from the Bloomberg database.

¹⁰ The opinions and recommendations were derived from opinions of rating agencies obtained when drafting the *Report* as well as from informational materials they publish (cf. among others Fitch Ratings, 2007).

3.1.3 Interest rate decrease

Interest rates are one of the basic economic variables for the economy as a whole and for individual entities making economic decisions. High interest rates may constitute a barrier to investment activity and limit credit accessibility. Introduction of the euro is expected to trigger a decrease in nominal interest rates as a result of the ECB taking over the obligation to set and retain official interest rates and, as a consequence, a reduction in exchange rate risk premium (the remaining components of risk premium may or may not change – cf. Box 3.5)¹¹.

Box 3.5 Why are interest rates in Poland higher than in the euro area?

Differences between levels of real interest rates in Poland and in the euro area result from differences in nominal interest rates and inflation rates, which in turn stems from structural differences between the two economies. Poland is currently in the catching-up (convergence) phase, which is usually accompanied by higher growth rate of labour productivity than in highly developed economies^a. Differences in growth rate of labour productivity due to Balassa-Samuelson effect translate into higher growth rate of wages, which in turn generates inflation pressure – one of the potential reasons behind varied inflation rates in Poland and in the euro area (cf. also Koloch, 2008). When a central bank's objective is to retain inflation rate around the inflation target, higher inflation pressure necessitates intervention consisting in increasing interest rates^b. This, among others, explains why the level of nominal interest rates, which balances the economy, may be different for Poland than for the euro area (Brzoza-Brzezina, 2003b,c). Apart from the previously discussed diversity of nominal categories, also the real interest rate may be different in Poland than in the euro area. Concepts of natural interest rate, defined as the level of real interest rate stabilising the level of prices in the economy, will be discussed in Box 4.6.

Different perception of risk in Poland and in the euro area is another significant reason behind different levels of nominal interest rates in both areas. Euro area economy is perceived as an area of high macroeconomic stability and high credibility of policy. In effect, premium for risk connected with pursuing economic activity in the euro area is very low. In the case of Poland, risk valued by market participants is higher, as mirrored by the level of market interest rates (risk premium enhances risk-free interest rate). It may be the result of e.g. lower financial development level. Risk premium consists of three components: liquidity risk, default risk, and exchange rate risk. Adoption of the euro by Poland should eliminate the component concerning foreign exchange rate and positively impact the remaining two components as a result of an increase in macroeconomic credibility and stability of the country^c. Official interest rates (controlled by the central bank) will be set by the ECB in a uniform way for all euro area countries.

^a The argument necessitates a commentary on the period of low interest rates in the Czech Republic which is also in the catching-up phase. Apart from the possibility of temporary deviation of the market rate from long-term equilibrium rate as a result of certain decisions of market participants (which might have been one of the causes), the discrepancy can be attributed mainly to conviction of fast accession of the Czech Republic to the euro area (cf. Szczerbak, Misiórski, Pochopień, 2008). Also, the favourable perception of risk of the Czech economy had a fundamental

¹¹ If interest rates in Poland are higher than those in the euro area, it is expected that convergence would consist in a decrease in interest rates in Poland.



basis: both the level of income per capita and the level of public debt in the Czech Republic largely substantiated the positive evaluation.

^b Different nature of inflation expectations may be another reason for higher interest rates to persist in Poland. While in Poland, their nature is adaptative, in the euro area they are rather rational, among others due to higher degree of financial development.

^c Integration with the euro area may also trigger processes conducive to an increase in market cost of capital, e.g. an increase in competition in the banking sector (which might lead to competition withering away). Experience of other states and research conducted for the needs of this *Report* (cf. Pawłowska, Kozak, 2008) indicate only slight probability of such a scenario, particularly due to considerable size of the banking sector.

Source: own study.

Characterisation of potential benefits

Decrease in interest rates translates into lower cost of capital.

Decrease in nominal interest rates due to introduction of the euro may result in lower cost of capital for households, enterprises, and the state¹². From the perspective of households, lower interest rates should enhance accessibility and attractiveness of credit, which may allow to reduce costs of consumption¹³. In the case of enterprises, lower cost of financing (accompanied by the expected influx of capital) may be conducive to accumulation of capital and extending investment activity, also due to deepening of financial markets and fuller integration of the Polish market with the European one. Increase in macroeconomic credibility and a decrease in risk premium may lead to a reduction in costs of securities servicing, including debt issued by the government. Improvement of capacity to service debt and the expected improvement of country rating may allow retaining higher current account deficit. In the long run, the benefits may be conducive to accelerated economic growth, accompanied by an increase in employment and income.

Favourable condition of the economy may limit the scale of decrease in interest rates.

Due to the favourable condition of the Polish economy and the credibility of the conducted policy, the risk premium in Poland is relatively low, which limits room for potential decrease in nominal interest rates (cf. Chart 3.1)¹⁴. The general perception of risk by market participants worsened nevertheless as a result of disruptions in financial markets and an increase in risk aversion, which concerns also perception of Poland's macroeconomic risk. Even in the light of the trend to lower interest rates, visible in the recent months, the persistent uncertainty is conducive to emergence of higher spread between the interest rate level in Poland and in the euro area (Chart 3.1). Apart from a limitation resulting from the disparity of interest rates, the upper ceiling of a decline in interest rates due to the introduction of the euro is indirectly set by convergence criteria which determine the admissible inflation rate and the level of long-term interest rates.

Estimation of a decrease in interest rates

Decrease in interest rates due to the introduction of the euro may reach ca. 2.5 pp.

Estimation of the size of the expected decrease in nominal interest rates constitutes a part of analysis of benefits resulting from reduction in exchange rate risk and pertains to a decrease in risk premium included in interest rates. Uncovered interest

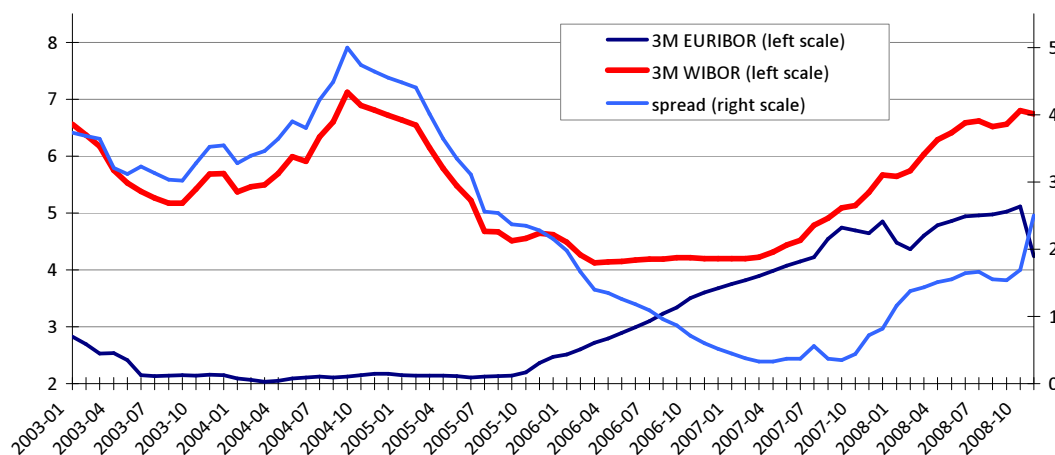
¹² Potential reduction of long-term rates, key to evaluate investment ventures, should turn out particularly important (cf. Szczerbak, Misiórski, Pochopień, 2008).

¹³ At the same time, the potential increase in lending as a result of a decrease in interest rates brings about certain threats, which will be discussed in detail in subsequent chapters of the *Report*.

¹⁴ The scale of reduction of interest rates may be particularly high in case of small economies with relatively low credibility of policy (cf. Guiso et al., 2004; Ehrmann, Fratzscher, Rigobon, 2005).

3.1 Direct benefits

Chart 3.1 Comparison of market interest rates in Poland and in the euro area in the years 2003–2008



Source: Eurostat.

rate parity (UIP) was used to calculate premium for exchange rate risk (cf. Box 3.6). Calculations allowed to estimate the amount of premium for exchange rate risk included in long-term interest rates at about 230–240 basis points, i.e. 2.3–2.4 pp. It is noteworthy that also the remaining elements of risk premium, i.e. liquidity risk and default risk, may undergo reduction due to the introduction of the euro as perception of Poland’s macroeconomic credibility improves. At the same time, the potential vulnerability of results of calculations to meeting UIP assumptions needs to be stressed¹⁵. The resulting amounts of premium for exchange rate risk are not much different than results of studies on other countries¹⁶. Nevertheless, in connection with changes in nominal interest rates in Poland and in the euro area observed in 2008 as well as with the overall increase in risk aversion on global financial markets, risk premium may turn out slightly higher than the quoted estimates (cf. Chart 3.1).

When analysing the scale of reduction of risk premium, one must bear in mind that the process of convergence of interest rates is distributed over time. Benefits connected directly with a decrease in nominal interest rates may be discounted in the economy as they decrease – starting from the precise establishment of the date of Poland’s accession to the euro area until the very accession. An increase in confidence of market participants in the capacity of euro introduction by the given country in line with a previously announced date should be conducive to a decrease in risk premium, which may be mirrored by a decrease in long-term interest rates (cf. Szczerbak, Misiórski, Pochopiń, 2008). At the same time, the necessity to meet convergence criteria (particularly the inflation criterion and the exchange rate criterion) may also result in a decrease in premium for exchange rate risk until its total elimination at the moment of replacing the zloty with the euro¹⁷.

Effects of a decrease in interest rates will be spread over time.

¹⁵ Results of certain empirical studies question the truth of UIP, which can be attributable to among others home bias or asymmetry of information on financial markets.

¹⁶ Estimated value for Hungary – ca. 1.5–3 pp (Csajbók, Csermely, 2002), Slovakia – ca. 0.5–1 pp (Šuster, 2006), Poland – ca. 1.5–2 pp (National Bank of Poland, 2004a after: Borowski, 2003). In the case of certain euro area Member States, the scale of interest rate reduction after the introduction of the single currency reached even 3–4 pp (e.g. in Greece and Portugal).

¹⁷ One must remember that only exchange rate risk in relation to other euro area countries will be eliminated. The potential reduction of risk in relation to other currencies could result from enhanced stability of the single European currency (as compared to the zloty).

Box 3.6 Uncovered interest rate parity (UIP)

Uncovered interest rate parity (UIP) was used to estimate the expected size of a decrease in nominal interest rates^a. According to UIP assumptions, differences between levels of interest rates in two countries may be explained by different amounts of risk premium (which is composed of premium for exchange rate risk, liquidity risk, and credit risk) as well as by prognoses as to the future foreign exchange rate.

$$i = i^* + RP + E\Delta S,$$

where: i – national interest rate, i^* – foreign interest rate, RP – total risk premium, $E\Delta S$ – expected change in foreign exchange rate.

Calculations were carried out with different assumptions as to expectations on changes in foreign exchange rate: naive^b, perfectly matching^c, and assuming exchange rate to be a random walk^d. Interest rates in Poland and in the euro area are WIBOR 3M and EURIBOR 3M, respectively. Two components of risk premium, one connected with liquidity risk and the other one with default risk, were estimated by comparing profitability of five-year German Treasury bonds and of Polish Treasury bonds denominated in euro. The third component, namely the premium for exchange rate risk, was estimated as the residual value which allows retaining UIP.

Results of calculations using both daily and monthly data turned out resilient to changes in assumptions concerning the expected changes of foreign exchange rates. In the case of daily data, the average amount of premium for exchange rate risk was estimated at about 2.3 pp. In the case of monthly data, results turned out slightly higher – about 2.35–2.4 pp.

^a This method of measuring premium for exchange rate risk is frequent in literature (cf. Hawkesby, Smith, Tether, 2000; Csajbók, Csermely, 2002; Borowski, 2003; National Bank of Poland, 2004a). Different estimation methods were adopted by, among others, Antoniou, Olusi, Paudyal (2006); Šuster (2006), as well as Csajbók, Csermely (2002).

^b The exchange rate in the subsequent period equals that in the recent period.

^c Full compliance of expectations concerning the direction of changes with actual changes.

^d Expected changes in the foreign exchange rate as error of estimation of the autoregression equation of exchange rate (exchange rate level depends on the exchange rate level in the previous period).

Source: NBP study.

Full evaluation of benefits from a reduction in interest rates is impossible as there is no way of projecting some of the future external factors (among others inflation expectations, economic situation in Poland, and the global perception of risk by market participants). They may have a significant influence on the amount of risk premium, particularly in the period of unrest on financial markets which frequently distorts rational risk assessment. Moreover, the actual scale of benefits in the long run will be influenced primarily by flexibility of the economy in view of changing interest rates. The benefits may include, among others, accelerating economic growth, an increase in employment and in income (through increasing investment and accelerating integration of financial markets).

A decrease in interest rates is also accompanied by significant threats resulting from potentially accelerated pace of lending and including a risk of excessive price increase (including prices of real estate). Also, the benefits for the real economy sector connected with reducing the cost of financing may constitute costs for the banking sector, which is thus exposed to losing a part of its revenues (among others from currency operations, but also due to a decrease in profitability of certain categories of assets – cf. Kozak, 2008).

3.2 Intensification of trade

Intensification of trade constitutes one of the potential areas of chances which may arise in the medium and in the long run of monetary union membership. This results from direct benefits, their accumulation, and processes which may be triggered as a result of a change in perspective of operation for entities from the domestic market into the large currency area market. Euro area exporters and importers operate in conditions comparable to those in which only American enterprises operated previously, thanks to strengthening the international position of the single currency (Mroczek, 2008). This is due to the fact that the adoption of the euro is connected with the establishment of a large monetary area, which should streamline the operation of market mechanisms. Thus, producers may increase investment expenditures in order to extend the scope of their operations. Due to the single currency, the euro area constitutes the second largest (with over 300 million consumers) and highly developed currency area in the world in terms of GDP. In the context of Poland's participation in the euro area, it would be interesting to know to what extent the single currency can influence changes in openness of economies and trade with the currency area.

Theory of economics and experience of euro area countries show that adopting the single currency may result in an increase in exports and imports. Simulations held for the needs of the *Report* show that the introduction of the euro in Poland may result in an increase in exports within several decades by ca. 12–13% higher than in the scenario when Poland remains outside the euro area. The increase in imports may be slightly lower, but it should be stronger than the increase in exports in the initial years of membership in the euro area.

The scale of potential benefits from more extensive participation in trade will depend mainly on the attractiveness (in terms of price and quality) of Polish product offer. This will also be a result of the competitiveness of Polish enterprises, including the SME sector and its internationalisation capacity. Analyses show that the attitude of small and medium-sized enterprises to the single currency and their capacity to operate in foreign markets and to rival their competitors will influence the effects of entering the euro area in terms of trade to the greatest extent.

3.2.1 Trade and economic growth

Due to an increase in the role of international links, competitive advantage increasingly frequently depends on the openness of the economy strengthened by appropriate provision of factors of production. In the face of progressing globalisation, the ability to benefit from the process is conditional on effective inclusion of a country or a region in the international division of labour. The significance of trade for economic growth is also well-grounded in the theory of economics (cf. Box 3.7). Trade and direct investment by which it is frequently accompanied ensure transfer of knowledge and intangible

Foreign trade is one of the strongest potential channels of economic convergence globally.

assets due to learning and imitation effects. Thus, domestic enterprises become more efficient and capable of rivalling international competition. Enhancing openness of the economy to trade and foreign investment, and thus enhancing access to knowledge, technologies, and improved management methods and techniques, should be conducive to convergence of income and higher correlation of business cycles thanks to mutual trade links.

Box 3.7 Foreign trade and economic growth in the theory of economics

The absolute advantage theory by A. Smith and the comparative advantage theory by D. Ricardo place particular emphasis on international division of labour as the source of optimal use of factors of production and an increase in labour productivity, which enhance prosperity in countries participating in international exchange of products. According to both classics, the advantage resulting from lower production costs should constitute the basis for development of trade (cf. Bożyk, 2008).

After the Second World War, an opinion became prevalent that long-term effects of international trade are unfavourable to underdeveloped countries as they entrench specialisation of those countries in producing primary and low-processed goods. In the post-war period of protectionist policy, studies were conducted in the underdeveloped countries whose results proved that even if international exchange brings about positive effects of diffusion, the said long-term effects still prevail (cf. Myrdal, 1957).

Due to the fiasco of protectionist policy which failed to balance economic development of underdeveloped countries and western ones and failed to prevent further economic divergence, interest in foreign trade as a factor supporting economic growth started to increase since the end of the 1960s (Afonso, 2001).

Introduction of endogenous growth models formally linked economic growth with international trade via endogenous innovations shaped by, among others, international flow of goods and services. According to endogenous growth models, international trade provides access to a more extensive technological base, facilitates diffusion of technologies, and intensifies research and development (cf. e.g. Romer, 1990; Grossman, Helpman, 1994).

New theories of trade equated with the New Economic Geography stress the role of benefits from agglomeration effects (cf. e.g. Fujita, Krugman, Venables, 1999). Thanks to trade, enterprises are able to perform deeper reorganisation and use the available resources more efficiently. It is also important that the cost of innovation is downscaled thanks to economies of scale (particularly in the R&D sector), which has direct impact on the pace of technological progress and economic growth (cf. e.g. Martin, 1999; Gajewski, 2007).

Source: NBP study.

Due to the above, intensification of trade is considered one of the major effects of adopting the single currency. An increase in foreign trade may take place as a result of a reduction of transaction costs, eradication of risk of fluctuations of the nominal exchange rate, as well as an increase in overall macroeconomic stability. In the long run, also the positive effect of enhanced competition and transparency should become visible (cf. e.g. De Grauwe, 2005).

3.2 Intensification of trade

From Poland's point of view, other positive effects of an increase in trade expected after Poland's accession to the euro area are as follows:

- More efficient use of factors of production connected with specialisation and extending the scale of production;
- Influx of new technologies;
- Increase in investments complementary to exported production.

According to basic theories, all the above effects permanently enhance labour productivity, thus pushing the country up on a higher path of long-term economic growth (cf. e.g. Barro, Sala-i-Martin, 1995; Tokarski, 2006).

3.2.2 Influence of the euro on trade in Europe

Elimination of exchange rate risk is the more important to exporters and importers the more the economy of a given country is dependent on international trade. Stability of the exchange rate eliminates uncertainty of economic operators connected with the variability of revenues resulting directly from exchange rate fluctuations; in the macroeconomic dimension, it enhances price stability via prices of imported goods. Thus, countries with high degree of openness are predisposed to fix exchange rates to a greater extent than closed economies.

Expectations as to the impact of the euro on trade based on theoretical considerations pointed to a similar impact mechanism of the single currency, as in the case of customs union and the single market taking the form of trade creation effect¹⁸. Although it was assumed that eradication of exchange rate risk was significant from the point of view of trade flows, empirical studies did not confirm the hypothesis of the negative impact of exchange rate fluctuations on foreign trade until the beginning of the 1990s.

Studies by Rose and Frankel (1998) were the turning point in perception of the impact of eradicating exchange rate risk on trade. They proved that trade between regions in the same currency area may even be 2.35 times higher than trade between regions which belong to different currency areas. Analysing the experience of monetary unions to-date, the authors proved that when countries use the same currency, it is greatly conducive to an increase in trade. Although questioned as to the scale of impact of the single currency, results of their observations triggered a wave of empirical studies testing impact of the euro on trade¹⁹. A number of analyses based on different gravity model specifications indicate a positive impact of the euro on trade, although lower than initially estimated (Baldwin et al., 2008). As a result of progress in respect of econometric techniques applied and extending time series, and after taking into consideration other factors

¹⁸ Trade creation effect is expressed as an increase in mutual trade between countries which apply certain trade privileges as a result of a decrease in prices after eradicating customs burdens. Trade diversion effect is expressed as an increase in trade in relations with partners remaining outside an integration group.

¹⁹ Baldwin (2005) indicates that Rose only took into consideration very small countries with historically strong political ties with the country of the anchor currency and fixing their currencies due to lack of a credible national monetary and economic policy. Also, the statistical link between trade ties and the single currency may not be a result of abandoning national currencies but of another factor, e.g. colonial subordination or political ties which remained thereafter. At the same time, in case of countries studied by Rose, monetary union was the first stage of economic integration, not a subsequent stage following a free trade area, customs union, and single market like in the case of Europe.

which determine trade flows (such as the necessity to isolate effects of the single market), the results pointed to a lower than expected scale of the effect.

Empirical studies point to a positive impact of the euro on trade, both between the Member States and between the euro area and the rest of the world.

In its report summing up the decade of the euro area, the European Commission states that the impact of the euro on internal trade stays within the 5-15% band (European Commission, 2008b)²⁰. A comprehensive review of literature and research in this respect to-date (Baldwin et al., 2008) indicates that the impact of the euro amounts to about 5%. Certain opinions nevertheless suggest that the euro was of lesser influence on the increase in mutual trade – by 2–3%. Researchers into the problem also stress that the effects may not be underestimated as they are cumulative and should be evaluated in the long run.

Research results show that within the decade of euro area's existence, the impact of the single currency on trade was lesser than influence of other factors, due to a number of reasons (Mroczek, 2008).

Firstly, euro area countries have not experienced considerable fluctuations of exchange rates since mid-1990s due to their stabilisation under ERM and ERM II. As a result, eradicating exchange rate risk with the emergence of the euro did not bring about considerable benefits.

Secondly, since establishing the euro area the countries have gone through stages of economic integration: free trade area, customs union, and the single market. This led to earlier emergence of trade creation effect.

Thirdly, introduction of the euro coincided with the climax and subsequently with a breakdown of the business cycle in the global economy, which traditionally lessens the degree of openness of economies.

Fourthly, the euro area saw accelerated increase in trade with third countries (mainly import) due to an increase in prices of raw materials and a more extensive participation of countries with low labour costs in international trade. Since 2002, the tendency was also supported by appreciation of the euro in nominal and real terms.

3.2.3 Influence of the euro on trade in Poland – microeconomic and macroeconomic factors

The above observations concerning impact of the euro on trade in Europe show that the benefits of adopting the single currency may occur with different intensity and impact economic growth to a different extent. It is extremely difficult to precisely estimate the effects of adopting the single currency in terms of trade, but it is worthwhile to list factors of euro's influence on trade. Theory of economics suggests that particular attention should be devoted to the following (cf. e.g. Rose, 2001b):

- Degree of openness of the economy;
- Structure of international trade (in terms of geography and products);
- Exchange rate fluctuations.

Degree of openness is decisive of the scale of potential benefits, but also threats.

As it was already mentioned, benefits of an increase in trade are an increasing function of openness of the economy which adopts the single currency (McKinnon, 1994; Rose,

²⁰ This means that thanks to the introduction of the euro, mutual trade between euro area countries is 5–15% higher than otherwise.



2001a)²¹. Firstly, savings due to reduction of transaction costs and mitigation of exchange rate risk are higher in open countries (De Grauwe, 2005). Secondly, high openness of the economy results in lower efficiency of autonomous currency policy. In the case of a negative asymmetric shock, the depreciation of a national currency results in an increase in import prices and higher subsistence costs. Thirdly, higher marginal propensity to import in open economies mitigates demand fluctuations (Lavrac, Zumer, 2003).

The degree of openness of the economy may influence the balance of costs and benefits connected with accession into the euro area in two ways. On the one hand, high openness of the economy brings about benefits consisting in lower costs of trading (reduction of transaction costs and foreign exchange risk) and in flow of investments (De Grauwe, Schnabl, 2005a). On the other hand, one must consider the relation between openness of the economy and exposure to shocks, particularly asymmetric shocks, i.e. sudden fluctuations of demand affecting respective countries to a varied extent (cf. e.g. Krugman, 1993b). In this context, the structure of trading is of great importance (Fidrmuc, 2004). The risk of asymmetric shocks is the greater, the more the structure of Poland's trade is different than the structure of trade in euro area countries.

Experience of euro area countries shows that following an introduction of the single currency, the highest increase in exports took place in countries with high intensity of trade links with other countries using the currency. The situation of the Polish economy in terms of the degree of openness to the euro area is relatively favourable. Apart from Germany and Hungary, Poland boosted its scope of openness²², which almost doubled: from 20% to over 40% of GDP, to the greatest extent, primarily in the years 1995–2006, which proves its capacity to face up to international competition. The impact of integration in terms of trade on trading with euro area economies is higher in the case of Poland than in the case of Finland, Ireland, and Greece, and similar to Spain, which creates favourable initial conditions to achieve trade benefits from integration with the euro area (cf. Chart 3.2). The dynamic increase in exports in the recent years was mainly due to direct foreign investments which allowed Polish enterprises to join international distribution networks. The increase enhances the scale of intra-industry trade in respect of transport equipment (Fiat, Volkswagen, Opel, Renault) and in respect of machines and devices, among others for the energy sector.

The structure of trade in terms of geography and type is decisive.

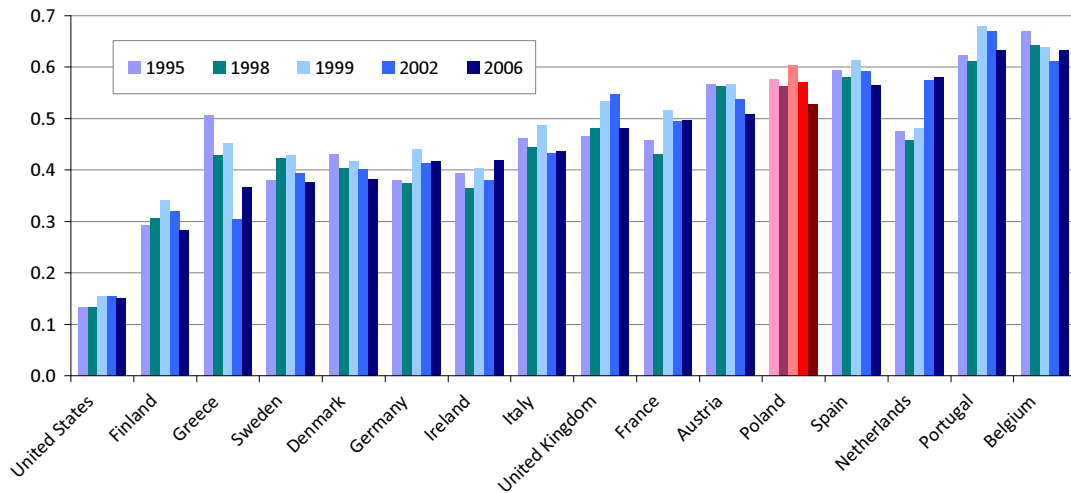
Nevertheless, Polish export is highly concentrated geographically and in terms of products. Four largest partners: Germany, Italy, France, and the United Kingdom, absorb about 45% of Polish exports. Despite the increase in the role of foreign trade due to relatively cheap labour, Poland is primarily an exporter of labour-intensive goods at a less advanced stage of manufacture.

An increase in trade after Poland's accession to the euro area will also depend on the degree of volatility of the Polish currency to-date. The effect of eradicating the risk of fluctuations of the nominal exchange rate is the higher, the higher the instability of the exchange rate (cf. e.g. Frankel, Rose, 1998). This means that the positive effects of adopting the single currency are lower in countries with a stable currency than in countries with currencies whose fluctuations are unpredictable and highly vulnerable

²¹ The share of imports and exports (sum of foreign trade) in GDP is the most frequently used measure of openness of economies. Yet, the index is burdened to the benefit of small countries. While small countries (Slovakia, Belgium, Hungary) are the most open ones, France, Spain, or United Kingdom have definitely lower shares of foreign trade in GDP. Against the background of large European countries, Poland has a relatively high degree of openness.

²² Measured as the average of the sum of exports and imports in relation to GDP.

Chart 3.2 Exports of selected OECD countries to the euro area



Source: NBP study based on Eurostat-Comext data.

to speculative attacks (cf. Błaszczewicz-Schwartzman, 2008). In the light of results of analyses, the zloty exchange rate is the least stable among the currencies of other Central and Eastern European countries (cf. Stażka, 2008).

Significant benefits of the single currency result from the fact that it plays the role of an international currency. Belonging to a currency area with an acknowledged international currency allows its more universal use in transactions in and outside the euro area. Thus, adoption of the euro creates trade not only between euro area countries, but also with third countries. When fragmented markets of euro area countries were joined to establish a single market, access costs lowered. This means that the scale of potential benefits from eradicating exchange rate risk and transaction costs goes beyond transactions with countries participating in the third stage of European Economic and Monetary Union.

The euro has become the trade invoicing currency in the case of transactions with partners from outside the euro area as well (in 2006, slightly above 50% of the transactions were invoiced in the single currency, including those with EU countries). This largely protected euro area entities against exchange rate fluctuations, even in the case of trade with third country partners.

Poland has a relatively high intensity of trade links with euro area countries.

Another important factor which influences the scale of costs and benefits of Poland's accession to the euro area is the geographical structure of trade and its structure in terms of products. Having a single currency in a group of countries makes sense only when the countries are strongly integrated in terms of trade. Studies conducted, among others, for the needs of the *Report* show that indices of specialisation decreased in those groups of commodities in which competitive advantages were the highest, particularly in large euro area countries. The process was accompanied by a decrease in the degree of despecialisation in groups where the indices were negative (Mroczek, 2008). The optimistic conclusion drawn from the studies is the continuous increase in the scale of intra-industry trade after establishing a single currency area, even as euro area countries belong to the group of countries with highest indices of share of intra-industry trade in total turnover. The highest pace of the increase in intra-industry trade was posted by countries with its lowest share in foreign trade prior to 1999 (among others in Greece, Portugal, and Italy).

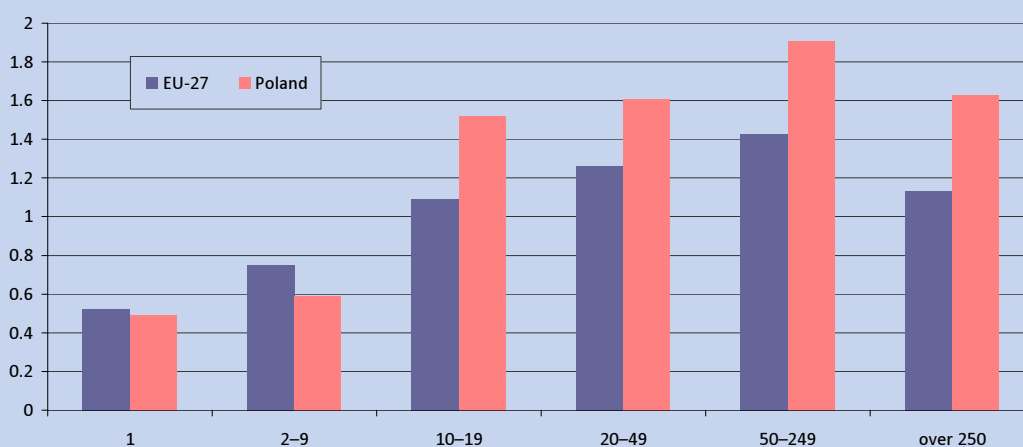


Influence on trading – microeconomic factors

As macroeconomic benefits in the area of trade do not emerge out of the blue but thanks to actions taken by individual enterprises, it is worthwhile to take a look at factors they are triggered by on the microeconomic level. Experience of the euro area to-date shows that potentially, the scale of benefits in trade is the highest for small entities for which exchange rate risk and transaction costs may constitute significant barriers on their way to internationalisation. In the light of euro-area to-date experience, the condition of the sector of small and medium-sized enterprises may be one of the significant determinants of trade intensification after Poland's accession to the euro area. It may be significantly conducive to an increase in the scale of international trade and in the influence of trade benefits on enhanced pace of economic growth. The above effects depend nevertheless on the level of competitiveness of the SME sector and its capacity to establish foreign cooperation and to explore foreign markets. Although SMEs improved their profitability in the period of accelerated economic growth, small enterprises in particular still display relatively low competitiveness and engage in exports and imports to a low extent (cf. Box 3.8).

Box 3.8 Small and medium-sized enterprises – major beneficiaries of the single currency?

Chart 1 Labour productivity in enterprises of different sizes as compared to the average productivity in 2007



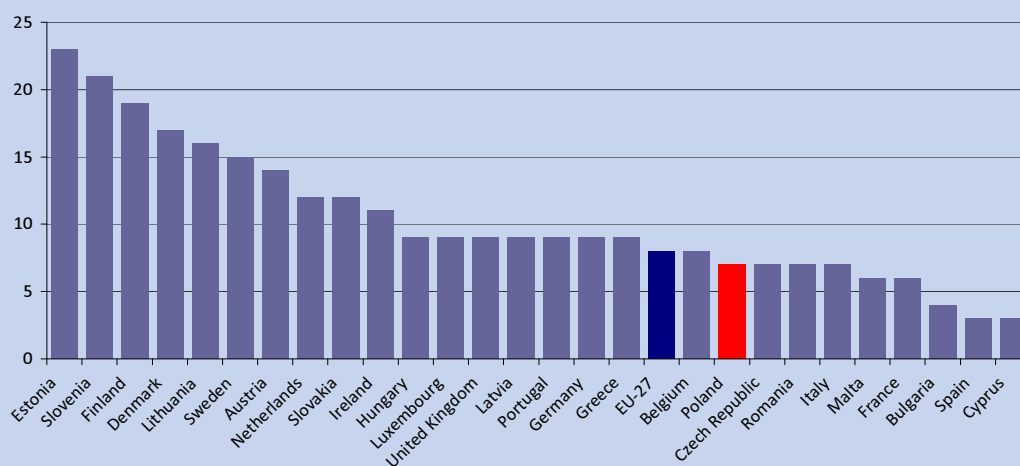
Source: NBP calculations based on Eurostat data.

In Poland, small enterprises, i.e. those which employ up to nine individuals, have relatively low labour productivity (cf. Chart 1), which is the most important factor of competitiveness. One of the major problems faced by the SME sector is high fixed costs of their operation. Expansion and increase in productivity are a chance for cost-cutting. Development of SMEs is hindered by a number of administrative barriers influencing the so-called business climate whose lifting could be conducive to extending the scope of their operation and to enhancing their efficiency. While improvement in competitiveness of the smallest enterprises can be achieved through facilitations connected with establishing and closing small companies, and cutting operating costs, the areas are evaluated very negatively by the Doing Business 2009

report concerning the conditions of pursuing business activity. Poland was evaluated worst in the following categories: starting a business, ease of paying taxes, or the period necessary to obtain a construction permit, which is one of the longest in the world.

A low level of export activity of small and medium-sized enterprises in Poland is another disturbing phenomenon (cf. Chart 2). Encouraging smaller enterprises to establish foreign contracts will facilitate drawing benefits from membership in the euro area consisting in: cutting transaction costs, limiting exchange rate risk, or improving clarity and comparability of prices between respective states.

Chart 2 Percentage share of SMEs whose revenues are generated by exports



Source: Internationalisation – EU policies towards SMEs, AECM General Assembly, May 15th, 2008. Enterprise and Industry Directorate General.

Results of a study conducted by the European Commission show that government agencies play a vital role in supporting internationalisation of small and medium-sized enterprises, mainly thanks to guarantee systems and instruments of their joint external representation, e.g. during fairs. Without such instruments at hand, many SMEs would not even consider taking up cooperation with foreign entities. Factors contributing to an increase in internationalisation are largely similar to factors enhancing innovativeness of enterprises; they belong to the most important determinants of economic growth.

Source: NBP study.

Thus, apart from macroeconomic environment, the scale of an increase in intensity of trade links after the adoption of the euro as well as the scale of benefits thereof will depend on actions taken by individual enterprises. The most important microeconomic factors behind the impact of the euro on trading are as follows:

- The ability of Polish entrepreneurs to operate within a monetary union;
- Competitiveness and innovativeness of enterprises.

Studies conducted for the needs of the *Report* at the end of 2007 show that the majority of non-financial enterprises expressed hopes for a positive impact of the euro in the



following areas: cost of capital, access to sources of financing, and size of export sales. The most frequently invoked benefits which influenced the positive evaluation of euro adoption on the situation of enterprises included a decrease in exchange rate risk and in transaction costs of mutual settlement (Puchalska, 2008).

To sum up, it is worthwhile to stress that there are strong macroeconomic arguments to prove that Poland's accession to the euro area will result in intensification of Polish trade and thus in economic growth. The arguments come from both the theory of economics and experience of the euro area. However, while macroeconomic conditions seem favourable, it is difficult to say the same of microeconomic ones. The relatively low competitive position of the Polish SME sector (though increasing since the accession to the EU) and the low level of innovation in enterprises constitute a threat to using potential benefits of trading. At the same time, the reduction of exchange rate risk and the perspective of market extension may result in an increase in the number of enterprises willing to take up production, including production for export purposes.

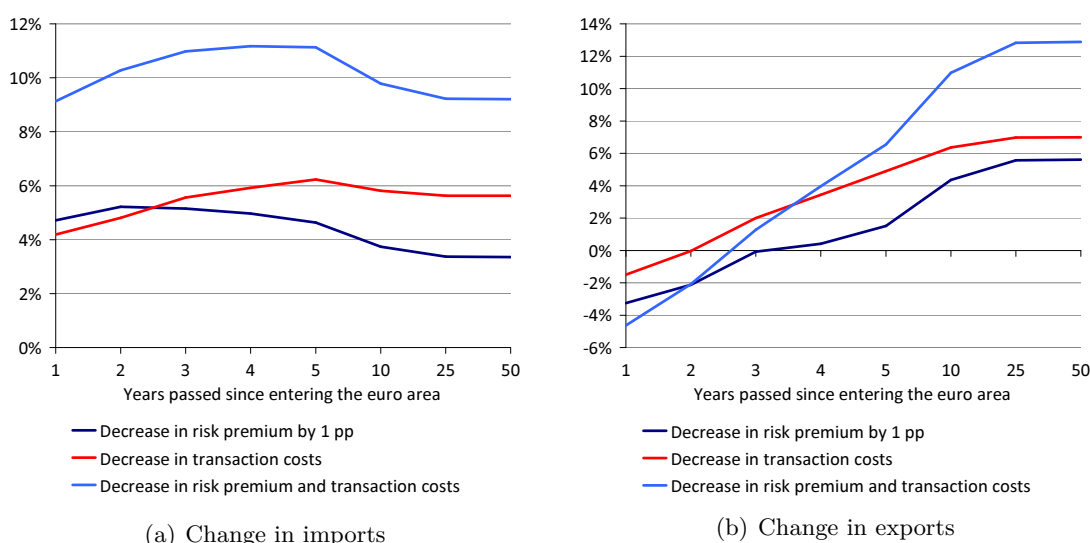
Estimates of the impact of accession into the euro area on Poland's trading

As concerns literature on the subject, authors generally agree that monetary integration was conducive to an increase in trading, but the scale of the impact remains controversial. In the light of the theory of economics, intensification of trade is a long-term effect and depends on starting conditions and on actions taken by enterprises, particularly those from the SME sector.

As the expected intensification of trade is a very important effect of adopting the single currency, studies were conducted for the needs of the *Report* under which an attempt was made to estimate the impact of Poland's entry into the euro area on an increase in exports and imports (Cieřlik, Michałek, Mycielski, 2008; Daras, Hagemeyer, 2008). The studies were based on different methodologies, yet conclusions point to intensification of trade as the effect of the adoption of the single currency by Poland.

Conclusions of studies point to intensification of trading as a result of the introduction of the euro in Poland.

Chart 3.3 Trade effects of Poland's accession to the euro area



Source: Daras, Hagemeyer (2008).

The most important discrepancy between results of the two research projects is the time span of trade benefits. From the gravity model it appears that the effect of adopting

the single currency will be short-term. From the equilibrium model it appears that the majority of exports and imports increase resulting from the accession into the euro area will take effect within the few initial years, but the increase in exports and imports will be permanent (cf. Chart 3.3).

A reliable commitment to stabilise the zloty exchange rate may significantly boost the value of Polish exports and trade.

Simulations based on a generalised gravity model show that a reliable commitment to stabilise the zloty exchange rate may boost the value of Polish exports by as much as 27% and of the whole trade – by 20% (Cieślak, Michałek, Mycielski, 2008). Exports will also increase due to accession into the euro area, but according to the analysis, the effect will not be as marked (an increase by 12%). Trade as a whole should react similarly to the stabilisation of the exchange rate and the adoption of the single currency.

Similar conclusions with regard to the scale of the euro effect on trade have been formulated by authors of the project who used the general equilibrium model in their estimates (Daras, Hagemeyer, 2008). In the light of the analysis, imports would increase slightly and exports would decline shortly after entering the euro area. The increase in imports in the long run (as compared to the scenario where Poland fails to join the euro area) projected by authors amounts to over 9%. Higher import results from lower risk premium and lower transaction costs. Those are immediate effects of entering the euro area, so in the light of the results under analysis, import increases in the initial period of membership and it subsequently remains at the level about 9–11% higher than in the basis scenario (Poland remains outside the euro area).

According to simulations, the euro should be conducive to an increase in the volume of Polish exports in the long run. In the initial years of euro area membership, export may lower, among others, as a consequence of an increase in internal demand due to lower interest rates and other shifts in the structure of demand. After the initial decrease in imports, authors predict higher growth rate of exports than that projected by the scenario in which Poland remains outside the euro area. As a result, export will exceed the value from the basis scenario (failing to adopt the euro) after three years. Results of the analysis show that the growth rate of exports higher than in the basis scenario will be visible even 25 years past accession. Due to the above, it will remain stable at a level almost 13% higher than if Poland remained outside the euro area (cf. Chart 3.3). According to the authors, the long-term increase in exports will be primarily an effect of improvement in the competitiveness of Polish enterprises.

The trade effects of Poland's accession into the euro area estimated for the needs of the *Report* are close to other results featured in literature on the subject. According to more recent estimates, Poland's international trade may increase by ca. 18.5% after its accession to the euro area (Brouwer, Paap, Viaene, 2008).

Effects of economic integration largely depend on the degree of openness of the economy.

To sum up, effects of economic integration depend largely on the degree of openness of the economy measured as a relation of imports and exports of goods and capital to GDP. The single currency may be conducive to achieving benefits of economic and monetary integration, but it also may give rise to risk resulting from inability to compete in and outside the single currency area. The single currency constituted one of the factors determining trade inside the euro area, although theoretical expectations as to the significant impact of the euro, based on strong conviction of the negative influence of exchange rate volatility, turned out too optimistic. Intensive research in the area verifies the prior assumptions and discovers new potential channels of euro influence on trade. This proves that the single currency triggered a number of dynamic processes. Changes in trade were accompanied by direct investment flows as a result of not just the impact of the euro, but also of stringer globalisation of markets. Due to a significant role of the euro as an international currency, the single currency stimulated changes between Member States of the euro area and in relations with third states.

3.3 Growth of investment

Poland's macroeconomic conditions, on which the scale of benefits from trade after joining the euro area will depend, are favourable. Firstly, euro area countries have a large share in Poland's trading. Experience of the euro area to-date shows that this should lead to a considerable increase in the scale of international trade, primarily an increase in intra-industry trade. Secondly, volatility of the zloty exchange rate is relatively high as compared to other currencies of the region. Adopting a more stable currency will result in an increase in intensity of Poland's trade links with foreign countries.

3.3 Growth of investment

3.3.1 Investment and economic growth

Both the theory of economics and the experiences of individual countries prove that investments are of utmost importance for economic growth. Investments influence the growth of domestic product since they are an element of global demand. At the same time, the impact of investments on national product is much stronger than the impact of consumption expenditure or government spending since investments create capital stock in the economy which determines the economy's production potential. Theoretical and empirical analyses confirm that accumulation of capital is necessary to ensure durable and fast economic growth (cf. Box 3.9). The experiences of all countries which had over ten year long periods of high economic growth rate in their history show that the growth was possible thanks to a significant share of investment in the GDP (Commission on Growth and Development, 2008).

Box 3.9 Investment in economic growth models

Since the creation of the R.M. Solov's model, theoretical and empirical studies on the relations between investment and economic growth have been very intensive (cf. Stiroh, 2000). The studies referred to the tradition of neoclassical growth models (Solow model – cf. Solow, 1956) and their later modifications, e.g. models of D. Mankiw, D. Romer, L. Weil (Mankiw, Romer, Weil, 1992) or of F. Ramsey, D. Cass and T.C. Koopmans (cf. Romer, 2000), as well as endogenous growth models (Lucas, 1988; Romer, 1990; Grossman, Helpman, 1994).

According to neoclassical economic growth models based on Cobb-Douglas production function, investments in real capital (Solow model) or in real and human capital are the most important (Mankiw-Romer-Weil). The capital stock per worker is the basic variable influencing labour productivity.

The endogenous growth theory takes into account the occurrence of positive external effects related to the use of knowledge, technological progress or capital. If external effects are strong enough to neutralize the impact of decreasing revenues, then a positive link between knowledge and investment may have a durable impact on the growth rate.

Source: NBP study.

3.3.2 Growth of domestic investment

Literature devotes more attention to foreign investment than to domestic investment.

The literature on the impact of euro on investment is scarce and focuses mainly on the importance of euro for direct investment flows (Barr, Breedon, Miles, 2003; Lane, 2005b), ignoring the impact on domestic investment. It may be related to the factors influencing the size of investment which are discussed in the studies on trade, employment and financial market development and are related to investment processes. Nevertheless, it is possible to identify main channels of impact of the adoption of the common currency on domestic and foreign investment. They include:

- Interest rate channel – general theoretical assumptions about the impact of interest rate on investment show that a lower interest rate on loans increases investment. A lower cost of investment financing increases the attractiveness of a greater number of projects.
- Financial asset channel (Tobin's q ratio) – changes in the value of companies' capital influence the changes in the value of property, and thus also the cost of acquisition of share capital (stocks and shares).
- Macroeconomic stability channel – thanks to which the operators function in more stable conditions and can plan their investment projects. Macroeconomic stability consists of:
 - price stability;
 - stability and predictability of fiscal policy;
 - regulatory stability.
- Access to a larger market and currency area – the presence in the euro area should induce the companies to change the competition perspective from domestic into European one. It results from both larger competitive pressure and better price transparency.

The literature on monetary integration considers the elimination of exchange rate risk and transaction costs to be the most direct channels of the impact of euro on investment, both domestic and foreign. However, due to the specificity and different factors and determinants of domestic and foreign investment, it is worth considering those two types of investment separately.

The growth of domestic investment may be a result of, among others, the reduction of transaction costs and the decrease in nominal interest rate. The reduction of transaction costs may result from a better allocation and increased productivity of factors of production. This allows to expect an increase in GDP, a part of which will be reinvested (cf. National Bank of Poland, 2004a). The reduction of domestic interest rates in the country, thanks, among others, to decreases risk premium, may have an even more positive impact on investment. Poland is characterised by a relatively low supply of capital (as compared to investment needs) which results from insufficient savings (cf. Chart 3.4). A lower cost of capital acquisition and improved access to foreign savings could increase the value of implemented investments, which would increase the share of investment in the GDP.

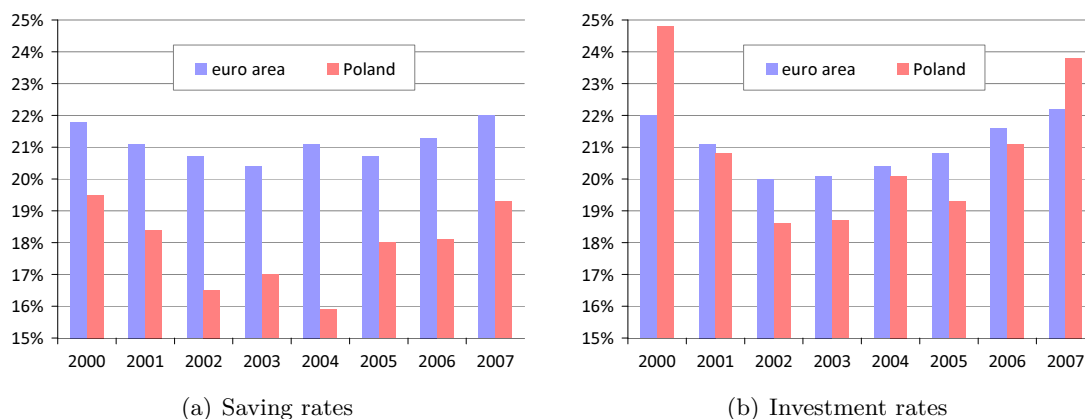
Thanks to lower cost of capital and easier access to foreign savings, the costs of investment for Polish companies will decrease...

3.3 Growth of investment

It is worth emphasizing that Poland's accession to the euro area does not have to automatically result in the growth of investment, even if the nominal interest rate is reduced. The competitiveness of Polish enterprises and profitability of feasible investment projects will play a major role here.

...but the growth of investment does not have to happen automatically.

Chart 3.4 Saving and investment rates in Poland and the euro area



Source: NBP study based on Eurostat data.

The achievement of high saving rates, which are necessary for sustainable economic growth, will be an extremely difficult task in a situation where lower interest rates are in place. It requires agreement between all important political forces and the society. The experiences of the euro area countries show that such agreement is possible (cf. Box 3.10), but its durability may require a long-standing strategy restricting the public spending.

Achievement of high saving rates will be a huge challenge.

Box 3.10 Euro and domestic investment in Ireland and Portugal

Accession to the euro area may allow to increase the share of investment in the GDP, and thus to increase the growth rate, if the appropriate macro and microeconomic conditions, supporting effective absorption of investment, are created.

The reduction of interest rates in Portugal led to the decline in domestic savings and to a short-term consumption boom. It resulted in the growth of inflation, revaluation of real exchange rate and the loss of international competitiveness. As a result, the current account deficit grew considerably and the GDP growth rate declined. The main reason for this was the abandonment of the reforms improving the investment climate and supporting the growth of domestic savings.

The integration of Ireland with the euro area was accompanied by a significant growth of investment, high economic growth rate and the current account balance. The success was possible thanks to the activities improving the investment climate and the social agreement on responsible wage policy which had been achieved in the previous years and which prevented an excessive growth of consumption.

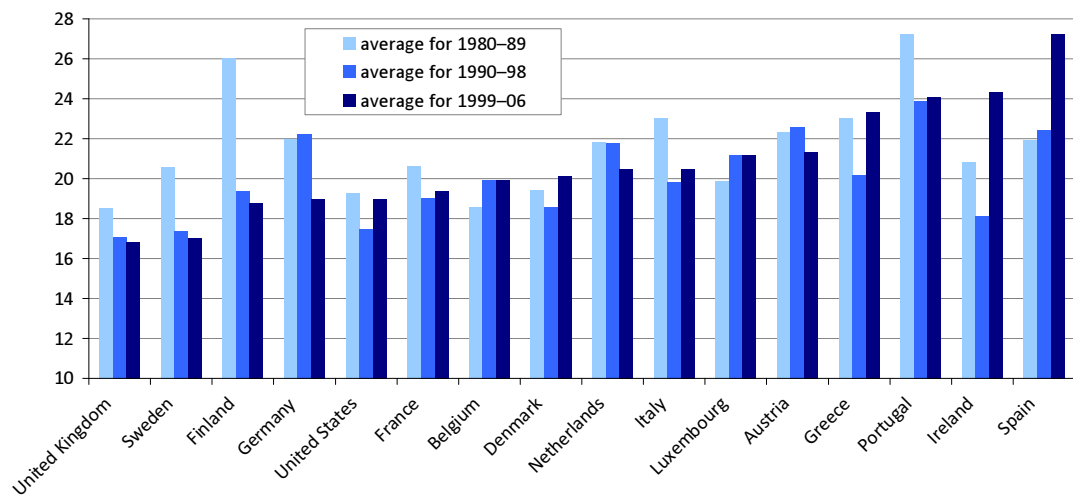
Source: NBP study.

The experiences of the euro area countries show that the years between 1999 and 2006 are the period of relatively higher (than in the years 1990–1998) share of domestic investment in the GDP in fast developing peripheral countries (Spain, Greece and

Investment rates grew relatively fast in the peripheral countries of the euro area.

Ireland, cf. Chart 3.5). Since the creation of the euro area, the role of investments in those countries has increased both in the construction sector (Spain and Ireland) and in the “machines and equipment” category (Greece). It may result from the reduction of real interest rates (often below zero) and from the expectations of faster growth of income to the average European level. The decline of investment from the end of the 1990s in Portugal, which is characterised by one of the lowest capital-labour ratios, is the result of an earlier investment boom which occurred already before the entry into the euro area. In other countries of the euro area, the changes of the share of investment in the GDP between 1999 and 2006 were not significantly different than the average for the years 1980–1989 and 1990–1998 and were to a large extent dependant on local factors. From the beginning of the euro area functioning, investment increased slightly in France and Italy, mainly in the construction sector. Germany suffered the largest decline in investment in that period, mainly due to the decline in construction investment after the boom of the beginning of the 1990s which resulted from the unification of the country. The decline of investment in construction also influenced the changes in investment in Austria, while the decrease in investment in the machines and equipment sector were decisive in Finland (reduction of investment in high technologies sector) and the Netherlands (a strong decline of the price of shares by 2001). No significant changes were recorded in Belgium and Luxembourg within that period.

Chart 3.5 Investment rate (as % of GDP) in the EU countries



Source: OECD and AMECO.

3.3.3 FDI growth

Foreign direct investment is related to the inflow of new technologies.

The growth of foreign direct investment (FDI) may be of particular importance for Poland after the accession to the euro area. Such investment entails the inflow of new technologies, more effective management techniques and the growth of competition. Those factors may make a significant contribution to the increase in labour productivity and acceleration of the economic growth rate in the long term (cf. e.g. Stiroh, 2000; Box 3.11). It is believed that the inflow of new technologies related to FDI may be more valuable for the developing countries than the inflow of capital only (Commission on Growth and Development, 2008). Empirical evidence for the importance of foreign direct investment for technological progress is provided by, among others, Barrell, Pain (1997).



Box 3.11 Foreign direct investment and economic growth

Foreign direct investment (FDI) is considered to be one of the most important determinants of economic growth, particularly in the countries diminishing the development gap to highly developed economies (Gradzewicz, Kolasa, 2005). The positive impact of FDI on the economy is effected by means of the related increase in capital accumulation and increased productivity of factors of production (cf. e.g. Borensztein, De Gregorio, Lee, 1998; Tokarski, 2006).

By means of increasing the capital stock available in the economy, FDI allows to move the growth barrier resulting from the deficit of domestic savings. Such investment is the most beneficial and the safest form of international capital flow (cf. e.g. Christiansen, 2002).

FDI also leads to the growth of labour and capital productivity in the whole economy. This is confirmed, among others, by the fact that companies with a share of foreign capital are on average characterised by a higher productivity of factors of production than the whole sector of enterprises (Smarzynska, 2004). FDI is related to the transfer of modern technologies of production and management to the country. It contributes to the growth of qualifications of national employees and to the establishment of cooperation between foreign enterprises and domestic operators. As a result new technologies and knowledge spread, also to the companies without a share of foreign capital. In addition, FDI stimulates the growth of productivity of domestic enterprises, also as a result of increased competition.

FDI may have a positive impact on the development of domestic enterprises by means of the creation of demand for complementary products and the stimulation of productivity growth. They also facilitate the access to foreign loans and foreign markets, and stimulate the development of information, communications and financial infrastructure (Hoskova, 2001). As a result, FDI leads to the increased competitiveness of the economy and the growth of exports (European Central Bank, 2005b). Those factors are conducive to the increase of domestic investment.

Source: NBP study.

A larger inflow of foreign direct investment to Poland after the accession to the euro area may result from the elimination of exchange rate risk, greater macroeconomic stability, as well as greater transparency of prices, although the list of potential factors determining the FDI flow is much longer. Those factors are related to the perspectives of the development of the economy, quality and price of its production factors and institutional conditions allowing to use them (market flexibility, regulation level, etc.).

From the point of view of accession to the monetary union, an important issue is the impact of the exchange rate risk elimination on foreign investment flow. The impact is not explicit and depends on the nature of investment, among others (cf. Box 3.12).

From the point of view of foreign companies (both from the euro area and from other parts of the world), the increase in certainty with regard to stability and credibility of macroeconomic policy is a factor determining the directions of investment activity. Poland is characterised by high credibility (especially when compared to other countries of the region), but the adoption of a stable currency and a stricter control of implemented macroeconomic activities may significantly increase the credibility.

The elimination of exchange rate risk is important for the economies using a currency with high short-term volatility.

Box 3.12 FDI and foreign trade

Foreign direct investment is currently one of the most important determinants of global trade. The operations of multinational corporations, whose role in the economy is growing steadily, are of particular importance. As a result of increased scale of mergers and acquisitions due to globalisation, we are witness to a significant intensification of capital and trade links. The increased role of multinational corporations results in the internationalisation of production processes. The strategies of multinational corporations lead to the transfer of a part or all production outside the home countries. Dislocation of production is facilitated by technological and communications progress.

The literature on the subject shows that the links between FDI and foreign trade may be both substitutive and complementary, depending on whether investment is horizontal or vertical.

Horizontal investment consists in the transfer of the entire production process from the home country to the country receiving the capital. Such action may be aimed at avoiding high customs barriers and (or) high transport costs. In such a case, we may talk about substitutive nature of investment with respect to trade, since the reduction of exchange rate risk results in the decrease of investment value.

Vertical investment plays a significantly greater role in the modern economy. It consists in the division (fragmenting) of production processes by multinational corporations into stages located in various countries. Striving to maximise effectiveness, multinational corporation use the differences between the costs of individual factors of production. Stages of production are transferred to countries with lower costs (e.g. labour intensive activities are conducted in countries with low labour costs). The final product is often generated in the home country with high costs of highly qualified labour force and large outlays for research and development. From the point of view of stimulating the vertical investment inflow, the reduction of exchange rate risk is also favourable.

Source: NBP study.

According to the majority of studies, euro contributed to the increase in the scale of trade...

Empirical studies agree that the euro has a relatively positive impact on foreign investment both between the member countries and between the euro area and the rest of the world (Baldwin et al., 2008). The dispute concerns the scale of the impact and the strength of its potential channels. The ECB suggests that, thanks to the common currency, FDI flows between the countries are higher by around 15% and outside the euro area by around 7% (European Central Bank, 2008b). Sousa, Lochard (2006) point to the fact that the common currency had a positive impact on FDI flows inside and outside the euro area. They estimate that the adoption of the common currency *ceteris paribus* increased direct investment flows in the euro area by 42%, as compared to FDI flows between the OECD countries which are not members of the euro area. Petroulas (2007) indicates that the introduction of the euro could have contributed to the increase in FDI flows between the member countries by around 14–16%. At the same time Petroulas suggests that the common currency could have led to the increase in FDI flows from the euro area countries outside the area by around 11–13%. Those studies show that the FDI inflow from third countries to the euro area is slightly smaller. Taylor (2008) verifies the UNCTAD and OECD statistics on FDI flows and draws slightly less positive conclusions. According to him, after the exclusion of flows

...but the scale of increase is disputed...

3.3 Growth of investment

carried out by Luxembourg, the changes in FDI flows between the euro area countries were below the average for all countries of the world.

The identification of the impact of the euro area creation on investment is difficult, since the introduction of the euro was accompanied by other processes influencing the investment. The operators' decisions on foreign investment are influenced by a number of diversified impulses whose strength may depend on the motivation for investment, nature of the investor and local factors in the country receiving the investment.

Firstly, before the introduction of the euro, economic operators predicted the consequences of the process and adjusted their development plans to them. It means that part of effects could occur before the formal fixing of the exchange rate. It was the result of adjustment of the strategies of enterprises to the functioning in a more competitive environment of the monetary union and of the intensifying globalisation processes.

Secondly, the preparations and the introduction of the euro cover the period of rapid development of capital markets which in the second half of the 1990s led to the increased role of equity financing, until the slump of the equity market in 2000 and 2001. The growth of the market value of the companies' shares inclined them to increase investment in production facilities²³.

Thirdly, the commonly presented link between trade and FDI is confirmed in the euro area. Initial observations of changes in trade suggest that the common currency contributed to the increase in trade between the euro area and third countries (Mroczek, 2008). The trade in highly processed and diversified goods increased significantly (Flam, Nordström, 2006), which points to further defragmentation of production and its location in countries with lower costs or significant quality advantages. At the same time, investors from the euro area that usually sought cheaper suppliers outside the common currency area, took advantage of the inclusion in the international division of labour of countries with low labour costs.

Fourthly, the functioning of the euro as an international currency had a significant impact on the changes in trade and investments inside and outside the euro area. The common currency has a favourable impact on trade and investment since it expands the market covered by the common currency. It strengthens the incentives for external entities to enter the area and lowers transaction costs related to accessing the area. Having a means of payment commonly accepted all over the world facilitates also the access to foreign markets for economic operators from a given currency area. Positive network effects are then revealed as a result of which the inclination of economic operators to use a given currency is the higher, the more frequently they use it.

Ambiguous assessment of the impact of euro on investment flow results also from a limited accessibility of data and the relatively short period of the functioning of the euro area (short time series). Despite a significant role of other determinants, available studies show that euro had a positive impact on FDI flows inside the euro area, as well as on the relations with the economies outside the area (Baldwin et al., 2008). In addition, those analyses confirm that the euro stimulated mergers and acquisitions and strengthened the effectiveness of competition mechanisms, thus creating the foundations for a trans-European product market. Those changes took place mainly in the manufacturing sector and to a lesser extent in the services sector, due to a still high level of protection of that market by its regulation at the national level.

²³ The increase in the value of issued shares of enterprises to the book value of their property means the growth of the so-called Tobin's q ratio, i.e. the decrease in the cost of capital.



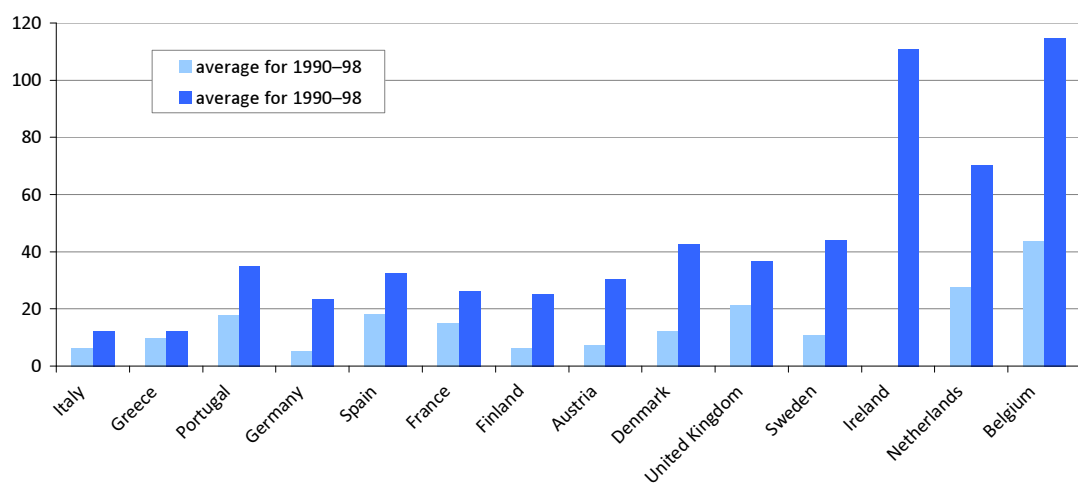
...since it is difficult to identify the euro effect, due to numerous factors which were revealed during the creation of the common currency area.

Euro stimulated mergers of companies mainly in the manufacturing sector.

FDI had the largest positive impact on the economies increasing their attractiveness.

The adoption of the euro helped to enhance location advantages of the countries with traditionally high investment attractiveness (Benelux countries)²⁴. Investors locating their investment in those countries to a large extent operate on international markets using the benefit of the international role of the euro. In the case of countries with relatively weak location advantages, such as Italy and Greece, the euro did not change their situation - cf. Chart 3.6²⁵. Both before and after the accession to the euro area those economies attracted a relatively small number of foreign investments. At the same time, those economies for many years remained at the end of competitiveness rankings, mainly due to high level of corruption, interventions of government administration into the economic activity and lack of transparency. High level of regulation and low competitiveness of economies were conducive to maintaining restrictions on FDI inflow.

Chart 3.6 Accumulated value of FDI inflow in selected OECD countries (% of the GDP)



Source: EIU.

Assessing the effects of Sweden, Denmark and the United Kingdom staying outside the euro area, Barr, Breedon, Miles (2003) point to the fact that in the beginning of the euro area functioning it could increase direct investment in those countries thanks to risk diversification. Later developments in this regard do not confirm a negative impact of those countries staying outside the euro area. It may result from

²⁴ For many years those countries have strengthened their position with regard to capital flow, both in terms of inflow and outflow, constituting a platform for management and location of global corporations or a transit base for capital transfers. The first function is related to the location of companies operating at the European and global level in those countries. It results from the fact that those countries have a relatively well-educated (English speaking or multilingual) labour force, friendly legal conditions, macroeconomic stability, central locations in Europe and accessibility in terms of transport. In addition, those countries pursue a conscious policy of attracting foreign investment using economic policy instruments (the identification of personnel needs of investors and the appropriate adjustment of education system, trade liberalisation policy, reduction of barriers on goods and services markets, etc.) and specialised FDI agencies. The second function performed by the markets of those countries is related to friendly tax regulations, thanks to which those countries are places of location of special purpose entities established for the performance of financial transactions, separation of risk, etc. Thanks to off-shore financial centres functioning in those countries, the markets are treated as a transit base for further investment of capital on third markets.

²⁵ Basile, Benfratello, Castellani (2005) who examined the attractiveness of Italian regions for FDI state that despite a significant division into the richer North and poorer South, all Italian regions are doomed to lose the fight for foreign investment. It results from the fact that they belong to Italy, i.e. an economy with historically highly unstable political and legal system, corruption and ineffective administration. They emphasize that the elimination of the effects identified with the country would bring a much stronger positive effect than the instruments in the form of grants and subsidies to FDI.

significant location advantages of those countries which for many years have occupied top places in competitiveness ratings of *Doing Business*, *Index of Economic Freedom* or *Competitiveness Index*. Those economies were traditionally characterised by a significant degree of internationalisation and openness to direct investment, also before the euro was adopted. The interesting fact is that the EU-3 countries made many investments in the euro area, including in the services sector. In the case of Denmark and the United Kingdom, there is a very clear shift of FDI to the euro area and an increase in the role of investors from the euro area countries²⁶.

3.3.4 Euro and investment in Poland – estimates

Precise estimation of the impact of the euro adoption on investment growth in Poland is equally difficult as the estimation of the trade effects of the common currency adoption, due to a large number of direct and indirect impact channels. The literature of the subject (mainly theoretical) shows that the inflow of foreign investment may be of particular importance for economic growth in Poland. The scale of growth and the positive impact of FDI on the improvement of technological advancement of the Polish economy will depend on the ability to absorb the investment and technologies accompanying investment. The ability to absorb consists mainly of:

- investment climate and business environment;
- human capital understood as education and skills of employees;
- innovativeness of enterprises in the country receiving the investment.

During the analysis of individual factors creating the ability to absorb foreign investment, the existence of numerous “bottlenecks” has to be pointed out since they may result in a situation where the integration with the euro area will not cause an increased contribution of FDI to the development of the Polish economy. In order not to squander opportunities, it is worth increasing the ability to absorb foreign investment. A large percentage of investment in Poland is located in labour-intensive sectors which ensure the creation of new jobs, but they are most often low paid jobs for workers with low level of human capital. Investment in labour-intensive sectors, the advantage of which lies in lower labour costs, does not ensure, however, long-term economic growth. On the contrary, as the labour costs increase, according to the logic of globalisation, the investment will be transferred to other, less developed countries. Attracting investment in labour intensive sectors is beneficial at the stage of industrialization, while the transition to the knowledge-based economy requires fundamental reorientation of activities supporting the inflow of FDI to high-tech sectors.

²⁶ Between 1998 and 2005, the inflow of FDI from the euro area countries to Danish economy grew from 24% to 32%. In the United Kingdom it increased from 25% to 51%. At the same time, Danish investors increased their investments in the euro area countries from 26% to 38% (the British investors from 37% to 56%). The lack of complete data for Sweden does not allow to make a similar comparison.

Box 3.13 Ability of the Polish economy to absorb foreign investment**Table 1 Poland in *Doing business* rating**

Category	2007	2008	2009
Place in the ranking	75	72	76
Getting credit	62	68	28
Protecting investors	32	33	38
Trading across borders	33	40	41
Paying taxes	121	125	142
Starting a business	118	129	145
Dealing with construction permits	154	156	158

Source: Doing Business 2009 (2008).

As regards the ease of doing business (in *Doing Business* ranking), Poland ranked penultimate place from among all European Union Member States (ahead of Greece only). Poland performed particularly poorly in such categories as permits and licenses, starting a business or tax regulations. It is worth noting that the Baltic states, which began their transformation in conditions similar to Poland, take high places in the ranking. The barriers which hamper the economic activity and increase its cost discourage not only foreign but also domestic investors, which curbs competition (particularly in the SME sector) and discourages from increasing the innovativeness level.

Table 2 Student exchange with abroad

	Students studying abroad	Foreign students
United Kingdom	17.9	13.7
Czech Republic	6.3	5.1
Hungary	3.3	2.8
Spain	2.9	1
Poland	0.5	< 0.1
EU-19*	8.9	5.7

* excluding Slovenia, Bulgaria, Romania, Malta, Cyprus, Lithuania, Latvia and Estonia.

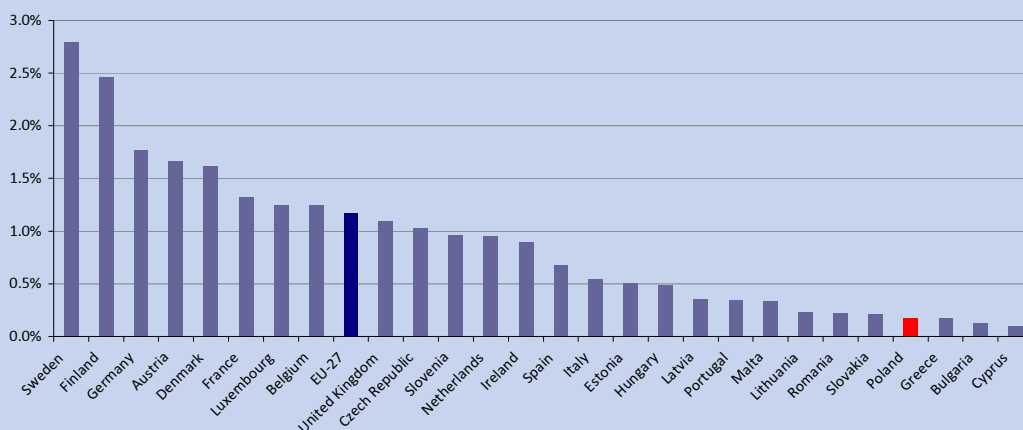
Source: OECD, Central Statistical Office.

The Polish education system at every stage is still poorly adjusted to the needs of knowledge-based economy. It affects the human capital necessary to absorb new technologies. Poland is characterised by a low ratio of children participation in early education, low level of innovativeness of higher education institutions and small usefulness of higher education (cf. Boni, 2008). One of the poorly used opportunities provided to Poland by European integration is the participation of Polish young people in education abroad. The education systems in Western Europe are in general



more effective and the established contacts abroad may be used in professional life. Many fast developing countries (e.g. China) pursue a foreign education policy, while Polish pupils and students' participation in foreign education is insignificant. The low ability to absorb investment results also from the low professional activity of Poles, especially aged over 50. As a result, vast experience and skills of those employees are wasted and they become a burden for the social system.

Chart Expenditure of enterprises on research and development in 2006 (% of the GDP)



Source: Eurostat.

Another problem of the Polish economy is low innovativeness and reluctance of enterprises to carry out research and development activities. It is one of the major threats to the economic development of Poland. The average share of expenditure of Polish enterprises on research and development is several times lower than in the European companies (Boni, 2008, p. 105). High innovativeness of enterprises increases the ability to absorb new technologies and the attractiveness of the economy as the place for FDI location in the new technologies sector.

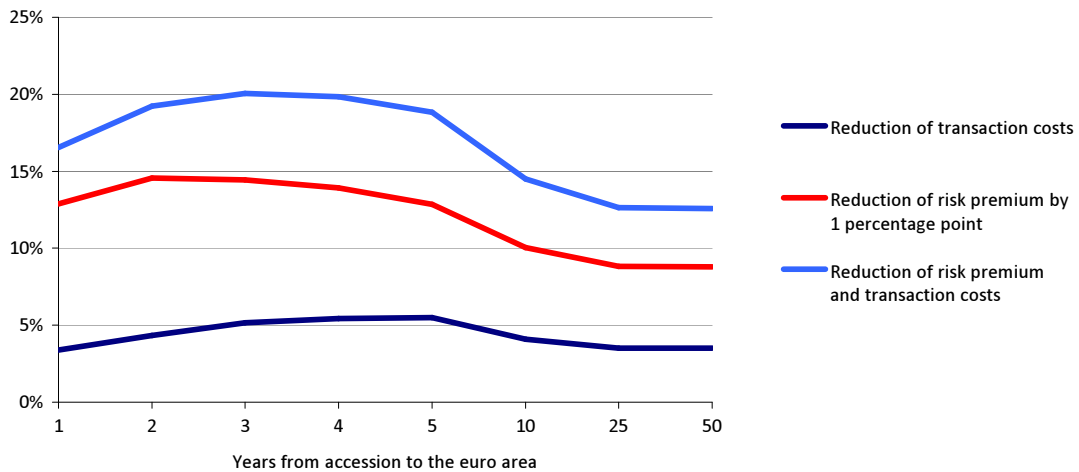
Source: NBP study.

Despite various determinants of the euro's impact on the level of investment in Poland, the simulations carried out for the purposes of the *Report* used the DSGE model. The results suggest that the investment growth may be expected in Poland after the accession to the euro area with the scale of estimated effect being a consequence of adopted assumptions (cf. Daras, Hagemeyer, 2008). The study assumed that Poland's accession to the euro area would lead to the reduction of nominal interest rate by 1 percentage point (as a result of the decrease in risk premium). In addition, the reduction of transaction costs was taken into account. The study shows that the investment growth resulting from those effects will allow to accumulate additional 20% of capital in the first four years of membership in the euro area, as compared to remaining outside the area. The authors of the study show that in the long-term the investment growth will be slightly smaller and the accumulated capital may be at the level higher by 12% than the level which would occur if we remained outside the

Simulations show that the impact of euro adoption on the level of investment in Poland may be significant and durable.

euro area (cf. Chart 3.7). Those forecasts to a large extent confirm the earlier discussed results of studies, according to which the adoption of the euro may lead to investment growth exceeding 10%. It is worth paying attention to the fact that the reduction of risk premium may have a greater impact on investment (as compared to the reduction of transaction costs). It must be remembered that not all possible consequences of the adoption of the common currency could be included in the discussed simulations. Therefore, the investment growth may be even stronger than estimated.

Chart 3.7 Forecast of investment growth after Poland's accession to the euro area



Source: Daras, Hagemeyer (2008).

The impact of accession to the euro area is difficult to measure also because of the distribution of this effect over time. It is easy to quantify even long-term consequences of the accession of a given country to the euro area, but it is definitely more difficult to estimate the growth of investment resulting from gradual adjustment of the country to the adoption of the common currency and rising expectations of foreign entrepreneurs in relation to accession.

Although the predicted investment effects of accession to the euro area are significant, a lot will depend on absorption ability of the Polish economy.

Summing up, the adoption of the common currency may influence both domestic and foreign investment, although the channels of the impact of monetary integration on those two types of investment are slightly different. The growth of investment, in particular foreign investment, may significantly contribute to the increase in economic growth rate, which is confirmed by both the theory of economics and the experience of other countries. It should be emphasized that the scale of real investment growth will depend (as earlier mentioned) on the preparation of the Polish economy. A particular attention should be paid to the increase in the ability to absorb foreign investment.

3.4 Financial market integration, development and stability

The increasing convergence of the Polish economy with the economies of the euro area countries is conducive to integration processes in numerous fields, also in the area of financial markets. The adoption of the euro by Poland may accelerate their integration thanks to direct effects of the common currency adoption. The adoption of the euro may also have a positive impact on financial stability, mainly of institutions and infrastructure, but also as a result of expected increase in liquidity and decrease



in the volatility of prices of assets on the market. The integration of the domestic financial market with the euro area creates a chance for its development, as well as a higher economic growth rate. Although the adoption of the euro may also be related to certain risks and the overall assessment may be determined by specific conditions, the benefits related to financial market integration, development and stability stemming from the replacement of zloty with euro seem to exceed the potential costs.

Before the adoption of the euro, the main obstacle to financial market integration in Europe consisted in diversified investment risk in individual countries, largely resulting from the existence of numerous domestic currencies and the pursuit of different monetary and fiscal policies by the countries. In addition, a great number of currencies and constant changes of their exchange rates made it difficult to compare the prices of assets between markets, which considerably hampered the development of arbitrage transactions. The experiences of the functioning of financial markets in the euro area show that the impact of the reduction of exchange rate risk on cash flows between the euro area countries is more direct than in the case of trade. A high level of financial integration is observed in these segments of the market where the turnover is dominated by money (e.g. monetary market, Treasury bond market). In the case of markets where the role of money is secondary (e.g. stock market, retail loan market), institutional conditions constitute an obstacle to further integration.

Exchange rate risk is one of the major barriers to financial market integration.

Functions and role of integrated financial markets in the economic development

The financial system performs extremely important functions in the economy contributing to facilitate the exchange of goods and services. It transforms savings into investment, is used to obtain, process and make available the market information and supports risk management (Guiso et al., 2004; Jappelli, Pagano, 2008). The performance of those functions may have a strong impact on economic growth. At the same time, their appropriate performance depends on the level of financial market development (measured by capitalisation, value of assets to GDP, liquidity or quality of regulation and supervision). Financial market integration within the euro area is thus one of key areas of potential benefits and possible threats.

Financial market integration is defined as the situation where there are no constraints in the access to the financial market and all entities, irrespective of their location, have equal opportunities of depositing financial resources and contracting liabilities (Baele et al., 2004)²⁷. Full integration is understood as a situation where there are no barriers to cross-border transactions, such as taxes, duties, asymmetry of information or any other costs which impede the optimization of the portfolio structure. If integrated, local financial markets create a common market whose size is conducive to the increase in its effectiveness. The reduction of exchange rate risk and full freedom of capital flow make financial assets substitutive to one another.

The literature of the subject most often points to three basic benefits from financial

Financial integration brings about plenty of benefits.

²⁷ The most popular measure of integration includes price-based indicators based on the assumption of the law of one price. If the financial market is integrated, there is price convergence, i.e. the level of interest on deposits and loans, fees on commissions becomes unified. It means that the prices of identical products should be the same in all countries. In the case of full integration, the change in the prices of substitute assets should take place as a result of trans-European and not local factors (price integration). The second group of indicators consists of quantity-based indicators which directly inform about the level of financial market integration and the level of the use of cross-border transactions by market participants (e.g. share of foreign capital in the equity of financial institutions operating in individual countries, share of cross-border operations with the customers of EU countries).

market integration. Firstly, financial integration should support economic growth as a result of a better performance of the function of transformation, allocation, protection against risk and supervisory functions (Guiso et al., 2004). By decreasing the dependence of less developed economies on domestic savings and by stimulating investment and technology transfer, financial markets support the convergence of income per capita (Aghion, Howitt, Mayer-Foulkes, 2005)²⁸. Secondly, financial system convergence supports the unified transmission of monetary policy incentives to the financial sphere and then to the real sphere. Thirdly, the integration of financial markets of the euro area member countries is conducive to consumption smoothing thanks to the access to a deep and diversified financial market (risk sharing). Integrated financial markets are able to amortise shocks coming from the real sphere which is why they are one of alternative solutions to an autonomous monetary policy.

It should be remembered that Poland may benefit from the proceeding financial integration in the European Union, also if it remains outside the euro area. However, the unification of currency may contribute to the acceleration of the integration processes. In addition, full integration within the monetary union requires common monetary and exchange rate policy.

3.4.1 Financial integration of individual segments of financial markets of the euro area

The literature of the subject points to the fact that the acceleration of integration and globalisation of global financial markets in the 1990s resulted from the impact of several factors, namely, the deregulation of the banking sector, IT technologies development and an increasing competition from non-bank intermediaries (Guiso et al., 2004; Kapopoulos, Siokis, 2005). The adoption of the euro also had a significant impact on the entire international financial system by creating a market with the potential comparable to the dollar market in some segments.

Money market

Financial integration is visible first and to the greatest extent in the money market.

The money market plays a key role in the implementation of monetary policy assumptions in the euro area and the ECB uses this segment of the financial market to distribute financial liquidity among the interbank market entities (Baele et al., 2004). Basic integration measures point to the high level of integration of the euro area money market (European Central Bank, 2008c). The European money market consists of, among others, the interbank market (divided into the market of unsecured money market deposits and the repo market) and the short-term securities market.

The market of unsecured money market deposits and the derivative instruments market may be considered as almost fully integrated. Financial market integration in those segments, measured by price-based indicators, to a large extent took place already at the stage of the fulfilment of convergence criteria. In mid 1990s, the standard deviation of overnight rate between the euro area countries amounted to several hundred basis points. The process of nominal interest rates convergence began already in 1996 and at the end of 1998 the standard deviation amounted to around 100 basis points. After

²⁸ The literature of the subject underlines the importance of the financial system for economic development. At the same time, institutional conditions, legal system efficiency, level of creditors protection or human capital are listed as other, sometimes more important, factors (Rajan and Zingales, 2003). It should be thus emphasized that the introduction of euro is not the only factor determining the scale of benefits related to financial market integration.

3.4 Financial market integration

the adoption of the euro, the figure dropped abruptly to the level of 1–4 basis points which is very important from the point of view of the transmission of monetary policy impulses.

Contrary to the market of unsecured money market transactions, the integration of the repo market is still incomplete. It may result from the lack of unified legislation with regard to pledge on securities, harmonisation of tax law, accounting standards and the transaction settlement methods. As a result, the common European repo market (general collateral repo market) functioned until July 2002. Despite the increase in the number of transactions between the euro area countries, those markets are still largely local (European Central Bank, 2008c).

The integration in the segment of short-term securities is smaller than in other segments of the money market. The size of the market and its importance for the European financial system are much smaller than in the United States. At the same time, the evolution of the financial system from the continental to the Anglo-Saxon model is only starting to gather pace²⁹. It may mean that the segment has not reached the appropriate critical mass yet which would speed up the integration process. Moreover, the instruments of that market in individual countries are offered mainly to domestic investors, which may result from different legal systems, among others.

Derivatives market

As in the case of unsecured money market, the level of the European interest rate swap market integration is high. At the same time, it is one of the most liquid and most integrated segments of the financial market in the euro area. Price-based indicators of integration confirm that the derivatives market segment reached a high integration level right after the introduction of the euro. This contributed to the drop in the swap interest from around 200–350 basis points between 1994 and 1997 to almost zero in 1999. Quantity-based indicators also point to abrupt increase in integration in the field of conclusions of transactions after the adoption of the euro. The high level of integration of this market segment, as well as the related relative homogeneity, support the growth of market liquidity and the reduction of price volatility. As a result, the certainty of trade and market stability increase.

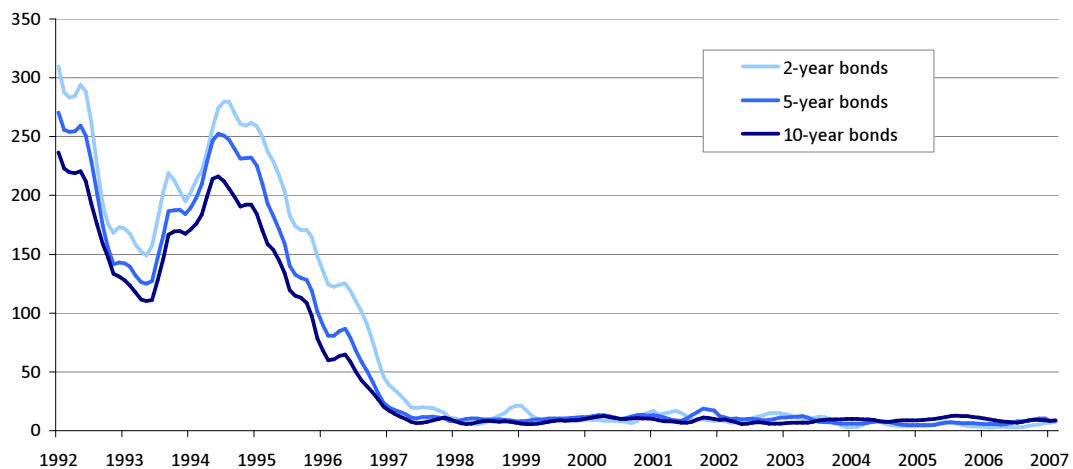
Government bond market

The analyses of quantity and quality-based indicators suggest that the integration of government bond markets in the euro area increases (cf. Chart 3.8). At the final stage of preparations to introduce the euro and already after the adoption of the common currency, bond yields were subject to a significant convergence in all countries. The convergence in long-term interest may largely be explained by the similar macroeconomic policy before the accession to the euro area, which resulted from the fulfilment of the Maastricht criteria. The stabilisation of exchange rates before the accession to the euro area and the introduction of a single currency first decreased and then completely eliminated the risk of competitive devaluation of individual currencies. The reduction of exchange rate risk premium removed the main reason for the differences in yields on bonds issued in the euro area countries. In addition, the almost full convergence of yields between the euro area countries occurred despite the differences in the credit risk level expressed by the country rating (Grodzicki, 2008).

The government bond market was subject to integration along with the nominal convergence process.

²⁹ It cannot be excluded that the recent developments on global financial markets will prompt a move away from the market financing model.

Chart 3.8 Differences in yields on selected Treasury bonds in the euro area (monthly data, basis points)



Source: ECB.

Nevertheless, the price convergence is not full even for bonds with similar issue conditions (in terms of rating, duration, etc.). Although bond yields react to macroeconomic factors common for the whole euro area, local factors still influence the changes in bond prices, though only to a slight extent. The remaining differences in government bond interest results mainly from the decentralised fiscal policy and different liquidity in individual markets³⁰, which demonstrates that there is room for further integration. Assessing the impact of financial market integration and fiscal regulations on market discipline, Manganelli, Wolswijk (2007) point to the fact that the increase in financial market integration is accompanied by the growing effectiveness of supervisory functions in those markets. They also emphasize that in order to ensure fiscal discipline in the euro area, financial integration should be supported by appropriate fiscal regulations. The experiences of the euro area countries prove that the decline in spreads resulted in the loosening of market discipline. After the introduction of the euro, financial markets imposed a relatively small credit risk premium (interest free ride) on the countries which did not ensure the durable fulfilment of fiscal criteria.

Corporate bond market

The corporate bond market remains still largely fragmented.

The euro contributed to the growth of the share of financing from market sources in the structure of the financing of enterprises which was conducive to the development of capital markets and attracted institutional investors. After the introduction of the common currency, numerous enterprises began to acquire capital by means of debt securities issues (Kapopoulos, Siokis, 2005). The second half of the 1990s was also the period of significant changes in the corporate bond market structure. Before 1998 the market was dominated by debt securities issued by large corporations, mainly financial ones. After the introduction of the euro, enterprises expanded the scope of acquisition of capital as a result of mergers and acquisitions and aiming at the diversification of the financing structure. At the same time, the interest of investors and issuers in bonds with lower ratings significantly increased (Baele et al., 2004; Guiso et al., 2004).

³⁰ An example of described differences may be the difference between the German and Italian government bond risk premiums.



Retail banking

As compared to the market of banking corporate services, the retail market integration in the euro area proceeds very slowly. The creation of a single banking market in the EU is difficult since the banking sector is traditionally regulated at the national level. From the point of view of legal infrastructure, the current level of financial integration may be considered high. However, there are still barriers in the form of social and cultural differences, different behaviour or preferences of the customers as well as the asymmetry of information. The asymmetry of information makes cross-border activities still relatively costly. It concerns in particular the retail banking which is why this segment of the banking market is the least integrated. The comparison of the bank interest rates in the market of loans for corporations and households shows that the cost of money is different in individual countries, but those differences are not larger than those occurring in the local markets of the euro area countries. Data from observation of quantity-related indicators confirm the results of price comparisons. They show that international operations in the euro area are still poorly developed in the retail banking segment. In the case of loans for small enterprises and households, the dominating tendency is to prefer domestic entities (Baele et al., 2004).

The retail banking market is relatively poorly integrated.

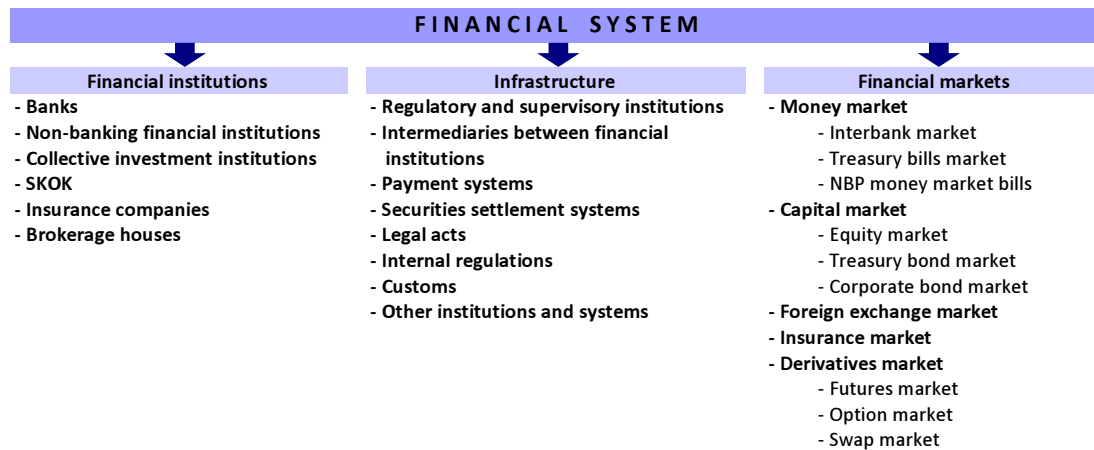
A necessary condition for further development of cross-border banking services is to guarantee safer financial transactions to customers. Therefore, one of the factors which may accelerate the development of such services is the unification of the rules of consumer protection in individual member countries. The protection of consumers of financial services is also supported by the appropriate level of cross-border market competition. Currently the cross-border competition between intermediaries is insignificant due to the national nature of retail services. Despite the introduction of the euro, a large part of consumers still prefer domestic financial institutions. The studies show that it is not prices main barriers to the use of cross-border services, but mainly the language barrier and difficulties in the access to information.

Equity market

The introduction of the euro initiated the integration process in equity markets, although that part of the euro area financial system remains largely heterogeneous. It may result from the importance of local factor for asset prices, but also from the limited progress in the consolidation of equity markets in Europe. The shifts in the structure of portfolio as a result of internationalisation of investment in stocks are larger in the euro area than in Denmark, Sweden or the United Kingdom. It is worth noting that nominal convergence contributed significantly to the transformations with regard to the equity market development and integration. The convergence of nominal interest rates before the accession to the euro area reached an unprecedented level which encouraged entities to seek alternative investment methods and transfer a part of funds to equity markets. The decline and convergence of interest rates meant also a decline in profits from investment with a relatively lower risk level, such as bank deposits, bonds or Treasury bills. As a result, investors seeking higher rates of return took more risk. In addition, the necessity to reform the structure of budget expenditure in the EU countries as a result of the Maastricht fiscal criteria caused the reduction of the supply of Treasury securities. The increased number of investment funds whose creation was initiated by the bank themselves facilitated the creation of diversified investment portfolios by small investors and the period of boom on equity markets contributed to the increase in investment in stocks in Europe. The decline in interest rates in the second half of the 1990s resulted in the release of a significant part of resources for

which investors sought more profitable financial instruments. As a result the assets of households (which usually accumulate the majority of financial assets) held mainly in cash and deposits were transferred to equity markets.

Diagram 3.1 Structure of the Polish financial system



Source: National Bank of Poland (2004b).

3.4.2 Specificity of the Polish financial system

Financial markets constitute one of the elements of the financial system (cf. Diagram 3.1). The most important segments of financial markets include the money market, the capital market and the foreign exchange market.

The banking sector plays the main role in the Polish financial system.

As in the majority of the European countries, the banking sector plays the main role in the Polish financial system (continental model). It is largely the result of transformations which took place in Poland within the last 10–20 years. A significant inflow of foreign capital contributed to its increase in the assets of the banking sector which remains at the level of around 70%. The investment in the banking sector contributed to the strengthening of competition on the market which supports the growth of the banks' effectiveness and the increase in the quality of provided services. The early stage of the development of the loan market in Poland is reflected e.g. by a small scale of lending. Although the level of financial intermediation (measured by the loans for private sector to the GDP ratio) has changed significantly in recent years, it still remains relatively low³¹.

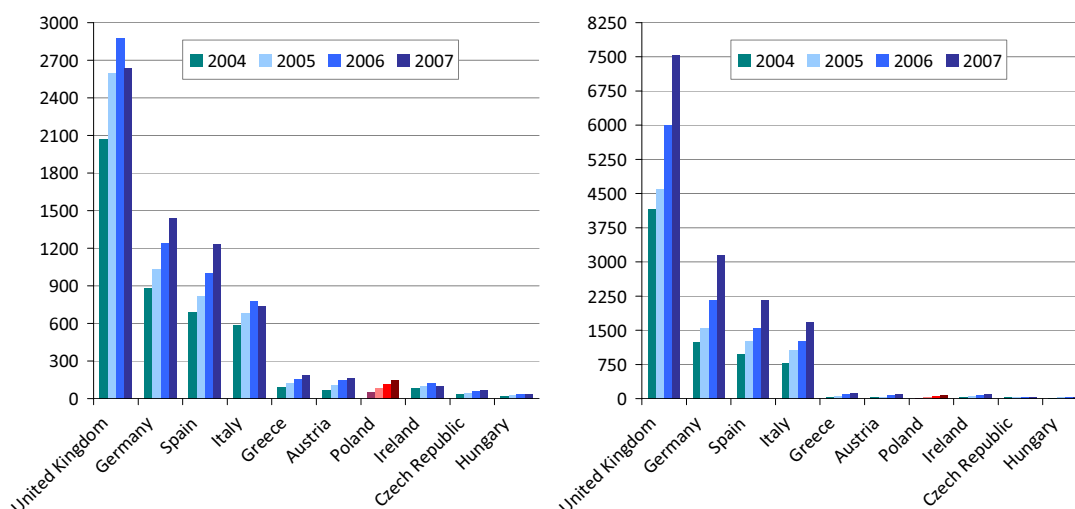
The increased economic awareness of the population, along with the increased quality of provided financial services and the diversification of channels by which banks reach out to their customers (internet banking which is extremely well developed plays a special role here) have a positive impact on the financial development of Poland. The increase in the accumulation of savings and the growth of the role of credit in the economy are also supported by relatively good economic conditions and relatively low interest rates.

³¹ Irrespective of that, the assessment of the financial development on the basis of quantity-based indicators requires caution.

3.4 Financial market integration



Chart 3.9 Market capitalization and turnover on regulated capital markets in selected countries (in EUR million)

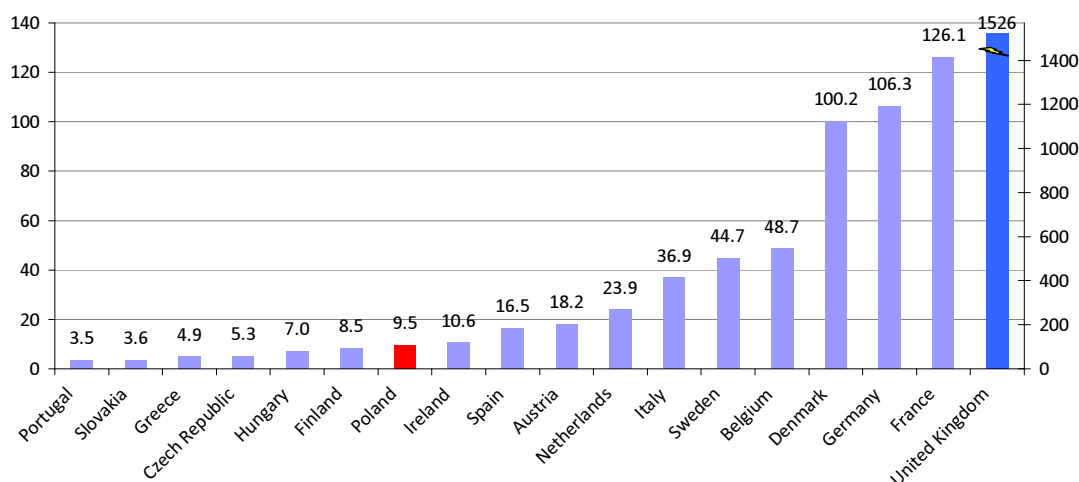


Source: NBP study based on Eurostat data.

The Polish capital market may be considered relatively highly developed. In terms of both the number of listed companies and the Warsaw Stock Exchange capitalisation, it is one of the most important regulated regions in the central and eastern Europe and competes mainly with the Austrian and Hungarian stock exchanges. Nevertheless, there is still a clear difference between the depth of the Polish market and of highly developed markets of the euro area countries (cf. Chart 3.9). Moreover, one of the characteristic features of the Polish capital market is a disproportion between relatively high capitalization and relatively small turnover volume. This fact also points to a low level of financial development. It is further confirmed by a small share of instruments listed on the stock exchange in the structure of household savings. In spite of the increasing share of the capital market in the financing of operations of enterprises in recent years, the market liquidity remains relatively low.

The capital market, which stands out in the region, is definitely no match for the developed markets.

Chart 3.10 Average daily turnover on the foreign exchange market in selected countries in April 2007 (in USD billion)



Source: NBP study based on the BIS data.

As compared to the markets of the developed countries, the foreign exchange market is relatively shallow, though in terms of liquidity it clearly dominates in the region (cf. Chart 3.10). The insufficient depth of foreign exchange market liquidity may be a threat, particularly when operating within the ERM II system³².

3.4.3 Description of potential benefits from financial market integration

The introduction of the euro may speed up the financial market integration processes.

Financial market integration processes in the European Union cover virtually all elements of the financial system (cf. Diagram 3.1). Economic processes are supported with specific regulatory activities, namely, the unification of payment systems and settlement systems (SEPA, TARGET and TARGET2), implementation of comprehensive plans aimed at closer integration of various market segments (FSAP), simplification of procedures of conducting financial activity (the principle of a single banking passport) and other (cf. Danthine, Giavazzi, von Thadden, 2000). Those activities involve the countries from outside the euro area, thanks to which the Polish market, also if it remains for a long time outside the euro area, may to a large extent be integrated with the European market. The acceleration of financial market integration as a result of the introduction of the euro would provide Poland with the opportunity to use the benefits related to such integration, first of all the faster development of the domestic financial market and the increased stability of the whole financial system (Piech, 2007)³³.

Although the integration processes proceed also when the national currency is retained, the introduction of the euro may act as a catalyst, mainly as a result of the reduction of transaction costs and the decline in risk premium. Moreover, full financial integration in the form of unified monetary and exchange rate policy is not possible without the unification of the currency. Due to the often immeasurable nature of observed processes, it is not always possible to separate the net effect of the introduction of the euro.

The introduction of the euro may stimulate financial development with regard to markets, instruments and institutions.

Domestic financial market development. Faster development of the Polish financial market stimulated by the acceleration of integration processes may be reflected in the extension of the scope of provided financial services accompanied by simultaneous decline in their prices. It should lead to the increased demand for financial products, and in the long term, also to the increased liquidity of the markets, greater price transparency (less asymmetry of information, lower transaction costs) and better allocation of capital (Piech, 2007). It will allow to improve the valuation of assets and will increase the available possibilities of protection against the risk and its transmission. As a result, it should lead to the inflow of investment, both portfolio and direct investment, and also to the inflow of new technologies.

The institutional development of the market, which is a consequence of the entity and product development, may lower the transaction risk which should additionally

³² With low market liquidity, a relatively small inflow (or outflow) of capital may contribute to the increased volatility of the zloty exchange rate, which within the ERM II cannot deviate more than 15% from the central parity. In order to prevent excessive fluctuations, the central bank may use its currency reserves for interventionist purchase or sale of the zloty. The larger the scale of such operations, the higher potential cost of participation in the ERM II.

³³ However, in the context of ongoing turbulences in global financial markets, it is worth remembering that a relatively low level of financial development and incomplete integration with the European and American markets probably partly neutralised the exposure of Poland to some risks.

3.4 Financial market integration

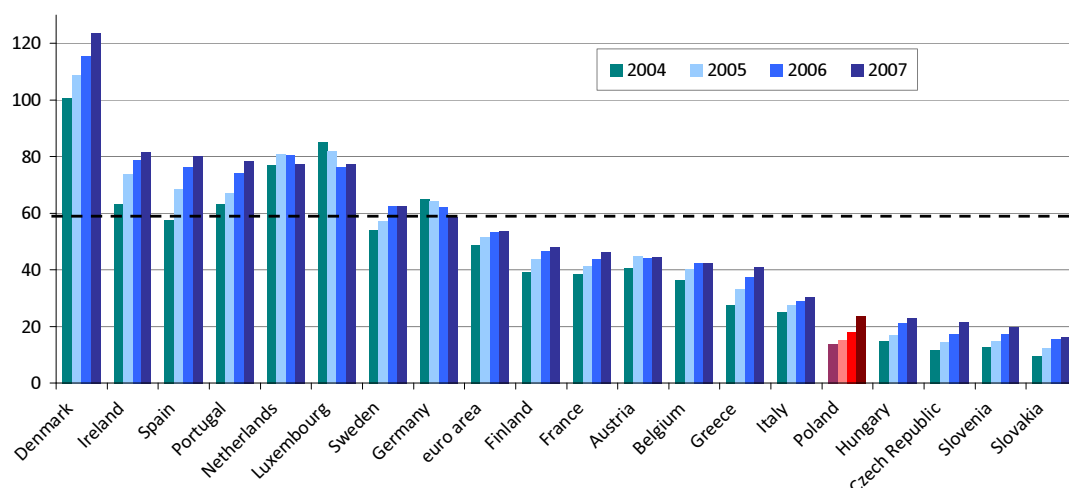


contribute to the reduction of the cost of capital³⁴. It is worth adding that the expected improvement of Poland's rating (as well as the rating of some domestic entities for whom the rating of Poland is a formal upper limit) after the accession to the euro area should also be conducive to the greater availability of capital³⁵.

In the long run, direct benefits related to the faster development of the financial market as a result of more advanced financial integration create the chance for a significant improvement of the conditions in which enterprises operate, growth of investment and faster economic growth rate. There is a positive feedback (endogeneity) between financial market development and economic growth. The faster growth rate results from the high level of financial development and thus it supports its further increase. It may be expected that the introduction of the euro, through its impact on financial market development, should be an incentive for faster economic growth (see also Brzozowski, 2008). Better developed markets usually have a greater ability to gather dispersed deposits and transform them into investment streams and to better assess the risk (European Commission, 2007b). This determines the channels of potential impact of the introduction of the common currency on economic growth.

Better developed financial markets are conducive to faster economic growth.

Chart 3.11 Share of loans for private sector in the GDP in selected EU Member States (%)



Source: NBP study based on the ECB data.

It should be emphasized that the appropriate level of financial market development is necessary to benefit from faster financial integration³⁶. The current very low share of loans in the GDP in Poland allows to suppose that there is a lot of room for development in this regard (cf. Chart 3.11).

The appropriate level of financial development is a necessary condition for obtaining benefits.

³⁴ It should be emphasized, however, that the regulations and institutions regulating the turnover in the financial market have already been adjusted to the European standards to a large extent, as a result of among others the introduction of solutions supporting closer financial integration at the European level.

³⁵ It cannot be excluded that Poland's rating will improve upon its credible declaration on the planned date of the euro adoption as well as upon the actual accession to the euro area.

³⁶ Depending on the applied method of measurement, the minimum level of financial development necessary to benefit from financial integration in the form of economic growth is estimated at around 80% of the GDP or around 115% of the GDP (cf. Guiso et al., 2004; Coricelli, Masten, Masten, 2007a). The threshold depends on the applied estimation method and the level of financial development means the depth of the whole financial system, along with the stock exchange capitalisation and the value of receivables of monetary financial institutions. The figures for Poland are around the level suggested in the quoted studies.

Financial integration means an easier access of Polish entities to the European market and an easier access of foreign entities to the Polish market. The first effect may facilitate the acquisition of financing on the deep European capital market by enterprises³⁷. At the same time, it should be remembered that as a result of small size (as compared to the euro area countries) and market strength of Polish enterprises, the opening of the European market itself would probably bring notable benefits only to a limited group of entities which are strong enough to efficiently compete for capital on the European market. The level of the development of small and medium-sized enterprises in Poland seems to be particularly insufficient³⁸. Moreover, since the main source of financing of operations on the Polish market is still own capital, the effect of the euro introduction may prove to be limited.

The second effect mentioned allows to expect that more intensive competition will increase the scope and quality of services provided by financial intermediaries operating in the domestic market. The improvement of the availability of financial services is expected first of all in the sector of small and medium-sized enterprises, since the enterprises with significant market strength have a relatively easy access to external (also foreign) sources of financing (cf. Demyanyk, Volosovych, 2005; Guiso et al., 2004; Coricelli, Masten, Masten, 2007a,b). Such expectations are to some extent confirmed by the results of the studies at the NBP (Puchalska, 2008). The potential inflow of intermediaries and increased competition on the domestic financial market could facilitate the access to capital also for those enterprises whose weak market position is a natural barrier to acquiring capital.

The introduction of the euro does not have to result in a marked increase in the effectiveness of banks and the competition in the banking sector, since convergence in this respect has been largely achieved already. Commercial banks in Poland operate in the environment of monopolistic competition with the competition being stronger on the retail banking market than on the corporate banking market³⁹. Some improvement of effectiveness and increased competition may be expected in corporate banking. There may be some improvement in retail banking, but the introduction of the euro does not have to be its source. It may also result from the implementation of the provisions of the New Basel Capital Accord (Basel II) or from further development of mortgage loan market (cf. Pawłowska, Kozak, 2008).

Strengthening of financial stability

Integration should support financial stability.

Fuller integration of financial markets in a given area provides domestic entities with an easier access to foreign assets and facilitates the purchase of domestic assets by foreign entities. In addition, integrated loan markets, to a limited extent, provide domestic entities with an opportunity to invest the surpluses of savings and to replenish liquidity deficiencies in foreign markets. Such risk sharing contributes to the increased effectiveness of the financial channel of shock absorption, allows

³⁷ Including a fuller access to the European bond market.

³⁸ It cannot be excluded that the introduction of the euro may also provide free access to the bond market also to the entities with a smaller creditworthiness, which so far have not been present on the financial market.

³⁹ Analyses show that one of the main reasons for increased competition in retail banking was a significant increase in demand for mortgage loans and fast development of this market segment. The lower level of competition in corporate banking may result among others from the fact that enterprises in Poland have relatively smaller debt than in other euro area countries, which is demonstrated by the corporate loans to GDP ratio amounting to 13.5% in Poland and to 45% in the euro area countries (cf. Pawłowska, Kozak, 2008).

3.4 Financial market integration

to smooth consumption and strengthens the links between the monetary union countries (European Commission, 2007b). In addition, positive impact of integration on the quality of regulations and the level of institutional infrastructure development contributes to the strengthening of the financial system stability which, irrespective of integration processes, remains high⁴⁰.

The introduction of the euro, as a result of the inclusion of the Polish financial market into the structures of the deep European market, may also bring about other benefits in the area of financial stability. The access to the liquid market of the euro area, which is a stable currency of international importance, should result in the improved conditions of trade. Greater liquidity and diversity of the participants of the European market allows to maintain lower average spreads (lower risk premium) and lower price volatility.

Box 3.14 Definition and measures of the financial system stability

Stability is particularly important in the context of the response of the Polish economy to asymmetric shocks and the efficiency of the mechanisms for their alleviation. Financial system stability is most often defined by its contradiction, i.e. instability or financial crisis (Schinasi, 2004). However, from the point of view of economic policy, the difference between striving to maintain stability and striving to avoid crisis is extremely important.

Financial system is stable when it does not lead to a significant hindering of economic activity and at the same time is able to moderate or absorb financial shocks; when market mechanisms ensure the balance contributing to extinguishing shocks, while external intervention may prove necessary only in specific cases (Schinasi, 2004). Financial crisis is a threat to stability when its consequences strongly affect a number of entities in real sphere at the same time (e.g. it leads to a decline in the GDP, a considerable growth of unemployment or a decrease in income). As long as economic activity is not hindered as a result of the slump and decrease in mutual confidence of market participants does not produce significant material losses, the crisis should be considered a favourable sign of a self-purification mechanism of the economy. According to the theory, price declines on the stock exchange or even bankruptcy of some banks do not have to indicate decreasing financial system stability (Crockett, 1997; Schinasi, 2004; Weithers, 2007).

The distribution of loss of the entire economy is the product of losses suffered by individual market participants. Financial stability measure usually comprises the probability of individual entities' bankruptcy, amount of losses in the case of their bankruptcy and the correlation of probabilities of loan events leading to the entities' bankruptcy. Other stability measures include the number of expected bankruptcies or capital necessary to compensate for the losses stemming from a negative shock. They include losses of bank depositaries, institutions guaranteeing deposits, owners of enterprises (including shareholders), the public sector, macroeconomic^a and other.

Banking sector plays a special role in maintaining financial stability, in particular in the economies of developing countries with poorly developed capital market. Frequently used measures of stability of banking sector entities include the capital

⁴⁰ Periodical tests of the resistance of the financial system to crisis situations confirm its significant resistance to financial shocks.

adequacy ratio, liquidity ratio and the loss loans to total loans ratio. Many other indicators based on interest rate and prices of assets are used for measuring bank liquidity. One of the methods of assessing financial system stability which examines the response of the banking sector to shocks is scenario analysis consisting in the simulation of specific shocks in a balanced system. The analysis usually comprises observation of non-performing loans, amount of capital to cover the losses, interest rates established by the banks or GDP changes.

Another important element of the financial system is the money sector whose stability is often wrongly identified with the condition of the whole system. Money sector stability is determined by a stable currency which correctly fulfils its functions. Commonly used assessment measures include price changes indicators.

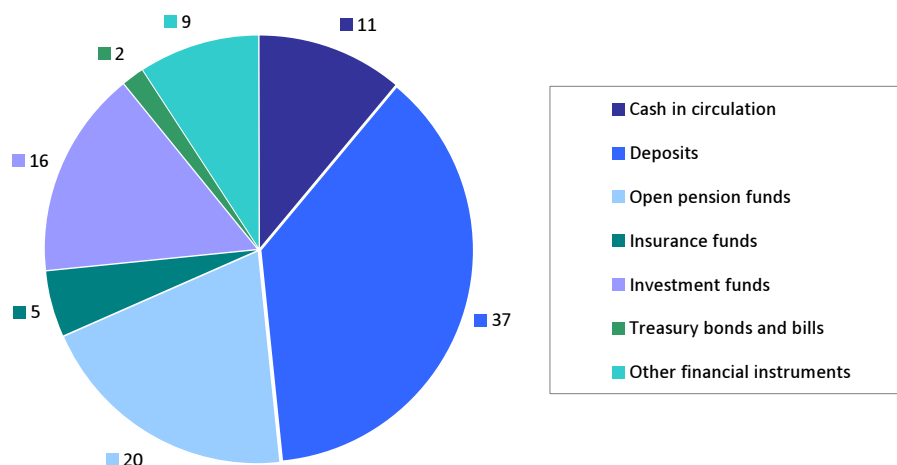
^a It is probably the most comprehensive measure comprising unemployment and GDP, but it is very seldom used due to the limited possibilities of its precise estimation.

Source: NBP study.

The appropriate level of financial development is a necessary condition for obtaining benefits.

Also in the case of stability, the level of domestic financial market development is a key factor determining the scale of potential benefits⁴¹. The level of financial intermediation in Poland seems to be relatively low as compared to the euro area countries and even to some countries from the region (cf. Chart 3.11). The low level of financial development is demonstrated also by the structure of household asset portfolios which is dominated by cash and bank deposits (cf. Chart 3.12). This allows to suppose that the improvement of financial stability as a result of the euro introduction will be clearly visible only when the Polish financial market achieves sufficiently high level of development. At the same time it needs to be stressed that proceeding integration processes, in particular the euro introduction, should stimulate a faster development of the financial market and allow a better use of benefits related to the integration (Konopczak, 2008c).

Chart 3.12 Structure of household asset portfolios in Poland at the end of 2007 (%)



Source: NBP study based on the data of the Central Statistical Office, the Chamber of Fund and Asset Management (IZFiA), MF and NBP.

⁴¹ In the case of highly developed economies, the growth of financial stability is considered the most important type of benefits from progressing financial integration (cf. Guiso et al., 2004).



Potential threats

Faster financial integration as a result of the euro introduction opens an opportunity for Poland to develop faster but is also related to certain threats. The most important of them include the increased contagion effect in financial markets, growth of activity of international financial conglomerates, transfer of a part of trade to developed markets and driving some financial intermediaries out of the market.

More advanced financial market integration may increase the risk of the so-called contagion effect consisting in the transmission of crises between financial markets of different countries (Trichet, 2007a). The risk may be significant especially for relatively shallow, poorly developed markets and the potential reversion of capital flows may cause losses, also for the real economy⁴². Such threat may be noticed also now, for example as the exposure of the Polish market to incentives from highly developed markets (cf. also Ehrmann, Fratzscher, Rigobon, 2005). Another integration-related threat to financial stability may result from fast development of international financial conglomerates (European Commission, 2007b). On the one hand, in the case of shock the capital inside a capital group may easily flow towards the entities in need of liquidity. On the other hand, if a given entity is of key importance for the economies of only some countries in which it operates, the deterioration of its financial condition may cause a conflict of interest in the case of a need for capital injection (Aghion et al., 2008).

Integration may be conducive to contagion effect and creation of financial conglomerates.

Advancing financial integration may lead to the creation of local financial centres accumulating the majority of turnover. Currently a significant part of the European financial products and services market is concentrated in London, outside the common currency area. After Poland's accession to the euro area, a significant part of turnover in the Polish market is expected to shift towards large financial centres⁴³. Entities from highly developed markets may also drive out domestic entities from the financial intermediaries market. Increased competition, particularly in the corporate banking sector, may lead to driving ineffective entities out of the market along with the advancement in integration and reduction of barriers to the activity of international entities⁴⁴. If it happens, it should not threaten financial system stability, although it may be related to temporary costs for some entities from the banking sector.

After the euro introduction, a part of financial turnover may move towards large, more liquid financial centres.

Summary

The scale of differences between the financial development of Poland and of the euro area is an approximation of the potential scale of benefits from the euro introduction (cf. Chart 3.11). As the convergence of economy advances, the significance of the euro as a factor accelerating the catching-up process decreases. One can benefit from the market integration in the euro area, even remaining outside the area, but such benefits are limited and alternative costs of staying outside the area of direct impact of the common currency may be considerable (cf. Table 3.3). Despite the threats related to the euro introduction, the net effect of advancing financial market integration should

⁴² More advanced financial integration is conducive to financial development, at the same time increasing the interdependence between the markets. This means that a poorly developed market integrating with the area at the higher financial development level may expect faster growth rate accompanied by increased exposure to shocks from the developed market.

⁴³ The implementation of the WSE's plans to create a regional financial service centre in central and eastern Europe is an additional chance for Poland.

⁴⁴ Similar phenomenon was observed e.g. in the Polish corporate sector at the beginning of the 1990s when ineffective entities had to wind up their activity. In literature Joseph Schumpeter called this effect a process of "creative destruction" (Schumpeter, 1942).

prove to be favourable from the point of view of the entire economy. Nevertheless, the immeasurable nature of potential consequences of the euro integration makes financial integration an opportunity rather than a direct benefit.

Table 3.3 Comparison of benefits and costs of financial market integration depending on the euro introduction scenario

Introduction of the euro...	Relative benefits and opportunities	Relative costs and threats
...possibly soon	– a path of faster financial development and growth of financial stability, as the market matures	– increased threat of negative integration consequences in the case of poorly developed financial system
...in the future	– limited scale of potential threats, as the market gradually matures	– cost of loss opportunities in relation to the slower financial development

Source: NBP study.

Results of a survey presented in Box 3.15 may supplement the views of bankers on potential benefits and costs of integration with the euro area. Due to a small sample, the description of results may not fully reflect the expectations of the whole sector⁴⁵. Moreover, the questions concerned benefits and costs of individual banks (respondents) only and not of the entire economy.

Box 3.15 Result of the survey on a sample of Polish banks

The survey was carried out in 2008 jointly with the Polish Bank Association. Survey questions were answered by 38 banks, including 17 cooperative and 21 commercial ones (including from retail and corporate banking). The results of the survey are presented in Table and the comments presented in this Box. Among cooperative banks, the share of customers making settlements in euro is small. As regards commercial banks, only four corporate banks reported that a large share of their customers makes settlements in euro. Instruments protecting against exchange rate risk are used mainly in corporate banks.

Most of the banks have not begun preparations for the euro introduction yet. Those which already took some actions, incurred only a small part of the adjustment costs.

It should be emphasized that the banks were asked only about the types of potential benefits and costs, not their amount. Therefore, the results do not provide grounds for formulating conclusions on the net effect expected by bankers.

The benefits most often mentioned by cooperative banks include an easier access to customers and new markets, the introduction of new services, as well as increased price transparency and release of foreign exchange resources as a result of the euro introduction. Commercial banks seldom consider the reduction of transaction costs to be a benefit.

The costs most seldom mentioned by cooperative and commercial banks include the promotion of products and services, inability to offer attractive prices, risk of losing a part of the market and risk of increased share of non-performing loans. In addition, contrary to commercial banks (mainly retail banks), cooperative banks seldom name the necessity to conduct an information campaign as an important cost.

⁴⁵ Representatives of the banking sector participating in the public debate often argue for a possibly fast integration with the euro area which does not have to be compliant with the image created by survey results.



The majority of commercial banks believe that their benefits from the euro introduction will never exceed the necessary costs. The answers of cooperative banks were much more diversified, which means that they do not have a specific opinion on the subject. It is similar with the period after which the benefits for cooperative banks will exceed the costs related to dual display of prices. Commercial banks (in particular retail ones) are rather sceptical here as well with the majority of them believing that their benefits will not exceed costs. All surveyed groups of banks agree with regard to the dual circulation period stating that banks' benefits related to the period will never exceed the costs.

Table Most often mentioned benefits and costs for cooperative banks and commercial banks – summary of the survey results

Type of banks	Benefits	Costs
Cooperative	<ul style="list-style-type: none"> – reduction of exchange rate risk – reduction of transaction costs – greater stability of economic environment 	<ul style="list-style-type: none"> – adjustments related to dual display of prices – adjustments related to dual currency circulation – maintaining stocks of two currencies – personnel training – revenues from foreign exchange operations
Commercial (retail)	<ul style="list-style-type: none"> – lower cost of operation – greater stability of economic environment – elimination of exchange rate risk – increased demand for loans 	<ul style="list-style-type: none"> – adjustments related to dual currency circulation – adjustments related to dual display of prices – revenues from foreign exchange operations – personnel training – information campaign – maintaining stocks of two currencies
Commercial (corporate)	<ul style="list-style-type: none"> – lower cost of operation – greater stability of economic environment 	<ul style="list-style-type: none"> – adjustments related to dual currency circulation – adjustments related to dual display of prices – revenues from foreign exchange operations – lower interest on credits and loans

Source: NBP study based on surveys at the banks carried out in cooperation with the Polish Bank Association.

According to all surveyed groups of banks, the necessity to exchange the currencies concerns mainly trade and transfers of the customers' funds. It may also be related to foreign currency loans but such a question was not asked and the answer could have not been obvious.

Summing up the survey results, it is worth paying attention to the issues on which most of the banks agreed. Among benefits, it is the greater stability of economic environment and among costs – the adjustments related to the dual circulation period and dual display of prices. A certain inconsistency which confirms the weakness of conclusions drawn from the survey should also be mentioned. Cooperative banks list the elimination of exchange rate risk and transaction costs as one of major benefits and loss of revenues from foreign exchange operations as one of major costs. Although the private sector will probably experience the listed

benefits, the reduction of transaction costs should be a cost rather than a benefit for banks, unless they are involved in foreign exchange operations on a large scale. Only a small percentage of cooperative banks' customers makes settlement in euro and uses instruments protecting against exchange rate risk. This may indicate that some respondents listed benefits and costs for the entire economy and not for the banking sectors institutions they represented.

Source: NBP study.

3.5 Growth of GDP and welfare

3.5.1 Impact of euro on the growth of GDP and welfare

The value of earlier analysed benefits and opportunities from the membership in the euro area is related to their impact on social and economic development of the country, the conditions for which are created by economic growth. As in the case of precise estimation of the effects of the growth of investment and foreign exchange, it is also very difficult to assess the impact of the euro on the GDP due to, among others, a multitude of links between individual macroeconomic variables. In addition, conditionality of trade and investment effects of the replacement of the zloty by the euro implies conditionality of GDP growth. The relationship between direct effects (of uncertain scale) related to the accession to the euro area and GDP may be thus determined only on the basis of some assumptions or as variants.

Studies are not clear on whether the creation of the euro area was translated into an increase in economic growth rate.

Studies to-date are not clear on whether the creation of the euro area had a positive impact on the economic growth of the member countries. On the one hand, it results from still not very long period of the common currency area functioning which limits the number of observations. On the other hand, economic growth depends on numerous factors, out of which it is difficult to separate the effect of the common currency adoption.

Elimination of transaction costs, increased price transparency and elimination of exchange rate risk should result in GDP growth in the long run by 3.4% as compared to the baseline scenario.

Simulations based on DSGE and CGE models provide some information on the possible impact of Poland's accession to the euro area on the GDP. For example, Bukowski, Dyrda, Kowal (2008) use the DSGE model to estimate the direct effect of the euro introduction for the GDP which results from the reduction of transaction costs of currency exchange. According to the authors, in the long run the elimination of the cost of euro purchase and sale itself should translate into the GDP growth of 0.66–1.65% as compared to the scenario of staying outside the euro area (cf. Table 3.5) and two thirds of the growth should materialize within the first five years of membership. Since the above estimations do not take into account other effects (e.g. increased price transparency, reduction of exchange rate risk, etc.), they may be treated as the lower limit of the impact of the euro on the Polish GDP (Daras, Hagemeyer, 2008). On the basis of estimations saying that transaction costs currently account for around 2% of the value of Polish trade with the euro area, Daras, Hagemeyer (2008) conclude that the elimination of those costs, along with increased price transparency and elimination of exchange rate risk, will result in GDP growth by 3.4% in the long run as compared to the baseline scenario.

3.5 Growth of GDP and welfare

Results of the studies show that another effect of the common currency adoption will be the reduction of the risk premium, though the estimations of the impact of this factor on economic growth differ considerably. The long-term effect of investment growth on GDP as a result of interest rate reduction by 1 percentage point is estimated at over 4.1% as compared to the situation where the common currency is not adopted (Daras, Hagemeyer, 2008). Bukowski, Dyrda, Kowal (2008) present lower estimations of that effect (at the level of 0.5% GDP) basing their calculations on the assumption that as a result of the euro adoption nominal interest rates in Poland will decline by around 0.7 percentage point. It is worth emphasizing that the scale of impact of the common currency adoption on the GDP by means of the interest rates channel will depend on the internal competitiveness of the Polish banking sector, i.e. on its ability to reduce the bank margin to the level of its European competitors (cf. Bukowski, Dyrda, Kowal, 2008).

Results of the analysis show that total impact of the common currency adoption on GDP will be positive, though its scale is difficult to estimate. The reduction of risk premium, as well as a decrease in transaction costs and exchange rate risk should contribute to the GDP growth in the long run by 7.5%, mainly as a result of larger capital accumulation (Daras, Hagemeyer, 2008). Bukowski, Dyrda, Kowal (2008), who took into account the consequences of reduced transaction costs, nominal interest rates and appreciation of real exchange rate in their analyses, expect a much smaller impact of the accession to the euro area on GDP (at 2.1–2.5% as compared to the baseline scenario).

The channels through which the discussed variables influence the GDP include mainly the growth of investment and foreign trade whose distribution in time will eventually influence the changes in GDP in individual years. For example, as mentioned before, the projected substitution of domestic production with imports may still result in a short-lived decline in the GDP growth rate as compared to the baseline scenario. In fact, both those analyses allow the possibility of a decrease in the economic growth rate in the first year of membership in the euro area. In subsequent years, the GDP should grow faster than it would outside the common currency area. If we assume (in accordance with the results of the analyses) that the majority of additional GDP growth would materialize within the first 5–10 years of membership in the euro area, than the euro introduction would mean an increase in the economic growth rate by around 0.2–0.7 percentage point annually as compared to the scenario of staying outside the common currency area.

Economic growth entails increase in welfare. Analyses show that the growth of welfare may be a consequence of both higher disposable incomes following the GDP growth and a lower level of consumption prices (as a result of increased price transparency and reduced costs of trade), as compared to the scenario assuming staying outside the euro area. If those projections materialize, the consumption of households may increase. Indeed, the studies on the impact of accession to the euro area on incomes of individual social groups show that, in the medium and long run, the euro introduction will contribute to the growth of income of all social groups, as compared to the baseline scenario (no adoption of the common currency). At the same time, the results show rather explicitly that the real growth of poor households' consumption should be higher than in the group of more affluent households. The latter derive most of their income from the capital held, the price of which will decline after the accession to the euro area along with the reduction of risk premium. Decline in return on capital will be less discernible by households with lower incomes. Such conclusion is confirmed by the studies of Daras and Hagemeyer (2008), Bukowski et al. (2008), and Orłowski (2008).



Reduction of risk premium may result in the long-term growth of investment, but the scale of impact depends, among others, on competition in the banking sector.

Table 3.5 Euro and GDP according to results of simulations

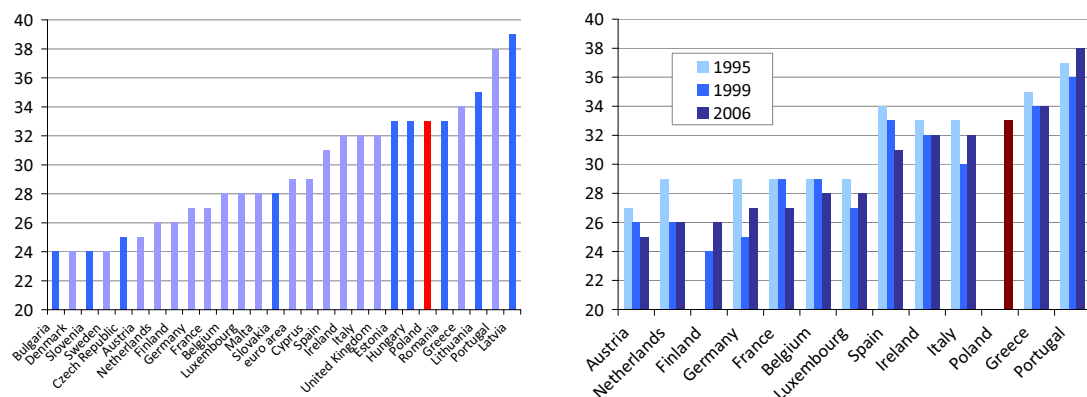
	Daras, Hagemeyer (2008)		Bukowski, Dyrda, Kowal (2008)	
	Scale	Translation into GDP	Scale	Translation into GDP
Reduction of transaction costs	2.2% of GDP	3.22%	0.8-1.2% of GDP	0.66–1.65%
Reduction of nominal interest rate	1 percentage point	4.14%	0.7 percentage point	0.45%
Appreciation of real exchange rate	–	–	inflation impulse 2.3 percentage points	0.37%
Total effect		7.5%		1.5–2.5%

Source: NBP study.

Income inequalities in Poland are relatively high as compared to Europe.

Therefore, the studies do not confirm fears that the euro area will contribute to the growth of income disproportions in Poland. Nevertheless, the issue of even distribution of costs and benefits of the euro adoption is still relevant and should be the subject of interest and monitoring, as the current level of income inequalities measured by the Gini index is rather high in Poland (as compared to the euro area countries) (cf. Chart 3.13). In 2006, among the euro area member countries, the index was higher only in Portugal and Greece. From among other new EU Member States, higher ratios of income inequalities are recorded in Latvia, Lithuania and Romania. In the majority of new EU Member States, inequalities in wages are higher than in the countries of the “old EU”, with the exception of Bulgaria and Slovenia where the Gini index was at the lowest level (apart from Denmark) and the Czech Republic and Slovakia where the Gini index was lower than the average for the euro area countries⁴⁶.

Chart 3.13 The Gini index in Poland in 2006* as compared to the EU countries



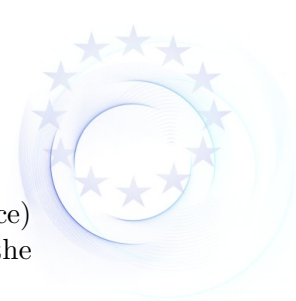
* As of the end of October 2008.

Source: Eurostat.

The creation of the euro area without a marked impact on income inequalities.

There is no explicit answer to the question whether the accession to the euro area influenced the level of income inequalities in the member countries. The Gini index for the whole euro area did not change, but there were some changes in individual

⁴⁶ The latest available data of Eurostat are for 2006, which is why the euro area comprises 12 countries.



countries. From among 12 euro area countries, four (France, Spain, Ireland and Greece) experienced a reduction in income inequalities as compared to 1999, and in the remaining eight the Gini index increased (cf. Chart 3.13).

While results of studies do not indicate a direct relationship between the euro introduction and the growth of Gini indices, the increase in income inequalities may occur in Poland in the following years, as a result of faster economic growth. The view that the level of income inequalities may be a result not a reason for economic growth (particularly in developing economies) was formulated in the theory of Kuznets curve (Kuznets, 1955). Economic growth implies an increase in demand for skilled workers due to technological progress and globalisation processes (European Commission, 2008b). Inequalities may thus deepen also in Poland and other catching up countries where import of technological progress translates into high demand for skilled workforce (see also World Bank, 2007a). In addition, the pressure on rise in income disparities may also result from reforms on the labour market aimed at making it more flexible. For example, when wages are flexible, technological shocks related to increased demand for skilled workforce lead to a rise in wage differentials, but also to a decline in unemployment, while with rigid wages, maintaining minimum wages and high trade union density, inequalities in income are smaller. The cost is a significantly larger translation of technological shocks into an increase in unemployment. Irrespective of monetary integration, activities aimed at further support for economic growth, as well as those translating into increased flexibility of the labour market, may thus translate into a rise in income inequalities (European Commission, 2008b).

Increase in inequalities may, however, accompany the economic growth in Poland and the labour market reforms.

3.5.2 Threat of losing welfare due to increased fluctuations of production

The effects of the euro introduction for the GDP and welfare do not have to be only positive. Transfer of competence to conduct monetary policy to the ECB entails a risk of increased fluctuations of demand and production in the economy. The increase in fluctuations of production may be caused by the fact that the common monetary policy of the ECB will react to the changes in the macroeconomic situation of the entire euro area, which will not necessarily be compliant with the needs of the Polish economy whose business cycle is not identical to the euro area.

Literature on the impact of the monetary union membership on the amplitude of production fluctuations is rather scarce (cf. Gradzewicz, Makarski, 2008). However, one can find a confirmation of the hypothesis that the effectiveness of monetary policy in shock absorption decreases after the accession to the euro area (Ca' Zorzi, Santis, Zampolli, 2005). The conclusions about increased fluctuations of production (and inflation) stem also from the simulations of the Czech Republic's accession to the euro area (as a typical economy among new European Union Member States), although this negative effect may be reduced thanks to increased competition on the product market, flexible markets and intensification of trade (Karam et al., 2008).

The analyses carried out for the purposes of the *Report* using the DSGE model show that economic activity fluctuations will increase in Poland after the accession to the euro area. The increase in fluctuations would be smaller, if the share of developments in Poland in the ECB decisions corresponded to the share of its population in the euro area. If the share of Poland in the GDP of the euro area was taken into account, the increase in fluctuations would be higher. Nevertheless, differences between those two variants are insignificant (cf. Table 3.6).

Table 3.6 Projected standard deviation of GDP and consumption after Poland's accession to the euro area

Variable	outside the euro	in the euro*	in the euro**
GDP	2.85%	3.27%	3.25%
Consumption	1.08%	2.08%	2.07%

* The share of Poland in the ECB decisions corresponds to the share of GDP.

** The share of Poland in the ECB decisions corresponds to the share of population.

Source: Gradzewicz, Makarski (2008).

Production fluctuations negatively affect welfare, therefore, considerable efforts are aimed at interperiod consumption smoothing. With the assumption that fluctuations of productions are costs for households (but do not translate into the reduction of economic growth rate), the costs were estimated using the DSGE model. Results show that the cost of business cycle in Poland will indeed increase after accession to the euro area. If Poland stays outside the euro area the cost is estimated at 0.02% of consumption in steady state, while inside the euro area the cost is higher and amounts to around 0.07% of consumption (Gradzewicz, Makarski, 2008). Despite the three-fold growth, the cost is not high, although it may be underestimated, as the authors of the study assumed that wages were flexible. Moreover, it was assumed that the relationship between fluctuations and economic growth is linear, though in fact the relationship may be concave which increases the negative impact of fluctuations on production growth rate.

Growth of production in a good economic situation may not compensate for a decline in production during an economic slowdown.

The authors who point to the fact that the growth of production in a good economic situation does not compensate for a decline in production during a slowdown include Ramey, Ramey (1995) and Galí, Gertler, López-Salido (2007). Private investment belongs to the most important channels through which fluctuations influence economic growth. Investment cycle often takes many years and companies have to incur investment outlays in view of future periods. Due to significant fluctuations in production, the willingness to invest to increase production capacity is lower in the time of better economic conditions since companies already anticipate the slowdown. It will be even lower with the less flexible labour market, as companies are reluctant to increase employment, if the costs of laying off employees are high. In addition, high amplitude of production fluctuations means that companies in the growth phase encounter loan limits. Although those limits may be filled up from foreign sources, but imported capital is more expensive than the domestic one which also contributes to a decline in completed investment projects. Investment growth in the growth phase encounters a number of constraints which is why it does not compensate for investment decline in the slowdown phase. Ramey, Ramey (1995) and Kose, Otrok, Prasad (2008) provide empirical evidence for a negative relation between production fluctuations and economic growth.

Financial channel may be conducive to smoothing production and income fluctuations.

On the other hand, one should take into account the effect which may reduce the cost of production fluctuations after the adoption of the common currency, thanks to more possibilities to smooth consumption. Accession of a small country to a monetary union provides its citizens with an opportunity to use a deep financial market without institutional constraints and necessity to incur exchange rate risk. In such a situation, the impact of asymmetric production fluctuations on consumption may be reduced. Literature distinguishes two channels through which households may smooth consumption in a monetary union. One of them is related to purchase of foreign assets and the other to using a foreign deposit and loan market (National Bank of Poland, 2004a; Konopczak, 2008c).



Chapter summary


Analysis presented in Chapter 3 points to a hypothesis that medium and long-term benefits should be treated as opportunities which will materialize only when a number of factors are fulfilled. However, even direct benefits related to elimination of transaction costs stemming from exchange of the domestic currency into the euro (and the opposite) are not easy to estimate precisely.

Reduction of exchange rate risk premium may be an important impulse for the Polish economy after accession to the euro area. Calculations allowed to estimate its value, included in long-term interest rates, at 2.3–2.4 percentage points. It is noteworthy that also the remaining elements of risk premium, i.e. liquidity risk and default risk, may undergo reduction due to the introduction of the euro as perception of Poland's macroeconomic credibility improves. The resulting amounts of premium for exchange rate risk are not much different than results of studies on other countries. Nevertheless, in connection with the path of changes in nominal interest rates in Poland and in the euro area observed in 2008 as well as with the overall increase in risk aversion on global financial markets, risk premium may turn out slightly higher than the quoted estimates.

Long-term effects of the euro introduction, such as growth of competition and macroeconomic stability, intensification of trade, investment growth or financial market integration, may be more important for long-term economic development of Poland. Mitigating the risk of sudden capital flows, which destabilise the economy and are triggered by factors other than worsening of macroeconomic indices, such as currency speculations or changes in confidence of foreign investors, which are not justified by actual economic situation of the country, is a direct effect of abandoning national currency in favour of an international currency (National Bank of Poland, 2004a). Additionally, giving up its currency for the euro, Poland will significantly reduce the risk of a currency crisis, thus enhancing long-term macroeconomic stability. In addition, representatives of rating agencies indicate that the adoption of the common currency may translate (as was the case in other countries) into the growth of Poland's rating. Scale of changes will depend on the quality of structural reforms in Poland before the accession, in particular the public finance reforms. Experience of the euro area countries shows that meeting the criteria of the monetary union countries increases risk acceptance by investors. This is reflected in a small diversification of government bond yields in the economies with different ratings and in acceptance of high current account deficits.

Direct effects become visible first on financial markets. Reduction of exchange rate risk premium and adoption of the ECB's monetary policy may lead to a significant increase in integration in monetary and Treasury bond markets. In some segments of financial markets of the euro area countries, exchange rate risk is not the largest barrier to development or integration. In the case of retail loan market and equity market, institutional obstacles conducive to their fragmentation are more important. Advancing financial market integration will contribute to achieving greater benefits from membership in the euro area but it also carries some risks, the greatest being the so-called "contagion effect", consisting in transmission of financial crises between integrated countries. This shows that benefits stemming from the euro adoption will depend on financial market development in Poland. Therefore, potential effects of the impact of the euro on financial markets should be perceived as opportunities rather than certain benefits.

Trade and investment effects of the common currency adoption will also depend on the condition and competitiveness of the enterprise sector. Results of analyses conducted



for the needs of this *Report* (cf. Mroczek, 2008) indicate that further expected growth of openness of the economy will translate into higher exposure to competition, which in turn will allow to more efficiently use national advantages (also cost ones). Dynamically increasing openness of the Polish economy in the recent 10 years demonstrates its ability to include domestic factors of production into international division of labour. Polish economy is to a great extent open to trade with the euro area. This is confirmed by a high share of intra-industry trade.

Simulations carried out for the needs of the Report show that an increase in exports by 12–13% (as compared to staying outside the euro area) and a slightly smaller increase in imports may be expected in the long-term, although import growth may be stronger within the first several years of membership in the euro area. The impact of the euro introduction on Poland's trade will be largely determined by the condition of the SME sector in Poland. Low competitiveness of the SME sector, and in particular of small enterprises, and poor links with abroad are a threat for using trade benefits from Poland's accession to the euro area.

As regards investment, estimations suggest that it may increase as a result of the euro adoption and lead to the larger accumulation of capital by around 12 % (as compared to the baseline scenario of lack of the common currency adoption). The estimations are based on a cautious assumption that risk premium will decline by 1 percentage point after accession to the euro area. The final scale of impact of the Poland's accession to the euro area on domestic and foreign investment (in the most desired new tech sectors) depends on the economic operators' ability to absorb the investment. The ability is currently low, as demonstrated by the indicators of ease of doing business or openness to inflow of new technologies. Actions improving absorption ability are of key importance to achieve a market investment growth, including in particular foreign investment growth, which could contribute significantly to the economic development of Poland.

Summing up, the most important potential consequences of direct benefits from the euro introduction include reduction of nominal interest rates as a result of decreased risk premium and, in the long term, investment growth, intensification of trade, as well as increased competition, which can lead to permanent increase in GDP growth rate and welfare in the long term. Yet, resources made available as a result of elimination of exchange rate risk must be efficiently used in the economy in order for long-term benefits to fully materialize. Enterprises must be able to adapt to altered conditions of economic activity, to operate with increased competition, and to absorb innovations.



Chapter 4

Costs and threats connected with Poland's accession to the euro area

Chapter purposes

The purpose of the chapter is to evaluate the costs that the Polish economy will incur as a result of integration with the euro area and the threats which may occur as a result of the process. Theoretical arguments were confronted with empirical literature on experience of the euro area countries. Specific characteristics of the Polish economy, referred to in Chapter 2, play an important role in ex ante assessment of threats for Poland stemming from the euro adoption.

The lack of a floating nominal exchange rate is related to the possibility to achieve benefits and win new opportunities discussed in Chapter 3, but it also entails resignation from conducting autonomous exchange rate policy. The chapter evaluates the efficiency of nominal zloty exchange rate against the euro as a mechanism stabilizing the economy. After the adoption of the common European currency, decisions on interest rates will be made by the European Central Bank and not the Polish Monetary Policy Council, raising a question about the risk of potential inadequacy of monetary policy in the euro area for the Polish economy. The risk will be assessed also in the context of having an impact on the ECB decision-making. Impact of globalisation process on autonomous monetary policy will also be discussed.

Threats are conditional in medium term and are related to the question whether the adoption of the common currency will contribute to the price process which will be incompliant with economic foundations. They could result from the failure to choose an optimal conversion rate of zloty into euro, too fast wage increase or loan boom, and in particular from excessive price growth on real estate market. The chapter asks about the possibility of divergent price changes in Poland and the euro area to translate into procyclical effects in the real sphere. The position of the ECB on conducting monetary policy when inflation differences are present is also presented.

In the short term, the replacement of the currency will entail technical and organisational costs. The possibility of short-term inflation growth due to potential rounding off of prices during their conversion from zloty to euro was also analysed. Before the adoption of the common currency Poland will have to meet the price stability criterion which may entail the necessity to use disinflation policy measures.

Consequences of the necessity to meet the exchange rate and price stability criteria and threats related to the participation in ERM II were also analysed.

4.1 Long-term costs related to the loss of independent monetary and exchange rate policy

4.1.1 Cost of the loss of independent monetary policy

The adoption of the euro does not allow to conduct autonomous monetary policy.

The adoption of the euro is related to the loss of the possibility to conduct autonomous monetary policy. Although the NBP President will have the right to vote during the meetings of the Governing Council of the ECB, his impact on the ECB decisions will be limited. The impact of the situation in Poland on the ECB interest rates will be incomparably lower than it is now, when monetary policy is autonomously conducted by the Monetary Policy Council. Therefore, it is important to answer the question whether the ECB's monetary policy will be adequate to the situation of the Polish economy.

The ECB policy may be not fully adjusted to Poland's needs.

Potential inadequacy of the ECB's monetary policy to the situation of Poland should be examined in two aspects, namely, long-term discrepancy of interest rates related to different level of economic development of the majority of the euro area and of Poland, as well as cyclical discrepancy related to the lack of full synchronisation of business cycles (see Box 4.1). The risk of inadequacy and its potential consequences are discussed in Section 4.1.1.

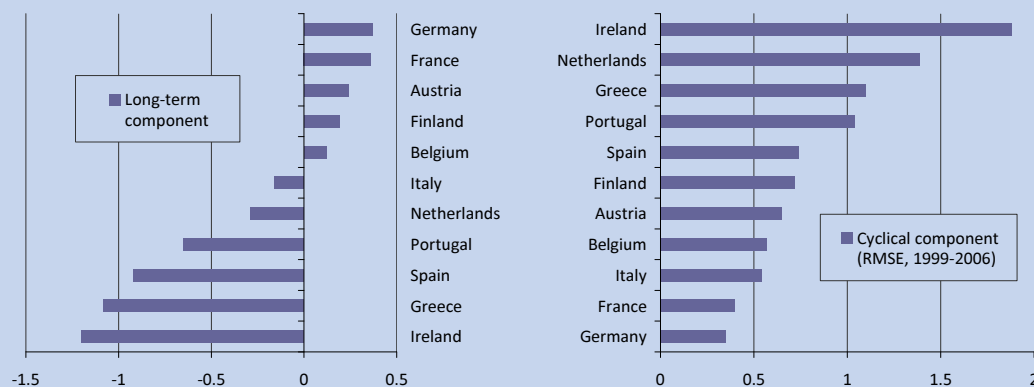
Box 4.1 Inadequacy of the ECB's policy for a single country – decomposition and measurement

Clarida, Galí, Gertler (1998) proposed a measure of stress for a single country related to the fact that monetary policy is conducted in a way far from optimal. Attempts to use this methodology to assess the scale of inadequacy of the common monetary policy for the needs of individual countries in the first ten years of the euro area existence were made by Flaig, Wollmershäuser (2007), Calmfors (2007) and Roubini, Parisi-Capone, Menegatti (2007). The referenced publications present a detailed methodology of calculations.

According to their authors, between 1999 and 2006 the stress level was constant and no growing (which would point to divergence) or decreasing (which would mean advancing convergence or cycle synchronization) tendency can be observed. It could confirm that endogenous effects of the euro in the area have been limited so far. Stress can be decomposed into a structural factor related to long-term inadequacy of nominal rate for inflation in the country (see left-hand panel of Chart) and a cyclical factor related to the lack of full cycle synchronisation. The right-hand panel of the chart presents a synthetic measure of cyclical divergence in the analysed period (root mean squared error).



Chart Long-term and cyclical inadequacy of monetary policy in the euro area countries between 1999 and 2006, according to methodology of Clarida, Galí, Gertler (1998)



Source: Calmfors (2007).

The structural component dominated (Flaig, Wollmershäuser, 2007), which indicates that long-term inflation differentials and not the lack of synchronization were the main source of inadequacy. Calmfors (2007) estimates that the structural component played the greatest role in Ireland where the nominal rate between 1999 and 2006 was on average 1.2 percentage point higher than it would have been, if the ECB had taken into account only the interest of the Irish economy, while in Germany it would have been 0.4 percentage point lower (see Chart). As regards the cyclical component, the root mean squared error in the analysed years is the highest in Ireland as well. According to Calmfors (2007), Italy and Belgium are best adjusted to the ECB's policy, while Flaig and Wollmershäuser (2007) claim it is Germany^a.

^a Due to a short sample, the results should be treated with caution. The proposed measure does not include the effects related to the establishment of nominal rates of national currencies.

Source: NBP study based on: Clarida, Galí, Gertler (1998), Calmfors (2007), Flaig, Wollmershäuser (2007).

Poland's accession to the euro area does not mean a total loss of impact on decisions on interest rates in the Polish economy. Poland's representatives can indirectly influence the decision-making process to a greater extent by means of participating in forming coalitions or influencing the course of discussions and thus the final monetary policy (see Section 4.1.1). In addition, advancing globalisation processes reduce effectiveness of autonomous monetary policy which additionally lowers the cost of its loss (see Section 4.1.1).

However, there are factors limiting the cost of the loss of autonomous monetary policy.

Adequacy of the ECB's policy to the Polish economy

There is a risk of structural (long-term) inadequacy of the ECB rates.

As a catching-up country, Poland needs a higher interest rate than the more developed euro area for which the ECB rate is established. The natural rate of interest¹ for the euro area is probably lower than its value for the Polish economy (Brzoza-Brzezina, 2003b). It means that in the case of accession to the euro area, the real interest rate in Poland will most likely be lower than if determined by the Monetary Policy Council under autonomous monetary policy.

Inadequacy of the ECB rate could lead to procyclical effects.

Reduction of the cost of capital would be conducive to an increase in investment outlays on the one hand, but could lead to a strong growth of consumption financed with cheaper loans, on the other hand. The impact of the real interest rate would then be procyclical and would cause an excessive growth of demand which in turn would increase inflationary pressure².

The risk of the real interest rate effect in Poland is reduced by the competitiveness channel.

Walters' critique does not take into account, however, the functioning of the competitiveness channel, which, contrary to procyclical impact of the real interest rate channel, performs a role of adjustment mechanism (cf. Section 5.2). On the one hand, inflation growth contributes to an increase in domestic demand by reducing the real interest rate. On the other hand, higher prices make domestic producers less competitive (due to increase in unit labour costs) which is reflected in the real appreciation of exchange rate and lower demand for their products. The related decrease in production growth rate causes lower incomes and thus reduces demand and inflationary pressure.

Adjustment process depends on the characteristics of individual economies.

As a result, potential acceleration of price changes, related to the ECB rate being too low for the needs of the Polish economy, would be temporary and the macroeconomic balance would be restored by means of the real exchange rate channel. The stability of prices and production in Poland will be then achieved, despite the fact that the ECB interest rate is different from the rate which would be in place if the NBP conducted independent monetary policy. Time of adjustment to the new balance is different for individual countries and depends on flexibility of the markets, exposure of economies to the loss of external price competitiveness, intensity of trade, persistence of inflation and rationality of inflation expectations (cf. Torój, 2008).

Decline in real interest rates in Poland will probably be less dramatic than in peripheral countries of the euro area.

Nominal convergence is largely completed in Poland as demonstrated by similar inflation rates and a small interest rate disparity between the euro area and Poland (cf. Section 2.1.2). It means that the reduction in the cost of capital in Poland after the euro adoption will most likely be smaller than in many old Member States. As a result, the growth of demand and inflationary pressure, as well as required adjustment of the real exchange rate, would also be smaller.

Potential cyclical divergence is related to incomplete cycle synchronisation.

The above adjustment to the new balance is one-off. The compliance of the changes of the ECB interest rates with the changes desirable from the point of view of the Polish economy will be the most important for the evaluations of the consequences of Poland's membership in the euro area in the long term. The issue is related to business cycle synchronization, as well as to symmetry of shocks and responses to those shocks by the discussed economies. The more similarity between the euro area and Poland, the more adequate the common monetary policy will be for the Polish economy. Otherwise, the differences, e.g. in the business cycle phases, will lead to different changes of inflation rates and thus the real interest rates between individual member countries. As a result,

¹ The natural rate of interest is an interest rate which stabilizes inflation. More on the natural rate of interest in Box 4.6.

² The real interest rate channel and the competitiveness channel and the denotations used in this section were discussed in Section 4.2.3 and Section 5.2.

4.1 Long-term costs

the common monetary policy will be procyclical for the euro area countries, including Poland (Flaig, Wollmershäuser, 2007).

The analysis of cyclical convergence of Poland with the euro area is presented in Chapter 2. Higher amplitude of cyclical fluctuations in Poland may also entail the risk of too weak reaction of common monetary policy from the point of view of the Polish economy. Additionally, the risk is limited due to the fact that the responses of the Polish economy and the euro area economies to shocks do not differ much (at least not in term of quality), and Poland has its business cycle better synchronised with the euro area than the majority of countries from the region. Kokoszcyński et al. (2008) also points to a significant similarity between the monetary policy transmission mechanisms in Poland and the euro area.

Time series so far are of limited usefulness in making uncompromising judgments on business cycle synchronisation between Poland and the euro area in the future. While asymmetric shocks in the future are difficult to predict, some conclusions regarding the risk may be formulated on the basis of the analysis of similarity of production and demand structures in Poland and the euro area and the level of real convergence (see also Chapter 2). Significant structural differences with regard to production and demand may be related to the risk of asymmetric shocks, and thus cyclical divergence of the ECB's policy in the future. Kokoszcyński et al. (2008) show also some differences in the reaction of the Polish economy and the euro area to the interest rate impulse³. The results suggest that the cost of the loss of autonomous monetary policy may occur and raise a question about its amount.

Loss of the possibility to conduct fully autonomous monetary policy may lead to increased production fluctuations, if potential asymmetric shocks lead to divergent positions of Poland and the euro area in the business cycle. Based on simulations carried out using the DSGE model, Gradzewicz, Makarski (2008) demonstrate that production and consumption volatility may increase after Poland's accession to the euro area. The authors estimate that the reduction of the society's welfare as a result of increased consumption volatility is equally acute as a 0.055% reduction of consumption in a balanced situation. They consider the reduction insignificant, based on the existing literature of the subject.

The cost of the loss of autonomous monetary policy will also depend on the mode of decision making by the ECB, i.e. on the applied voting system and preferences of the members of the Governing Council of the ECB. Kosior, Rozkrut, Torój (2008) examined the impact of the above factors on the increase in fluctuations of production and inflation in Poland and in other euro area countries. The authors demonstrate that those effects for Poland are similar to average costs incurred by other EU Member States adopting the euro. Results of the simulations show that in the majority of cases there is no significant difference between the effect of the new and previous voting system, though the introduction of rotation slightly improves monetary policy effectiveness⁴. The change of considered frequency of rotation between the voting governors of national central banks does not affect the results. An important conclusion

³ The authors show, for example, that a similar distortion of interest rate causes a stronger inflation response in Poland than in the euro area, while the reaction of consumption and investment is weaker. They admit, nevertheless, that it is difficult to extend those conclusions to the future, due to the potential endogeneity of transmission mechanism.

⁴ Significant differences occur with the assumption that the members of the Executive Board vote guided only by the situation of the euro area as a whole, whereas the governors of national central banks take into account economic processes in their countries of origin. In such a case, the introduction of rotation significantly reduces fluctuations of production and inflation, as compared to the previous voting system.



Business cycle synchronisation has been relatively high, though incomplete, so far.

There is a risk of asymmetric shocks.

Decline in welfare as a result of the loss of autonomous monetary policy may be insignificant.

When the ECB concentrates on the euro area as a whole, the cost of the loss of monetary policy is lower.

is that the fluctuations of production and inflation increase not only in the euro area as a whole, but also in the majority of economies in the common currency area, including Poland, if individual decision makers are guided by the interest of their countries of origin. Therefore, the discussions and decisions of the ECB Governing Council should concentrate on the situation of the euro area as a whole and not on processes in individual economies. Such a solution, which complies with the ECB's mandate, supports the improvement of effectiveness of monetary policy, also with regard to its impact on the Polish economy.

Poland's impact on the ECB's decisions

After the adoption of the euro, Poland will be represented in the Governing Council of the ECB.

Poland's membership in the euro area will be related to increased participation of our country's representatives in decision-making structures of European institutions. In particular, the president of the National Bank of Poland will become a member of the ECB Governing Council⁵ and will participate in its meeting with the right to vote. The Governing Council consists of the governors of the national central banks of the euro area countries, as well as of 6 members of the ECB Executive Board. When Poland adopts the common currency, its representative may be elected to the Executive Board⁶.

Governors of national central banks are appointed at the national level, and the members of the ECB Executive Board at the international level.

The current members of the Executive Board of the ECB are appointed by common accord of the governments of the Member States at the level of Heads of State or Government, on a recommendation from the Council, after it has consulted the European Parliament and the Governing Council of the ECB (Article 112 (2) (b) of the TEC). The Treaty of Lisbon, if ratified, will introduce an important change to the procedure. The members of the Executive Board will not be appointed by common accord of the governments but by the European Council, acting by a qualified majority (Article 245b of the Treaty of Lisbon). This means that the required unanimity will be replaced by a qualified majority and the inter-government procedure will be replaced by the EU decision-making procedure (Szymczyk, 2008). Contrary to the members of the Executive Board of the ECB, the governors of national central banks are appointed according to the procedures established in individual countries. The Treaty of Lisbon does not provide for any changes in this regard.

The Governing Council of the ECB votes by a simple majority with the President of the ECB having the casting vote.

According to the voting system⁷ in place, the Governing Council of the ECB usually makes decisions by a simple majority with each member having one vote⁸. In the event of a tie, the President of the ECB has the casting vote. In the case of decisions on the capital and foreign exchange reserves of the ECB, as well as the distribution of income and losses, the votes of the governors of national central banks are weighted according

⁵ According to the Statute of the ECB and the ECB, the ECB Governing Council is the main decision-making body of the European Central Bank, which makes the most important decisions on monetary policy of the euro area, including on indirect objectives or interest rates.

⁶ The Executive Board comprises the President, the Vice-President and four other members. The members of the Executive Boards are appointed for eight-year terms in office which are not renewable. The countries of origin and the end of the term in office of the current members of the Executive Boards of the ECB are as follows: France (31.10.2011), Greece (31.05.2010), Austria (31.05.2011), Spain (31.05.2012), Italy (31.05.2013) and Germany (31.05.2014). Source: ECB (<http://www.ecb.int/ecb/orga/decisions/eb/html/pastpresent.en.html>).

⁷ The system is regulated in Article 10.2 of the Statute and in the Rules of Procedure of the European Central Bank.

⁸ A quorum of two-thirds of the members is required and if it is not met, the President of the ECB may convene an extraordinary meeting at which decisions may be taken without regard to the quorum.

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to the countries' shares in the subscribed capital of the ECB and the Executive Board of the ECB does not participate in the voting⁹.

The provisions of the Statute also require unanimity of decisions of the Governing Council of the ECB with regard to the adoption of the ECB recommendations on amendments to the Statute in matters listed in Article 41 (1) of the Statute and in Article 10 (6). The matters concern the issues of utmost importance when full agreement is more important than the risk of blocking the proposal by the objection of the minority of the members of the ECB Governing Council.

The Governing Council of the ECB is a body of a supranational institution. Its members as a rule do not act as representatives of their respective states but as independent persons. Therefore, they participate in voting in person and cannot transfer the right to vote to anyone else. This means that in case of absence on the meeting of the Governing Council, a member cannot send his alternate, except for situations specified by legal regulations.

The specificity of the European Central Bank consists in the fact that its decision-making body is composed of the representatives of all euro area countries and the voting, as emphasized by the ECB, takes place by consensus. The role of the President of the ECB is to lead discussions in a way ensuring an agreement with regard to the evaluation of the situation in the euro area and the related decisions, as well as the contents of the communications with the reasons for making the decisions. It requires the appropriate ordering of the course of the meeting and discussion on monetary policy. Otherwise, it would be impossible to make a decision in the specified period (Moutot, Jung, Mongelli, 2008).

Decision-making by the Governing Council of the ECB is compliant with the method commonly used in central banking where monetary policy is conducted by committees and not individually by the governor as it was in the past. It stems from the conviction about advantages of decision making by committees, as a group of decision makers has a greater knowledge and possibility to process and interpret information more comprehensively than one person. This does not mean, however, that an increasing number of decision makers is an unequivocally positive phenomenon. As a matter of fact, an excessive number of participants attending the meetings of a committee may cause problems with coordination and hinder effective discussions and decision making (Berger, Ehrmann, Fratzscher, 2006; Gerlach-Kristen, 2005; Kang, 2004; Sibert, 2006). One of the challenges related to the enlargement of the euro area is to ensure effective functioning of the ECB's institutions.



In the matters of utmost importance, decisions must be made unanimously.

Voting in the Governing Council of the ECB must be made in person and cannot be transferred to anyone.

The President of the ECB leads the discussions to reach a consensus.

Enlargement of the euro area implies the enlargement of the Governing Council of the ECB, which may cause problems with coordination....

Box 4.2 Reform of the voting system of the Governing Council of the ECB

While the previous voting system gave one vote to each governor of a national central bank on all decision-making meetings, the new system changes that. The “one member, one vote” principle is in force only with regard to the members of the Governing Council with the right to vote at a given meeting. All members of the Executive Board and a maximum of 15 governors of the national central banks have the right to vote in each voting. However, each member of the Governing Council can participate in all meetings, irrespective of the voting rights.

⁹ Unless stated otherwise, legal aspects of the voting system in the Governing Council of the ECB were discussed on the basis of Górska (2008).

Once the number of euro area countries exceeds 15, the rotation system should be implemented. Once the number of member countries exceeds 15, the voters should be allocated to two groups, namely, group I composed of the five governors of the national central banks with 4 voting rights and group II composed of the remaining governors with 11 voting rights.

The decision of the EU Council provides for the possibility to postpone the implementation of the rotation system (Paragraph 6 of the preamble to the Council decision) to avoid the situation where the frequency of voting rights in the first group would be lower than in the second group. It means that the new voting system should begin to operate only when the number of the euro area countries exceeds 18. The postponement of the implementation of the rotation system requires the relevant decision of the ECB Governing Council, acting by a two-thirds majority of all its members.

Once the number of governors of the national central banks exceeds 21, they will be allocated to three groups: group I composed of five governors with 4 voting rights, group II composed of the half^a of the total number of governors, with 8 voting rights and group III composed of all other governors, with 3 voting rights.

The governors of the national central banks will be allocated to groups on the basis of (1) the share of the Member State's GDP in the aggregate GDP of the entire euro area (a weight of 5/6); (2) the share of the aggregated balance sheet of the monetary financial institutions in a given country in the total of aggregated balance sheet of the monetary financial institutions (a weight of 1/6). The share of each national central bank is to be adjusted every five years or when the number of the members of the ECB Governing Council increases. If all EU countries joined the euro area, the governors of the national central banks would be allocated to groups as presented in the table below.

Table Allocation of countries to groups in the rotation system

	Group I	Group II	Group III
Frequency of voting rights	80%	57%	38%
Countries	Germany, United Kingdom, France, Italy, Spain	Netherlands, Belgium, Sweden, Austria, Poland , Denmark, Ireland, Greece, Finland, Portugal, Czech Republic, Romania, Luxembourg, Hungary	Slovakia, Slovenia, Bulgaria, Lithuania, Latvia, Cyprus, Estonia, Malta

Source: Kosior, Rozkrut, Torój (2008).

Some aspects of the new voting system have not been specified as yet. They concern the rotation periods and principles of rotation inside the groups. These elements of the new system are to be specified in the implementing provisions issued by the ECB Governing Council.

^a If the number is not integral, it is rounded up.

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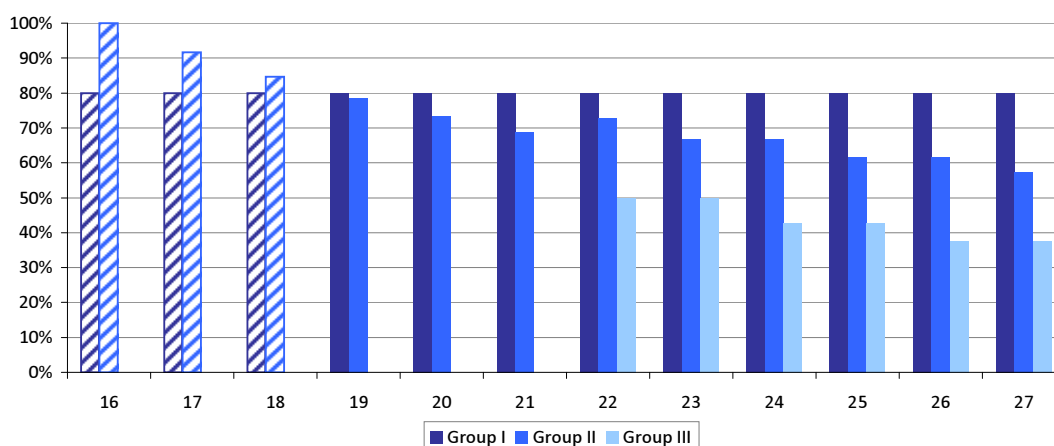
As a result, the prospect of enlargement of the Governing Council to as many as 33 members¹⁰ (27 governors of the central banks from EU countries and 6 members of the Executive Board) was an impulse for a reform of the voting system in the ECB. Its entry into force is to prevent decision paralysis by reducing the number of persons with the right to vote at one meeting. The reform grants the right to participate in a given voting to maximum 15 governors of national central banks with the composition of the voting group rotating (see Box 4.2). The introduction of the rotation system was to prevent the situation when a decision can be made by the Member States which do not represent the majority of the euro area in terms of GDP (European Council, 2003; Mersch, 2003). Some believe that the reform was to prevent the reduction of the role of the Executive Board and the President in the decision-making process as new members join the euro area (Ciszak, 2003).

Depending on the number of the euro area countries, the President of the National Bank of Poland will have the right to vote at 57% to maximum 79% of decision-making meetings (Chart 4.1). If Poland was in the euro area with no more than 18 members, the President of the NBP should have the right to vote at each decision-making meetings, since in such a situation the current voting system will probably be maintained.

...therefore, the voting system has been reformed by introducing rotation.

The President of the NBP will have the voting right at 57%–79% of meetings of the ECB Governing Council.

Chart 4.1 Frequency of voting rights of the members of individual rotation groups depending on the number of the euro area countries



Note: The chart shows (the old system is represented by bars filled with lines, the new system by full bars) that the new voting system will begin to operate only when the euro area consists of more than 18 members. The President of the NBP will be a member of the second rotation group.

Source: NBP calculations.

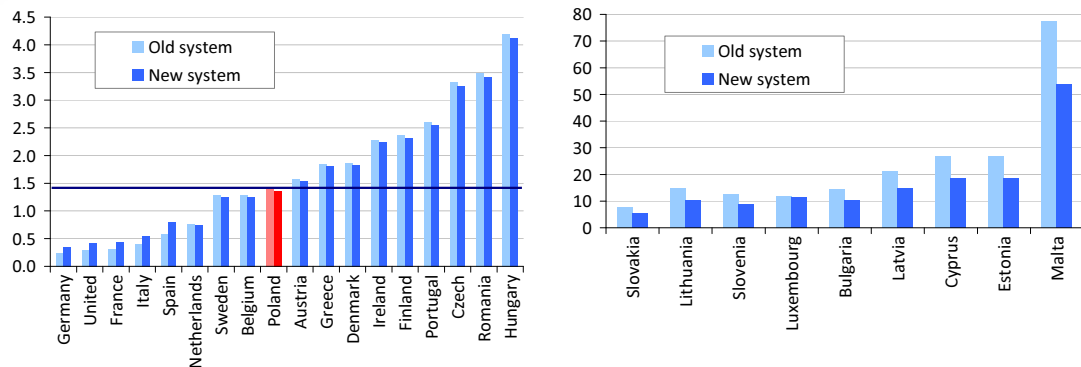
In line with the intentions of the authors of the reform, the new voting system reduces the above disproportions to a certain extent, i.e. limits the impact of countries with excessive influence on the ECB's decision-making and enhances the position of the countries with insufficient representation (Chart 4.2)¹¹. Nevertheless, the above changes are very limited. Smaller countries continue to have a much larger impact on the ECB's decision-making process than it would result from their share in the GDP of the euro area (Chart 4.2). The rotation system does not significantly alter the position of Poland, as it only marginally reduced the role of the NBP President in influencing the monetary policy of the euro area. The impact of the representative of our country on the ECB's

The impact of the voting system reform on the Poland's voting right is very limited.

¹⁰ If the EU is enlarged by other members, the composition of the Governing Council of the ECB would be further expanded.

¹¹ The only exception is the Netherlands whose insufficient impact on the decision process is further reduced.

Chart 4.2 Impact on voting and economic weight of the euro area countries



The chart illustrates the relation of the power of the governors of individual national central banks in the ECB voting (measure by the Shapley-Shubik power index) to the share of a given country in the GDP of the euro area. The result higher (lower) than one means a higher (lower) impact on the ECB's decisions than it would result from the economic importance of a given country.

Source: NBP study on the basis of Kosior, Rozkrut, Torój (2008).

decisions is still by around 40% higher than indicated by the share of Poland in the GDP of the euro area.

The new voting system significantly strengthens the role of the ECB Executive Board.

While the introduction of rotation does not significantly alter a relative voting power of individual euro area countries, the position of the ECB Executive Board may be considerably strengthened by the new voting system¹². The importance of the Executive Board increases less, if the possibility of coalitions between the remaining members of the ECB Governing Council is taken into account¹³. If we assume that the governors of national central banks are guided in their voting by the interest of their respective countries and not the euro area as a whole, the strengthened position of the “pro-European” ECB Executive Boards is in the interest of both the euro area and its individual members, including Poland. It is related to the fact that the new voting system reduces fluctuations of production and inflation in the economies of the euro area which is tantamount to an increase in welfare of the societies of the member countries¹⁴.

A small scale of changes in one of the reasons behind the criticism of the new voting system.

Apart from strengthening the position of the ECB Executive Board, the new voting system does not implement any significant changes to the relative distribution of powers of individual Member States. Therefore, it does not fully resolve the problem of representation of the euro area in the ECB's decision-making process¹⁵. The critics of the rotation system (cf. Belke, Friedrich, Gros, 2003) also point out that it violates the “one member, one vote” principle and does not solve the problem of an excessive number of the member of the decision-making body, as the governors of the national central banks still can participate in the discussions. They also claim that the system weakens the position of the new member countries (whose banking sector is much less developed

¹² This refers to the situation where the members of the Executive Board vote are guided by the situation of the euro area as a whole in their voting, whereas the governors of national central banks take into account only the situation of their respective countries of origin. The latter assumption is contrary though to the formal obligation of the members of the ECB Governing Council.

¹³ Consequences of the creation of two variants of coalitions between the governors of the national central banks were discussed in the work of Kosior, Rozkrut, Torój (2008).

¹⁴ More on the subject in Kosior, Rozkrut, Torój (2008).

¹⁵ At the same time, it undermines the criticism of the rotation system which claims that the differentiation between the member countries and their allocation to separate groups preserves the thinking of decision-makers in national categories and renationalizes European monetary policy (Friedrich, 2003; Belke, Friedrich, Gros, 2003).

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than the banking sectors of other euro area countries) by making their allocation to rotation groups partly dependent on the MFIs (Belke, 2003; Meade, 2003) and that it is not transparent and too complex (Belke, Friedrich, Gros, 2003). Moreover, the method of rotation is still unspecified and it is still unclear when the system will be implemented.

All members of the Governing Council are formally obliged to make decisions having in mind the interest of the euro area as a whole and not the interest of their countries of origin. The obligations are reflected in the course of discussions during the decision-making meetings of the ECB. The discussions concentrate mainly on the condition of the euro area as a whole which is in line with the ECB's mandate and strategy. Still, the situation of individual countries is also briefly discussed and in justified cases economic processes in one or several economies are analysed in more detail (Moutot, Jung, Mongelli, 2008). This means that in certain circumstances, more attention may be paid to the situation of the Polish economy than it would result from its small share in the GDP of the entire euro area.

Although the impact of the NBP President on the ECB's decisions will remain very limited as compared to the situation when an independent monetary policy is conducted in Poland, it will be at the same time overproportionate as compared to the share of Poland in the GDP of the euro area. The NBP President can influence the decision-making process to a greater extent by means of participating in coalitions with other countries or influencing the course of discussions and thus the final monetary policy. Poland's position in the ECB may be strengthened by the election of a Poland's representative to the Executive Board. The assessment of the related benefits should take into account the fact that while the NBP's policy has practically no impact on the global economy, the ECB's decisions are important determinants of global processes.

The ECB discusses the economy of a single country only under exceptional circumstances.

Poland's impact on the ECB's decisions will be small in voting but may be strengthened by participation in discussions and coalitions.

Globalisation and monetary policy autonomy

A reliable estimation of the costs of the loss of autonomous monetary policy requires to include the constraints imposed on the policy by advancing globalisation processes. For the purposes of this section, globalisation shall mean the intensification of international links in various aspects of the economies and its consequences¹⁶:

Globalisation of the economy influences the cost of the loss of monetary policy autonomy.

- intensification of international trade and increasingly higher dependence of price changes on prices of imported intermediate goods;
- financial integration and improved financing possibilities abroad;
- increased effectiveness of the use of resources with higher competitive pressure and innovativeness;
- free flow of the means of production, in particular labour;
- inclusion of less developed countries into the global economy and increased demand for commodities, which implies an increase in their prices;
- adoption of direct inflation targeting strategy by an increasing number of monetary authorities in the world.

¹⁶ Cf. Rybiński (2007a), Frankel (2006) and Borio, Filardo (2007).

Development of trade and relations on financial markets on a global scale results in an increase of relative importance of international factors to be included in domestic monetary policy. As a result, analysis of processes taking place abroad involves more and more resources of central banks (Rybiński, 2007a).

“Great moderation” had a global nature.

The discussion on the reasons for great moderation in the last 20 years, quoted in Section 1.3, has been dominated by globalisation processes. Both good monetary policy (see Bernanke, 2004; International Monetary Fund, 2006) and good luck (see Stock, Watson, 2003) concerned various economies in the world to a comparable extent. Rybiński (2007a) argues that it is globalisation that played a key role in the process and not just good policy and good luck. This situation raises a question on the nature of interdependence of globalisation processes and monetary policy. It is especially important whether monetary policy goes towards a global model or whether small central banks will in this context have a limited freedom of operation and what the consequences for Poland will be, if (1) Poland quickly joins the euro area; (2) Poland decided to postpone the process. Those effects are obviously difficult to quantify.

Globalisation may influence the flattening of the Philips curve.

The basic constraint on autonomous monetary policy results from the change of the processes determining inflation. Due to the intensification of international trade, the surplus of domestic demand over production capacity may easily be absorbed by the supply of foreign goods (analogously in the case of a negative GDP gap). Domestic and foreign goods are increasingly better substitutes. Factors of production (capital, labour) demonstrate mobility which grows with time. All this results in the weakening of the relation between the domestic GDP gap and inflation processes in the economy, which was proved in numerous studies listed in Table 4.1. The presented studies put an emphasis on the increase in the importance of the global component of inflation which is overproportionate with regard to global cycle synchronisation.

Chmielewski, Kot (2006) emphasize that statistical properties of the national Philips curve may improve if the products most exposed to sectoral globalisation are excluded from inflation. An increase in global demand for commodities and food, stemming from the inclusion of large Asian markets (Pain, Koske, Sollie, 2006; European Central Bank, 2008d), seems to be particularly important in this context.

The claim about the flattening of the Philips curve is surrounded by controversies.

One must bear in mind that the studies on the impact of globalisation on inflation processes in the world and in individual countries are relatively new (last 10–15 years) and the current state can hardly be called a consensus. There are also theoretical arguments for the strengthening of the link between the domestic economic situation and price changes due to globalisation processes. The processes enhance the competitive pressure which reduces the companies' margins and thus increases flexibility of prices determined by the companies with regard to domestic marginal costs. Some empirical studies (Ihrig et al., 2007; Mumtaz, Surico, 2007) formulate less categorical conclusions on the Philips curve flattening than other works referred to in Table 4.1.

Global inflation hinders the conducting of monetary policy for a single country.

Domestic monetary policy will probably have to take into account the factors located outside a given country to a greater extent (Borio, Filardo, 2007; Rybiński, 2007a). It may concern in particular the factors related to the economies with which a given country maintains strong trade and financial links. Such a situation would force a single central bank to analyse those tendencies. An increasing impact of the global inflation component suggests that the central bank in a small open economy will have less and less control over the aggregate inflation index in its country. Rybiński (2007a), points out that the method of removing certain components from aggregate inflation, adopted by Chmielewski, Kot (2006), may require an update in the case of likely intensification of global trade in other sectors. Removal of further sectors from the view of the Philips curve would leave more goods outside the analysis and activities of the local central



Table 4.1 “New view” – studies on the flattening of the Philips curve

Study	Methodology	Conclusions
Ciccarelli, Mojon (2005)	Various specifications of inflation equations. Factor model, Bayes methods. Error correction model.	A global component of business cycle accounts for around 30% of volatility of its national counterparts, while global inflation accounts for disproportionately more – as much as around 70%. There is a strong error correction mechanism which eliminates the deviation of domestic inflation from the balance set by global inflation after two years on average.
International Monetary Fund (2006)	Panel estimation of the Philips curve (SUR) with the parameter at GDP gap being dependent on various factors, such as openness of the economy and an index related to the flexibility of the wage formation process.	Increased openness of the economy reduces dependence of domestic inflation on domestic GDP gap. There is a negative, statistically important relation between the parameter at GDP gap in inflation equation and the level of openness of the economy.
Chmielewski, Kot (2006)	Estimation of the Philips curve using the inflation rate calculated excluding a selected group of goods produced by the sectors particularly exposed to globalisation processes.	Flattening of the Philips curve results from globalisation processes, affecting in particular the apparel and shoes sectors, as well as audio and telecommunications equipment. When those components are removed from the core inflation, the statistical properties of the Philips curve estimated by the authors improve. They also demonstrate that weakening of the relation between domestic demand factors and domestic core inflation is a relatively new phenomenon.
Borio, Filardo (2007)	Estimation of the Philips curves taking into account the global GDP gap (weighted with trade of individual countries).	Increased relative impact of the global GDP gap on domestic inflation, as compared to the domestic GDP gap.
Mumtaz, Surico (2007)	Dynamic factor model with variable parameters and stochastic volatility.	High inflation volatility in the 1970s may be attributed to the impact of country-specific factors, and a decrease in inflation in the world at the turn of the 1980s and 1990s to the impact of global factors. The volatility of (low) inflation in recent years cannot be accounted for by domestic or global factors. It is a common characteristic of the majority of industrialized countries.
European Central Bank (2008d)	—	There are no (theoretical) reasons to doubt that the role of conditions on local labour markets for the changes of prices in individual countries will be reduced. The process will be supported by increased mobility of factors of production (capital and labour).

Source: NBP study.

bank. In addition, international integration of financial markets reduces the efficiency of domestic monetary policy, as the access to foreign financing becomes easier for consumers and for companies (see Box 4.3).

Box 4.3 Debt in foreign currencies and effectiveness of monetary policy

Extended scale of international operations of large financial institutions is conducive to the acquisition of financing from various sources by companies and households. Basso, Calvo-Gonzalez, Jurgilas (2007) notice that the presence of foreign banks on the market facilitates the access to financing denominated in foreign currencies. Rosenberg, Tirpak (2008) claim that the main factors behind the growth of debt in foreign currencies in our region include interest rate disparity, as well as financial market liberalisation and integration related to the membership in the European Union. Their panel study points to a small effectiveness of regulations aimed at preventing the growth of such debt in the countries of central and eastern Europe.

Increased scope of such financing reduces the effectiveness of monetary policy transmission mechanism. Econometric evidence for this phenomenon in the panel of countries from our region (Poland, Czech Republic, Hungary) were presented in the article of Brzoza-Brzezina et al. (2007). The authors estimate equations for real total of loans in national and foreign currencies. Explanatory variables include ex post real interest rate in the country and abroad (LIBOR for the Swiss franc with a national deflator), as well as real GDP and nominal exchange rate. Irrespective of adopted specification, the authors find a strong substitution between various types of loans. The growth of national interest rates leads *ceteris paribus* to an increase in foreign currency debt. Thus, monetary policy influences the loan structure, but not necessarily the loan volume. Brzoza-Brzezina, Chmielewski, Niedźwiedzińska (2007) conclude that it makes the reconciliation of objectives related to ensuring the stability of prices and financial system increasingly difficult.

In view of the above, the results of the studies of Rosenberg and Tirpak (2008) suggest that full autonomy of monetary policy is difficult to reconcile with financial integration in Europe.

Source: NBP study.

Large central banks have an opportunity to influence global inflation.

The impact of globalisation, monetary integrations and other processes taking place in recent decades on the functioning of the economy is difficult to separate in the euro area (European Central Bank, 2008d). In the case of the USA, Boivin, Giannoni (2008) do not find evidence for the change of monetary policy mechanism due to globalisation¹⁷. Globalisation in the field of monetary policy may lead to the model where the activities of the central banks of the largest economies jointly aim at reducing the global component of inflation (Rybiński, 2007a). The author points out that this component may be controlled only if the largest central banks of the world cooperate. The European Central Bank belongs to this small group of banks. Therefore, an impact, even limited, on the ECB's decision-making process could prove particularly valuable for Poland.

Globalisation costs are similar to the costs of monetary integration.

Leaving aside the issues related to monetary integration in Europe, it is worthwhile to

¹⁷ The functions of reaction to an impulse from monetary policy in their model which excludes the impact of global factors are almost identical to those resulting from the model taking into account those factors. The authors find only a small decrease in persistence in monetary transmission due to globalisation after 2000, in the perspective of two and more years.

consider the imminent consequences of globalisation. Globalisation processes, which are highly likely to advance, contribute to the necessity to support the labour productivity growth (technology transfer, forced innovativeness, advantages of scale), as well as the need for more flexible functioning of the labour market due to increased likelihood of sectoral and geographical shifts of the demand for labour. The preparation of the economy to the challenges related to globalisation requires thus similar costs to those necessary to prepare monetary integration (see Chapter 5 and European Central Bank, 2008g).

4.1.2 The cost of losing the nominal exchange rate as an adjustment mechanism

Poland's entry into the euro area would probably result in losing the autonomy of conduct of monetary policy. In the case when the exchange rate constitutes an effective shock absorption mechanism, resigning from an independent exchange rate policy may constitute a cost of integration with the euro area.

Losing the nominal exchange rate may be treated as a cost of integration with the euro area...

The classical theory of optimum currency area (OCA) assumes by default that a flexible exchange rate is a tool helpful in absorbing asymmetric shocks. This means that fluctuations of the real exchange rate mirror the existence of shocks, their scale, and mechanisms of their accommodation (Mundell, 1961), but the stabilising role of the exchange rate is the lesser, the more open the economy (McKinnon, 1963). The liquid exchange rate system particularly helps to accommodate asymmetric (temporary and permanent) demand shocks and permanent supply shocks, yet it destabilises the real sector of the economy in the case of temporary supply shocks, monetary shocks, and financial shocks (more in Stążka, 2008).

...if the exchange rate helps to absorb asymmetric shocks.

Yet in a monetary union, monetary shocks are absorbed automatically and asymmetric financial shocks are unheard of¹⁸. Thus, if the above nominal shocks dominate in the economy, losing independence with regard to the conduct of monetary policy does not constitute a cost from the point of view of stability of macroeconomic aggregates. However, if asymmetric supply and demand shocks dominate, particularly with their considerable asymmetry, a flexible exchange rate may be an effective tool of their absorption (Stążka, 2008).

Nominal exchange rate may also be the source of shocks.

In order to establish whether in the case of Poland, limiting volatility of real exchange rate and eliminating the nominal exchange rate in relation to the euro would constitute a cost or a benefit of integration, an analysis must be held of the scale of volatility of real and nominal zloty exchange rate and the reasons behind it, understood as types of shocks which have been (potentially) absorbed by the zloty exchange rate. Evaluation of the effects of resigning from the liquid exchange rate system currently in place in Poland will be thus possible, taking into consideration the degree of synchronisation of shocks between the Polish and the euro area economy (cf. Diagram 4.1).

The cost of lost nominal exchange rate depends on the type and symmetry of shocks it is shaped by.

In the light of the OCA theory, the higher the real exchange rate volatility, the more significant role it plays as an adjustment mechanism and/or the higher exposure of the economy to asymmetric shocks.

The OCA theory attributes real exchange rate volatility to adjustment mechanisms.

An analysis of volatility of real zloty exchange rate indicates that it is the most volatile as compared to other currencies of the region. In the years 1999–2007, the zloty exchange rate displayed volatility almost three times higher than EU-6 currencies prior to the adoption of the euro (in the years 1996–1998, cf. Błaszczewicz-Schwartzman, 2008).

The zloty exchange rate is the most volatile as compared to other currencies of the region.

¹⁸ Stążka (2008) models an asymmetric financial shock as an exogenous change in expected growth rate of nominal exchange rate.

Diagram 4.1 Costs of resigning from a flexible exchange rate system

shock	share in exchange rate volatility	shock symmetry	integration effect
AS	+	+	0
	+	-	-
	-	+/-	0
IS	+	+	0
	+	-	-
	-	+/-	0
LM	+	(+)/-	+
	-	+/-	0
FM	+	(+)/-	+
	-	+/-	0

“+” – the shock has a significant share in volatility of real exchange rate / the shock is symmetric / resigning from a flexible exchange rate will constitute a benefit of monetary integration;

“-” – the shock has an insignificant share in volatility of real exchange rate / the shock is asymmetric / resigning from a flexible exchange rate will constitute a cost of monetary integration;

“0” – the effect of resigning from a flexible exchange rate will have a neutral impact on the balance of costs and benefits of monetary integration.

AS – supply shock, IS – demand shock, LM – monetary shock, FM – financial shock

Source: NBP study.

Table 4.2 Volatility of real exchange rates in selected EU Member States in the years 1993–2007

Volatility	monthly				quarterly
	1993–95	1996–98	1999–2007	1993–2007	1993–2007
Czech Republic	0.67	1.83	1.27	1.35	1.31
Poland	2.16	1.96	2.15	2.09	2.08
Slovakia	1.25	1.75	1.54	1.38	1.44
Hungary	1.76	1.14	1.54	1.48	1.35
Average (region)	1.46	1.67	1.63	1.58	1.55
Average (EU-6)	1.03	0.67		0.95	0.82
Average (EU-4)	1.23	0.83		1.19	1.02

EU-6: France, Greece, Spain, Germany, Portugal, Italy.

EU-4: Greece, Spain, Portugal, Italy.

Source: Błaszkiwicz-Schwartzman (2008).

Volatility of real exchange rates of countries of the region is on average over two times higher than that posted by EU-6 countries prior to euro area accession. Additionally, the volatility of real zloty exchange rate in the years 1999–2007 was comparable to that in the years 1993–1998 (cf. Table 4.2; more in Błaszkiwicz-Schwartzman, 2008). It is nevertheless noteworthy that adoption of the single currency resulted in a reduction of volatility of real exchange rates in all euro area Member States, particularly in countries with the highest exchange rate volatility, e.g. in Finland or Italy (Barrell et al., 2008). Thus, Poland should also expect endogeneity of convergence in this respect.

The volatility may stem from the nominal or the real sector of the economy.

In the light of the OCA theory, it may be said that high real exchange rate volatility proves it plays the role of an absorber of shocks in the Polish economy. Modern currency markets undergo constant globalisation which results in an increasing mobility of international capital flows. As an effect, the impact of financial turnover on exchange rates increases, therefore exchange rates increasingly mirror changes in a situation on financial markets and decreasingly react to shocks in the real economy (cf. Canzoneri, Vallés, Viñals, 1997; De Grauwe, 2000). Thus, in order to evaluate the role of an exchange rate in the economy, an analysis of types of shocks behind the high volatility

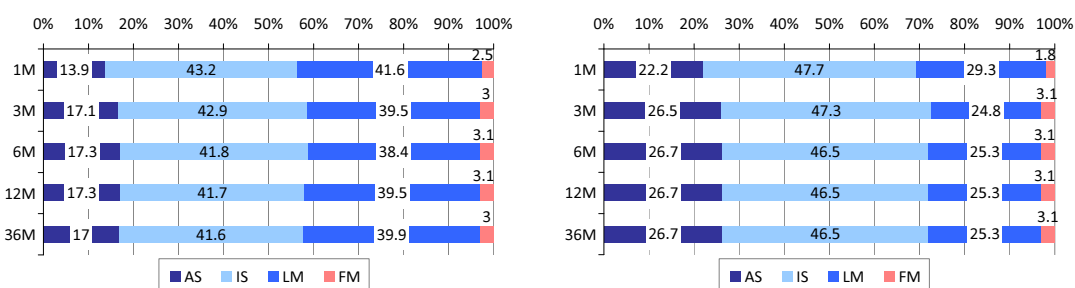
4.1 Long-term costs

of real zloty exchange rate in the period under analysis, presented in Table 4.2, must be conducted.

In the light of the Dornbusch model, as indicated above, an exchange rate may constitute an efficient mechanism absorbing both demand and supply real shocks (Stążka, 2008). Results of analyses conducted for the needs of this *Report* (cf. Błaszkiwicz-Schwartzman, 2008; Stążka, 2008) show that changes in the real and largely also in the nominal zloty exchange rate were determined by real shocks, similar as in the case of other countries in the region and euro area Member States prior to 1999. In the case of Poland, real shocks explain about 60–80% of real exchange rate volatility and about 50–70% of volatility of the nominal exchange rate (in a 12-month time span, cf. Chart 4.3). Thus, fixing the nominal exchange rate at accession into the euro area largely linked with fixing the real exchange rate (due to price stickiness) may be the reason behind an increase in fluctuations of the product, which should be treated as a cost of monetary integration.

Real zloty exchange rate is an absorber of real shocks.

Chart 4.3 Decomposition of variances of the real and nominal zloty exchange rate*



(a) Decomposition of real exchange rate variance

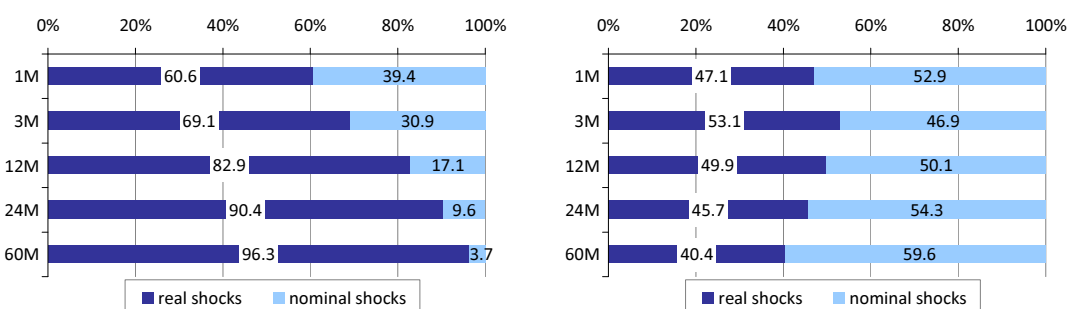
(b) Decomposition of nominal exchange rate variance

M – month

IS – demand shock, AS – supply shock, LM – monetary shock, FM – financial shock

* Mean values for model specification preferred in study I (as a result, values may not add up to 100).

Source: Stążka (2008).



(c) Decomposition of real exchange rate variance

(d) Decomposition of nominal exchange rate variance

M – month

Source: Błaszkiwicz-Schwartzman (2008).

The real exchange rate is also largely determined by nominal shocks, particularly in the initial period following the shock (about 40%) and nominal exchange rate volatility can be attributed to those shocks in ca. 30–50% of cases (cf. Błaszkiwicz-Schwartzman, 2008; Stążka, 2008). Other studies which include Poland in their scope show that nominal shocks have a significant share in the volatility of the nominal and the real zloty exchange rate (over 40% according to Darvas, Szapáry, 2008). This may mean that even as the zloty exchange rate is a mechanism which absorbs real shocks, resignation from

Nominal shocks also have significant influence on zloty exchange rate volatility.

independent conduct of monetary policy should not be regarded solely as renouncing the possibility to use exchange rate volatility as absorber of shocks which have an adverse effect on the economy, since such resignation provides a chance of avoiding costs generated by large fluctuations of the nominal exchange rate unconnected with fundamental factors (Buiter, 2000; Mundell, 2003; Sławiński, 2008; also Stążka, 2008).

Volatility resulting from real asymmetric shocks sets the cost of losing the exchange rate policy.

Even in the case when the exchange rate plays the role of a shock absorber, resigning from the independent conduct of monetary policy would not trigger an increase in macroeconomic instability in conditions of symmetry of shocks in the Polish and the euro area economy (cf. Stążka, 2008).

Poland and the euro area differ widely in terms of the scope of symmetry of real shocks.

Results of an analysis of symmetry of shocks between the Polish economy and the economy of the euro area conducted for the needs of this *Report* (cf. Konopczak 2008a; Stążka, 2008) and of symmetricalness of economies' reactions to those shocks (cf. Adamowicz et al., 2008; Konopczak, 2008a) are ambiguous. The results proved no asymmetry of supply shocks, yet the values of their correlation with the euro area are very low (cf. Table 4.3) and in certain cases also statistically insignificant (cf. Konopczak, 2008a). As concerns the demand shock, results of individual analyses indicate significant asymmetry between the Polish economy and the euro area economy (cf. Table 4.3) or a positive (ca. 0.2) yet statistically insignificant correlation (cf. Konopczak, 2008a). While positive correlation of monetary and financial shocks was established unambiguously (cf. Table 4.3), the symmetry of those shocks is less significant from the point of view of the evaluation of the cost of resigning from an independent conduct of monetary policy, as stated above.

Table 4.3 Correlation of shocks between economies of Poland and the euro area

Correlation	IS	AS	LM	FM
maximum	-0.39	0.29	0.91	0.49
minimum	-0.88	0.16	0.15	0.30

IS – demand shock, AS – supply shock, LM – monetary shock, FM – financial shock
 minimum (maximum) – the minimum (maximum) value of correlation coefficient for all model specifications

Source: Own study on the basis of Stążka (2008).

Adoption of the euro may trigger an increase in product volatility.

This means that adoption of the single currency may result in an increase in product volatility if the convergence of symmetry of real shocks between Poland and the euro area fails to come about (cf. Diagram 4.2). This would happen in the case of insufficient efficiency of adjustment mechanisms alternative to monetary policy, such as a flexible market of labour and products, fiscal policy, or the financial channel (see Chapter 5). One must also remember that the adoption of the euro may be conducive to an increase in convergence of economies (convergence endogeneity hypothesis). In such a situation, taking into account similarity of reaction of the Polish economy and the euro area economy to real shocks (cf. Table 4.4¹⁹), resignation from the liquid exchange rate system would not trigger an increase in product volatility in Poland.

¹⁹ Strong negative correlation of GDP response to those shocks was obtained for certain specifications of the SVAR model; more in: Adamowicz et al. (2008).

4.2 Medium-term threats

Diagram 4.2 Costs of resigning from an independent conduct of exchange rate policy in Poland

shock	share in exchange rate volatility	shock symmetry	integration effect
AS	+	+*	0/-
IS	+	-	-
LM	+	+*	+
FM	-	+*	0

“+” – the shock has a significant share in volatility of real exchange rate / the shock is symmetrical / resigning from a flexible exchange rate will constitute a benefit of monetary integration;

“-” – the shock has an insignificant share in volatility of real exchange rate / the shock is asymmetric / resigning from a flexible exchange rate will constitute a cost of monetary integration;

“0” – the effect of resigning from a flexible exchange rate will have a neutral impact on the balance of costs and benefits of monetary integration.

AS – supply shock, IS – demand shock, LM – monetary shock, FM – financial shock

* average result on the basis of studies: Adamowicz et al. (2008); Konopczak (2008a); Stążka (2008)

Source: NBP study.

Table 4.4 Correlation of GDP response to real shocks in Poland and in the euro area

Correlation	IS(1)	IS(2)	AS(1)	AS(2)	Correlation	IS(3)	AS(3)
maximum	1.00	0.31	1.00	1.00	unit shock	0.9	0.8
minimum	-0.99	-0.67	0.94	0.99	common shock	0.9	0.8

IS – demand shock, AS – supply shock

(1) – the SVAR model with an unemployment rate, (2) – the SVAR model with a GDP deflator (Adamowicz et al., 2008)

minimum (maximum) – the minimum (maximum) value of correlation coefficient of responses to a unit shock for all model specifications

(3) – the SVAR model with a GDP deflator (Konopczak, 2008a)

Source: NBP study based on Adamowicz et al. (2008), and Konopczak (2008a).

4.2 Medium-term threats

4.2.1 Threats connected with adopting a non-optimal conversion rate

Poland's entry into the euro area will demand setting a conversion rate at which the domestic currency will be replaced by the euro. As it was already mentioned, the rate will be set by the Ecofin council after it makes the decision on lifting the derogation. According to the European Central Bank (2003b), it should not be assumed that the initial central rate in the ERM II would become the final conversion rate when adopting the euro, particularly in the case of catching-up economies. This is due to the fact that the adoption of the conversion rate at an optimal level is significant from the point of view of the Polish economy and the Polish society, as well as other economies of the euro area.

The conversion rate should be set at equilibrium level.

Adopting the conversion rate at an undervalued level in relation to the equilibrium exchange rate (cf. Section 4.3.1) may result in overheating of the economy and an excessive inflation pressure stemming from both high import prices and demand pressure. Expensive import would negatively influence innovation of the Polish economy as an importer of new technologies, thus limiting the economy's development potential in the longer run. Setting a weak conversion rate between the zloty and the euro would also bring about negative consequences for relative purchasing power of Poles since

Undervalued conversion rate may accelerate inflation...

as a result, wages in Poland would be lower than at the conversion rate set at the equilibrium exchange rate.

...although it would improve competitiveness of the Polish economy in the short run.

On the other hand, setting an undervalued conversion rate would have negative consequences in terms of relative competitiveness of other euro area economies due to its positive influence on Polish terms of trade. The strong inflation pressure mentioned above would be inconsistent with the assumptions of the ECB monetary policy.

Revalued conversion rate would result in a decrease in competitiveness in the short run...

Adopting the conversion rate at a level revalued in relation to the equilibrium exchange rate may in turn result in lower competitiveness of the economy and, in consequence, in a decline in exports and an increase in imports (increase in currency account deficit). Additionally, economic activity would be negatively influenced by low profitability of business activity discouraging investment in the trade sector and conducting to a decrease in employment and pace of economic growth.

...leading to a decline in prices and wages at a later stage.

On the other hand, revaluation of the domestic currency would have a positive yet short-term impact on the level of prices, wages, disability pensions, pensions, welfare benefits, etc. provided in the euro. In the long run however, the exchange rate is expected to return to the equilibrium level, which would take place as an effect of price adjustments (decrease) and subsequently an appropriate change in wages (also a decrease) with a fixed nominal exchange rate. As a result, the adoption of the revalued conversion rate would bring about a slowdown of economic activity, including an increase in unemployment.

From the point of view of other euro area Member States and the ECB, setting the revalued conversion rate appears to be beneficial. On the one hand, it would relatively increase their competitiveness in foreign trade, while on the other, it would ensure low inflation in a new euro area Member State desired by the ECB. However, bearing in mind that adopting such a conversion rate would result in lower pace of development of the economy and a deceleration of real convergence (which is of particular importance in the case of new EU Member States), from the point of view of the euro area as a whole it would be beneficial to adopt the conversion rate at an equilibrium level in the long run, thus limiting the currency area heterogeneity (or at least retaining it unchanged).

Conversion rate influences the scale of price effects of rounding.

Additionally, when establishing the replacement rate between the zloty and the euro, one has to consider that it will influence price effects of rounding, as indicated by results of studies conducted for the needs of this *Report* (cf. Rozkrut, Jakubik, Konopczak, 2008). It was estimated that adopting an increasingly weak conversion rate (in nominal terms) triggers an increase in the price effect. The relation is, however, not linear and in certain cases weaker nominal exchange rate may lead to a decrease in the price effects of rounding, particularly at a non-round replacement rate (Rozkrut, Jakubik, Konopczak, 2008). The effect, although short-term, is of high social importance due to its impact on perception of inflation and thus the euro. When establishing the zloty conversion rate towards the euro, one must consider the fact that slight differences of the conversion rate may lead to significant differences in price effects of rounding.

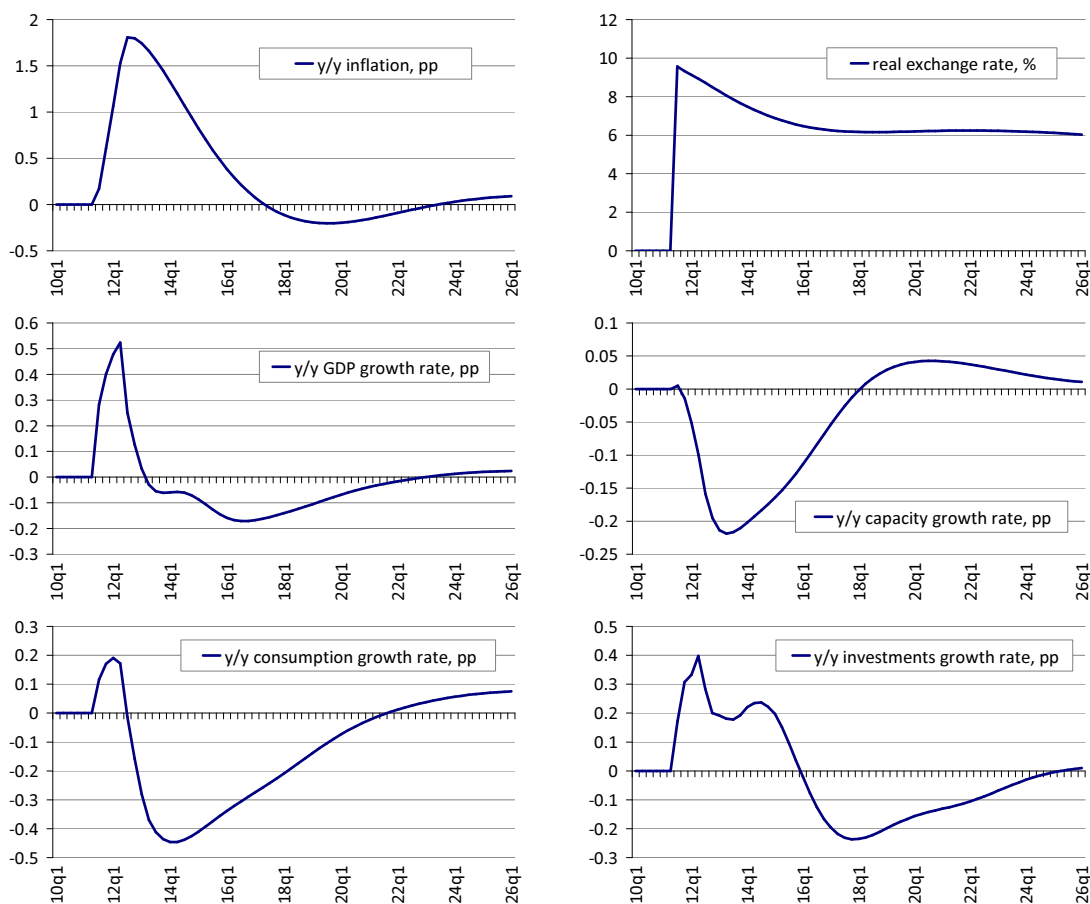
Adopting the conversion rate at a non-optimal level may limit development capacity of the economy.

Results of simulations on the basis of the Necmod model conducted for the needs of this *Report* show that establishing the zloty-euro conversion rate at the level significantly different than the equilibrium exchange rate would result in lowering the potential product and GDP growth rate. Weak conversion rate (undervalued by 10% in relation to the equilibrium exchange rate) initially boosts export and import prices and improves the balance of trade. Yet with quasi-exogeneity of the ECB interest rate, higher inflation (by ca. 1.8 pp as compared to the basis scenario) would result in a decline in real interest rates conducive to an increase in investments, consumption, and import growth rate in

4.2 Medium-term threats

the short run. Due to the fact that inflation leads to a decrease in real disposable income and an increase in production costs, the decline in consumer demand and investments would result in lower potential product in the longer run. As a result, after eight quarters the GDP growth rate would be lower than if the conversion rate had been set at equilibrium (cf. Chart 4.4).

Chart 4.4 Effects of setting the conversion rate at a level undervalued by 10% (higher than the base rate)



Source: Necmod model.

Simulations held under the Necmod model also show that the effects of adopting the conversion rate at the revalued level (by 10% in relation to the equilibrium level) are similar disregarding the sign. This means that the lower level of prices in Poland would translate into an increase in the real interest rate, thus limiting domestic demand and resulting in a slowdown of economic activity, accompanied by a decrease in employment and an increase in unemployment.

4.2.2 Risk of deterioration of Polish economy's competitiveness

As already mentioned, earlier accession to the euro area will be connected with losing autonomous conduct of monetary policy. In this context, the pace of price and wage increase will be specifically important. A too fast pace of the increase in prices of goods, services, and wages as compared to the capacity of the economy can translate into an increase in unit labour costs and thus into deterioration of international competitive position of the Polish economy.

The process of price and wage convergence is significant to Poland's accession to the euro area.

Further increase in prices and wages in Poland may result from the Balassa-Samuelson effect...

Literature stresses that changes in price levels which may occur after Poland's accession to the euro area can be attributable to supply factors (Balassa-Samuelson effect), demand factors (changes in consumer preferences), and to an increase in openness of the economy (Woźniak, 2008; Dreger et al., 2007; and Lein-Rupprecht, León-Ledesma, Nerlich, 2007). On the basis of Balassa-Samuelson hypothesis, further increase in labour productivity expected in subsequent years will translate into further increase in wages and prices in the Polish economy, although estimates to-date show that the effect is relatively insignificant in new Member States (Egert, 2007).

...but an increase in productivity may also limit price pressure due to an increase in competition.

The theory of economics also lists arguments for negative impact of an increase in productivity on prices. An increase in productivity resulting from the process of real convergence may lead to an increase in competition, which may translate into a decline in prices in Poland through the reduction of costs and margins (Lein-Rupprecht, León-Ledesma, Nerlich, 2007).

Intensification of trade reduces price pressure.

The effect is even more significant if accompanied by an increase in trading. Literature points to an important relation between the level of economic development measured with GDP per capita and openness of the economy (Lein-Rupprecht, León-Ledesma, Nerlich, 2007). Real convergence processes resulting in an increase in productivity may lead to an increase in specialisation and enhancing openness of the economy. Results of studies conducted for the needs of the *Report* show that the degree of openness of economies has a significant impact on prices of consumer goods and services in new Member States (Woźniak, 2008). Analyses indicate that an increase in openness of economies in the years 1995–2007 translated into lower growth rate of relative prices of consumer goods and services.

Changes in consumer preferences may also lead to an increase in prices.

Apart from the Balassa-Samuelson effect, which is a supply effect, changes to price levels in Poland after its accession to the euro area may also be a result of demand factors connected primarily with changes in consumer preferences (Woźniak, 2008, and Egert, 2007). Increase in the level of economic development due to real convergence process and subsequent increase in income of citizens triggers a change in the structure of the consumption basket. Following an increase in income, the share of spending on consumer staples decreases and the share of spending on consumer discretionary, for which the income elasticity index is higher, increases²⁰.

The euro does not impact the medium-term inflation increase...

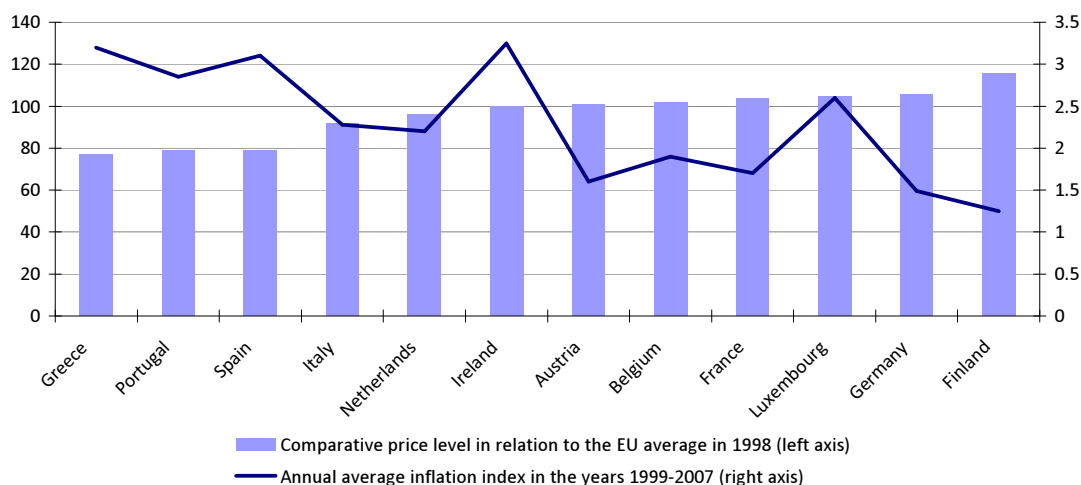
Results of a study by Konopczak, Rozkrut (2008) show nevertheless that in the medium term, introducing the single currency into cash circulation in euro area countries was not conducive to accelerating the growth rate of overall price level (measured with HICP inflation). Lack of medium-term influence was also observed in the case of growth rate of service prices (prices increased faster than they would according to fundamentals only in the case of restaurants and hotels section in certain years after the replacement – years 2002 and 2004). In the case of consumer goods, price growth rate accelerated significantly in the euro area since 2002, which cannot be attributed to fundamental factors. The increase in growth rate of food prices was not permanent, yet in certain years following the replacement (2001 and 2003) price effects were significant.

The introduction of the euro was not conducive to accelerating the process of convergence of the overall price level in euro area Member States (Konopczak, Rozkrut, 2008). The only exception was the category of consumer goods in the case of which states with lower prices saw higher growth rate than expected on the basis of fundamental factors (cf. Chart 4.5). This may result from greater transparency of prices

²⁰ The effect is also referred to as the Linder hypothesis (Woźniak, 2008, and Lein-Rupprecht, León-Ledesma, Nerlich, 2007).

4.2 Medium-term threats

Chart 4.5 Relative prices (in 1998) and the inflation rate (in the years 1999–2007) in euro area countries



Source: NBP study based on Eurostat.

and mitigating exchange rate risk after the states adopted the euro area, which could have led to price arbitrage.

The study by Woźniak (2008) analyses the medium-term net impact of introducing the single currency on the relative price levels in euro area countries (Comparative Price Level, CPL). Results of the study suggest that the parameter of the variable mirroring introduction of the euro was statistically insignificant when taking into account control factors determining CPL level. Thus, establishment of the euro area was not of significant influence on the overall price level or on the level of prices for services in Member States. In the case of price levels of consumer goods, the impact was significantly negative. This means that entry into the euro area triggered an impulse which lowered price growth rate by an average of almost 2 pp (as compared to the basis scenario) in the years 1999–2007. The strongest impact was visible in relatively poorer countries – Portugal, Greece, Spain, and Italy – but the very impact of introduction of the euro into cash circulation in 2002 turned out insignificant in this respect. Analyses stress that the increase in competition, triggered by eliminating exchange rate risk and enhanced price transparency, could have been the channel of impact of monetary integration on price level of goods.

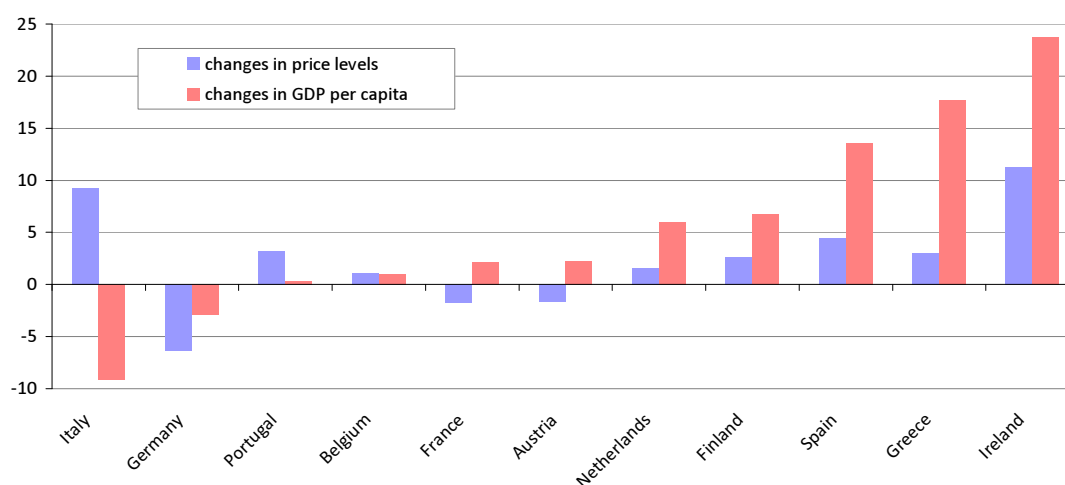
...or the overall price level in the euro area as a whole.

Experience of euro area countries shows that in the majority of cases, changes to Comparative Price Level which took place in the years 1999–2007 were a result of changes to relative GDP level *per capita* (cf. Chart 4.6). Only in Italy and Portugal the changes in prices were not a result of real convergence processes. The significant price increase which took place in Italy in the period under analysis (by 9.2 pp) was accompanied by a decline in the relative level of GDP *per capita* (by 9.1 pp). In Portugal, the level of relative GDP *per capita* increased, yet the price increase which took place in the years 1999–2007 was much higher (by 0.3 and 3.2 pp, respectively).

In the light of the studies, the risk of excessive price increase following Poland's accession to the euro area seems slight. Further increase in the average price level in Poland will largely result from further real convergence (increase in economic development level).

The risk of excessive increase in prices and wages is slight.

As stressed by e.g. the European Commission (European Commission, 2008a), the above changes have been and will be a natural consequence of the process where the level of Poland's economic development approaches the level of more developed countries and

Chart 4.6 Changes to the price level and relative GDP *per capita* in euro area Member States

Source: Woźniak (2008).

thus should not translate into worse economic stability or international competitiveness, they should not negatively impact the standard of living either.

Price increase resulting from the credit boom is less nagging than the benefits of integration...

The reason behind excessive increase in prices and wages may not be the direct difference between their levels in Poland and the euro area. Quick price increase may also stem from the credit boom triggered jointly by real convergence and monetary integration. Lower nominal interest rate implies emergence of long-term demand gap under the DSGE model applied in the study by Koloch (2008). According to Koloch (2008), the impact of interest rate convergence play and the resulting credit boom on social loss²¹ is still slight and amounts to 1.0–1.4% of long-term positive effects of adoption of the euro, according to Daras, Hagemeyer (2008).

...and the less nagging, the faster the real convergence.

According to the author, factors which additionally limit the loss could be: accession to ERM II earlier than expected by international financial markets or a faster increase in labour productivity, and thus implementing the real convergence scenario at an earlier date. The former factor would allow limiting the scale, which would restrict convergence play, although according to Koloch the scenario seems difficult to implement. The second factor would limit the period of structural inadequacy of interest rate in the catching-up economy. Yet each of the factors limits social loss (cf. Table 4.5).

Table 4.5 Comparison of social loss in different scenarios of monetary integration and real convergence

	No interest rate convergence play throughout the period of real convergence	Interest rate convergence play
Real convergence by 2050	0.55%	0.66%
Real convergence by 2035	0.45%	0.53%

Source: NBP study on the basis of Koloch (2008).

²¹ Koloch identifies social loss with oscillations of production and inflation around equilibrium level.



Changes in wages and labour costs in the euro area

A too fast increase in real wages as compared to labour productivity is the factor which may result in decreasing the competitiveness of the Polish economy. A too fast pace of price increase in relation to the capacity of the economy may limit increase in employment (cf. Box 4.4).

Box 4.4 The notion of wage gap

The wage gap is the difference between the actual wage rates in the economy and the wage rate which guarantees full employment (Backhouse, 1991). The concept was devised in the framework of the neoclassical theory. On its basis, it is assumed that every economy has a real wage rate which ensures full employment at the given workforce capacity and given level of productivity.

As long as relation of real wages to labour productivity remains unchanged, the labour resource (*ceteris paribus*) is stable. If, on the other hand, real wages rise at a faster pace than labour productivity, employment decreases (cf. Kwiatkowski, Tokarski, 1995, or Backhouse, 1991).

If the wage rate exceeds the wage rate ensuring full employment due to a fast wage increase, the employment level will be lower than full employment (wage gap; cf. Backhouse, 1991).

The wage gap in the economy results in demand for labour remaining at a level lower than labour supply, which results in neoclassical unemployment. Increase in real wages in the economy is thus economically justified only in conjunction with increasing labour productivity.

Source: NBP study.

In line with projections made prior to 1999, wages in euro area countries increased at a pace described by the European Commission (2006f) as ‘under control’ in the initial years of euro area’s existence. The question frequently arises whether the monetary union had its share in the process and if so, in what way? The gradually acquired credibility of politically independent monetary authorities of the euro area could have played the key role (Posen, Gould, 2006). Trade unions also feared losing competitiveness of economies in conditions of enhanced comparability of labour costs and intensification of trade. There was no all-European strong trade union comparable to the ECB in terms of the scope of its activity. Regardless of establishing the euro area, moderate pace of price increase was also due to an increase in competitive pressure, which was a result of including emerging markets into global economy.

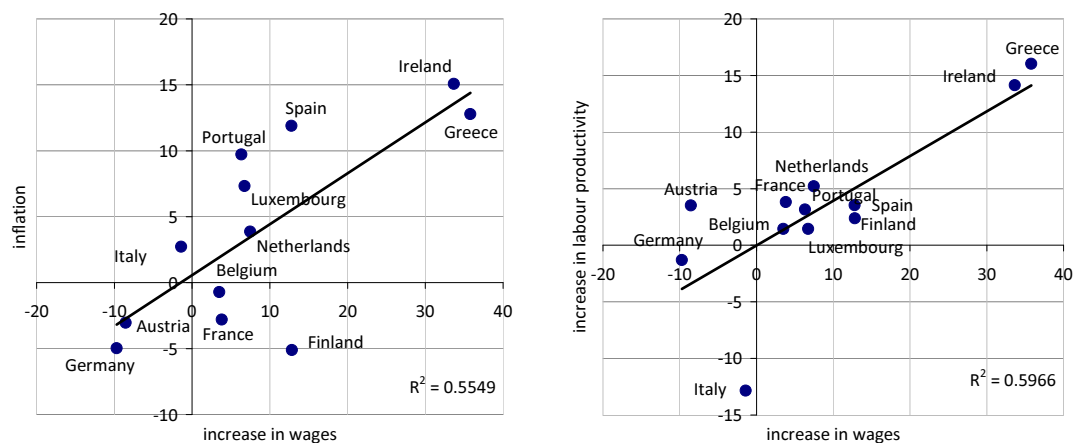
Pace of wage increase was under control in the initial decade of the euro area.

Retaining competitiveness of labour costs by a state-member of a monetary union currently requires that diversification of growth rate of wages results from diversification of labour productivity growth rate and the channel of real exchange rate is adapted to shocks. Not every increase in wages translates into deterioration of price competitiveness of exporters from the given country. Producers would not have to increase their prices if higher wages of employees are accompanied by an appropriate increase in productivity of labour, i.e. if unit labour costs remain unchanged.

Competitiveness is not threatened when wage growth rate corresponds with labour productivity growth rate...

Institutions which weaken the relation also hinder the adjustment process. The European Commission (2008b) pointed to the case of Portugal, where fast increase in

Chart 4.7 Growth rate of wages in euro area countries in the years 1999–2007



(a) In relation to prices

(b) In relation to unit labour costs

Increase in wages, labour productivity, and consumer prices in the years 1999–2007, percentage points of deviation from the average for the euro area.

Source: Eurostat, NBP study based on Andersson et al. (2008).

wages prior to euro area accession led to the very labour market being a source of shock. A similar situation occurred in Italy after the euro area has been established. When the growth rate of wages permanently diverges from labour productivity, divergences in respect of unit labour costs translate directly into deteriorating the given country's competitive position towards other members of the monetary union. It happens when competitive depreciation (devaluation) is impossible (Andersson et al., 2008).

...but in the euro area, though increases in wages and prices are closely related...

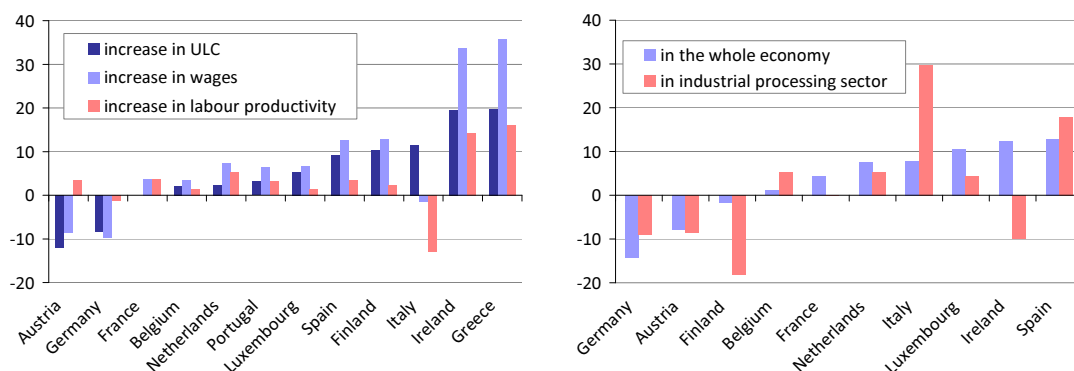
The impact of price forming on external competitiveness of states substantiates strong link between nominal wage growth rate and price growth rate. The left panel of Chart 4.7 presents a cumulated increase in prices and nominal wages in the years 1999–2007 in 12 euro area states. Dots which stand for respective countries show deviations from the average increase in wages and prices for the euro area as a whole. Strong diversification between respective states in terms of variables under analysis is particularly visible. There is a group of countries which experienced a slight decrease in prices and nominal wages as compared to the average growth rate in the euro area (Germany, Austria) and a group of countries where prices and wages increased at a considerably faster pace than in the monetary union as a whole (Ireland and Greece). Generally speaking, the growth rate of nominal wages seems strongly linked with price growth rate.

...wage growth rate corresponds less with labour productivity growth rate.

The link between wage growth rate and growth rate of labour productivity is quite different (right panel of Chart 4.7). Andersson et al. (2008) analysed the diversification of wage growth rate in individual euro area countries in great detail. They discovered not only the limited degree of relation between trends in wages and labour productivity, but also a marked decrease in diversification of nominal wages growth rate in the second half of the 1990s. The authors stated that convergence of wage levels was a factor which was considerably conducive to the diversification prior to establishment of the monetary union, but not in the last decade. Due to excluding Ireland and Greece (countries which saw strong catching-up effects in the last decade) from the sample it is difficult to notice the relation between wage growth rate and labour productivity. This means that significant shifts took place in the competitive position of individual countries which may have sourced from insufficiently flexible labour markets which did not allow adapting wage growth rate to labour productivity growth rate, at least at the



Chart 4.8 Divergences of unit labour costs in euro area countries in the years 1999–2008



(a) Change in ULC according to sources of growth rate

(b) Change in ULC according to respective sectors

Source: NBP study based on European Commission (2008b), p. 60; OECD.

macro level. In Italy in the years 1999–2007, the relative labour productivity declined considerably with wage growth rate almost equal to the euro area average.

Chart 4.8 presents the growth rate of unit labour costs in the years 1999–2007. The left panel additionally presents the issue of divergence of unit labour costs which was discussed in great detail in connection with the previous Chart: bars present the growth rate of unit labour costs as a difference between growth rate of wages and productivity (lines) cumulated in the years 1999–2007 and expressed as deviation from the euro area average. The group of countries which experienced a considerable increase in unit labour costs throughout the economy comprises the two countries in the catching-up process (Ireland and Greece) as well as Italy which saw a considerable decrease in labour productivity as compared to the euro area average, with constant relative price growth rate.

Fast catching-up by Ireland and Greece, decrease in productivity in Italy.

In the context of the said Balassa-Samuelson effect, the second chart is significant as it presents the cumulated change in relative unit labour costs for the whole economy and in industrial processing sector treated as an approximation of the tradables sector in literature (see e.g. European Commission, 2006c). Deterioration of competitiveness in the sector in the period under analysis assumed a more severe form than in Italy, while unit labour costs in industrial processing increased more than in the whole economy in Spain and Belgium. Improvement in competitiveness in respect of labour costs in Dutch industrial processing sector had greater reach than in the whole economy of the country. In the case of Ireland, the difference is even qualitative: although unit labour costs for the whole economy indicate relative deterioration of competitiveness, the relation of wage growth rate and productivity in industrial processing alone was favourable to all producers. The data prove diversification of growth rate of unit labour costs between sectors in individual countries and suggest particular caution when drawing conclusions on a change in competitive position of the country as a whole on the basis of data for the whole economy.

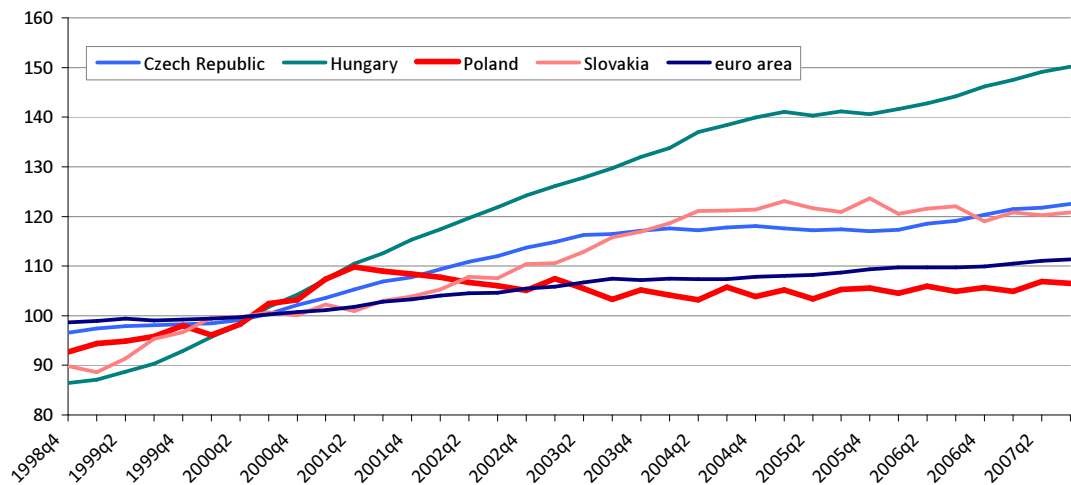
ULCs in industrial processing change differently than in the whole economy.

Changes in labour costs in Poland

Throughout most of the period of transformation of the Polish economy, growth rate of labour productivity was higher than the growth rate of real wages (GUS data). Strong migration processes which took place past 2004, accompanied by marked revival of the

Fast increase in wages in Poland in the recent years.

Chart 4.9 Growth rate of labour costs in Poland as compared to selected countries in the region and the average growth rate of labour costs in the euro area in the years 1998–2007 (2000 = 100)



Source: OECD.

Polish economy, resulted in shortage of labour in certain industries and professions, thus triggering pressure on high increase in wages (European Commission, 2008a). As a result, nominal labour costs which declined or remained stable in previous periods, started to grow in 2007 (cf. Chart 4.9).

Increase in wages may result from an increase in labour productivity...

Wages may also increase due to the Balassa-Samuelson effect, and the pressure on wage increase may result from the expected acceleration of economic growth due to an increase in investments. The benefits expected after Poland's accession to the euro area discussed above, which result from an increase in investments, particularly direct foreign investments, may translate into an increase in labour productivity and trigger an increase in international competitiveness of the Polish economy.

...but also from alignment of wages between sectors...

Increase in labour productivity may nevertheless also result in increase in wages not only in sectors where the increase in productivity will take place but also in other sectors. If the wage growth rate is higher than the labour productivity growth rate, unit labour costs will increase and the international competitiveness of the Polish economy will deteriorate. The cost of factors of production is of utmost importance from the point of view of investment decisions (European Commission, 2004b, p. 107).

...and from low effective labour supply.

Persistence of low effective labour supply in Poland may have negative significance in the context of too fast increase in wages and prices. Persistence of low effective labour supply may translate into further increase in wages in the Polish economy which does not result from an increase in labour productivity, which may be conducive to an increase in unit labour costs and deterioration of the competitive position of the Polish economy.

Risk of deterioration of competitiveness of the sector of enterprises

Major fears of enterprises concern the risk of price increase and increasing competition.

The risk connected with too fast increase in prices and wages, discussed in the previous section, is of significance to the level of competitiveness of the Polish sector of enterprises. As evidenced by results of the survey of the Polish enterprise sector carried out by the National Bank of Poland, major fears of Polish enterprises concern

4.2 Medium-term threats

the expected increase in prices and in competition following Poland's accession to the euro area (cf. Puchalska, 2008)²².

Out of the sample, 6.9% of respondents claimed that adoption of the euro would have negative consequences for their company, and negative opinions were more frequent in the sector of small enterprises (more in: Puchalska, 2008). Indicating the reasons behind their fears, respondents most frequently mentioned: an increase in prices (38% of respondents who indicated negative consequences of euro area accession), an increase in competition (15%), and enhanced wage pressure (11%; all data taken from: Puchalska, 2008).

As concerns the projected price increase, greater concerns were connected with an increase in prices of raw materials used for production (58% of enterprises project such an increase) than an increase in prices of products offered by industry in which the given enterprise operates (53% of companies in the sample). This shows that Polish enterprises fear worsening their competitive position as a result of their inability to increase prices, despite increasing prices of factors of production (more in: Puchalska, 2008).

The second most frequently invoked factor which may result in deterioration of competitiveness of enterprises is the increase in competition expected by enterprises following euro area accession. 50% of respondents expect an increase in competition following adoption of the euro and 15% of business owners expect the increase in competition to negatively impact the situation of their companies (Puchalska, 2008). Apart from an increase in prices and competition, enterprises also fear higher wage pressure (11% of enterprises voiced such concern).

Survey results indicate that an increase in competition is feared more by companies already present in the EU market than those operating solely on the domestic one. The fears may be connected with the expected increase in the number of Polish exporters, currently absent from the Community market due to high exchange rate risk and high costs of exports (more in: Puchalska, 2008).

Experience of euro area countries

Evaluation of the impact of adoption of the single currency on the level of competitiveness of the sector of enterprises²³ in the euro area is ambiguous. Analyses of changes in competitiveness of the enterprise sector in current euro area Member States are based on the use of changes in exports and in the level of productivity and unit labour costs. As indicated by studies (cf. Ministry of Economy, 2008a), introduction of the single currency was relatively beneficial to exports in economies which entered the monetary union. Average rates of export growth were higher in the case of euro area countries than in economies which remained outside the single currency area (Denmark, Sweden, and the United Kingdom)²⁴.

Yet, comparing changes in labour productivity in euro area countries and in those outside the area it can be noticed that the average annual increase in production in Denmark, Sweden, and the United Kingdom was higher than in euro area countries, save for the construction sector.

²² The survey was conducted by means of the questionnaire method in December 2007 and covered 1188 enterprises Poland-wide (more on the survey in Puchalska, Projekt13).

²³ Competitiveness of enterprises from a given country is their capacity to increase their share in sales of goods and services on the international market (Ministry of Economy, 2008a).

²⁴ Authors stress, nevertheless, that the results should be regarded with caution due to short time series (Ministry of Economy, 2008a)



Evaluation of the impact of adoption of the single currency on the level of competitiveness of the sector of enterprises in the euro area is ambiguous.

Also, analyses of data on changes in unit labour costs indicate that the annual rate of changes in unit labour costs in countries which adopted the single currency increased in seven cases out of twelve, in five cases it decreased, remaining at the highest level in: Greece, Spain, Portugal, and Italy. The rate of changes in unit labour costs decreased slightly in Denmark, Sweden, and the United Kingdom.

Risk of losing competitiveness by the sector of enterprises following Poland's accession to the euro area

Risk of deterioration of competitiveness is connected with potential price increase.

A problem raised in the context of risk of deteriorating competitiveness of the Polish enterprise sector is the risk of an increase in overall price level after euro area accession. It is stressed that adopting the single currency would eradicate nominal appreciation, so that real appreciation could only take place by way of an increase in inflation. For Polish enterprises, the potential increase in prices and wages may translate into an increase in production costs. Counteracting a decline in competitiveness due to real appreciation will then necessitate a high increase in labour productivity.

Risk of European Central Bank's monetary policy being not optimal is listed among other costs which may negative impact the competitiveness of the Polish enterprise sector, particularly the possibility of the monetary policy being too expansive. Studies show nevertheless that, in the case of Poland, if expansive monetary policy of the ECB would be conducive to considerable revival which would bring about a significant appreciation of real exchange rate, subsequent improvement of competitiveness of Polish enterprises would take place at a faster pace than in current Member States of the euro area.

Benefits of euro adoption may be large.

Study results show that the risk of deterioration of competitiveness of the Polish sector of enterprises is not high. Yet, the benefits of adopting the single currency may be significant for the sector. Analyses indicate, firstly, the benefits connected with eradicating transaction costs related to exchange of currencies, secondly, the benefits of mitigating exchange rate risk and lowering risk premiums which should lead to relative decrease in interest rates (more available investment loans), and reduction of costs of exchange risk precautions (an important aspect of stable operation of enterprises).

In the case of the Polish sector of enterprises, the benefits may be considerable as about 60% of payments are transfer payments in euro (Ministry of Economy, 2008a). This may thus be of significance to increase in competitiveness of Polish enterprises through permanent decrease in operating costs and an increase of profitability.

The benefits of Poland's accession to the euro area for the sector of enterprises may also result from the fact that companies which have business dealings with a number of European countries and have a number of currency accounts will be able to have only one account after the accession, which will facilitate the management of funds and lower the cost of bank account maintenance (Ministry of Economy, 2008a).

Analyses stress that the assessment of accession into the euro area should be favourable to competitiveness of the Polish sector of enterprises. Favourable perspectives are linked with higher increase in exports, lower unit labour costs, and reduction of operating costs. Also, strong persistent appreciation of the zloty is an important factor which decreases competitiveness of Polish enterprises. In the case of further strengthening of the Polish currency, remaining outside the euro area will therefore result in deterioration of competitiveness of Polish enterprises.



4.2.3 Threats connected with differences in inflation within the monetary union

The previous part of the *Report* has shown that different levels of economic development and different structures of economies may potentially result in differences in price growth rate between Poland and the euro area. Differences in inflation rates in individual countries of the monetary union are natural, yet they hinder adjustment processes to a certain extent. This section discusses the potential negative effects of potential differences in inflation rates between Poland and the euro area and attempts at their *ex ante* evaluation in the medium and in the long run. The problem will also be approached from the point of view of the conduct of the single monetary policy by the European Central Bank.

Inflation rate in Poland may differ from rates in other countries of the monetary union.

Consequences of inflation differences in real economy

Discussion on nominal divergences in the monetary union, including inflation differences, is centred on the question whether they hinder the conduct of the single economy policy for the euro area (and if so, to what extent). The difficulties stem from the fact that nominal divergences may entail consequences in real economy. The source of such impact may e.g. be inflation rate exceeding the average for the monetary union as a whole which emerged as a consequence of an asymmetric shock. It leads to a decrease in real rate in the country as compared to other euro area countries, thus resulting in faster growth of production than the capacity of the economy. On the other hand, nominal divergences are also the result of differences in real economy between euro area countries. Differences in inflation may result e.g. from diverse growth rates of labour productivity.

Nominal divergences may be a result as well as the reason behind real divergences.

Occurrence of nominal divergences, such as inflation differences, is significant from the point of view of their consequences for real economy. A decline in real interest rate in the given country triggers an increase in production. This is due to an increase of today's consumption at the expense of tomorrow's in households and higher motivation to invest in enterprises. Analogous reasoning concerns the impact of increase in the real interest rate on decline in production growth rate. If the diversified inflation rate translates into differences in inflation expectations (see Box 4.5), it leads to diversification of real interest rates with a nominal rate common for the monetary union. The diversification is pro-cyclical as the real rate is low in a country with an overheated economy, higher inflation and inflation expectations, which additionally stimulates business activity²⁵. It would launch a boom-bust cycle resulting from inadequacy of ECB policy to the needs of individual countries.

Different inflation expectations result in differences in real rates.

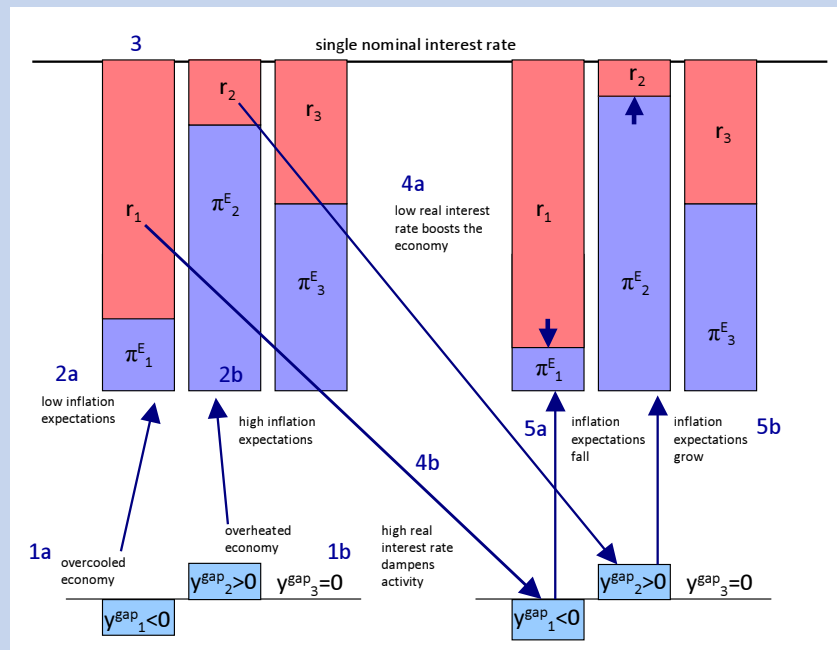
Box 4.5 Walters Critique and the boom-bust cycle

Real interest rate in the period t in the country j which belongs to the monetary union is a difference between the nominal rate i_t common for all countries and domestic inflation expectations $E_t\pi_{j,t+1}$.

²⁵ The range of cyclical fluctuations may be additionally widened by the financial cycle, the wealth effect, and short-sightedness of economic operators (Deroose, Langedijk, Roeger, 2004). Low real rate enhances the current value of future income and households are reluctant to expect a decline in growth rate of income in the future if it is high at present.

$$r_{j,t} = \frac{1 + i_t}{1 + E_t \pi_{j,t+1}} - 1 \approx i_t - E_t \pi_{j,t+1} \quad (4.1)$$

Inflation expectations are high (2b) in an economy with an open positive GDP gap (1b). If the single monetary policy reacts to events throughout the monetary union (3), the single nominal rate does not change significantly, so the real rate is low and widens the GDP gap even further (4b, 5b)^a. Analogous reasoning applies to a monetary union with a negative GDP gap (1a, 2a, 3, 4a, 5a).



According to Walters (1994), the mechanism was to prevent establishing the monetary union in Europe due to its internal inconsistency (“Walters Critique”).

^a For the purpose of diagram simplification, equality of interest rates in individual countries was assumed. In reality, the GDP gap is influenced by the deviation from the real interest rate from its natural rate in the given economy.

Source: NBP study on the basis of Torój (2008).

The boom-bust cycle probably occurred in Portugal and Spain.

Blanchard (2006) identified the boom-bust cycle in the euro area which may be permanent (see also Sławiński, 2008). According to Blanchard, the boom-bust cycle occurred to the greatest extent in Portugal, but also in Spain. Increase in labour costs and inflation in the period of high economic growth leads to strengthening of real exchange rate and lower competitiveness of the economy. If the growth rate of labour productivity is not sufficiently high to prevent increase in prices and real appreciation of the exchange rate, deterioration of competitiveness of the economy may turn out permanent.

Inflation expectations and natural rates are not observable.

Empirical assessment of the above mechanism is not easy, for a number of reasons. Firstly, real exchange rate *ex ante* (formula 4.1) is not observable as its calculation is based on knowledge of inflation expectations²⁶. According to certain estimates, diversity

²⁶ As opposed to real interest rate *ex post* calculated on the basis of actual inflation. The price growth rate between the period t and $t+1$ is not known by economic operators in advance when they make decisions on consumption and investments in the period t .

4.2 Medium-term threats

of inflation expectations may be different than that of inflation. European Commission (2006c) indicated that differences between inflation expectations in individual countries are lower than differences between HICP inflation. Thus, the real interest rate effect should have milder results than those resulting from the scale of inflation differences. Secondly, the deviation of the real rate from the natural rate for the given country is decisive of the impact on GDP gap, not the level of the real rate. The natural rate may be an additional source of heterogeneity (see Box 4.6). Considering the fact that in catching-up economies the natural rate may be higher, similar to the expected inflation rate, the real rate mechanism could be treated as even more pro-cyclical.

Thirdly, the above reasoning is based on a controversial assumption that inflation expectations are formulated on the national level. As Hofmann, Remsperger (2005) see direct relationship between foreign real rate and the domestic GDP gap and von Hagen, Hofmann (2004) claim the exclusive significance of the real rate calculated for the whole monetary union in the equation of domestic GDP gap, Arnold, Lemmen (2006) indicate the dominating role of the national real interest rate in forming the GDP gap. Further problems with research methodology are connected with heterogeneity of inflation expectations among different entities²⁷ and diversification of retail nominal interest rates. Despite certain differences discovered by the European Central Bank (2006a), e.g. higher retail rates in Greece, Portugal, or Italy, the impact of the diversification on heterogeneity of real rates is lesser than the impact of differences in inflation expectations.

Assuming that expectations are formed on the national level and that retail nominal rates are relatively non-diversified allows to isolate factors decisive of the scale of the real rate effect in the economy. The scale is the greater, the closer the link of the current or delayed inflation with inflation expectations, the higher the intrinsic inflation persistence (cf. Box 1.2), and the lesser the significance of rational expectations in forming the current price growth rate (Hoeller, Giorno, de la Maisonneuve, 2002; Deroose, Langedijk, Roeger, 2004; Roubini, Parisi-Capone, Menegatti, 2007). In view of minimising pro-cyclical effects, rationality of expectations with regard to other variables, such as future output from which inflation derives some of its persistence, is also important. The risk of greater output fluctuations is lower in large economies in the case of which response of the single monetary policy to potential asymmetric shocks is stronger. The impact of all the above factors is particularly strong when accompanied by high vulnerability of the GDP gap on domestic real interest rate.

On the basis of estimation results, Torój (2008) assigns the risk of real rate effect primarily to inflation persistence on the national level, and secondly to the degree of vulnerability of the national GDP gap to real interest rate calculated on the basis of national inflation expectations. Countries affected with the real rate effect to a greater or lesser extent, mentioned in empirical literature most frequently, are: Ireland (Honohan, Leddin, 2005), Spain (Lopez-Salido, Restoy, Vallés, 2005), Portugal, Netherlands, and Greece (Roubini, Parisi-Capone, Menegatti, 2007). In those countries, fast decrease in real interest rates coincided with an increase in GDP gap during the post-accession boom (Chart 4.10). Honohan, Leddin (2005) stress that the Irish economy experienced revival thanks to a decline in real interest rates, mainly due to the construction sector and the real estate market. In the above cases, decrease in real interest rates was linked with higher than average inflation in the euro area and dynamic decrease in nominal rates during preparations to establish the euro area. The real interest rate effect in the said euro area countries thus consisted mainly in fixing the effects of a decrease in

It is not clear whether inflation expectations are formed on the national level or higher.

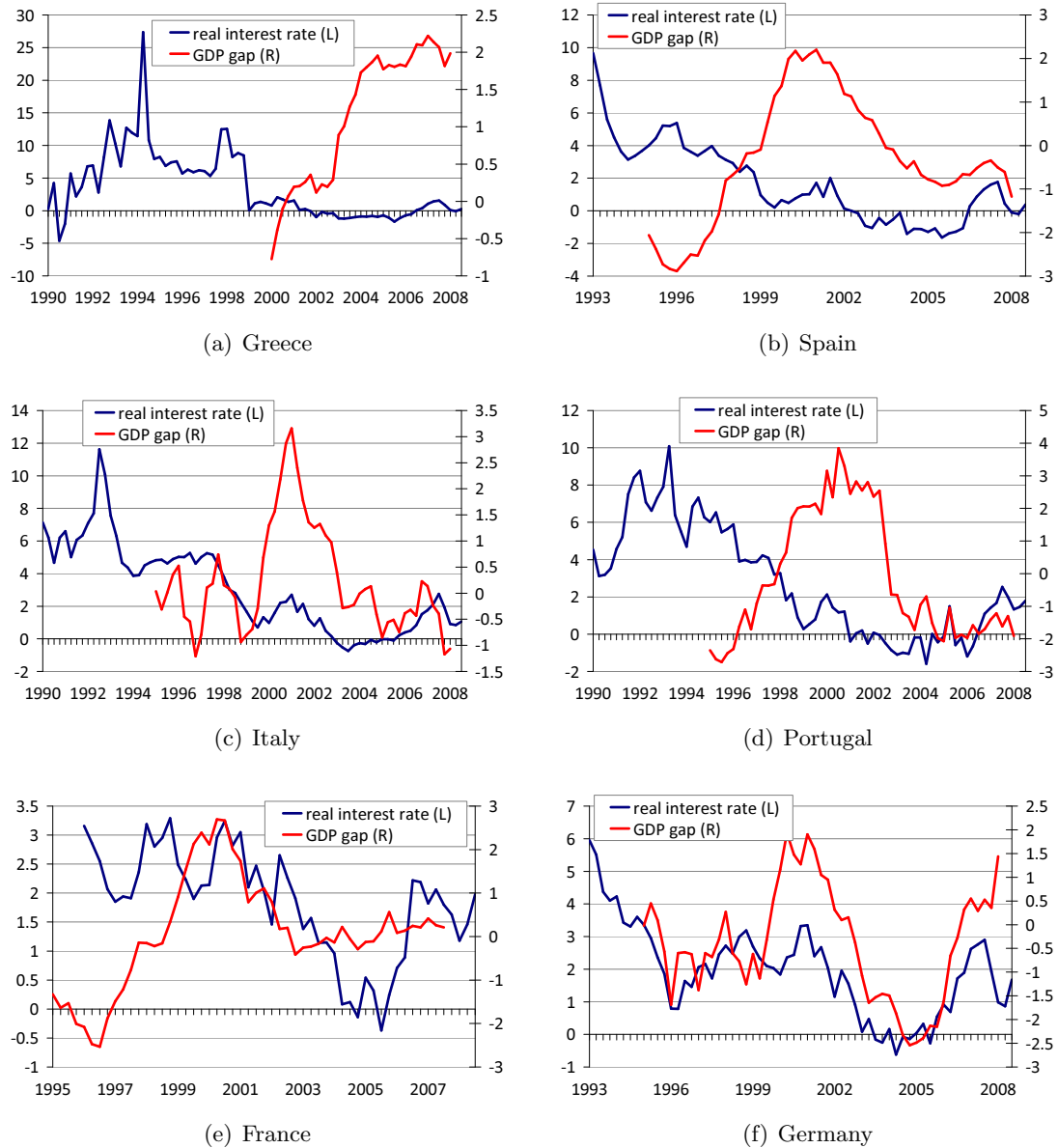
High degree of inflation persistence and low rationality of expectations are risk factors of the real rate effect.

Inflation differences retain effects of a decline in real rates in peripheral countries.

²⁷ As suggested by the European Commission (2006c, p. 138), they can be closer related to CPI in the case of users, PPI in the case of producers, and foreign indices in the case of exporters.

nominal rates thanks to higher and persistent inflation (Lopez-Salido, Restoy, Vallés, 2005).

Chart 4.10 Real interest rate and the GDP gap in selected euro area countries



Real interest rate *ex post* calculated as the difference between 3M money market rate and HICP inflation y/y in individual countries.

Source: Eurostat.

Inflation differences occur also in the long run.

Inflation differences occur also in the long run. Increase in inflation in one of the monetary union countries which takes place in the aftermath of an asymmetric shock may thus influence the real sector of the economy by lowering the real interest rate. Yet if the inflation rate increases, e.g. due to high increase in demand for production of the given country, the prices inevitable rise as equilibrium must be reinstated with the use of the competitiveness channel (see Section 5.2). In such a situation, pro-cyclical effects of influence of lower real interest rate result in slowdown of the adjustment process. Nevertheless, inflation differences do not result solely from asymmetric shocks and their accommodation. Due to structural differences of economies, also the long-term rate of inflation equilibrium may be diversified. Thus, discussion on the results of inflation

differences in the real sector demands differentiating between respective sources of the differences.

Reasons behind inflation differences in euro area countries

Literature enumerates a number of reasons behind nominal divergences, including inflation differences:

- **Degree of economic development.** The euro area comprises states at different development levels and with different output *per capita*. The relative price level is lower in economies with lower GDP per citizen in the catching-up process. Lower level of development is usually connected with higher growth rate of labour productivity, higher inflation (the Balassa-Samuelson effect²⁸ and convergence of price levels, see e.g. Egert, 2007; Hofmann, Remsperger, 2005) and higher rate of return on capital and expectations concerning growth in the future. The two latter factors could also suggest that natural interest rates are higher in less developed economies (see Box 4.6). Structural diversification of inflation and natural rates implies long-term diversification of real rates when nominal interest rates are common for the currency area²⁹.

There may be different reasons behind differences in inflation rates between euro area countries.

Box 4.6 Natural interest rate

The concept of natural interest rate is attributed most frequently to Wicksell (1907) who defined it as the level of real interest rates stabilising the level of prices in the economy. From the point of view of monetary policy, the natural interest rate is the level of real interest rate which neutralises the impact of monetary policy on output and thus stabilises inflation (Brzoza-Brzezina, 2003a). Despite the difficulty to measure the natural rate for economies, Brzoza-Brzezina (2003c) stresses the significance of the role the concept plays in the conduct of monetary policy based on direct inflation target strategy. The natural rate is an important part of the popular Taylor rule concept.

According to Wicksell's arguments (1907) on closed economy, permanent inadjustment of the nominal interest rate to the real rate results in throwing the economy off equilibrium and subsequently in price instability. One of the reasons behind such inadjustment may be accession of the economy to a monetary union which is heterogeneous in terms of natural rates. Yet, literature does not firmly agree as to the natural rate in an open economy. Brzoza-Brzezina (2003b) shows that in the case of accession of a country with a higher natural rate to a monetary union with lower natural rate, fixing the nominal exchange rate prevents inflation increase coupled with the nominal depreciation of the national currency.

The most important determinants of the natural interest rate in a closed economy are: time preferences of households, perspectives of increase in labour productivity,

²⁸ Estimates of the Balassa-Samuelson effect (see Box 2.4) for respective European countries are nevertheless diversified and bear considerable uncertainty.

²⁹ Detailed discussion of the impact of disproportions of economic development on diversification of price growth rate in the long run can be found in Section 4.2.2.

demographic trends, and shocks connected with fiscal policy (Woodford, 2003; Brzoza-Brzezina, 2003c; European Central Bank, 2004a). These factors may also imply diversity of natural rates between euro area countries, although only to the extent in which reasoning applicable to a closed economy is plausible in case of an open economy participating in a monetary union. Calculations by Catao, Mackenzie (2006) show that dispersion of natural interest rates of 10 euro area countries lies between 1.3% and 4.4%^a and the average of the estimates is ca. 2.9% and similar to calculations of the European Central Bank (2004a) for the euro area as a whole. ECB concluded that the natural rate declined to the level of ca. 2–3% in the years 1995–2004. Estimation for Poland by Brzoza-Brzezina (2003b) states the level was 4–6% in the years 1997–2002.

^a Data do not concern Greece and Luxembourg. Real equilibrium rate is implicated from the Gordon equation.

Source: NBP study.

- **Asymmetric shocks.** Asymmetric demand shocks result in differences in inflation pressure between individual countries. Asymmetric supply shocks, e.g. on the side of technology and labour productivity, also translate into diversified price growth rate. An asymmetric shock may originate from a number of phenomena, such as demographic factors or diversification of consumption structures and output. Ageing of societies at a varied pace and asymmetric migration profiles result in different growth rate of labour supply and its varied structure (cf. Lane, 2005b). According to Corsetti (2008), similarity of consumption structures is essential to cohesion of a monetary union. Lane (2005b) lists different production structures upon establishment of a monetary union as one of natural divergence sources. According to Krugman's (1993b) arguments, with ongoing economic integration, structures of production may differentiate in the long run, even if similar upon establishment of the union. This results from the possibility to deepen specialisation of countries, although the European Commission (2008b) stated, on the basis of correlation analysis, that such effects have not been observed in the euro area to-date. Langedijk, Roeger (2007) and Giannone, Reichlin (2006) stress that structural differences impact not only the probability of asymmetric shocks, but also their durability.
- **Functioning of adjustment mechanisms** (European Central Bank, 2005b; European Commission, 2006c). Launching adjustment processes is a consequence of an asymmetric shock in one of the economies in a monetary union. Inflation differences, which automatically result in appreciation or depreciation of real exchange rates, are an important element of the processes. Real appreciation allows stabilising output at the level of capacity in an overheated economy (see Section 5.2). In the case of depreciation in an overcooled economy, the situation is similar.
- **Legal and institutional diversification.** It results from differences in taxation rules, institutional environment of the market of goods and factors of production, or lack of coordination of reforms resulting from social and political differences (De Grauwe, 2006) and concerning particularly the labour market (see Chapter 5). Different levels of product and labour market flexibility and the resulting diversified reaction of wages and prices to shocks may fix inflation differences revealed in the aftermath of an asymmetric shock (see Campolmi, Faia, 2007).

As featured by Andersson et al. (2008), also the wage-forming mechanisms are diversified, which results in discrepancies in growth rate of an important element of corporate costs (cf. Strzelecki, 2008). This process in turn translates into diversification of price growth rate. Different transmission of common shocks also results from diversified mechanisms of monetary transmission or different preferences, or possibilities in respect of application of monetary policy (Traistaru-Siedschlag, 2006).

- **Intrinsic inflation persistence** (cf. Box 1.2) on the national level. Strong dependence of current price increase on inflation rates in previous periods, whose mechanism was discussed in detail in Section 1.3 for the euro area as a whole, can also show on the national level. In this situation, persistence fixes the effects of asymmetric shocks, extends the adjustment period, and even deepens divergences in the real sector of the economy. Giannone, Reichlin (2006) claim that permanence of inflation differences is higher in the euro area than in the United States. A number of empirical studies concentrate on higher inflation persistence in the sector of non-tradables. Langedijk, Roeger (2007) and van den Noord (2003) underline that this concerns particularly the real estate sector in countries where the tax system is conducive to growing speculative bubbles.
- **Diversified structure of foreign trade and transmission of changes in nominal euro exchange rate.** Different share of trade partners from outside the euro area (see Chart 5.10) in trade of respective states is responsible, to a certain extent, for heterogeneity of inflation in the euro area (see Honohan, Lane, 2004; Lane, 2005b; and Traistaru-Siedschlag, 2006). This results from the fact that depreciation or appreciation of the euro towards other currencies translates into an increase or a decrease in inflation pressure, respectively, to a different extent³⁰. Campa, Minguez (2006) also present empirical evidence for differences in the functioning of the exchange rate transmission mechanism in various euro area countries. Appreciations or depreciations of the euro translate into growth rate of prices of goods imported from outside the euro to individual countries in different ways.
- **Establishment of the monetary union.** One-off adjustment following the establishment of the monetary union was an important source of divergence in selected countries, as indicated by Langedijk, Roeger (2007) on the basis of a stylised New Keynesian DSGE model. The stimuli to trigger the diversification were: decline in risk premium of certain countries, adoption of conversion rates different than the equilibrium rate, or the impact of monetary integration on expectations of economic operators. The authors of the study show that a considerable part of macroeconomic divergences between euro area countries in the initial years of its existence can be attributed to adjustments to the above impulses.

Results of simulations show a particularly intensive effect of risk premium reduction (materialising as permanent decrease in interest rates by 0.5 pp) on the investment side, particularly in construction. Langedijk, Roeger (2007) attribute it to supplementing the capital resource in the economy until achieving the level appropriate to equilibrium, with the new interest rate corresponding with lower marginal capital productivity. The period of impulses withering away is the longer, the higher the cost of capital adjustment. The effect to consumption

³⁰ The problem will be discussed in greater detail when discussing the functioning of the competitiveness channel in Section 5.2.

growth rate is more long-lasting and fails to display tendencies to outpace the equilibrium level. An increase in consumption is accompanied by long-term deterioration of current account balance.

Due to all the above effects, the authors are inclined to describe a considerable part of divergences of investments, consumption, current account balances or inflation occurring in selected euro area countries as effects of adjustments following impulses resulting from the establishment of the euro area. Langedijk, Roeger (2007) show that the adjustments largely explain divergences of Ireland, Italy, Portugal, and Spain.

Perspectives of reducing differences in inflation between euro area countries

Inflation diversification was limited considerably prior to the establishment of the euro area.

In the light of heterogeneity of the euro area in terms of structure of economies, degrees of development, institutions, and the past of respective monetary regimes, it seems that occurrence of inflation differences between individual states is likely. Evaluating the scale of diversification, it is worthwhile to take into account the historical perspective of the very euro area, the dynamics of inflation differences against ongoing monetary integration, as well as comparison with other currency areas, e.g. the United States. The period of preparations to establish the euro area and the initial decade of its functioning saw not only disinflation and price stability at an aggregate level, but also reduction of diversification of national inflation rates. Standard deviation of inflation rates in individual countries decreased systematically since mid-1980s until the establishment of the euro area, following which it remained at its historical low (cf. upper panels of Chart 4.11). Similar tendencies can be observed in the case of the volatility indicator, which means that the reduction in inflation diversification was not only caused by a decrease in its overall level.

Past 1999, inflation differences have been decreasing very slowly.

The decrease in international diversification of inflation rates which occurred in the euro area in the last decade was much milder (cf. lower part of Chart 4.11). The range around average inflation, which is two standard deviations wide, narrowed slowly but systematically. The weighted and the non-weighted variation coefficient increased temporarily in 1999 (after the establishment of the euro area) as a result of easing after certain countries met the convergence criteria. Later, the coefficients nevertheless resumed their slow decreasing trend.

Convergence of inflation rates turned out relatively permanent, although its deviations are persistent in individual countries.

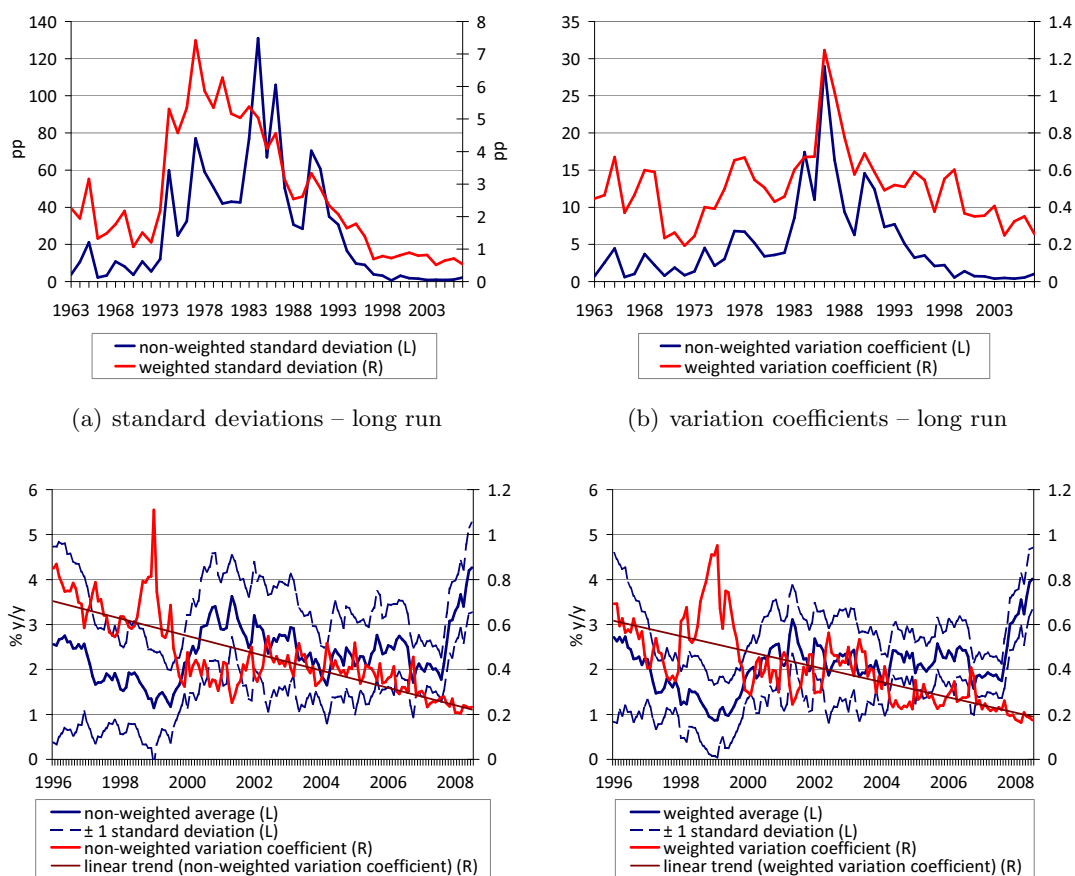
Reduction of diversity of HICP inflation rates turned out to be permanent (see Chart 4.11), particularly as compared to the scale of diversity of previous decades. According to the European Commission (2006c) and the European Central Bank (2005b), the scale of inflation rates diversity is currently comparable to that of the United States. Giannone, Reichlin (2006) nevertheless stress that the euro area has much higher persistence of inflation differences, i.e. positive or negative deviation from inflation of a single country from the euro area average is, on average, more prolonged.

Long-term inflation differences are inevitable with different development levels of states.

The occurrence of diversified inflation, persistence of deviations from inflation target at the national level and the effects in the real sector trigger the question about their implications for the future of the monetary union. Inconsistent pace of price growth resulting from convergence of price levels in the process of catching up with wealthier economies by those worse-off and the Balassa-Samuelson effect result in varied level of equilibrium inflation in individual countries. The catching-up process is long-term and the resulting inflation differences will continue until it occurs to a significant extent.



Chart 4.11 Diversification of inflation rates in selected euro area countries



Source: Eurostat.

From the point of view of conduct of the single monetary policy, they are not perceived as a problem which could or should be prevented.

Perhaps due to short sampling period, empirical studies carried out to-date do not nevertheless show explicit decrease in price dispersion between euro area Member States following the adoption of the single currency. Results of research by Engel and Rogers (2004) point to a decrease in diversity of prices in euro area countries in the years 1990-2003. Still, the convergence cannot be attributed to the establishment of the monetary union as most of the decline in dispersion took place in the first half of 1990s and the years 1998-2003 saw only a slight, though statistically significant, increase in dispersion indicator. Lack of price convergence as a result of the introduction of the euro is also indicated by Allington, Kattuman, Waldmann (2005), and Baye et al. (2002).

Results of a study on the introduction of cash euro on price processes in euro area countries (Konopczak, Rozkrut, 2008) indicate that the event was not conducive to acceleration of the process of overall price level convergence in Member States as compared to the countries which have not adopted the single currency. Similar conclusions concern levels of prices on services. The situation in the category of consumer goods was quite different as countries with lower price levels posted higher growth rate following currency replacement. This may have resulted from enhanced price transparency and exchange rate risk mitigation after the adoption of the single currency by euro area countries, which could have intensified price arbitrage.

Lack of evidence for faster decrease in price dispersion due to monetary integration.

Euro in cash circulation did not accelerate convergence of the overall price level.

There are perspectives of further price level convergence within the euro area.

Empirical studies show that monetary integration within the euro area has not had a significant impact on the nominal convergence process. Nevertheless, within agreements on exchange rate stability previously in force (the monetary union of Belgium and Luxembourg and the bloc of the German mark), price dispersion is much lower than between the remaining countries (Mathä, 2003). This may mean that the euro area will see convergence of price levels in the long run.

On the other hand, as convergence of price levels occurred throughout the European Union in the 1990s (Engel, Rogers, 2004) and the countries which acceded the euro area were relatively strongly integrated (price diversification within the monetary union upon its establishment were not much higher than in the United States), certain researchers doubted plausibility of further decline in price dispersion as a part of differences results from fundamental factors. As the discrepancies within the euro area are nevertheless lesser than in the United States, arbitrage is facilitated and minimum dispersion resulting from fundamental factors is smaller.

Asymmetry of monetary transmission mechanisms may make inflation differences permanent.

Contrary to inflation differences connected with long-term price convergence processes, differences resulting from consolidation of asymmetric shocks or asymmetric transmission of common shocks, particularly actions under the single monetary policy of the ECB, can be eradicated in the medium run. A number of publications concerning the period prior to the establishment of the euro area (e.g. Mojon, 2000; Suardi, 2001; Clausen, Hayo, 2006) expressed anxiety as to different reactions of economies to impulses from the single monetary policy. Analysing individual transmission channels in selected euro area countries (interest rate channel, exchange rate channel, credit channel), Suardi (2001) stressed the differences between structures of economies and regulations as well as dissimilarity of financial systems and real estate markets. The impact of the above structural factors on diversified replies to monetary impulses with autonomously conducted monetary policies in Germany, France, and Italy was empirically confirmed, among others, by Clausen and Hayo (2006).

The euro may result in similarity of monetary transmission mechanisms...

Authors of a number of studies which subject the period prior to establishment of the euro area to empirical analysis explain nevertheless that the functioning of the monetary union would probably result in convergence of transmission mechanisms (see also Kokoszcyński et al., 2008). The reason would thus be similarity of financial market microstructure and deepening of their integration as well as changes in behaviour of economic operators³¹. Garganas (2007) stresses that the effects have already partially materialised, but are not fully visible yet. Globalisation and technological development are also conducive to changes in that direction.


...although evidence for the phenomenon has been limited.

Also, full evaluation of the effects is impossible at the moment due to short time series and limited period of observation of the effects of the euro in respect of similarity of monetary transmission mechanisms. Conclusions concerning similarity of monetary transmission mechanisms featured in empirical literature are formulated with extreme caution (Angeloni, Ehrmann, 2003) or are limited to the qualitative, not the quantitative stratum (van Els et al., 2003). Certain authors, such as Ciccarelli, Reucci (2006), concluded that establishment of the euro area have not triggered changes in transmission mechanisms which would be significant enough to reveal any endogenous similarity at the present stage. Suardi (2001) perceives the risk of retaining differences primarily in the legal and institutional sphere, frequently associated with political factors. Concerns connected with similarity of transmission mechanisms are also confirmed by the limited (as of today) scale of internationalisation of operation of retail banks.

³¹ As examples, Garganas (2007) lists the deepening market of corporate bonds and integration of capital (bond and equity) markets, which allows enhanced access to capital and portfolio diversification.

Endogenous effects of the euro in the field of similarity of monetary transmission mechanisms are one of the reasons behind the suggestion of the European Commission (2006c) that the significance of the pro-cyclical real interest rate mechanism in the aftermath of asymmetric shocks should decrease in the longer run. The effects also include e.g. taking into account the method of conducting monetary policy by the ECB in economic expectations of economic operators, integration of financial markets and development of risk-sharing mechanisms, and an increase in synchronisation of business cycles. Yet, the results obtained by Arnold, Kool (2004) for the American economy show that the effect is inherent in the nature of common currency areas to a certain extent also in the long run. The authors concluded that in the case of inflation differences between respective states of the United States (which have been using a single currency for over two centuries), the pro-cyclical real rate effects are perceptible within three to four years until they are mitigated by the competitiveness channel.

Unification of mechanisms of forming expectations in individual countries is another factor influencing consequences of nominal divergences in the real sector, as occurrence of the real interest rate effect depends on the method of forming inflation expectations on the national level (cf. equation 4.1), not directly on inflation differences. The key role in changing the method of forming inflation expectations was played by the emergence and creation of credibility of the new monetary policy entity (European Commission, 2008b; Garganas, 2007). According to Garganas, from the point of view of convergence of inflation expectations, it was important not only to unify nominal interest rates in the euro area but also to unify the perception of credibility of the ECB by markets of all Member States of the monetary union. There are nevertheless reasons to believe that heterogeneity of inflation expectations connected with diversity of monetary regimes prior to the establishment of the euro area did not vanish completely in the initial years of the monetary union's functioning (see Box 4.7). Eleftheriou, Gerdesmeier, Roffia (2006) show that principles of monetary policy in individual euro area countries were different prior to the establishment of the monetary union. Against this background, Berger, Ehrmann, Fratzscher (2006) see regularities in errors of projection made in different countries past 1999.



The real interest rate effect may weaken due to endogeneity of OCA criteria.

Single monetary policy may unify mechanisms of forming inflation expectations.

Box 4.7 Diversity of inflation expectations and historical borders of currency areas

In the 1990s, separate monetary regimes functioned in countries which now belong to the euro area, although the perspective of establishing the monetary union was close and volatility of nominal exchange rates – partially limited. In order to obtain an answer to the question about heterogeneity of those regimes, Eleftheriou, Gerdesmeier, Roffia (2006) subject data from 12 euro area countries on the years 1993–1998 to econometric analysis. Based on results of estimation of parameters of the Taylor rule involving smoothing, the authors of the study discovered there are no rules of conducting monetary policy in individual countries prior to 1999. The German central bank displayed e.g. higher inflation aversion than central banks of other states.

In turn the German interest rate turned out to be an important element of Taylor's equation in Greece, Portugal, Finland, and Ireland. This made the authors conclude that external monetary policy objectives prevailed over domestic ones in those countries. Although the Taylor rule constitutes a far-fetched simplification of the actual decision-making process concerning interest rates, the result highlights

certain connection between monetary regimes of the area under analysis in the 1990s.

In this context, the question arises whether the remains of heterogeneity of former methods of monetary policy conduct translate into heterogeneity of expectations within the monetary union. Berger, Ehrmann, Fratzscher (2006) conducted econometric analysis of errors of projection made by analysts with 120 institutions from 24 countries in the years 1999–2005. The projections concerned future decisions of the ECB on interest rates. Authors of the study discovered, among others, higher quality of projections in countries with long tradition of central bank independence and in countries displaying low inflation and unemployment levels. In the sampling period there was no explicit evidence for lesser scale of such systematic errors, i.e. learning by the projecting institutions.

The authors of the study judged that a part of the diversification was permanent (e.g. the said agglomeration effects) but there is a relatively large capacity for convergence of market expectations forming mechanism. Homogeneity of those mechanisms plays a significant role in supporting the adjustment process in the aftermath of asymmetric shocks (see Section 5.2).

Source: NBP study on the basis of Eleftheriou, Gerdesmeier, Roffia (2006), Berger, Ehrmann, Fratzscher (2006).

Dispersion of inflation expectations in the euro area was lower than inflation dispersion.

Due to lack of capacity to observe inflation expectations and different methodologies of their approximation in respective countries, the conclusions from comparison of the degree of their anchorage in different countries may also be controversial, like in the case of analysis of the euro area as a whole (cf. Section 1.3). The European Commission (2008b) shows convergence of inflation expectations of euro area countries on the basis of data from financial markets. Calculations based on Consensus Economics projections indicate lower dispersion of inflation expectations than of inflation itself (European Commission, 2006c; European Central Bank, 2005b). Both conclusions are optimistic from the point of view of effects of the real interest rate mechanism. Data from studies of the European *Commission Business and Consumer Surveys* (Chart 4.12) indicate that the growth rate of differentiation of inflation expectations was less marked than of inflation itself. Apart from the increase in differentiation of expectations in the years 2002–2004, which was probably just a short-term effect of the introduction of the euro into cash circulation, differences between individual countries were stable. From the non-weighted perspective which takes into account the growth rate of inflation expectations in smaller economies to a greater extent, a slight decreasing trend is visible in the years 1996–2004 (again, with the exception of the years 2002–2004). Thus, the decrease in inflation expectations concerned smaller economies to a greater extent.

Single monetary policy and inflation differences

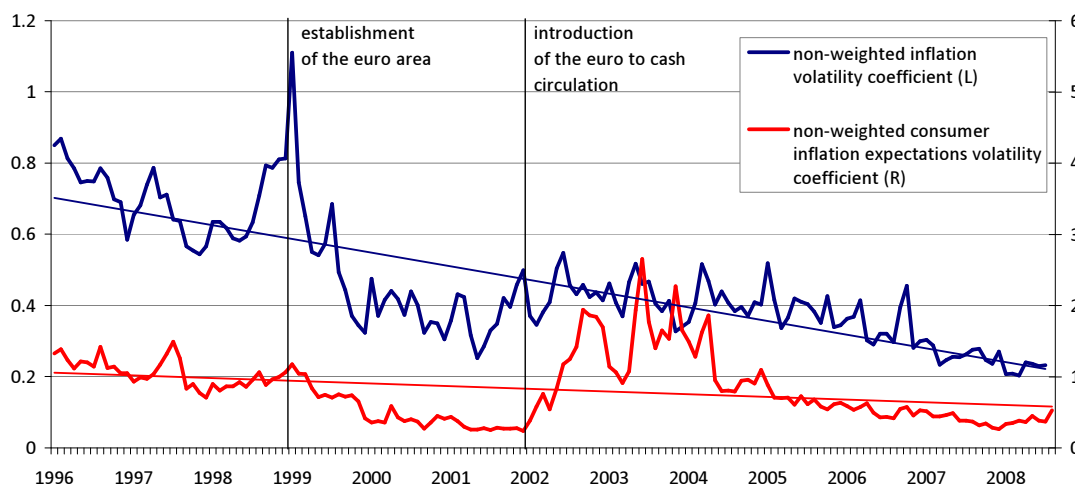
Long-term inflation difference in a single country may lead to increasing political pressure on the ECB...

The method of conducting policy with diverse inflation in individual countries also became the subject of discussions and a serious political challenge for the European Central Bank. In the context of heterogeneity of the whole area, it was connected with the risk that policy would not be conducted in an optimal way for a sub-group of countries, which would put the ECB under political pressure (Calmfors, 2007, p. 39)³².

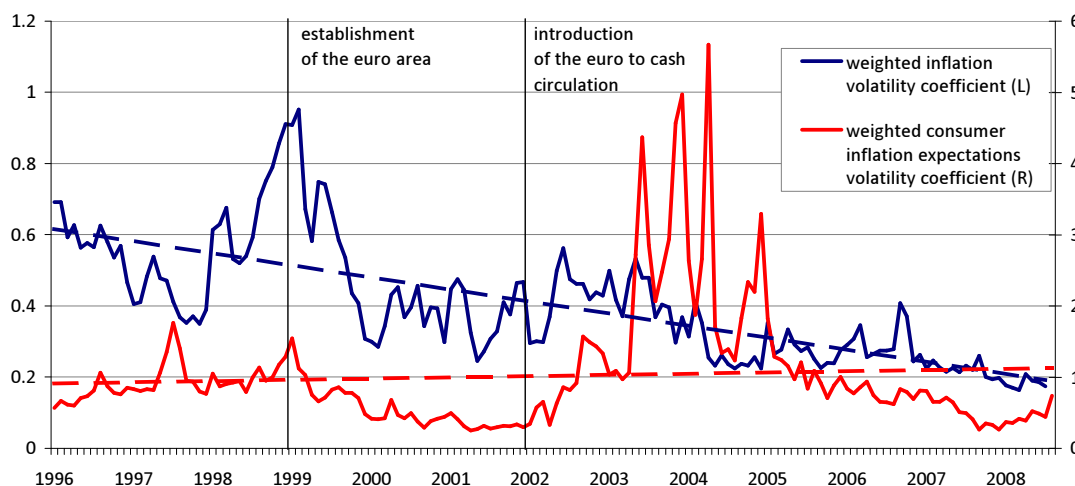
³² Cf. also the results presented in Box 4.1.



Chart 4.12 Diversity of inflation expectations



(a) non-weighted volatility coefficient



(b) weighted volatility coefficient

Source: EBCS, NBP calculations.

This does not mean, however, that individual countries participating in making decisions on the ECB nominal interest rate should pursue their own interests. As shown by Kosior, Rozkrut, Torój (2008), if the members of the ECB Governing Council are driven by the needs of their country of origin, fluctuations of output and inflation increase. The authors consider conducting stabilisation policy in the monetary union, potentially subject to asymmetric shocks, with different preferences of the ECB's Executive Board and Presidents of national central banks who decide on the level of the nominal interest rate. In the scenario where all decisions are made on the basis of the situation of the euro area as a whole, i.e. weights for countries correspond to relative sizes of economies, fluctuations are relatively lowest in the whole monetary union. This is also true for the majority of countries examined separately, including Poland. Efficiency of the stabilisation policy results from correlation of individual economies, i.e. the impact of cyclical position in certain countries on other countries (e.g. via trade relations) and the functioning of the competitiveness channel.

...but care for the common interest of the euro area by everyone is the most profitable.

Should an economy with higher rigidities weigh more in decisions by the ECB?

The conduct of monetary policy for the euro area as a whole is the subject of discussion connected with structural heterogeneity of this monetary union³³. Benigno, Salido (2002) and Benigno (2004) concluded that optimal monetary policy should assign greater weight to countries with higher degree of inflation persistence and rigidity of markets. According to the authors, a central bank is able to restrict persistent inflation in one of the countries in a currency area if its reaction is more aggressive. Countries with higher flexibility of markets and greater capacity to absorb shocks would weigh appropriately less in decisions on interest rates for the whole monetary union. This would minimise the aggregate cost of adjustments. Similar line of thought is displayed in papers by Aoki (2001), and Orphanides and Williams (2002). The author of the former paper suggests assigning greater weight to an area with higher degree of prices stickiness, while the latter paper considers a more aggressive reply of monetary policy in conditions of insufficient informing of economic operators.

This would imply a decrease in significance of Poland as a country with relatively high adaptability of the economy...

Adoption of such a solution by the ECB would probably be unfavourable from the point of view of impact of new Member States, including Poland, on the decision-making process. As shown by Blessing (2008, p. 48), minimisation of loss in social welfare due to weights of regions in extended and heterogeneous euro area would necessitate reduction of weight for Central and Eastern Europe from 0.042 to 0.00 (expressed to second decimal point). The result is conditional towards estimated degree of flexibility of markets and inflation persistence, but higher flexibility of markets in this part of Europe is the object of wide consensus across literature (cf. e.g. Kolasa, 2008).

...but the ECB opposes differentiating between weights of countries due to rigidity of their markets.

European Central Bank (2005b) is sceptical about the idea and lists a number of reasons for which its implementation would be difficult³⁴:

- Measurement of the degree of market flexibility would be burdened with uncertainty.
- It is not clear what level of disaggregation to adopt (countries, regions, or sectors).
- Premium for countries with higher degree of rigidity, which should be equated with such conduct of monetary policy, would give rise to desire to abuse and would constitute a factor weakening motivation to introduce structural reforms.

All this would decrease transparency of monetary policy and expose the common central bank to objection of legitimisation of inefficiency of selected markets (European Central Bank, 2005b).

ECB's goal is stability of prices in the monetary union as a whole.

The European Central Bank (2005b) believes that diversity of interest rates is largely a manifestation of correct functioning of adjustment mechanisms within a monetary union, i.e. the real exchange rate channel (see Section 5.2). Diversified pace of price increase in different regions or sectors results in a change in relative (actual) prices thus playing the role of "lubricant" in the economy³⁵. Monetary authorities of the euro area also take into consideration structural reasons behind inflation differences discussed in this section, such as e.g. the Balassa-Samuelson effect and diversity of natural interest

³³ A review of literature on implications of inflation differences and their persistence for monetary policy is included in the study by Levin and Moessner (2005).

³⁴ Regardless of practical doubts, providing countries with greater rigidities with higher weights also arouses controversies in theoretical literature. Brissimis, Skotida (2008) came to a conclusion which is contrary to Benigno's (2004) by suggesting a stronger reply of the single monetary policy to events taking place in countries with lesser nominal rigidities and lower interim flexibility of consumption substitution.

³⁵ Nautz, Scharff (2006) show that in the case of the euro area, a moderate price increase does not result in higher volatility of relative prices connected with impediment of price signals in the economy.

rate in respective economies (see Box 4.6). According to the ECB, those factors are beyond the scope of monetary policy while the only objective to which all decisions of the ECB are subordinated is price stability throughout the area. The European Central Bank (2005b) acknowledges that thorough observation of inflation phenomena at the national level is not outside the scope of interest of the bank, on the contrary, it is essential for analytical purposes.

4.2.4 Risk of price increase on the market of assets

Poland's accession to the euro area will entail resignation from autonomous conduct of monetary policy. With the expected decrease in interest rates, which is one of direct effects of the introduction of the euro, the inability to react on the part of the central bank may lead to a considerable increase in lending. The risk of worsening financial stability and excessive increase in prices of assets, particularly real estate prices, may be the consequences of higher demand on loans.

This risk materialised in some euro area countries (cf. Box 4.8), thus confirming that the introduction of the euro may stimulate an increase in demand for loans, particularly in countries with low development level of loan markets. Credit expansion, which usually occurred as a result of a decrease in real interest rates, concerned mainly the residential loans sector, started a few years to a year prior to euro area accession³⁶, and escalated in the very year of accession.

Box 4.8 Introduction of the euro and the credit market – experience of other countries

Ireland. Dynamic increase in lending started about 1995 and climaxed first in 1998 (growth rate of lending to the private sector – about 32% y/y in real terms) and later in 1999. In 2004, lending accelerated again (growth rate of lending reached about 32% y/y again). Initially, loans to enterprises constituted the main source of the increase, followed by residential loans. The increase was accompanied by a decrease in interest rates: from over 10% in 1993 to negative values in 1998 (until 2004). Despite considerable growth rate of lending, the banking sector remained in the safe area of stability. As a result of changes, an increase in real estate prices took place, which was particularly dynamic in the years 2000–2005.

In order to mitigate the negative effects of an increase in lending, the central bank submitted a letter to commercial banks in which it expressed its concern with the potential development of the situation of the credit market. Credit institutions asked for an independent verification of their observance of highest risk management standards. Analyses of credit rating of borrowers, particularly as concerns loan securities, were intensified. A uniform financial supervision was also established.

Portugal. Credit expansion started in the years 1995–1996 and climaxed in the second half of 1999^a. The highest increase was posted by the group of residential loans (annual growth rate at the level of 34% in real terms). The expansion was accompanied by a decrease in real interest rates: from about 7% in 1995 to zero in 1999. The level remained unchanged for a few years. Stability of the banking

³⁶ *Terminus post quem* is nevertheless the moment at which accession date is set.

sector did not deteriorate markedly. While the share of loans in GDP increased significantly to reach over 130% in 2003, real estate prices did not increase in a significant way.

Actions aimed at limiting the negative effects of the increase in lending included, among others, raising capital requirements for the most risky loans or establishing a college of supervisors to embrace all entities exercising supervision of trading in financial markets.

Greece. Liberalisation of capital flows in Greece was conducive to an increase in foreign currency borrowing starting from 1995, usually for residential purposes. Due to lasting uncertainty as to accession of Greece to the euro area in 1999, a marked decrease in real interest rates was observed only at the last stage of credit expansion, from the level of about 5–6% in 1999 to about 1% in 2000 and to negative levels in subsequent years. A dynamic increase in lending occurred following a decrease in interest rates, with its climax in 2001 (about 22% y/y). Stability of the banking sector did not deteriorate, yet a slow increase in real estate prices for a few years was observed.

Actions taken to limit credit expansion included, *inter alia*, stricter approach to poor quality loans and loans with limited security, or the order to commercial banks to maintain interest-free deposits connected with excessive increase in lending.

^a The growth rate of lending returned to its low levels within two years.

Source: NBP study on the basis of International Monetary Fund (2000, 2001, 2003); Bank of Greece (2004); Brzoza-Brzezina (2005). Cf. also Backé, Wójcik (2006).

Disparity of interest rates paves the way for their decrease.

Risk assessment of excessive price increase. Increase in prices of assets in the aftermath of euro introduction may also result from a significant surplus of demand over supply. The increase in demand may in turn occur as a result of a significant increase in lending, following a decrease in interest rates. The ceiling of price growth capacity is thus set by a difference between real interest rates in Poland and in the euro area³⁷. The ceiling is not only the result of disparity of nominal interest rates, but also of a difference in price growth rates of both areas. The higher the difference of real interest rates, the higher the potential scale of increase in the pace of lending that is to be expected³⁸. It is worthwhile to stress that the increase in lending will most probably be distributed in time, similar to the process of interest rate convergence.

The scale of increase in lending does not constitute a significant threat to financial stability.

The potential significant increase in prices of assets, including real estate, may theoretically be accompanied by two types of threats: it may negatively impact financial stability and trigger disturbances of the residential market cycle. Below-standard loans and irregular loans constitute an insignificant share of total monetary liabilities of credit institutions. The relatively low level of financial markets development and insignificant market depth may nevertheless constitute potential threats. One has yet to remember

³⁷ As concerns strictly financial assets, the price difference for comparable classes is also important (Ehrmann, Fratzscher, Rigobon, 2005). Due to its specificity, the real estate market allows only limited capacity for speculative arbitrage which would eliminate lasting detachment of market prices from their economic foundations and force observance of the law of one price. Thus, the price increase in the market may be particularly marked.

³⁸ It should be added that a significant role is also played by flexibility of demand for loans to a certain change in interest rates. Cf. Csajbók, Csermely (2002); Brzoza-Brzezina (2005).

that a decrease in interest rates is accompanied by a decrease in average debt repayment burden, which theoretically allows entities to extend their indebtedness with repayment levels unchanged. This should lead to deepening the market, which should not result in dangerous indebtedness levels with the currently low relation of mass of loans to GDP. In effect, the estimated scale of increase in lending does not constitute a significant threat to financial stability.

Box 4.9 Estimation of the impact of a decline in interest rates on increase in lending

Approach similar to that featured in Schadler et al. (2005) was applied with a view to simulating potential effects of euro area accession. A model of error correction (VEC) was construed with three variables: relation of loans to the private sector to GDP (Cr), gross domestic product (GDP), real interest rate on ten-year bonds deflated with inflation expectations of households (r_{10}). Simulations assumed an exogenous real interest rate which decreases in a linear manner to the level of 1.25% for two years and continues the linear decline for a year following the adoption of the single currency. The interest rate stabilises at the level of 1%. The number of lags was selected on the basis of the Akaike criterion. Trace tests and greatest characteristic root tests proved the existence of one co-integrating relationship between the above variables. Application of the approach allows estimating both the value of relation of loans to the private sector to GDP in equilibrium and the dynamic path of achieving the equilibrium.

The estimated long-term relation assumed the following form:

$$Cr = 1.15 \ln(GDP) - 4.42r_{10} \quad (4.2)$$

The estimated values of parameters in long-term relation (formula 4.2) suggest that the 10% increase in GDP results in an increase of the relation of loans to GDP by ca. 0.15 pp in the long run. An increase in real interest rate by 1 pp translates into a decrease of the relation by over 4.4 pp. The results obtained diverge from estimates by Schadler et al. (2005) primarily in respect of vulnerability to interest rates which was higher in the above analysis.

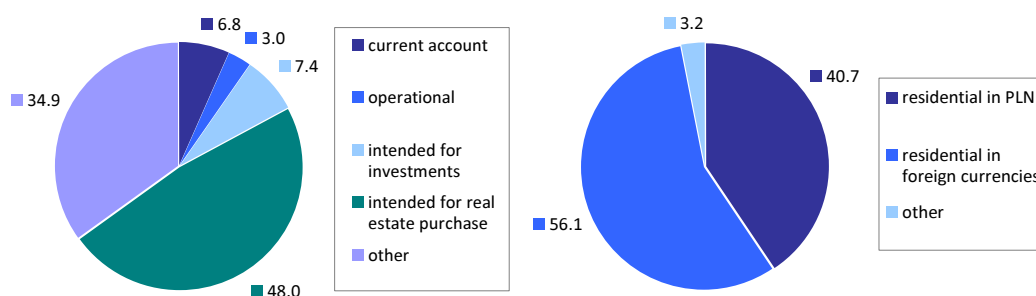
Source: NBP study.

Similar to other markets, the real estate market displays its own cycle consisting in alternating periods of price increase and decrease. Due to the potential impact on an increase in demand for loans, Poland's accession to the euro area may result in disturbances of the cycle in the market thus leading to accelerated return to the increasing tendency (if the introduction of the euro takes place within the period of a decline in real estate prices) or retaining the increasing trend (if the introduction of the euro takes place in the period of a price increase)³⁹. A particularly significant threat may arise from intensification of consequences of a decrease in interest rates during a run on the real estate market as the potential price increase may be conducive to growth of a speculative bubble on the market, which in turn may result in a sudden breakdown after a while (Łaszek, Augustyniak, Widłak, 2008). Both the dynamic price

Introduction of the euro may result in disturbances on the real estate market.

³⁹ The periods of price increase and decrease in the real estate market as well as the process of convergence of interest rates are spread in time and usually include periods a few years long.

Chart 4.13 Structure of monetary receivables of financial institutions due from households in Poland: full breakdown of liabilities and categories of residential loans into components (January – July 2008, % mean values)



Source: NBP study.

increase, which limits the availability of real estate at the time of their scarcity and the potential growing of bubbles on the real estate market constitute serious threats connected with the introduction of the euro.

The introduction of the euro may result in a pressure on the increase in real estate prices.

The assessment of the risk of excessive price increase is connected with the development level of the credit market of which the Polish market of residential loans is the key part (cf. Chart 4.13). Low level of indebtedness of households, well below the equilibrium level, may suggest that the scale of increase in lending in the aftermath of a decrease in interest rates – with no possibility to react with the use of monetary policy tools – may be considerable. The analysis nevertheless points to an increase (*ceteris paribus*) of the relation of mass of loans to the private sector to GDP from less than 40% now to only about 44% within three years (cf. Chart 4.14). According to the model, the relation of loans to GDP in Poland remains beyond equilibrium, but approaches it. The deviation is significant: in mid-2008 the actual value of the indicator was lower than the equilibrium by the average of about 19.5 pp. Results of the simulation suggest that following the introduction of the euro, the difference should decrease, though gradually, as the actual value of the indicator and its value in equilibrium should display a relatively similar growth rate. Details of the simulation are featured in Box 4.9 above.

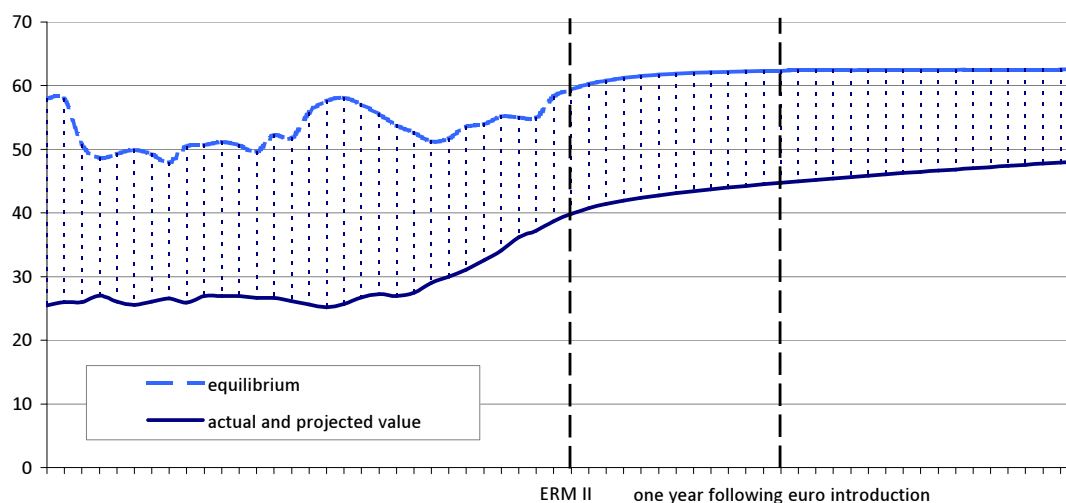
Due to demand barriers in the Polish real estate market, the introduction of the euro is expected to result in an increase in real estate prices (Łaszek, Augustyniak, Widłak, 2008). It must be nevertheless added that as the considerable part of residential loans are denominated in foreign currency whose interest rates should not decrease significantly following the introduction of the euro, the increase in lending may turn out smaller than indicated by quoted study results (cf. Chart 4.13). Also, considerable distribution of the said process in time should constitute an important factor mitigating the potential negative consequences of real estate price appreciation.

The central bank and the government have a number of tools to mitigate pressure on increase in real estate prices.

Experience of other countries shows that the force of impact of euro introduction on the real estate market was largely conditioned by the type and intensity of actions taken to neutralise potential threats (cf. Box 4.8) at the disposal of the central bank and the government. Also, similar to other countries, the dynamic increase in lending will probably largely mirror the process of approaching the equilibrium which deepens the credit market but does not constitute a threat to the stability of the banking sector. This may be the sign of, among others, a lenient nature of remedies undertaken in other countries.



Chart 4.14 Simulation of changes to the amount of loans to the private sector to GDP in Poland (%)



Source: NBP study.

4.3 Short-term costs and threats

4.3.1 Threats connected with meeting convergence criteria

The potential threats connected with limiting the use of macroeconomic policy tools may materialise in the period preceding euro area accession, during the two-year participation in the ERM II.

The system, which assumes retaining the exchange rate within the band with maximum deviations of $\pm 15\%$ from the pre-established central parity will, in a sense, serve as a test of the given country's capability to conduct optimal monetary policy, the so-called policy mix. The test will be difficult as it will be conducted in conditions of the monetary policy being subdued to the exchange rate policy. Due to the attention of the monetary policy being focused on retaining the exchange rate in the narrow band of fluctuations, the fiscal policy will have to carry the considerable burden of exerting impact on the economy and on conduct of policy of stabilising the inflation level.

ERM II limits the possibility to influence inflation using monetary policy tools.

Meeting the exchange rate stability criterion in the framework of participation in ERM II is one of the conditions of euro area participation. Positions of the European Commission and the ECB nevertheless show that the zloty remaining in the wide fluctuation band without parity devaluation does not have to correspond with positive assessment. Lack of severe tensions on the currency market within the two years of ERM II participation will constitute an additional condition. Apart from volatility of exchange rate and its deviations from the parity, assessment of the occurrence of severe tensions takes into consideration also other factors, such as changes in interest rates and the scale of foreign exchange interventions. Objective measures of exchange rate stability have not been set, however, thus limiting transparency of the criterion. Thus, appropriate interpretations presented in convergence reports of the European Commission and the ECB remain the best indicators.



The European Commission and the ECB display better tolerance of appreciation than depreciation towards the parity.

The European Commission and the ECB point to the need to keep the market exchange rate close to the parity and do not refer to a specific range⁴⁰. The two institutions also agree on the asymmetric approach to evaluation of exchange rate stability stressing greater tolerance for appreciation than depreciation towards the parity. Fluctuations of the Greek drachma, the Irish pound, or the Slovak koruna show that in the case of appreciation towards the central exchange rate, even the whole width of the designated band can be used in certain conditions. The asymmetry of ERM II is strengthened by the possibility to reevaluate the central exchange rate with simultaneous exclusion of one-sided devaluation.

Lower tolerance for depreciation does not mean, however, that weakening of the currency against the parity would be equivalent to severe tensions. This is confirmed e.g. by the experience of France and Ireland whose currencies were at some point weaker than the central exchange rate by 2.35% and 4.24%, respectively, within a two-year reference period and none of those cases was perceived as a severe tension on the currency market. Every such weakening of the zloty would thus be treated individually and if it turns out short-term, it would probably not result in a negative evaluation of exchange rate stability. Lack of automatism in the area is very important as otherwise it would encourage checking the capability of monetary authorities to retain the exchange rate in a narrower band of fluctuations.

Participation in ERM II may be connected with the threat of the so-called Impossible Trinity.

ERM II membership and the necessity to meet the exchange rate stability criterion may be connected with threats accompanying the participation in the quasi-fixed exchange rate regime. One of the threats concerns the so-called Impossible Trinity which means that in conditions of free flow of capital a simultaneous achievement of the exchange rate and the inflation target is difficult and frequently impossible in the long run. For instance, if influx of capital leads to appreciation and the exchange rate of the national currency approaches the admissible fluctuations limit, decreasing interest rates may turn out necessary. This may nevertheless result in an increase in inflation pressure and contradict another objective of the central bank, namely price stability. The above lack of coherence also leads to difficulties in communicating the monetary policy, which may trigger additional disturbances on the financial market. The situation in Hungary in 2003 serves as an example of such disturbances (Rozkrut et al., 2007).

Another threat is connected with the difficulty of stabilising the exchange rate in conditions of fast moving capital. Capital flows impact the exchange rate the stronger, the less liquid the currency market of the given country. The Polish market also belongs to the group of small markets. Influx and outflow of relatively large funds from the Polish economy may be a result of factors beyond the scope of influence of the national macroeconomic policy (Koronowski, Rozkrut, 2003). This particularly concerns actions of hedge funds when they alter the structure of their investment portfolios. Relative decrease in profitability of financial assets on developed markets may result in hedge funds locating a considerable (in Polish terms) amount of capital on the market. When the attractiveness of foreign assets increases again, funds invested earlier on may be withdrawn from the Polish market equally fast. As a consequence, hedge funds may significantly strengthen or weaken an exchange rate by locating or withdrawing their capital. Although in ERM II a central bank should prevent high exchange rate fluctuations, in the above conditions the efficiency of monetary policy may be very limited (Begg et al., 2003). Entry of hedge funds is frequently connected with highlighting or strengthening of the increasing trend on the currency market. Such tendency is conducive to escalation of speculations. Interest rate decreases may then turn out ineffective, as confirmed also by recent experience of banks in the region. In

⁴⁰ In the past, the European Commission stressed the role of a narrower band $\pm 2.25\%$.

4.3 Short-term costs and threats

such a situation, large currency interventions are also rather unlikely due to their limited efficiency and high costs of neutralising their effects (Losonc, 2003; Studi, 2006)⁴¹.

The weight of threats stemming from ERM II participation rises in the face of concerns over the outbreak of a currency crisis during Poland's participation in the system. Experience of crises in the 1990s, when fixed exchange rates (or those stabilised in the framework of certain fluctuation ranges) turned out particularly vulnerable to speculative capital flows, substantiates such concerns. ERM II may enhance the threat of a crisis. Should such risk materialise, the relation of costs to benefits of entry into the euro area may deteriorate.

Due to its size and liquidity, the Polish currency market attracts numerous portfolio investors. It is nevertheless shallow enough that an outflow of capital may result in vast weakening of the zloty. As a result, the zloty exchange rate is largely vulnerable to the effects of decisions of portfolio investors who are less prone to locate their capital on less developed markets in the region.

The Polish currency market is prone to effects of decisions of portfolio investors.

Decrease in disparity of interest rates between Poland and the euro area should be conducive to limiting the scale of short-term capital flows (Galati, Melvin, 2004). It is thus desirable to avoid this during Poland's membership in ERM II when a decrease in inflation would be necessary to meet the criterion of price stability. This would necessitate an increase in interest rates. The fact that higher inflation is accompanied by speculative capital flows which trigger exchange rate instability is substantiated by experience of countries in the region (the Czech Republic, Slovakia, and Hungary). During ERM II participation, such a situation is conducive to revaluation of the parity which is coherent with the need to lower inflation together with an increase in interest rates. Such a scenario materialised in Slovakia. Revaluation of the central exchange rate by 8% did not, nevertheless, prevent concerns about permanence of inflation decrease, thus giving rise to speculations on subsequent adjustment of parity (Sławiński, 2008). Another change in the parity of Slovak koruna confirmed the need to set the conversion rate at a yet stronger level.

The so-called contagion effect is important from the point of view of exchange rate volatility as it enhances the risk of a change in market sentiments and a sudden outflow of capital. It occurs when unfavourable phenomena in one country are transferred onto other economies. Investors exiting the markets of Central and Eastern Europe and strong depreciation of the currency of one of those states could result in withdrawing a part of capital from Poland as well.

The contagion effect in financial markets may impact volatility of the exchange rate.

The risk of the above scenario materialising was mitigated recently by increasing integration of the Polish economy with the European economy. As a result, the zloty is perceived as a currency increasingly related to the euro by dealers on the global currency market (Sławiński, 2008). Nevertheless, Poland will be exposed to greater fluctuations of the zloty as a result of turmoil on global financial markets until the adoption of the euro.

The above-mentioned sources of zloty exchange rate volatility result, however, from the specific character of the Polish financial market rather than from disturbances in the real sector of the economy. Also, the said changes to the exchange rate are usually not permanent, which is important when evaluating the potential severe tensions in ERM II. This is confirmed by the example of Greece where the outflow of portfolio capital triggered by the Russian crisis (contagion effect) resulted in a considerable weakening of the Greek currency which lasted for over two months. With evaluation

⁴¹ Foreign currency interventions may also constitute an effective instrument of monetary policy which does not generate high costs.

revealing no severe tensions on the drachma market in the period, it was stressed that depreciation was only temporary (European Commission, 2000). Thus, there are no grounds to interpret the potential weakening of the zloty exchange rate towards the central parity, resulting from factors independent of national macroeconomic policy, as a case of severe tensions.

The parity has been changed thrice in ERM II.

The central parity has been changed thrice in ERM II to-date. Greece was the first country which decided to reevaluate its currency. In January 2000, the drachma exchange rate against the euro was revaluated by 3.5%. The second country to reevaluate its currency was Slovakia, and it happened twice. The first time, the Slovak koruna was devaluated in March 2007 (by 8.5%) and the second time – in May 2008 (by over 17%).

Participation in ERM II may, under certain conditions, be conducive to exchange rate stabilisation.

Despite the above threats, participation in ERM II may, under certain conditions, be conducive to exchange rate stabilisation. This concerns a situation where inclusion of the zloty in the system constitutes an explicit signal of the country's readiness to adopt the single currency. The central parity as a reliable reference point for final conversion rate could then play the role of the nominal anchor stabilising the situation on the currency market⁴². Despite a wide fluctuation band, appropriately set parity should play the role of a magnet for the market exchange rate in such conditions (*magnet effect* – Schadler et al., 2005). In order for the central parity to effectively limit the fluctuations of the zloty, certain conditions must nevertheless be met.

Firstly, market participants must be convinced that upon assessment, Poland will meet all convergence criteria in a permanent way as only then the adoption of the euro would be possible. This in turn will largely depend on the government implementing the package of measures consisting primarily in consolidation of public finance. Also, accession to ERM II should take place when the current and the projected inflation level does not point to the need of taking additional steps aimed at decreasing the price growth rate.

Secondly, the period of ERM II participation should be as short as possible, thus enhancing the credibility of the current central exchange rate by bringing the date of replacing the zloty with the euro closer.

Thirdly, high level of currency reserves is another important factor increasing the credibility of monetary authorities and thus also the parity. Experience of ERM and ERM II participants shows that currency interventions are a very important instrument which allows limiting short-term exchange rate fluctuations within the designated fluctuation band⁴³. High reserves enhance the credibility of the followed path of monetary integration and deter speculators from attempting at weakening the national currency. Under such conditions, participation of the zloty in ERM II should not result in difficulties meeting the exchange rate stability criterion. Low foreign currency reserves of a central bank would in turn expose limited capacity to defend the exchange rate and encourage a speculative attack in pursuit of easy profits.

Threats connected with non-optimal central parity

As already mentioned, meeting the exchange rate convergence criterion by Poland will demand including the zloty in ERM II and its participation in the mechanism for at

⁴² In Ireland and Greece, parity started to play the role only after its revaluation which put a stop to speculations as to the final exchange rate of the Irish pound and drachma into the euro, which does not always correspond to ERM II parity.

⁴³ It is essential to distinguish between the effectiveness of interventions in limiting short-term exchange rate fluctuations and limited possibilities to use the instrument to reverse a trend or counteract sudden and mass capital flows on the currency market.



least two years without its devaluation by Poland and without severe tensions. The issue of lack of severe tensions is generally addressed by: 1) examining the degree of deviation of exchange rates from the central exchange rate; 2) using such indicators as exchange rate volatility against the euro and its trend, as well as short-term interest rate differentials vis-à-vis the euro area and their evolution; and 3) considering the role played by foreign exchange interventions.

Due to the fact that Poland currently applies the liquid exchange rate policy, inclusion of the zloty in ERM II will *de facto* translate in a change in the exchange rate system. Additionally, as the liquid exchange rate system does not include a reference exchange rate, entry into the ERM II will necessitate setting a central exchange rate of the zloty towards the euro.

Poland's entry into ERM II translates into a change in the exchange rate regime.

Particular challenge will consist in setting the central zloty exchange rate in relation to the euro which, according to ECB recommendations, should mirror the equilibrium rate as best as possible. The zloty equilibrium rate displays significant volatility in time. Thus, entry into ERM II will necessitate constant updating of equilibrium rate estimations and potentially also measures aimed at adjusting the market rate (currency interventions) and/or the central exchange rate (parity revaluation).

Box 4.10 Consequences of non-optimal central exchange rate

Setting the central exchange rate at an inappropriate level carries the risk of market pressure on changing it and, as a consequence, a threat of Poland failing to meet the exchange rate convergence criterion.

Adopting the exchange rate at an undervalued level may, on the one hand, give rise to market expectations as to its revaluation and trigger an intensified influx of speculative capital, thus leading to high volatility of the exchange rate. On the other hand, this may lead to excessive inflation pressure and, as a consequence, to delays in the nominal convergence process (risk of failing to meet the inflation criterion).

Setting the conversion rate at an overvalued level may result in an increase in current account deficit (increase in risk premium) and, as a consequence, to pressure on weakening the exchange rate and/or central exchange rate devaluation. It is worthwhile to notice the higher cost and difficulty of adjusting an overvalued central exchange rate under the ERM II than in the case of an undervalued rate, as stressed, among others, by the International Monetary Fund (International Monetary Fund, 2005). Due to this, the IMF recommends setting the central exchange rate rather at a lower level.

Source: NBP study.

Setting the central parity in ERM II

In line with the procedure of entering ERM II, setting the central exchange rate takes place with cooperation of other Member States. This is due to the fact that adopting the central PLN/EUR exchange rate under ERM II will be significant to Poland as well as its major trade partners as it will influence their competitiveness and harmonious functioning of ERM II. The need to include the interests of the whole European Community in the conduct of national foreign exchange policy is mirrored



The central rate in ERM II should be set at equilibrium level.

by Article 124 of TEC which stipulates that since accession to the EU each Member State shall treat its exchange-rate policy as a matter of common interest.

The central rate in ERM II should be set at an economically justified level understood as the equilibrium level. The ECB recommends that the central rate under ERM II should most accurately mirror evaluation of the equilibrium rate upon accession to the mechanism. In the opinion of the ECB, the estimation of the equilibrium rate should take into account a wide group of economic indices and the market exchange rate of the national currency (European Central Bank, 2003b). Proper setting of the central rate is particularly important in the context of the fact that a central bank should never defend an exchange rate which is other than the equilibrium rate (Williamson, 1994). The exchange rate should also facilitate the management of the market rate under ERM II so that within the assumed period of participation in the mechanism it is possible to meet the exchange rate convergence criterion (cf. Backé et al., 2004).

As the equilibrium rate is an unobservable variable, there are many definitions (cf. Box 4.11) and methods of its calculation (cf. Box 4.12).

Box 4.11 Types of equilibrium exchange rate

The equilibrium exchange rate is an exchange rate which ensures balance of the economy understood as equilibrium on the goods market, in the narrowest sense. In a wide sense, the equilibrium rate is the real effective exchange rate which meets the conditions of intrinsic balance of all economies under analysis at the same time. Equilibrium is usually defined as the product ensuring full employment and low inflation or unemployment at the level which does not exert inflation pressure.

One of the significant factors which translate into differences in defining equilibrium exchange rates is the time horizon within which equilibrium can be achieved. From that point of view, three types of equilibrium exchange rate can be distinguished:

- Short-term equilibrium rate – exchange rate corresponding to current values of fundamental variables (exchange rate determinants) after eliminating random factors (e.g. speculative bubbles);
- Medium term equilibrium rate – exchange rate corresponding to intrinsic and extrinsic equilibrium of an economy;
- Long-term equilibrium rate – exchange rate corresponding to global equilibrium (exchange rate and all fundamental variables in equilibrium).

Source: NBP study on the basis of Driver, Westaway (2003).

The European Commission suggests that in the case of new Member States being catching-up economies, a few methods should be applied simultaneously, particularly the BEER⁴⁴ and FEER⁴⁵ models of real equilibrium rate. Only setting different measures of an equilibrium rate, particularly short and medium term, allows full assessment of the situation on the currency market. This also allows evaluating the vulnerability of results to assumptions made and discovering the short and medium

⁴⁴ BEER – Behavioural Effective Exchange Rate.

⁴⁵ FEER – Fundamental Effective Exchange Rate.



term determinants of the equilibrium rate as well as the reasons behind the market rate shifting from the equilibrium rate.

The last of the said aspects seems particularly important as assessment of exchange rate stability entails an analysis to see if the market rate is close to the central rate. Results are also taken into account which could trigger its appreciation, such as the Balassa-Samuelson effect, influx of capital, or price liberalisation (European Central Bank, 2003b; European Commission, 2004a). Taking the results which could be conducive to exchange rate appreciation into consideration is particularly important for catching-up countries as it is assumed that appreciation of an exchange rate is an inherent element of real convergence (e.g. Halpern, Wyplosz, 1997; Backé et al., 2004).

Appreciation of the exchange rate in ERM II may be evaluated as coherent with the exchange rate criterion.

Box 4.12 Methods of calculating the equilibrium rate

Equilibrium rate models include nominal and real equilibrium rate models.

Nominal exchange rate models include Purchasing Power Parity (PPP) hypothesis and models assuming its fulfilment with certain additional conditions, including primarily the Balassa-Samuelson (BS) model and Capital Enhanced Equilibrium Exchange Rate (CHEER).

The Purchasing Power Parity hypothesis (cf. among others Officer, 1978; Krugman, 1987) assumes that the value of the currency is determined by the amount of goods and services which can be purchased in every country for a unit of the currency:

$$s_t = \alpha + \beta(p_t - p_t^*) + \varepsilon_t,$$

where s stands for a nominal exchange rate and p and p^* stand for prices in the country and abroad, respectively.

The Balassa-Samuelson model (Balassa, 1964; Samuelson, 1964; Obstfeld, Rogoff, 1996) assumes that long term deviations of the exchange rate from the Purchasing Power Parity path, estimated with the use of price indices, results from the presence of non-tradables in the composition of those indices, which leads to the following specification of the exchange rate model:

$$s_t = \alpha + \beta_1(p_t^T - p_t^{T*}) + (1 - \beta_1)(p_t^{NT} - p_t^{NT*}) + \varepsilon_t,$$

where indices T and NT stand for tradables and non-tradables, respectively.

The CHEER model (Johansen, Juselius, 1992; Juselius, 1995) assumes, however, that deviations of the market rate from the Purchasing Power Parity may be a result of non-zero disparity of interest rates:

$$s_t = \alpha + \beta_1(p_t - p_t^*) + \beta_2(i_t - i_t^*) + \varepsilon_t,$$

where i and i^* stand for domestic and foreign interest rate, respectively.

Use of nominal exchange rate models to model the equilibrium exchange rate was criticised (e.g. Rogoff, 1996; Sarno, Taylor, 2002; and Chmielewski, 2003) by pointing to the necessity of applying models which take into account the correlation between the exchange rate and the real sector of the economy (the so-called models of real equilibrium exchange rate) to analysis of equilibrium exchange rate.

Models of real equilibrium exchange rate include primarily the Behavioural Effective Exchange Rate model and the Fundamental Effective Exchange Rate model.

The BEER model (Clark, MacDonald, 1998; cf. Bęza-Bojanowska, MacDonald, 2008) directly links the real exchange rate with its determinants:

$$q_t = q_t^f + \beta_1(r_t - r_t^*) + \beta_2\lambda_t + \varepsilon_t,$$

where: q stands for real exchange rate, q^f – long-term real exchange rate determined by fundamental factors (foreign assets, Balassa-Samuelson effect, terms of trade), r , r^* stand for the domestic and foreign real exchange rate, respectively, and λ – for risk premium.

Permanent Equilibrium Exchange Rate (PEER) is the equilibrium rate calculated on the assumption that the fundamental factors which influence the BEER are at their own long-term equilibrium level.

The FEER model (Williamson, 1994; cf. Rubaszek, 2008) assumes, however, that the equilibrium rate is the exchange rate which ensures achieving intrinsic (zero demand gap) and extrinsic equilibrium (optimum current account balance):

$$q_t^{FEER} = y(DD_t, q_t) = ca(DD_t, q_t),$$

where y stands for intrinsic equilibrium, ca – extrinsic equilibrium, and DD – domestic demand.

Source: NBP study.

Zloty equilibrium rate

Taking into account the ECB recommendation stating that the equilibrium rate should mirror a wide range of economic indices as well as EC recommendations which stipulate that in the case of new Member States different methods of estimating the equilibrium rate should be applied at the same time, the analysis of the equilibrium zloty/euro rate was conducted on the basis of two dominating and mutually supplementing real equilibrium rate methods, namely models of behavioural and fundamental equilibrium rate. The approach allows also studying the vulnerability of the zloty equilibrium rate estimation to methodology used (cf. e.g. Horvath, Komarek, 2007).

It is also interesting to note that with standard specification of FEER models which assumes that an increase in domestic product results in deterioration of the current account balance, which necessitates depreciation of the national currency (cf. Rubaszek, 2008), considerable discrepancies in estimations of the behavioural and fundamental equilibrium rate for converging economies were obtained. As a consequence, there were concerns about limited usefulness of equilibrium rate estimations in the context of the need to set the central rate under ERM II for new EU Member States (cf. European Commission, 2004a, also Horvath, Komarek, 2007). Extending the specification of the FEER model aimed at taking into account the catching-up process allows nevertheless to eliminate the said problem (cf. Rubaszek, 2008). As a consequence, the BEER and FEER models become substitutes in a sense and the raised problem of their usefulness to establish the central rate under the ERM II (cf. European Commission, 2004a, also Horvath, Komarek, 2007) does not apply.

The zloty equilibrium rate displays significant volatility in time.

Analysis of estimates of real zloty/euro equilibrium exchange rate (Beza-Bojanowska, MacDonald, 2008; Rubaszek, 2008; cf. Chart 4.15) shows that:

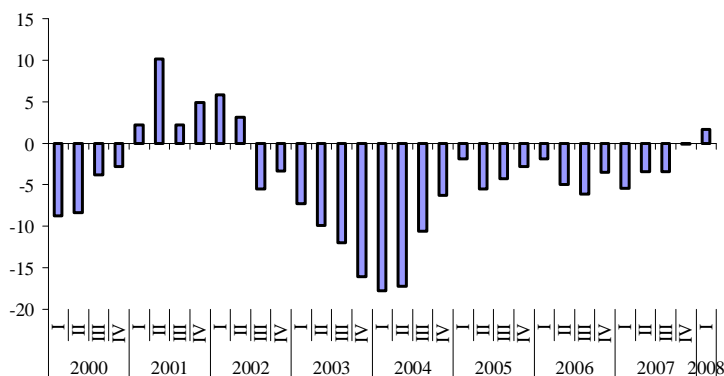
- The equilibrium rate displays volatility in time;
- In the past, the zloty exchange rate displayed significant deviations from the equilibrium rate unjustified by the foundations of the economy (particularly in the years 2003–2004);

4.3 Short-term costs and threats



Chart 4.15 Deviation of the FEER, BEER, and PEER real zloty exchange rate from equilibrium

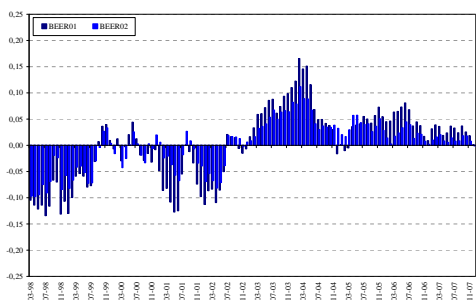
BEER – behavioural, PEER – permanent, FEER – fundamental equilibrium rate



(a) Deviation of the FEER real zloty exchange rate from equilibrium

Positive values signify revaluation.

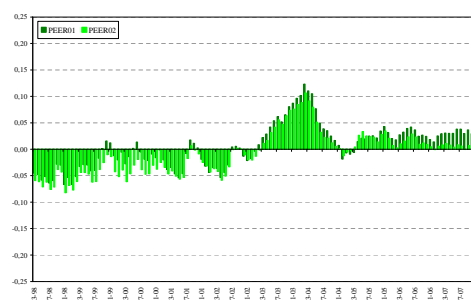
Source: Rubaszek (2008).



(b) Current and total deviation of the BEER real zloty exchange rate from equilibrium

Negative values signify revaluation.

Source: Beza-Bojanowska, MacDonald (2008).



(c) Current and total deviation of the PEER real zloty exchange rate from equilibrium

- Since the accession to the EU, deviations of the zloty/euro exchange rate from the current equilibrium rate were slight (below 5%);
- The zloty equilibrium rate strengthened considerably since EU accession.

Factors influencing the real zloty/euro equilibrium exchange rate are as follows: net foreign assets, disparity of interest rates, terms of trade, difference of labour productivity growth rate, and two alternative measures of risk premium connected with fiscal factors: budget deficit (model 1) and public debt (model 2)⁴⁶. It is assumed that with rational conditions of macroeconomic policy, the zloty/euro equilibrium exchange rate will be subject to strong appreciation pressure, which may translate into strengthening of the real rate and facilitate meeting the exchange rate criterion (Beza-Bojanowska, MacDonald, 2008).

It is additionally assumed that the exogenous decrease in interest rate disparity and the increase in net foreign assets influence the increase in public debt on a long-term

⁴⁶ Beza-Bojanowska, MacDonald (2008).

basis (Beza-Bojanowska, MacDonald, 2008). Approaching the date of integration with the euro area could thus create stimuli for fiscal expansion due to facilitated financing of budgetary needs. Results of estimation show that Poland's fiscal position may play a key role in retaining exchange rate stability in ERM II.

In the context of the position of the ECB (European Central Bank, 2003b) that an adjustment of the central rate in ERM II may be carried out e.g. in the case of equilibrium rate evolution, knowledge of factors determining its changes in time is of particular importance. Analysis conducted in the framework of the BEER model suggests that net foreign assets, disparity of interest rates, Balassa-Samuelson effect, terms of trade, and risk premium are determinants of changes in the zloty/euro equilibrium exchange rate. This may mean that during the participation in the ERM II, the equilibrium rate will be subject to appreciation pressure due to decreasing risk premium, strong Balassa-Samuelson effect, and influx of capital. The pressure may be nevertheless mitigated by interest rate disparity which decreases as a result of nominal convergence and expectations regarding the adjustment of central bank rates to the level of ECB rates (cf. Beza-Bojanowska, MacDonald, 2008). The fact that the real convergence process exerts significant influence on the zloty equilibrium rate is also confirmed by analysis conducted in the framework of the FEER model (cf. Rubaszek, 2008). Inclusion of the zloty into ERM II will thus necessitate constant updating of equilibrium rate estimations and potentially also measures aimed at adjusting the market rate (currency interventions) or the central exchange rate (parity revaluation) to the equilibrium rate.

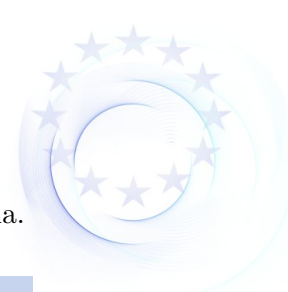
The Balassa-Samuelson effect may result in deviations of the market rate from the equilibrium rate, which is not a threat.

Additionally, due to the fact that evaluation of exchange rate stability under ERM II is accompanied by analysis of reasons behind potential deviation of the market rate from the central rate, with particular consideration of factors which could result in its appreciation, also an analysis of factors resulting in the deviation of the zloty exchange rate from the equilibrium rate (pulling factors) were analysed. Results show that the main reasons behind deviation of the market zloty/euro exchange rate from the equilibrium level in the period under analysis were unexpected shocks connected with the Balassa-Samuelson effect, disparity of interest rates, and risk premium approximated by state budget deficit (cf. Beza-Bojanowska, MacDonald, 2008). It seems that in the period of ERM II participation, which will also be the period of nominal convergence in respect of interest rates and fiscal situation (particularly general government deficit) and thus also of foreseeable macroeconomic policy, the two latter factors should not trigger excessive volatility of the zloty exchange rate (cf. also Sławiński, 2008). The fact that the Balassa-Samuelson effect may result in deviations of the market rate from the equilibrium rate should not constitute a threat to Poland's meeting the convergence criterion in the context of the above-mentioned possibility of taking into account factors conducive to the appreciation of the currency.

The conversion rate may differ from the original central rate in ERM II.

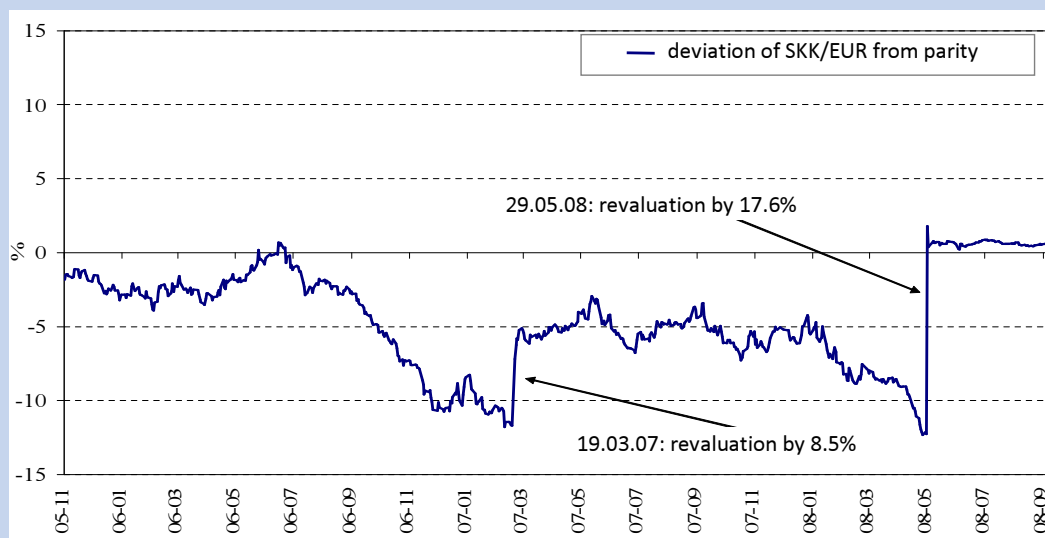
The ECB also believes that it should not be assumed that the initial central rate would become the final conversion rate when adopting the euro. The reservation gains importance, particularly in the conditions of increasing real convergence, changes in external competitiveness, and conduct of macroeconomic policy (European Central Bank, 2003b). To-date experience of EU Member States which joined the euro area (cf. Box 4.13) show that the conversion rate is adopted at the level close to the current market rate and that the market rate has the tendency to converge to the central rate if the market decides that:

- The rate is not credible, i.e. consistent with the country's macroeconomic situation;



- The country will most probably meet (or has already met) convergence criteria.

Box 4.13 Adjustments of the central rate in ERM II – example of Slovakia



The Slovak koruna participated in ERM II since 28 November 2005. This means that upon analysis of the degree of nominal convergence by the EC and ECB, Slovakia’s participation in the ERM II lasted for 29 months. The original central exchange rate of the Slovak koruna towards the euro in the ERM II was set at the average ECB rate from Friday, 25 November 2005. During the participation in the mechanism, the euro/koruna parity was revaluated twice, by 8.5% and 17.6%, respectively. It must be stressed here that the scale of the second revaluation considerably exceeded adjustments of central rates of other currencies participating in ERM and ERM II. During the participation in the ERM II, Národná banka Slovenska (NBS) also conducted a number of interventions on the currency market, aimed largely at mitigating appreciation pressure on the koruna. The NBS explained that it intervened when, in its view, the koruna exchange rate was inconsistent with foundations of the economy (cf. e.g. Národná Banka Slovenska, 2006).



The period of ERM II participation saw gradual appreciation of the koruna towards the euro whose cumulated scale amounted to as much as 20%. Strengthening of the koruna was mainly the result of an increase in labour productivity in the Slovak economy and an influx of capital. Appreciation of the nominal rate was accompanied by strengthening of the equilibrium rate as an effect of increasing labour productivity and dynamic economic growth (Národná Banka Slovenska, 2006). The improvement of foundations of the Slovak economy justified both revaluations of the koruna. It is worthwhile to stress that the said factors behind the appreciation of the koruna and, as a result, behind its revaluations are (in the light of the position of the EC and the ECB) consistent with the assessment criteria of exchange rate stability.

Source: NBP study.

The considerable impact of credibility of the inflation path on exchange rate volatility is also confirmed by empirical studies. It is estimated that in the case of Poland, establishing the reliable date of entry into the euro area and the exchange rate which would anchor market expectations regarding the future conversion rate (optimally, the central exchange rate in ERM II) may be conducive to over twofold reduction of nominal exchange rate volatility (Naszodi, 2008). Thus, the issue of optimum central parity at the final stage of zloty's participation in ERM II assumes a special meaning.

Meeting the inflation criterion may generate a cost for the economy.

Risk of short-term cost of meeting the inflation criterion. Adopting the single currency requires, among others, meeting the price stability criterion (cf. p. 39). This is one of the formal conditions of entering the euro area whose meeting may be connected with bearing short-term costs consisting in a decrease in economic growth rate. The scale of costs the Polish economy will have to potentially bear will depend on a number of factors, but primarily on the level of the reference value as compared to the inflation rate in Poland. It will also be extremely significant what measures will be taken in order to potentially reduce inflation and how it would transmit onto the real economy sector. The purpose of the chapter is to attempt at estimating this type of cost of euro area accession.

The cost of meeting the inflation criterion differs depending on the adopted economic theory.

Literature lists three main currents dealing with the impact of disinflation measures on the economy: the **monetary**, the Keynesian, and the new classic economics. According to the monetary current, the scale of the slowdown depends on the credibility of monetary authorities. To be more precise, short-term changes in business activity result from the impact of money illusion on labour supply and formulating inflation expectations. Another theory is linked with the **new classic economics**. It is close to the monetary concept. Its representatives claim that with credible monetary policy, disinflation measures should not result in changes in the real sector of the economy, even in the short run. The **Keynesian** concept is, however, completely different from the above. According to this school, there is direct exchangeability between the level of business activity and the pace of price level changes, as shown by the Philips curve. The concept thus assumes that slowdown results solely from the disinflation process.

The determinants of the Polish economy should decrease the potential costs of lowering inflation.

The level by which GDP will decrease when inflation decreases by 1 percentage point is called the sacrifice ratio. International experience proves that the force of impact of disinflation policy on the economy differs across countries and the sacrifice ratio is lower for new EU Member States (including Poland) than for EU-15 (cf. e.g. Jarociński, 2006). Literature features the following explanations of the potential reasons behind the

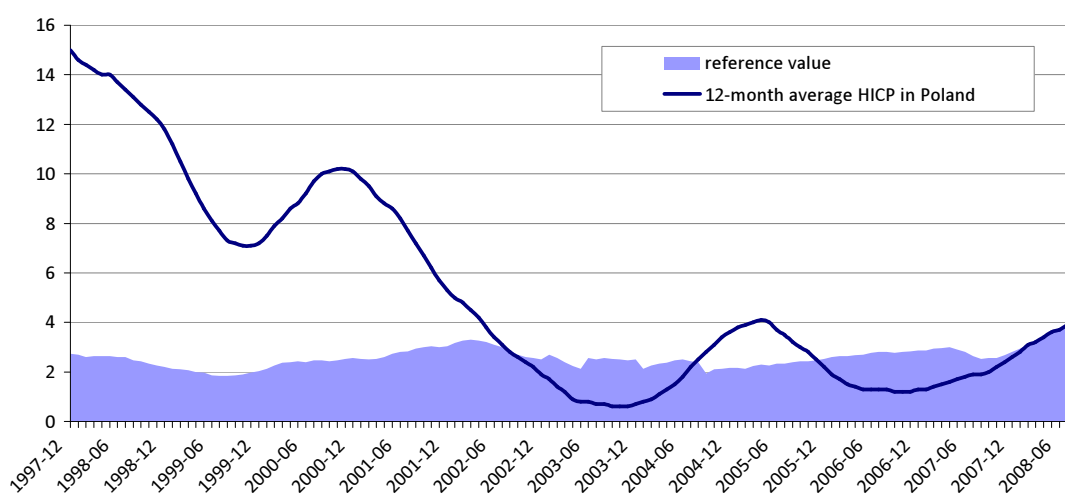
4.3 Short-term costs and threats

fact: firstly, in countries with high demand fluctuations prices adapt faster than demand (cf. Lucas, 1973); secondly, in countries with higher inflation, the need to adjust prices arises more frequently and thus the prices are less rigid (cf. Ball et al., 1988). To sum up, it is highly plausible that the determinants of the Polish economy would limit the costs of the potential disinflation policy.

Chapter 2 described inflation and monetary policy in Poland since the beginning of the 1990s. Chart 4.16 presents the 12-month mean value of the harmonised index of consumer prices (HICP) in Poland since 2003 and the reference value of the index. In the past 5 years, Poland largely met the inflation criterion, with the exception of the period between August 2004 and October 2005. During this period, *Convergence Reports* from March 2006, October 2006, and March 2007 included Poland in the group of three reference countries, i.e. EU Member States with most stable prices.

Inflation in Poland has been stabilising since the end of the 1990s.

Chart 4.16 Changes to HICP in Poland as compared to reference values



Source: Eurostat.

In the future, global processes, particularly prices of raw materials and food, will have the greatest impact on inflation. It is nevertheless difficult to state to what degree the increase in prices of raw materials would impact prices in Poland, mainly due to changes in nominal effective zloty exchange rate. Agflation⁴⁷, which has been observed since 2007, is of equal importance to inflation processes in Poland upon verification of the inflation criterion. One must nevertheless remember that permanence and intensity of the phenomenon is currently a controversial issue. As stressed in the European Commission report (European Commission, 2008b), the expected increase in inflation is the most serious problem faced by all countries covered with derogation, including Poland.

On the other hand, the reference value underwent significant fluctuations in recent years. In the period between January 1998 and August 2008 it amounted to an average of 2.6%. It was the lowest in July and August 1999 (1.8%) and the highest in August 2008 (4.1%). One must remember that the value is volatile and depends on inflation in all European Union Member States, also those from outside the euro area. There is thus the risk of very low inflation rates in one or more countries, which would result in serious decrease in the reference value. The inflation target in Poland may then be insufficient to meet the inflation criterion.

The reference value undergoes significant fluctuations.

⁴⁷ Agflation consists in global increase in food prices and accompanying increase in inflation in individual countries.

It may be necessary to employ disinflation measures.

To sum up, there are many factors difficult to forecast which will influence the relation between the inflation rate in Poland and the reference value. There is thus the risk that the inflation rate would exceed the level which ensures meeting the convergence criterion⁴⁸. According to *Monetary Policy Strategy beyond 2003*, after the final decision about the date of entry into the euro area, if the reference value was to be lower than 2.5%, an additional short-term inflation target will be set to meet the inflation criterion.

Box 4.14 Slowdown of GDP growth rate due to decrease in inflation by 1 pp

Simulations conducted constitute a modification and extension of analyses presented in the NBP Report of 2004. Appropriate specification of the Philips curve characterising the Polish economy, supported by inflation expectations, was matched on the basis of statistical and econometric procedures. Results thus obtained suggest that for the Polish economy, the hybrid Philips curve is appropriate in which current inflation depends on current expectations as to future inflation, previous period inflation, and the demand gap. Additionally, simulations adopted endogenous inflation expectations. Due to the above, a two-equation model was applied which consists of a hybrid Philips curve and an equation depicting the mechanism of forming inflation expectations where expectations depend on past and future inflation^a.

Chart Deviation of inflation rate and GDP growth rate (pp) from the basis scenario as a result of disinflation policy application



^a The same mechanism was applied in the structural model used to forecast inflation in the NBP, New Analytical Scheme (cf. Kłos et al., 2004).

Source: NBP study.

Based on simulations, the potential cost of disinflation policy for Poland...

Simulations were conducted in order to estimate the potential costs related to the necessity to meet the price stability criterion. The Keynesian approach was applied

⁴⁸ According to inflation projection from June 2008 (cf. *Inflation Report*, June 2008), the pace of price growth is expected to accelerate within the next two years. Subsequently, and then inflation should stabilise at ca. 3% in 2010.

4.3 Short-term costs and threats

bearing in mind that the assumptions of the theory are a great simplification and the scale of slowdown attributed to disinflation measures below may be lesser in reality. This is due to the fact that the concept applied does not distinguish between the impact of policy from other factors influencing economic growth and from the said determinants of the Polish economy mitigating the effects of disinflation policy.

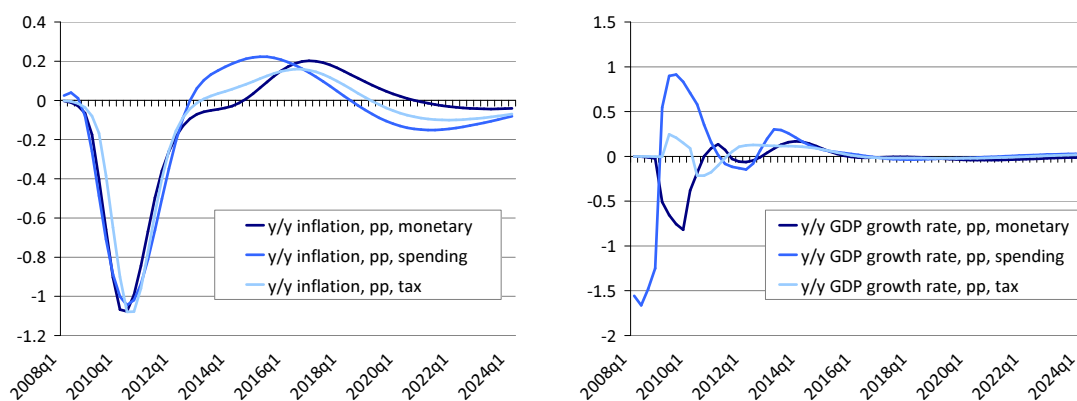
Results suggest (cf. Box 4.14) that in the case of the necessity to reduce inflation and retain it at a level 1 pp lower for a subsequent year as compared to the basis scenario, the decrease in GDP growth rate will occur by an average of ca. 0.8 pp. The influence on GDP will be the strongest in the initial year of inflation decrease. The GDP growth rate will then be ca. 1.6 pp lower than with higher inflation. Nevertheless, after a year and a half the GDP growth rate will return to its base level. Thus, the negative effect consisting in lower economic growth rate will only be short-term.

Disinflation policy may be conducted on the basis of a number of tools. On the basis of NECMOD, simulations were conducted comparing the impact of various economic policies leading to a decrease in annual average inflation rate by 1 pp. The following effects were distinguished: increase in interest rates (monetary impulse), lower spending (spending impulse), and lower indirect taxes (VAT impulse). Results of the study show that the greatest cost consisting in a decrease in GDP growth rate is generated by the policy of limiting purchases of goods and services by the government sector (see Chart 4.17). Policy of lowering indirect taxes is, however, the most beneficial in terms of generating the smallest decrease in the GDP in the medium term.

...may amount to the average of ca. 0.8 pp within two years.

Greatest decrease in GDP growth rate is connected with the fiscal spending impulse and the smallest one – with VAT spending impulse.

Chart 4.17 Comparison of effects of application of various disinflation policy tools on the basis of NECMOD



Source: National Bank of Poland (2008d).

Lower GDP growth rate translates into a decline in the welfare of households. According to Lipińska (2008b), such a decline in Polish conditions may equal long-term decline in consumption by 0.0156%. The author estimated the respective cost for the Czech economy at 0.0214% and Gradzewicz, Makarski (2008) estimated the cost of losing the autonomous conduct of monetary policy at 0.06%. The cost is thus not very high. It can be compared to the cost of the business cycle in the American economy estimated in the key paper by Lucas (1987). Lipińska's estimation results from comparing the optimum monetary policy conducted with limitations resulting from the Maastricht criteria and without the limitations.

Decline in welfare of society when meeting the Maastricht criteria would be lower than in the Czech Republic and upon euro area accession.

Optimum monetary policy undergoes modification due to limitations resulting from meeting the Maastricht criteria.

The author considered decisions of monetary authorities taken in order to maximise probability of meeting the Maastricht criteria. With the imposed limitations, the objective of monetary authorities should be not only to minimise fluctuations of inflation, output, and internal and external terms of trade. Convergence criteria additionally force minimising the fluctuations of inflation, nominal interest rate, and the nominal exchange rate around modified objectives (e.g. a more restrictive inflation target)⁴⁹.

Pressure on real appreciation may hinder simultaneous meeting of the inflation and exchange rate criteria, although risk is estimated to be low.

Lipińska (2008b) and Koloch (2008) stress that measures targeted at meeting the inflation criterion must also take into account the necessity to meet the exchange rate criterion. As a small catching-up economy, Poland could experience difficulties due to the appreciation pressure of the real exchange rate (cf. Koloch, 2008 and Bęza-Bojanowska, MacDonald, 2008). As a consequence, there is a risk that the efficiency of measures aimed at lowering inflation prior to euro area accession would be limited. Lipińska (2008b) shows nevertheless that in the conditions of optimum monetary policy, it is highly plausible to meet both criteria simultaneously. Koloch (2008) also estimates that the empirical likelihood of simultaneous meeting of both criteria should not decline below 70% at the most intensive stage of the catching-up process.

4.3.2 Short-term price effects of the introduction of the euro into cash circulation

Price effects following the introduction of the common currency into circulation in the euro area members became one of the main social problems accompanying the monetary integration process. Although official data pointed to a small impact of the currency changeover on inflation (in 2002 the average growth of overall price level in the euro area was similar to that recorded in the preceding year), a significant increase in social perception of inflation was recorded already in the first month of new currency being in place⁵⁰.

The conviction about inflation consequences of the common currency introduction is common in the euro area countries.

The resulting divergence between official and perceived inflation persisted for several more years after the changeover of currency. The problem reached its peak in the beginning of 2003 and disparity narrowed down gradually over the following years. The belief of society about inflationary consequences of the common currency introduction remains deeply rooted in the euro area states. According to an opinion poll conducted five years after the currency changeover (European Commission, 2006e) the conviction is shared by the majority of the euro area citizens (93%). Interestingly enough, the distribution of views does not depend on social categories, such as age, education or profession. There are, however, some differences between individual member states. The share of the population believing that as a result of the euro introduction an overall price level increased is the largest in Spain, Greece, France and Italy (96–97%). Ireland stands out among other countries, since “only” 71% of the population shares the above belief.

“Euro illusion”

The euro illusion was reflected in an overproportionate increase in social perception of inflation as compared to official price growth index.

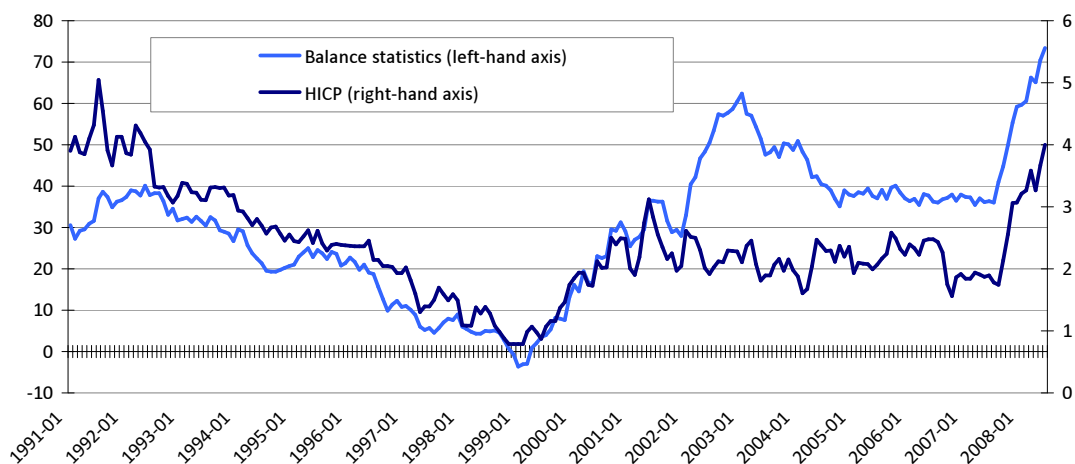
Thanks to large-scale information campaigns preceding the introduction of the euro currency into circulation, the event was fully predictable for consumers. According to

⁴⁹ Lipińska (2008a) disregards the long-term inflation differences resulting from real convergence processes between Poland and the euro area.

⁵⁰ More on the subject in Konopczak (2008b).



Chart 4.18 Balance statistics and HICP inflation index in the euro area between 1991 and 2008



Source: NBP study based on the ECB data.

the theory of economics, due to the nominal nature of currency changeover and its predictability, consumption-related decision of individuals undertaken with a view to maximizing their own utility should not change. Any deviation from that rule would prove the occurrence of the phenomenon called money illusion whereby consumers tend to think that nominal changes are real ones. As a result of that phenomenon they take suboptimal decisions on the allocation of held resources and therefore affect the real sphere of the economy.

Within the period of several months surrounding the currency changeover in the euro area member states, the money illusion (called the euro illusion here) was demonstrated mainly by an increase in perceived inflation⁵¹ which was disproportionate as compared to the changes in official price growth indicator. Chart 4.18 presents the HICP inflation index and perceived inflation index between 1991 and 2008.

Whereas inflationary expectations from before the currency changeover had not pointed to any divergence, it came as a surprise for economists. Respectively, numerous studies on the euro illusion phenomenon, its reasons and consequences for the economy were conducted. The discussions focused on whether the divergence between real price movements in the economy and their social perception was real or whether its existence was just an artifact stemming from the construction of the official inflation index or applied measure of perception.

According to most studies the introduction of the new currency into circulation indeed resulted in the decoupling of long-term relation between the official inflation index reported by statistical offices and the change of overall price level perceived by society. However, there was also some scepticism in this regard which questioned the results of mainstream studies in methodological terms (Dias, Duarte, Rua, 2007 and Brachinger, 2006).

Potential determinants of a disproportionate increase in perceived inflation listed in literature may be divided into two main groups, on the one hand there are psychological

The euro illusion occurs due to...

⁵¹ The balance statistics is normally established on the basis of the data from a monthly survey commission by the European Commission (*Business and Consumer Survey*) as a weighted difference between the percentage of respondents declaring the perceived price growth and those who observed a decrease or no changes in this regard.

factors induced by consumers – premises for this development, and on the other hand there are economic factors which may be defined as sufficient condition in this context⁵².

...psychological factors...

Psychological mechanisms which contributed to the occurrence of the said divergence include mainly limited possibilities of information processing by an individual. Manifestations of the phenomenon include difficulties in getting used to the new nominal price level, resulting in the habit to convert prices into amounts in a national currency, even many years after its withdrawal from circulation. Five years after the currency changeover, a significant percentage of the euro area inhabitants (22%) still converted prices while doing small shopping and even more people (40%) did so while spending larger sums of money (European Commission, 2006d). As a consequence, the reference point for making price comparison was established in the period from before many years. Moreover, due to its distance in time and imperfect memory of individuals, the reference price may be subject to significant burden (Cestari, Del Giovane, Rossi-Arnaud, 2007).

Another potential source of the burden on perception is using approximate conversion rate instead of an official rate. For example, using simple conversion rules while converting prices from the euro to prices in German marks⁵³ leads to inflating the prices by around 2.3%⁵⁴.

Sociological factors, such as the pace of social adaptation or social acceptance of the new currency, estimated by surveys were also important for intensity and persistence of the divergence (Del Missier, Bonini, Ranyard, 2007). The most important social and demographic determinants of divergence between inflation and its perceptions included age, education, a priori attitude to the euro, difficulties in using the new currency and knowledge about the current economic situation, as well as about macro and microdeterminants of inflation (Stix, 2006 and Fluch, Stix, Rumler, 2007).

...and results from specific price movements in the economy within several months surrounding the currency changeover.

To a large extent due to specific price movements in the economy at that period perceived inflation disproportionate increased after the introduction of the euro into circulation. The most popular hypothesis in this regard concerns the relation between perceived inflation and movements of prices of most often bought goods and services, mainly food and fuels. The category has a disproportionate impact on social perception of the overall price level growth as compared to its share in average consumption expenditure, due to the frequency of purchase and the form of payment⁵⁵.

Most purchased goods and services recorded the largest price growth within several months around the currency changeover. Between December 2001 and January 2002 the index of inflation in this category grew by 1.5 percentage points (from 2.5% to 4%). The growth did not result from the introduction of the euro but from the economic situation several years before the currency changeover (Brachinger, 2006)⁵⁶. Moreover, such factors as adverse weather conditions for agriculture, epidemics of diseases of

⁵² Such presentation of potential reasons for divergence between inflation and its social perceptions is obviously a certain simplification but it demonstrates the nature of the phenomenon. If an external impulse was absent, psychological mechanisms for divergence which are considered an immanent trait of human psyche (at least in Western culture) would not cause the discussed effects. Economic factors acted as a catalyst in this regard.

⁵³ An official conversion rate was DM 1.95583 per euro, which was commonly rounded off to 2 German marks.

⁵⁴ Other countries particularly exposed to the problem due to the conversion rate included Italy, the Netherlands and Spain.

⁵⁵ Cash is a dominant form of payment for most often bought goods and services. Therefore, the index of this category of products is usually referred to as out-of-pocket.

⁵⁶ The years 1999 and 2000 saw price wars on the retail trade market, as a result of which price of certain categories of goods, mainly food, dropped to such a low level that an adjustment had to happen in the following years.

4.3 Short-term costs and threats



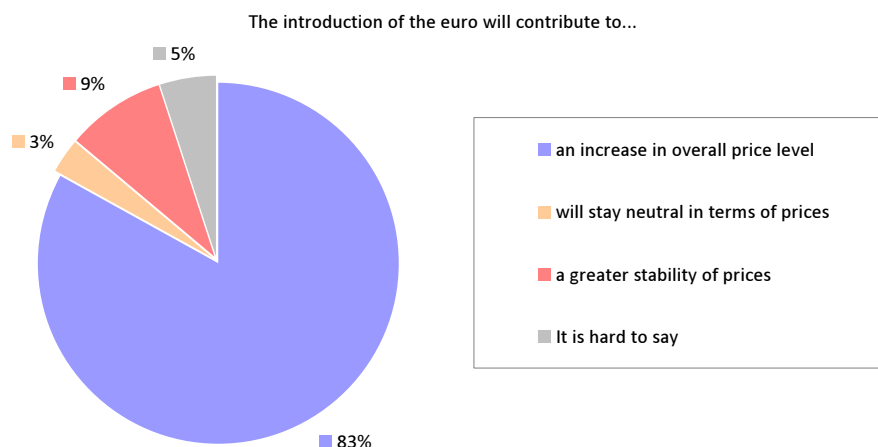
breeding animals, increasing fixed costs, in particular labour costs, and the growth of indirect tax rates in some countries also contributed to the situation.

Other price effects characteristic of the period after the euro introduction included higher incidence of price adjustments than it had been the case before the currency changeover. Those adjustments were, however, lower on average than in the years preceding the euro adoption. Moreover, changes in prices were symmetric downwards and upwards, both with regard to incidence and scale (Baumgartner et al., 2005), and thus were not reflected in the inflation index. Nevertheless, in line with the theory of perspective, price increases influence perception more strongly than decreases with the same absolute value, so in the case of their similar, though in both cases increased, incidence, perceived inflation may increase.

Divergence between the price growth and its social perception is a negative phenomenon, as it results in the decrease in perception of one's own budget, and thus one's purchasing power, by an individual which results in a decrease in consumption. This means a decline in welfare for a household, and a decrease in consumption demand for the whole economy. Due to distorted perception of real incomes wage pressure may increase and, via wage-price spiral, overall price level may grow in real terms. According to the results of surveys uncertainty of the citizens of the euro area states concerning price changes after the currency changeover was translated into constraint on their consumption expenditure (European Commission, 2003b), particularly with regard to some categories of goods and services. For example, the proceeds of cinemas in Germany fell by 11% y/y and of restaurants and catering business by 9% y/y in the second half of 2002 (Deutsche Bundesbank, 2004). Eife, Maier (2007) concluded that the decline did not result from the changes in demand related to business cycle and that they may be attributed to the euro illusion.

The euro illusion may entail considerable costs for the economy and society.

Chart 4.19 Distribution of views in the Polish society in 2008 on the impact of the euro introduction on price level



Source: NBP study based on Eurobarometer data (European Commission, 2008d).

Due to high social and economic cost of the euro illusion, reasons behind price effects accompanying the introduction of the common currency in the past, determinants of their intensity and efficiency of various preventive measures have to be thoroughly analysed to evade mistakes by other states to accede to the euro area. Moreover, the importance of such analysis is evidenced by common social fears of inflationary consequences of the common currency introduction in new European Union Member



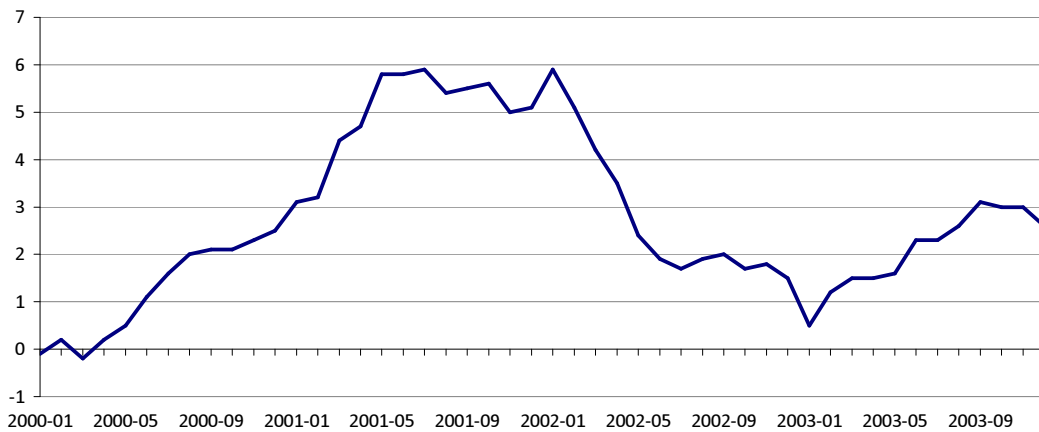
States acceding to the euro area. The distribution of views of the Polish society in this regard in 2008 is presented in Chart 4.19.

Short-term price effects accompanying the introduction of the euro currency into cash circulation

Within several months surrounding the currency changeover, the price growth of certain basket categories was high.

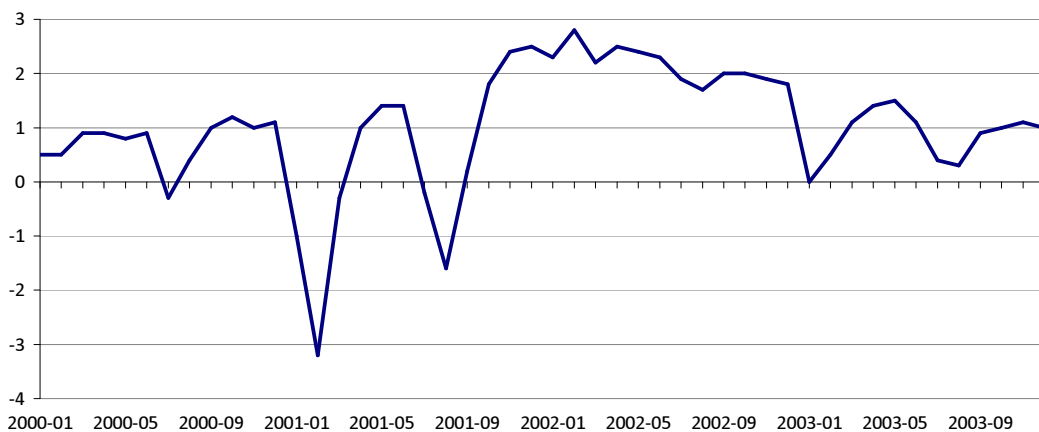
The analysis of the changes of sectoral inflation indices in the euro area countries within several months around the currency changeover points to a relatively high growth of prices in certain groups of products, despite a stable growth rate of overall price level. The problem concerned mainly the category of most purchased goods and services, in particular food, clothing and such services as hairdressing, as presented in Charts 4.20–4.22.

Chart 4.20 Annual growth rate of prices of food and non-alcoholic beverages in the euro area, 2000–2003



Source: Eurostat.

Chart 4.21 Annual growth rate of prices of clothing and footwear in the euro area, 2000–2003

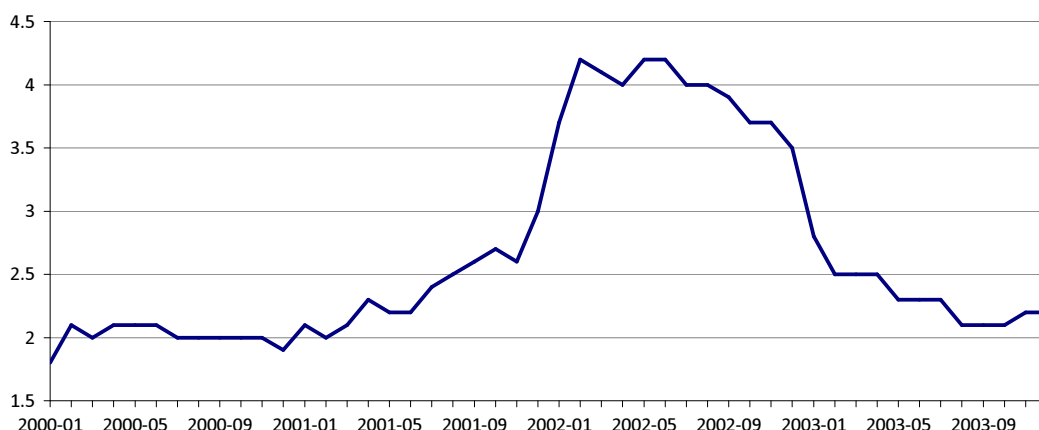


Source: Eurostat.

4.3 Short-term costs and threats



Chart 4.22 Annual growth rate of prices of hairdressing services in the euro area, 2000–2003



Source: Eurostat.

In this context, an important question is how much of the recorded price growth may be attributed to the factors related to the currency changeover. As estimated by the Eurostat (2003), the impact of the euro introduction into cash circulation on overall price level in the economies of member states was insignificant. In 2002 the annual HICP inflation index amounted to 2.3% in the euro area, out of which 0.12 to 0.29 percentage points may be attributed to effects related to the introduction of the euro into cash circulation (Eurostat, 2003). As a primary consequence of the currency changeover, the prices grew in the services sector, in particular with regard to catering, hairdressing or sports, recreation and cultural services. The introduction of the euro also contributed to a certain extent to an increase in food prices.

It is important to determine what part of price effects may be attributed to the introduction of the euro in cash. The impact of the euro in cash on overall price level is insignificant according to Eurostat (2003).

The results of the study by Konopczak, Rozkrut (2008) are somewhat contrary to the conclusions of the Eurostat (2003), as they indicate that short-term price effects, i.e. price increases which did not result from fundamental factors, occurred in all analysed categories of the HICP basket, except for recreation and culture. In some cases, certain increases in the price growth rate were recorded even in the months preceding the currency changeover. In most cases, price effects were the most intensive in January 2002 (except for services where price effects were more evenly distributed in time). In that month, the price growth rate in the euro area countries was higher by around 0.6 percentage point for HICP inflation, by 0.76 percentage point higher for consumption goods prices, by 1.1 percentage point for food and by around 0.9 percentage point in the category of restaurants and hotels, than it would stem from fundamental factors. In some categories, mainly food, initial price increases were corrected in subsequent months after the currency changeover.

Short-term price effects of the euro introduction are significant in almost all categories of the inflation basket.

The Eurostat (2007; 2008) estimated the price effects accompanying the introduction of the common currency into circulation in new euro area member states (Slovenia, Malta and Cyprus) at 0.2–0.3 percentage point. The problem was the most visible in the case of the following categories of the HICP basket: catering services, sports and recreation, hairdressing services, telecommunications, cars, alcoholic beverages and repairs⁵⁷.

⁵⁷ More on the subject in Górska et al. (2008).

Hypotheses on reasons for price effects

Literature most often lists four factors as potential reasons for price effects: (1) transfer of changeover costs on consumers; (2) price stickiness, particularly in some sectors; (3) rounding the prices to the so-called attractive prices and (4) coordination of expectations of companies concerning the behaviour of consumers in a situation of reduced transparency of price movements.

The cost of currency changeover was relatively low for enterprises.

The literature agrees that the first of the above listed factors had a small impact on price processes, as the estimated cost of the currency changeover was relatively low. It amounted to about 0.3% of annual turnover of retail trade in Belgium (Aucremanne, Cornille, 2001), 0.3% of annual turnover in industry, 0.7% in trade and 0.6% in the services sector in France (Attal-Toubert, de Belleville, Pluyaud, 2002) and 1% of turnover in the retail trade sector in the Netherlands (Folkertsma, van Renselaar, Stokman, 2002). Moreover, a part of those costs was incurred even before the euro was introduced into cash circulation.

“Menu cost” hypothesis.

The impact of nominal rigidities on price effects is demonstrated by the “menu cost” hypothesis, according to which adjustments are costly, e.g. due to necessary replacement of price lists, and thus price changes are rare. Under theoretical models of the above hypothesis upon the introduction of the new currency, a higher percentage of companies will adjust the prices, using an opportunity offered by the obligatory changeover of the currency which will force change of nominal price quotation. Simulations based on theoretical models also show that, if the “menu cost” hypothesis is true, a horizontal effect will occur, whereby the percentage of enterprises deciding to change prices right before the introduction of the new currency will be lower than the average. The models correctly determine the sectors, in which the said effects should be the most intensive, namely, the catering services sector which features relatively large price stickiness. The hypothesis was reflected in the studies on microdata (Angeloni, Aucremanne, Ciccarelli, 2006; Gaiotti, Lippi, 2004; Hobijn, Ravenna, Tambalotti, 2004), but was negatively verified in the models using aggregate data (Ercolani, Dutta, 2006; Konopczak, Rozkrut, 2008).

Rounding off to attractive prices.

Inflationary consequences of rounding off prices upon the introduction of the euro into cash circulation were among the main fears of society in this regard. Nevertheless, simulations of this effect (see Box 4.15) for the Dutch (Folkertsma, 2001) and the Belgian economy (Aucremanne, Cornille, 2001) show that in the worst case scenario the upper limit of the impact of rounding off on the price growth rate amounted to 0.88% for the Netherlands and 0.72% for Belgium. Effects of rounding off are the most visible in products with lowest unit prices. Simulations for other countries were based on arbitrary rules, both in terms of identification and classification of attractive prices (see Box 4.15). The maximum impact of price rounding on the CPI index was estimated at 0.23% for Portugal (Santos et al., 2001), at 1.7%⁵⁸ for the Spanish economy (Álvarez, Jareño, 2001) and at 1% for the Italian economy (Mostacci, Sabbatini, 2008).

Folkertsma, van Renselaar, Stokman (2002) used survey data to analyse the impact of price rounding on the Dutch inflation index a month after the currency changeover. They estimated the impact at two thirds of the total impact of the changeover which amounted to 0.3%. Glatzer, Rumler (2007) analysed the price rounding development in Austria in the medium term. The percentage of attractive prices turned out to drop rapidly after the euro introduction and then gradually returned to its previous

⁵⁸ The result is distorted also by data sets used for simulations, i.e. prices from a website of a supermarket and average (not unit) prices for several hundred products calculated by the Ministry of Finance.

performance. In other words, there was no common rounding off to attractive prices. The authors attributed this to the obligation of double price quotation in Austria.

Box 4.15 Simulations of the price rounding effect

Contrary to other price effects stemming from price stickiness or coordination of enterprises' expectations, the impact of rounding off may be objectively quantified *ex ante*, under certain assumptions. Therefore, the issue became subject to analysis in numerous countries, even before their accession to the euro area. The impact of rounding effect on prices was estimated for the Dutch (Folkertsma, 2001), Belgian (Aucremagne, Cornille, 2001), Italian (Mostacci, Sabbatini, 2008), Spanish (Álvarez, Jareño, 2001) and Portuguese economy (Santos et al., 2001).

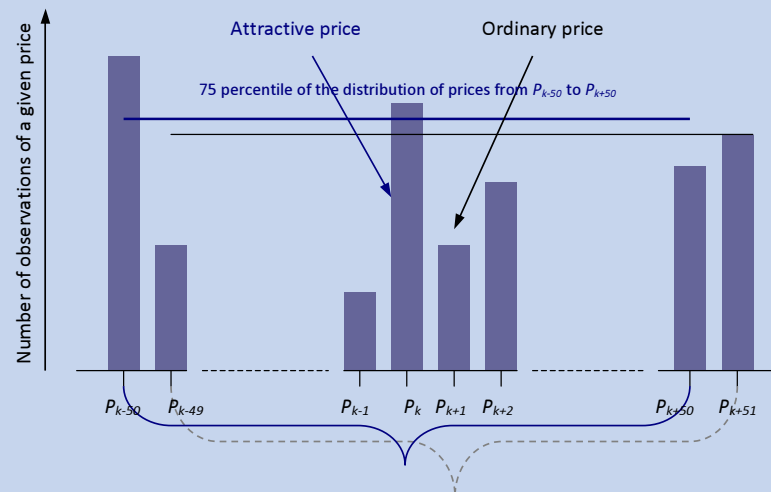
Rounding operations in the group of so-called attractive prices are the main source of potential price increase. Attractive prices are a group of prices which, unlike other prices called ordinary prices, perform certain functions in the economy. The first such function is the signalling role. Many categories of goods and services have an attractive modal price which lowers the cost incurred by consumers for learning the price structure and making price comparisons. Two other functions determine the division of attractive prices into two categories. The former comprises psychological prices the task of which is to influence the consumers' perception so as goods and services seemed cheaper than they actually are. The latter, namely, fractional prices, allow to perform the transactions faster since a small number of coins or banknotes is needed to make a payment or give the change. Fractional prices include also round prices which are used mainly in the case of high prices to avoid using coins and notes with small nominal values.

Due to the above factors, attractive prices account for an overwhelming majority of price incidence distribution in the economy. In effect of the changeover of currency the price structure changes, and attractive prices cease to dominate, at least initially. Due to the role of those prices in the economy, the normal structure of prices may be expected to be reinstated after some time. The key question in this context is the length of the period of adjustments, the symmetry of adjustments and whether the rounding to attractive prices would encourage a price growth. The inflationary scenario should not be considered determinist, as the possible common rounding up of the prices depends on a number of factors, including demand and supply-related factors. The most important determinants in this regard include (1) a degree of market competitiveness; (2) a point of the business cycle in which the currency changeover takes place; (3) a degree of social awareness and (4) activities of consumer organisations and state institutions.

The main problem of the analysis of the impact of price rounding on inflation is to correctly identify attractive prices. Two approaches are possible here. The former, which may be deemed heuristics, assumes that the actual attractive prices correspond to the prices postulated by theory. More specifically, the speed of a transaction is approximated on the number of coins or banknotes necessary to perform the transaction, while the prices in which the last significant digit (different than 0) is 9 are considered psychological prices. An alternative approach is to identify the prices which occur in the economy significantly more often than others, by means of a formal procedure proposed by Folkertsma (2001). The ordinary identification of prices with the highest incidence in a given set would be inappropriate since lower prices tend to be more common than higher prices.

The procedure consists in computing the 75% percentile of incidence distribution of the prices for 101 consecutive series of prices in an increasing order and verifying whether the median price, i.e. the 51st price of the series is among the 25% most observed prices. If verified positively, the median price is considered attractive, otherwise it is considered an ordinary price. The above method of attractive price identification was illustrated in the diagram below.

Diagram Procedure for identification of attractive prices



Source: NBP study.

Identified attractive prices are attributed to individual categories (psychological and fractional) partly on the basis of theory and partly on the basis of empirical price distribution in a given economy. Whereas the procedure ignores fifty first and fifty last prices, attractive prices are selected from among them by extrapolation or arbitrary choice.

The simulation of the impact of rounding the prices to attractive prices is based on certain assumptions concerning the rules which will govern the process after the currency changeover. It allows to estimate the impact depending on the adopted scenarios of rounding. The literature assumes several possible courses of developments in this regard, including (1) a pessimistic scenario where prices are rounded up to the nearest attractive price (irrespective of the category); (2) a worst-case scenario where attractive prices are rounded up to the nearest attractive price from their category (i.e. psychological to psychological and fractional to fractional); (3) a symmetric scenario where prices are rounded up or down to the nearest attractive price; (4) a virtuous scenario where prices are rounded down to the nearest attractive prices. Ordinary prices are rounded irrespective of the scenario to one eurocent, upwards or downwards.

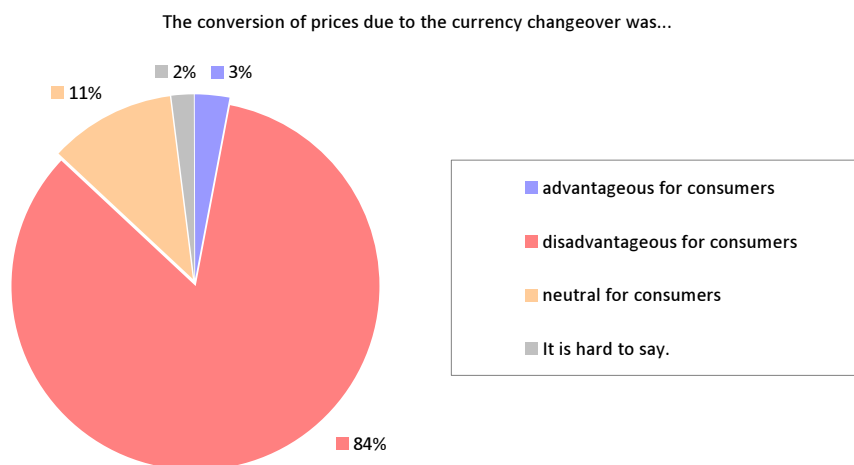
Source: NBP study on the basis of Rozkrut, Jakubik, Konopczak (2008).

Potential price abuses. Some price abuses, i.e. price increases using the reduced transparency of prices for consumers might have taken place in the case of some goods and services within several months around the currency changeover. According to the rational inattention theory, as a result of the cost of obtaining and processing of information, its optimal level is not

4.3 Short-term costs and threats



Chart 4.23 Distribution of opinions of the euro area citizens in 2002 in respect of price abuses accompanying the currency changeover



Source: NBP study based on Eurobarometer data (European Commission, 2002b).

always equal to the total information available. The currency changeover contributed to an increase in this cost for consumers, due to the necessary conversion of prices into the national currency to compare them with the previous prices. Respectively, if the cost of price conversions exceeds the expected loss on consumption according to the old basket, consumers buy in line with the patterns from before the currency changeover, irrespective of the price changes. Such behaviour encourages companies to increase the prices of goods, in the case of which the conversion is not an optimal procedure for consumers.

Citizens of the euro area member states generally believe that the currency changeover indeed coincided with price abuses. The distribution of opinions in this regard is presented in Chart 4.23.

Empirical evidence suggest that coordination of enterprises' expectations concerning the confusion of consumers due to the currency changeover may explain different intensity of price effects across sectors. For example, after the introduction of the euro into cash circulation in Italy, the price growth rate was higher in restaurants servicing mainly tourists than in the restaurants for locals. Adriani, Marini, Scaramozzino (2006) explained that this situation is due to the fact that tourists have imperfect information⁵⁹, and hence a coordinated price increase is possible in the restaurants for them. The restaurants for locals cannot do that since the locals have perfect information.

A study by Ehrmann (2006) shows that the complexity of conversion rate⁶⁰ is important to explain the differentiation of inflation indices among the countries in some categories of the basket, mainly in the case of food. It stems from the fact that such goods are most often bought in large amounts and are relatively cheap. Respectively, consumers are less willing to make detailed comparisons of prices in the old and new currency.

⁵⁹ In microeconomics, a given entity has imperfect information where it does not have some information owned by other entities.

⁶⁰ Ehrmann defines the complexity of the conversion rate as a difficulty experienced by an average consumer while converting the prices from the common currency into the national currency. The classification of rates is arbitrary, based on certain facts concerning the functioning of the brain (e.g. multiplication was considered an easier operation than dividing).

Inflation in the countries with the simplest and most complex conversion rates was relatively lower than in the group of countries with medium complexity of conversion rates. It was due to the fact that the population from the former had a relatively good orientation in new prices while in the latter used calculators relatively more often to convert the prices precisely (due to differences in using a simplified conversion rule).

Institutional solutions preventing price effects of the euro introduction

Experience of the euro area member countries shows that the intensity of price effects accompanying the introduction of the cash common currency into circulation may be offset by applying appropriate institutional solutions, including the appropriate policy of the government and consumer organisations. The activities should aim at (1) preventing the euro illusion, i.e. the disproportionate rise in perceived inflation as compared to the developments in the overall price performance and (2) reducing the actual price effects, i.e. price increases which do not stem from fundamental factors and use the confusion of consumers.

Dual quoting should be in place.

The main institutional solution in this regard is mandatory double quoting within several months surrounding the introduction of the cash common currency into circulation. Such a solution was applied in four (Austria, Portugal, Greece and Finland) out of twelve states which adopted the euro in 2002⁶¹. The dual quoting in the remaining countries was at the discretion of operators. The resulting natural experiment allowed to examine whether this institutional solution prevents the potential price effects related to the currency changeover.

Mandatory dual quoting is an efficient tool preventing price effects.

An analysis by Eife (2006) shows that the variation of the intensity of price effects accompanying the currency changeover in different euro area member states may partly be explained by the fact that dual quoting was mandatory only in some of them. The impact of the euro introduction on inflation in the group of countries where it was mandatory was insignificant or small. In the remaining member states of the euro area, the effect varied from significant (Germany, the Netherlands) to insignificant (Belgium, Ireland, and Luxembourg). The lack of the impact of cash euro on prices in the countries from the latter group indicates that no administrative obligation is necessary to counteract price abuses. It suffices to create a legal environment where price increases would be unprofitable. By way of illustration, in Belgium the authorities announced that if dual quoting was not common, they would issue a relevant legal order. This proved to be an efficient preventive strategy against price effects of the euro introduction.

A study by Konopczak and Rozkrut (2008) confirm the partial efficiency of mandatory dual quoting in preventing price increases, which fail to reflect fundamental factors, in some categories of the inflation basket (overall price level index, consumption goods and in the category of restaurants and hotels). In the countries where dual quoting was required by law, the overall price growth rate was much lower during the period of dual quoting than in other countries adopting the new currency.

The analysis of microdata carried out by Folkertsma, van Renselaar, Stokman (2002) for the Netherlands, i.e. the country without mandatory dual quoting, points to the correlation between the amount of price increases and the dual quoting by enterprises. The prices in the group of companies which failed to apply this solution (15% of the sample) increased by as much as 3% in January 2002, while the increase for the whole sample amounted to 1.4%.

⁶¹ The dual quoting was obligatory in all new member countries of the euro area (Slovenia, Cyprus, Malta and Slovakia).

4.3 Short-term costs and threats

Dual quoting is most important for the stability of prices of the cheapest category of goods, i.e. goods purchased in large amounts, which are relatively cheap and the prices of which are subject to frequent fluctuations. According to the rational inattention theory, consumers are less willing to convert the prices of each products into the old currency and thus to compare the prices, which gives companies an occasion to increase prices. Moreover, the results of simulations (Rozkrut, Jakubik, Konopczak, 2008) show that the products with low unit prices are most exposed to the risk of price increase as a result of rounding off to attractive prices.

If dual quoting is mandatory, its length is also important. The period of dual quoting should begin before the currency changeover. According to Eife (2006), Finland experienced relatively large price effects as compared to other countries which applied the said institutional solution, since the solution was introduced too late (upon the currency changeover).

Glatzer, Rumler (2007), in turn, point to the fact that the dual quoting period should be as short as possible, since it puts off the moment in which the prices return to their normal structure with prevailing attractive prices. Before the euro introduction, attractive modal prices existed for numerous goods (Deutsche Bundesbank, 2004). Attractive prices play an important role in the economy due to their signalling properties; they reduce the cost incurred by consumers to become oriented in price structure. Dispersion of the prices of some goods in the economy rapidly increased after the currency changeover, due to certain constraints on rounding. According to Glazer and Rumler (2007), the prices will be rounded to attractive anyway, so mandatory dual quoting only puts off this moment in time. A side effect of the said institutional solution is the confusion of consumers which is detrimental for the economy.

Another problem related to dual quoting is that people often do not pay attention to the prices in new currency, and thus after some time it is desirable to wean them off the old nominal price level by means of a prohibition on quoting prices in the old currency. Meanwhile, the time where the prohibition is introduced plays an important role in this regard. According to Eife (2006), price effects related to the introduction of the cash euro into circulation were the most intensive in Germany due to the fact that the prohibition on dual quoting was issued as early as two months after the currency changeover. The lack of this administrative solution in Austria resulted in prolonged period of returning to previous structure of the prices (Eife, 2006; Glatzer, Rumler, 2007).

In addition to mandatory dual quoting within several months surrounding the currency changeover, another important issue is the monitoring of the behaviour of companies with regard to their price policy, conducted by the authorities and consumer organisations. The possibility to report price abuses observed by consumers is also important (e.g. Price Watch imitative in Slovenia or euro-observatories and hotlines for consumers in Cyprus and Malta). The publication of the lists of companies which groundlessly increased their prices (the so-called black list or the name and shame initiative) was another element of the strategy preventing price effects of the introduction of the common currency into cash circulation⁶².

Other methods of preventing price abuses during the cash euro introduction include price agreements between enterprises and the government and other initiatives encouraging the enterprises not to use the currency changeover as a pretext to increase their prices or to maintain the prices at the same level for several months surrounding the currency changeover. Examples of such initiatives included the

⁶² More on the subject in Szeląg (2008).



Monitoring of the prices of most purchased goods is of much importance.

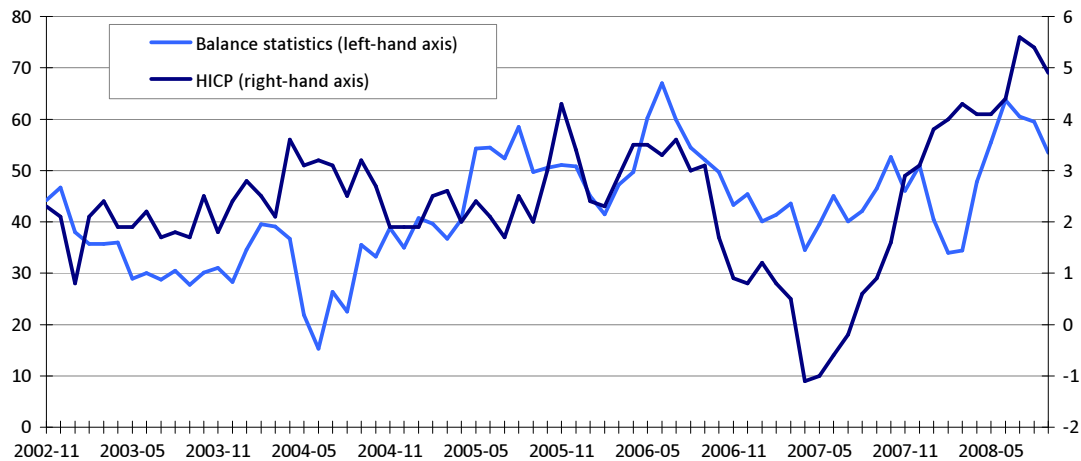
The role of appropriate period of mandatory dual quoting is important.

The prohibition on dual quoting should be introduced at the appropriate moment.

Monitoring of prices.

Price agreements between enterprises and the government.

Chart 4.24 Balance statistics and HICP inflation index in Malta between 2002 and 2008



Source: NBP study based on the ECB data.

Fair-pricing Agreements In Retailing (FAIR) in Malta, which covered over 90% of operators from the retail trade sector. The statutory prohibition on price increases which are economically unreasonable (imposed in Malta in the form of prohibition on rounding up the prices) and sanctions for its violation in the form of fines may also play some psychological role. Within the first seven weeks of 2008, over 100 entities in Malta adjusted their prices downwards – warned that they violated the prohibition⁶³. As a likely result of above institutional solutions, Malta was the only euro area member country without disproportionate growth of perceived inflation after the currency changeover (cf. Chart 4.24).

Malta successfully evaded the euro illusion problem.

Rescheduling of adjustments in the group of government-controlled prices.

Due to a relatively high risk of an increase in social perception of inflation within several months surrounding the currency changeover and its negative consequences, the government should consider rescheduling of adjustments of government-controlled prices, which are usually carried out at the beginning of a calendar year. This would allow to prevent the potential accumulation of price effects in the sensitive period for society and prevent their attribution by society to the euro introduction.

Information campaigns...

Information campaigns should be a key component of the policy of the authorities and consumer organisations within several months surrounding the currency changeover. Perception of inflation is determined by such factors as knowledge about the economic situation and economic mechanisms and attitudes to the new currency (Fluch, Stix, Rumler, 2007). Respectively, intensified communication between the authorities and society in the period preceding the cash euro introduction into circulation is an important measure preventing the euro illusion phenomenon. The activities of the authorities should in particular aim at (1) increasing economic knowledge of the society and (2) information and promotional campaigns concerning the new currency.

...and information aspect.

Information campaigns before the currency changeover should consist mainly in making society aware of the multiplicity of macro and microdeterminants of inflation. For example, Döhring, Mordonu (2007) point to the importance of the movements of investment goods prices, mainly real estate, for the perception of inflation. Whereas during the period of the new currency introduction people tend to attribute all price effects to the new currency, the task of the authorities is to make them aware of the fact that the consumption price index is different from the prices which may be determined

⁶³ More on the subject in Szeląg (2008).

by investment demand, as in the case of real estate prices. While consumers are aware of potential price effects which may accompany the introduction of the new currency (rounding to attractive prices, price growth which fails to stem from fundamental factors and uses the confusion of consumers), they are more vigilant and thus the likelihood of price abuses by enterprises is reduced. Society should also be made aware of the need for monetary integration and long-term benefits which are related to the common currency adoption.

Educational aspect of the campaigns should also focus on teaching society how to use the new currency, *inter alia*, encouraging the consumers to use special calculators converting the prices according to the binding conversion rate. In those countries, where the nominal price level in the national currency is much higher than in the euro, it is important to make the citizens aware that coins are worth more than before the currency changeover. The habit of leaving the change in coins could result in the reduction of purchasing power of consumers in those countries.

The literature of the euro illusion emphasizes the role of thinking in the categories of new currency in preventing this adverse phenomenon (Del Missier, Bonini, Ranyard, 2007). Solutions which would assist in weaning off the habit of converting the prices are of particular importance here. These could include assistance for consumers to learn approximate prices of representative goods and services in new currency even before the currency changeover.

Using Italians and the Irish as an example, Del Missier, Bonini, Ranyard (2007) point to the heterogeneity of societies with regard to the adaptation to new conditions (new currency in this case), related to the differences in age structure or education of the citizens. Therefore, the researchers recommend that the governments took appropriate measures well before the currency changeover, particularly in the countries with likely difficulties in adaptation.

The measures should be designed to accommodate the specificity of various types of recipients. In Cyprus, special campaigns were addressed to vulnerable social groups, namely, immigrants, pensioners, housewives or visually or auditorilly impaired people. In addition, the recipients themselves could influence the contents of campaigns by means of inquiries submitted through a special hotline. The replies to the inquiries were presented in special programmes in the media within several days.

Campaigns preceding the cash euro introduction should include not only information but also promotional aspects. In particular, they should build a positive image of the new currency, since empirical studies show that *a priori* attitudes to the euro are one of the main determinants of perceived inflation within several months surrounding the currency changeover (Stix, 2006 and Fluch, Stix, Rumler, 2007). For example, in Cyprus the leitmotif of the promotional campaign was the empowerment of the citizens in the currency changeover process.

Promotional aspect.

Risk of price growth as a result of the euro introduction into cash circulation in Poland

The rounding effect is the only effect from among potential price effects accompanying the change of the national currency into the euro that may be quantified *ex ante*. The potential impact of rounding the prices to attractive prices on consumption prices growth rate in Poland after the introduction of the cash euro into circulation was examined by the project by Rozkrut et al. (2008). The simulations of the effect were conducted using different scenarios, i.e. rules governing the rounding process and different conversion rates. The following simulation scenarios were adopted:

The rounding effect only may be quantified ex ante.

Simulation scenarios.

- Scenario 1 – rounding all prices up to one eurocent;
- Scenario 2 – pessimistic – rounding attractive prices up to the nearest attractive price and ordinary prices up to the nearest eurocent;
- Worst-case scenario 3 – rounding attractive prices up to the nearest attractive price from their category (i.e. psychological to psychological and fractional to fractional) and ordinary prices up to the nearest eurocent;
- Symmetric scenario 4 – rounding attractive prices up or down to the nearest attractive price from their category and rounding ordinary prices up or down to the nearest eurocent.

Analysis for various conversion rates.

The official conversion rate was unknown when the study was carried out and thus the analysis was conducted for 101 conversion rates from the range of PLN 3.0 to 4.0 for EUR 1, with 1 grosz as one step.

Identification of attractive prices.

Attractive prices were identified by means of a formal procedure in accordance with an algorithm proposed by Folkertsma (2001) (see Box 4.15). The distribution of prices in the Polish economy (Table 4.6) points to a significant prevalence of attractive prices (they account for around 80% of prices used for calculating the CPI index), mainly fractional prices (over 50%).

Table 4.6 Distribution of prices in the Polish economy

Price category	Number of different observations	Number of records	Share	
			weighted	unweighted
Attractive	1,429	224,212	72.66%	80.53%
<i>of which:</i>				
Psychological	754	76,610	27.21%	27.52%
Fractional	675	147,602	45.45%	53.01%
Ordinary	8,998	54,207	27.34%	19.47%

Source: Rozkrut, Jakubik, Konopczak (2008).

The simulation of the rounding effect was carried out for the CPI index and according to individual basket categories. The results are presented in Tables 4.7–4.10, while median, minimum and maximum are established on the basis of results of simulations for various conversion rates.

Median impact of the rounding effect is between 0.04% and 2.56%.

The median of the estimated impact of rounding the prices to attractive prices ranges between 0.04% (assuming the symmetric scenario) and 2.56% (assuming the worst-case scenario). In extreme cases, rounding may lead to a 0.18% decrease or a 3.29% increase in the overall price level. The impact is not homogenous due to individual categories of the basket. The highest growth may be expected in communication, food and restaurants and hotels, and the lowest among such goods and services as clothing and footwear, education, transport, housing and energy.

Price effects are homogenous by social and economic categories.

Price effects of rounding are largely homogenous according to various social and economic categories, including occupation, consumption expenditure, class of the place or number of persons in the family (Table 4.11 and 4.12). In other words, contrary to common beliefs, the maintenance costs of such social groups as farmers or pensioners will not increase more than the costs of other categories⁶⁴.

⁶⁴ However, one should take into account the fact that a n-percent price growth affects the individuals that spend all their income on consumption goods differently than those that can reduce the part of income spent on savings so as not to reduce consumption. Nevertheless, with such a small scale of price growth as estimated, the omission of the said effect should not influence the final conclusions.

4.3 Short-term costs and threats



Table 4.7 Impact of the rounding effect on CPI categories (scenario 1)

Price growth in the categories	Median	Maximum	Minimum
CPI	0.53%	0.69%	0.30%
Food and non-alcoholic beverages	0.67%	0.82%	0.39%
Alcoholic beverages and tobacco	0.32%	0.38%	0.19%
Clothing and footwear	0.06%	0.07%	0.02%
Housing and energy	0.48%	0.57%	0.27%
Household contents, equipment and maintenance	0.17%	0.21%	0.10%
Health	0.27%	0.33%	0.16%
Transport	0.29%	0.39%	0.17%
Communication	1.91%	3.41%	0.73%
Recreation and culture	0.43%	0.61%	0.26%
Education	0.07%	0.11%	0.03%
Restaurants and hotels	0.52%	0.81%	0.28%
Miscellaneous goods and services	0.67%	0.87%	0.41%

Source: Rozkrut, Jakubik, Konopczak (2008).

Table 4.8 Impact of the rounding effect on CPI categories (scenario 2)

Price growth in the categories	Median	Maximum	Minimum
CPI	1.75%	2.22%	0.91%
Food and non-alcoholic beverages	2.30%	3.02%	1.31%
Alcoholic beverages and tobacco	1.33%	1.77%	0.66%
Clothing and footwear	0.45%	0.66%	0.19%
Housing and energy	0.64%	0.80%	0.36%
Household contents, equipment and maintenance	0.89%	1.24%	0.47%
Health	1.01%	1.49%	0.61%
Transport	0.59%	1.00%	0.33%
Communication	7.47%	11.72%	2.01%
Recreation and culture	1.59%	2.35%	0.85%
Education	0.56%	1.06%	0.21%
Restaurants and hotels	2.15%	3.83%	1.05%
Miscellaneous goods and services	1.74%	2.37%	0.97%

Source: Rozkrut, Jakubik, Konopczak (2008).

Table 4.9 Impact of the rounding effect on CPI categories (scenario 3)

Price growth in the categories	Median	Maximum	Minimum
CPI	2.56%	3.29%	1.62%
Food and non-alcoholic beverages	3.54%	4.73%	2.74%
Alcoholic beverages and tobacco	2.48%	3.24%	1.38%
Clothing and footwear	0.88%	1.07%	0.50%
Housing and energy	0.77%	0.92%	0.48%
Household contents, equipment and maintenance	1.55%	2.05%	1.22%
Health	1.59%	2.21%	1.15%
Transport	0.78%	1.17%	0.42%
Communication	9.53%	14.11%	4.34%
Recreation and culture	2.28%	3.05%	1.38%
Education	0.94%	1.46%	0.52%
Restaurants and hotels	3.31%	5.05%	1.93%
Miscellaneous goods and services	2.54%	3.43%	1.79%

Source: Rozkrut, Jakubik, Konopczak (2008).

The intensity of the rounding effect is different in individual price ranges with the highest growth expected in the case of goods and services with low unit prices. In the pessimistic scenario, products with a price of up to PLN 1 may experience price increases of as much as ten per cent (Table 4.13).

The growth may be the highest in the case of goods and services with low unit prices...

Table 4.10 Impact of the rounding effect on CPI categories (scenario 4)

Price growth in the categories	Median	Maximum	Minimum
CPI	0.04%	0.48%	-0.18%
Food and non-alcoholic beverages	0.11%	0.69%	-0.15%
Alcoholic beverages and tobacco	0.12%	0.63%	-0.28%
Clothing and footwear	0.02%	0.14%	-0.11%
Housing and energy	0.01%	0.24%	-0.04%
Household contents, equipment and maintenance	0.05%	0.26%	-0.11%
Health	0.08%	0.27%	-0.08%
Transport	0.01%	0.15%	-0.12%
Communication	-0.64%	2.95%	-3.51%
Recreation and culture	0.14%	0.73%	-0.30%
Education	0.01%	0.22%	-0.19%
Restaurants and hotels	0.08%	0.69%	-0.78%
Miscellaneous goods and services	0.28%	0.74%	0.08%

Source: Rozkrut, Jakubik, Konopczak (2008).

Table 4.11 Price effects of rounding by social and economic groups

	Social and economic groups					CPI
	employed	farmers	self-employed	pensioners	maintained from non-earned sources	
Scenario 1						
Median	0.53%	0.46%	0.51%	0.53%	0.58%	0.53%
Maximum	0.69%	0.60%	0.67%	0.68%	0.74%	0.69%
Minimum	0.30%	0.26%	0.28%	0.31%	0.32%	0.30%
Scenario 2						
Median	1.79%	1.60%	1.74%	1.70%	1.93%	1.75%
Maximum	2.22%	2.01%	2.16%	2.21%	2.40%	2.22%
Minimum	0.92%	0.83%	0.88%	0.91%	1.00%	0.91%
Scenario 3						
Median	2.57%	2.41%	2.48%	2.51%	2.81%	2.56%
Maximum	3.29%	3.04%	3.19%	3.31%	3.58%	3.29%
Minimum	1.63%	1.53%	1.56%	1.65%	1.80%	1.62%
Scenario 4						
Median	0.02%	0.05%	0.02%	0.06%	0.03%	0.04%
Maximum	0.49%	0.43%	0.47%	0.47%	0.55%	0.48%
Minimum	-0.19%	-0.16%	-0.20%	-0.16%	-0.19%	-0.18%

Source: Rozkrut, Jakubik, Konopczak (2008).

...which creates a risk of disproportionate increase in the social perception of price growth as compared to actual inflation.

Most purchased goods and services account for a large part of products with low unit prices and have a disproportionate impact on perceived overall price growth as compared to their share in the basket of an average consumer. The results of the study by Łyziak (2008) show that this regularity concerns also Polish consumers. Since the accession of Poland to the European Union, the movements of prices of most purchased goods and services account for a larger part of the volatility of inflation perception than the CPI index. Respectively, as a result of potentially large intensive of price effects in this category discrepancies may occur between the actual overall price growth rate and its social perception - a negative phenomenon both for consumers and for the entire economy. Due to a strongly adaptive nature of inflation expectations (Łyziak, 2003), an increase in inflation perception would be particularly undesirable for Poland.

The conversion rate influences the scale of the rounding effect.

The results of the simulations by Rozkrut et al. (2008) point to a significant impact of the conversion rate on the intensity of the price rounding (an impact for an example scenario is presented on Chart 4.25). Whilst the effects increase along with the growth of

4.3 Short-term costs and threats

Table 4.12 Price effects of rounding depending on amount of consumption expenditure

	Expenditure group			CPI
	below 25%	between 25% and 75%	over 75%	
Scenario 1				
Median	0.63%	0.58%	0.46%	0.53%
Maximum	0.81%	0.74%	0.60%	0.69%
Minimum	0.36%	0.32%	0.26%	0.30%
Scenario 2				
Median	2.00%	1.90%	1.57%	1.75%
Maximum	2.55%	2.38%	1.98%	2.22%
Minimum	1.06%	0.98%	0.81%	0.91%
Scenario 3				
Median	2.92%	2.77%	2.28%	2.56%
Maximum	3.82%	3.54%	2.93%	3.29%
Minimum	1.90%	1.76%	1.45%	1.62%
Scenario 4				
Median	0.05%	0.04%	0.03%	0.04%
Maximum	0.54%	0.52%	0.44%	0.48%
Minimum	-0.20%	-0.20%	-0.15%	-0.18%

Source: Rozkrut, Jakubik, Konopczak (2008).

Table 4.13 Effect of rounding in selected price ranges

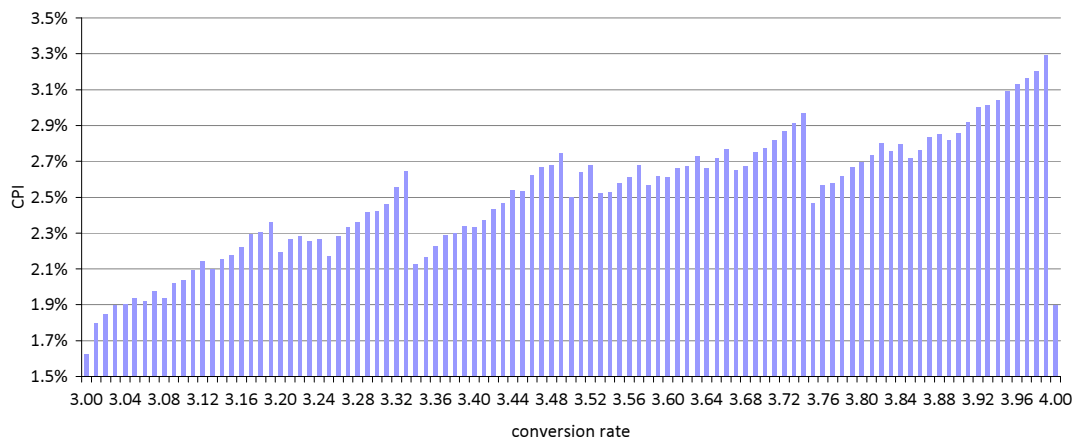
Price range	Scenario					
	1		2		3	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
up to PLN 1	2.59%	6.08%	8.33%	15.82%	10.37%	21.60%
up to PLN 5	0.63%	1.42%	2.23%	4.48%	3.30%	6.86%
up to PLN 10	0.47%	1.04%	1.71%	3.65%	2.82%	5.46%
up to PLN 50	0.31%	0.69%	1.15%	2.60%	1.98%	3.85%

Source: Rozkrut, Jakubik, Konopczak (2008).

the nominal rate (along with the weakening of the zloty against the euro), the increase is not monotonic: price effects are less intensive with round conversion rates (e.g. PLN 4.0 or PLN 3.75 per euro). Respectively, potential price effects may be used as an additional criterion for establishing the final conversion rate of zloty into euro, along with fundamental factors which are main determinants in this regard.

Summing up, the estimations of potential price effects after the introduction of the cash euro into circulation in Poland point to a 2–3% increase in overall price level in the worst case. Moreover, the pessimistic scenarios are unlikely to materialise, since the final scale of price effects results from a number of factors, such as: (1) level of competition on a given market; (2) a point of the business cycle, when the currency changeover takes place; (3) level of social awareness (consumer vigilance). An important role is also played by the activities of consumer organisations and state institutions consisting in the monitoring of price movements within several months surrounding the currency changeover, the communication with society, initiation of agreements with economic operators on refraining from using the currency changeover to the detriment of consumers or the use of appropriate institutional tools, including mandatory dual quoting. Their role is even more important, since due to their specificity (growth of prices of most often purchased goods and services) price effects related to the cash euro introduction may lead to discrepancies between actual and perceived inflation. This phenomenon may influence the real economy by means of a decline in consumption demand or increased wage demands.

Chart 4.25 Impact of conversion rates on the scale of price effects (scenario 2)



Source: Rozkrut, Jakubik, Konopczak (2008).

4.3.3 Costs of the introduction of the euro into non-cash and cash circulation

The currency changeover requires a number of preparatory activities which generate costs both for the public and the private sector. The purpose of this chapter is to present estimated outlays which the public administration, central bank and enterprises will have to incur due to the euro introduction. It is impossible to estimate specific costs of the currency changeover, as many of the key decisions concerning the strategy of the euro introduction in Poland are yet to be taken. The selection of the scenario of the common currency introduction and the decision on the method of obtaining euro banknotes and coins for changeover may be of particular importance. Moreover, a number of both national and international conditions may change during the currency changeover process and thus modify the course of the process. Therefore, the analysis of costs discussed in this chapter is just illustrative.

The success of the currency changeover depends on its appropriate planning and management.

The euro introduction process requires coordination of activities and efficient management. The appropriate planning and preparation of the entire operation will determine the success in the elimination of threats related to the delay in its performance, the reduction of the risk of the lack of sufficient number of euro banknotes and coins and avoidance of irregularities in the euro circulation (Szeląg, 2008). The efficient process of the euro introduction helps minimize the costs of the operation and the related inconvenience for society and influences the image of the country and its institutions. Most of the responsibility for the management of the changeover process lies with the government administration and the central bank, as there is no universal course of procedure in this regard. Specific economic and social conditions of each country require a complex action strategy which will use the experience of other countries and contribute to an individual path to the euro area for a given economy (Szeląg, 2008).

The decision on the selection of the currency changeover scenario should be a starting point for the euro introduction strategy, as it has a significant impact on the type and scale of costs related to the process. Box 4.16 presents the criteria of the scenario selection.



Box 4.16 Scenario selection criteria

The euro may be introduced according to one of the three scenarios:

- the Madrid scenario with a transitional period^a of no longer than 3 years;
- the big bang scenario, where the euro is introduced in cash and non-cash form at the same time;
- the big bang scenario with phasing-out, where the euro is introduced in cash and non-cash form at the same time, but it is still possible to refer to the national currency for a specific period of time after the currency changeover.

All 12 states which introduced euro banknotes and coins in 2002 applied the only scenario which was provided for by law at the time, namely, the Madrid scenario with a three-year transitional period (except for Greece with a one-year transitional). The transitional period was necessary to prepare the countries to adopt the euro, in particular to mint the appropriate number of coins and to print euro banknotes. The dual circulation period was up to 2 months.

New EU Member States which acceded to the euro area after 2004 (Slovenia, Cyprus and Malta) chose the big bang scenario, as did Slovakia which will adopt the euro on 1 January 2009. That scenario is chosen due to common knowledge of euro banknotes and coins. Its advantages include the possibility to evade the costs and inconvenience resulting from dual currency settlements performed by institutions and economic operators. Moreover, two currencies functioning in cash circulation at the same time could raise concerns with regard to their legal status^b. The big bang scenario is considered more difficult to implement, both by the state administration and by private sector entities, mainly due to the issues related to the supply of euro banknotes and coin and the accumulation of the costs related to preparatory activities in the short time. The scenario with a transitional period may allow to distribute in time the costs of some adjustment activities, such as adjustment of IT systems, financial, accounting and HR and wage systems. Subsequent states acceding to the euro area decided to shorten the dual circulation period^c, as compared to the countries adopting the euro in 2002.

The big bang scenario allows for the phasing-out period where it is allowed to refer to the national currency for a specific period of time (up to one year) from the moment of the euro introduction, even after the expiry of the dual circulation period where the national currency loses the status of legal tender. This reduces the effect of the accumulation of all preparatory activities in a very short time. During the phasing-out period, some documents and financial instruments (e.g. issuing of invoices, drawing up financial reports) may refer to the national currency, but such activities have to gradually expire and are allowed only where a given entity has to finish the switch of its accounting or administrative systems to euro.

^a It is a period between the date of the introduction of the non-cash and cash euro. During that period, banknotes and coins in the national currency still have the status of legal tender. The national currency functions in cash and non-cash form, alongside with the euro which is only in the non-cash circulation. The national currency units are converted into the euro according to irrevocable exchange rate. The “no compulsion, no prohibition” principle, which empowers the entities to choose the currency in the non-cash circulation, is in place. The banks convert the

payments, if the customer holds an account in a different currency than the one in which the payment is made and the euro is the obligatory unit for settlements of the central bank with the Eurosystem, including the ECB.

^b The transitional period in a situation where the euro is used in other countries allows to use the banknotes put into circulation in those countries.

^c It is a period where banknotes and coins in both currencies at the same time are legal tender on the territory of a given country.

Source: NBP study based on, *inter alia*: Górska, Siemaszko, Lip (2008), Górska et al. (2008), Szeląg (2008).

Costs for the National Bank of Poland

The National Bank of Poland, which is directly responsible for the introduction of euro banknotes and coins into circulation and for the correct functioning of the payment system, has to undertake preparatory measures long before the introduction of the euro. The presented estimated costs of individual measures are based on the assumption that the changeover process is carried out according to the scenario allowing to minimize the costs with the risk of distortions of tasks related to the euro introduction being as reduced as possible. The most important measures generating costs for the central bank with related to the currency changeover include:

- supply of euro coins and banknotes:
 - coins: design and selection of the motives for the national side of coins, production, transport, distribution, storage and insurance;
 - banknotes: borrowing from the Eurosystem, transport, distribution, storage and insurance, afterwards production in order to return the borrowed banknotes;
 - other: adjustment of sorters and other equipment to the euro;
- adjustment of IT systems;
- preparation and implementation of the nation-wide information campaign about the euro, in cooperation with public administration authorities (discussed separately);
- other:
 - participation in work of the Eurosystem;
 - training of employees with regard to new tasks;
 - work on holidays and longer working hours during the days directly preceding and following the currency changeover;
 - storage and destruction of coins and banknotes withdrawn from circulation;
 - adjustment of payment systems⁶⁵.

The costs for the central bank may be estimated at around PLN 1.7 billion.

With preliminary assumptions of the optimal scenario of the NBP's activities, the costs

⁶⁵ The costs in national payment systems related to the euro changeover according to the big bang scenario are estimated at around EUR 3.9 million. As regards the payment systems, the big bang scenario is definitely more favourable than the scenario with a transitional period which would mean big operational problems and probably also significantly higher costs (National Bank of Poland, 2008a).

incurred by the central bank were estimated at around PLN 1.7 billion, i.e. around 0.14% of the GDP⁶⁶ (National Bank of Poland, 2008b). Some aspects of the analysis require further in-depth research that may lead to the change of obtained results. In particular, if the transitional period proves to be necessary due to the limited pace of euro coins supply, the costs of adjustment of IT systems may increase (as they will have to process transactions in two currencies), as may the costs of employees' training or processing of transactions in two currencies (cf. also Szelaĝ, 2008).

Box 4.17 Impact of the euro introduction on the foreign exchange reserves management

The accession of Poland to the euro area will be related to the necessity to pay a share in the EBC's capital, submit a specified amount of foreign exchange reserves to the ECB and make a proportionate contribution to its reserve balance^a. Full membership of the NBP in the ESCB gives it the right to participate in the division of the ECB's profit but also results in the obligation to cover a part of potential losses. Total liabilities of the NBP due to the ECB, which are required upon the euro introduction, are estimated at around EUR 3.7 billion^b. The transfers of funds to the ECB do not qualify as costs within the meaning of accounting, will not have a significant impact on reserve management strategies and will not result in a significant constraint on the NBP's foreign exchange reserves, which increased considerably in recent years, due to, *inter alia*, the transfer of the EU funds.

With the accession of Poland to the Eurosystem, the role of reserves, as an instrument guaranteeing the safety of the financial system and the stability of currency, will change to maximize the portfolio profitability. The takeover of monetary policy functions by the ECB's reserves will help reduce the share of assets located on the most liquid markets in the NBP portfolio and to advance the reserves diversification process. This will allow to intensify activities aimed at increasing their profitability in the long run, with an accepted level of financial risk. According to the long-term reserve management strategy, it will be possible mainly due to the lowering of liquidity requirements, prolongation of investment time horizon, diversification of assets and investment instruments. The sense of maintaining foreign exchange reserves by the NBP will be then perceived mainly on considering them a source of income for the NBP and state budget (the so-called sovereign wealth funds), as well as the financing of potential further contributions to the ECB and international institutions or the security in case of crisis situations. It should be emphasized that the adoption of the euro will not be a turning point for the reserve management strategy, but will allow to accelerate the process assuming a gradual diversification of reserves and a development of the methods for assets allocation and financial risk management.

With Poland's accession to the euro area, the funds denominated in euro will become the so-called national portfolio and will cease to perform the role of reserves, according to the adopted definition. The decision on the share of the euro in the structure of the NBP's portfolio, which influences the accepted exposure to exchange rate risk, will be of key importance for reserves management. Experience of the Eurosystem central banks point to the benefits from maintaining a large share of assets in the euro (resulting from exchange rate risk reduction). However, the possibility to use those funds in crisis situations, in particular in those related to

⁶⁶ Gross Domestic Product in 2007, in current prices; data come from the Central Statistical Office.

the functioning of the Eurosystem, may be significantly limited. Analyses confirm that the allocation of a part of funds in the euro allows to significantly reduce the volatility in the value of the portfolio. The aim of currency diversification is to increase the profitability of investment, while the portfolio in euro generates a relatively low rate of return. The combination of those elements, which is possible thanks to investment on several markets, allows to generate a relatively high profitability per risk unit, with the exchange rate risk secured.

It is worthwhile to mention that in addition to the potential benefits mentioned, the process of accession to the euro area may also pose certain threat from the point of view of foreign exchange reserves management. The accession to the ERM II system contributes both to an increased risk of a speculative attack, and to the risk of foreign exchange interventions while being in the fixed exchange rate system. Due to that risk, assets with the highest liquidity should account for a significant part of the NBP's reserves in the said period. This triggers, however, a high alternative cost in the form of the loss of revenues from more profitable investments which have to be discontinued or considerably reduced during the time of being in the ERM II system. From this point of view, the shorter time of being in the ERM II, the lower risk of a costly speculative attack and thus lower opportunity costs. The global economic situation and the condition of the Polish economy upon accession may have a significant impact on the balance of costs and benefits.

^a The contribution of funds to the ECB shall be remunerated with a claim, free from foreign exchange risk and generating a stable income amounting to 85 % of the marginal interest rate used by the ECB in its main refinancing operations.

^b Poland's contribution to the ECB will be similar to that of the Netherlands (higher contributions were made by, *inter alia*, Germany, France and Italy). The exact amount of the contribution will be specified upon the accession to the euro area and will be submitted as the equivalent of the euro in US dollars, Japanese yens and in gold.

Source: NBP study based on Grabczyński et al. (2008).

Costs for public administration

Obligations and costs incurred by the public administration in relation to the euro introduction will mainly include the following:

- amend the legal regulations in place and the issue of new regulations related to the introduction of the euro in Poland;
- adjust IT systems;
- prepare and implement the nation-wide information campaign about the euro, in cooperation with the NBP (discussed separately).

Legislative activities of the public administration related to the euro introduction will include the preparation, amendment and adoption of the national legal regulations required for the currency changeover. The activities may generate costs due to the need to obtain external experts' legal opinions, to work overtime, to publish national legal acts in the Polish Journal of Laws (Dziennik Ustaw) and the Polish Monitor (Monitor Polski) and in the publications of ministries. The scope of activities and the amount of costs will depend on the adopted scenario of the euro introduction only to a marginal

4.3 Short-term costs and threats

extent (in the case of the scenario with a transitional period, some legislative activities will be distributed over time, which may reduce the cost of overtime). The big bang scenario will require planning the activities in a way which enables their performance in an appropriately shorter time. All costs of legislative activities related to the euro adoption may be anticipated to be incurred within the framework of standard budget expenditure.

The costs of the euro adoption for the public administration are preliminarily estimated at around PLN 950 million, i.e. around 0.08% of the GDP⁶⁷ (National Bank of Poland, 2008b). Due to the limited scope of the use of cash in the public administration sector, the changeover into euro banknotes and coins should not generate additional significant costs. On the other hand, the adjustment of IT systems is an area which will require extraordinary outlays. The savings are possible if the activities are planned so as to coincide with modernisation activities necessary for other reasons. The costs in this area will be largely determined by the choice of the scenario of the euro introduction. The transitional period significantly complicates the process of IT systems adjustment and contributes to an increase in its costs.

The costs for the public administration may be estimated at around PLN 950 million.

Costs for the financial sector

The banking sector is the key participant of the euro introduction process and banks are an important element of the system disseminating the new currency and absorbing the currency withdrawn from the market. Assets of monetary financial institutions (commercial banks and cooperative banks) account for around 70% of the assets of the entire financial system. For this reason, the banking sector will incur the major part of the costs for financial institutions related to the euro introduction⁶⁸.

After the central bank performs frontloading (supply of euro banknotes and coins to financial institutions several months before the date of their putting into circulation), the banks perform sub-frontloading (supply of euro banknotes and coins to the retail sector before the day of the introduction of cash euro). With the introduction of the euro, banks will be obliged to change coins and banknotes denominated in zlotys into euro without commission, in periods specified by separate provisions. Efficient frontloading of cash is one of the most important factors determining the success of the common currency introduction. Other activities related to the introduction of the euro in Poland include the participation in the adjustment of payment systems⁶⁹, conversion of bank accounts, loans, securities and other amounts denominated in zloty into euro. The costs for the financial sector related to the euro introduction will mainly entail the following activities:

- adjust IT systems, machines and equipment;
- adjust ATMs to dispensing new banknotes;
- hire additional employees and work overtime (due to, *inter alia*, increased demand for cash in the first days after the introduction of the euro and the change of banknotes and coins);
- logistics activities related to the withdrawal of banknotes and coins denominated in the national currency;

⁶⁷ Gross Domestic Product in 2007, in current prices; data come from the Central Statistical Office.

⁶⁸ According to an analysis by Deloitte, the outlays for activities related to the euro introduction in a large bank are even several ten-fold higher than in an insurance company.

⁶⁹ The process is highly advanced within the SEPA (Single Euro Area Payments Area).

- lost revenues from foreign exchange operations.

The approximate value of additional costs for the banking sector which may be generated by organisational preparations to change IT systems and launch cash and non-cash settlements amounts to around 0.14% of the GDP (if the dual currency circulation period lasts for two weeks), around 0.20% of the GDP (two-month period) and around 0.26% of the GDP (six-month period). The loss of some revenues from foreign exchange operations by the banks, as a result of the euro introduction, may be estimated at around 0.18% of the GDP (Kozak, 2008). The losses will be perceptible mainly in the first year from the euro introduction and may be limited to a small group of banks only. Some customers of the banks may shift to the European financial centres. In addition, as a result of Poland's accession to the euro area other major changes may occur in the structure of the banks' costs, but it is difficult to estimate those costs due to high volatility of parameters determining those processes (Kozak, 2008).

The costs for the financial sector may be efficiently reduced.

It is worth mentioning that the costs may be reduced as a result of such factors as the reduction of the dual circulation period, decrease in the volume of cash turnover (by e.g. an increase in the use of payment cards and the dissemination of Internet banking) or the separately discussed information campaign on new banknotes and coins (Kozak, 2008).

As a supplement to the analysis, Table 4.14 presents also other estimations of the costs for the banking sector in relation to the euro introduction, calculated by Deutsche Bank (2001), while Table 4.15 presents the estimation on the basis of Rehman (2000).

Table 4.14 Costs of the euro introduction by place of their generation – banking sector (I)

Cost of the euro introduction for the entire economy	0.5–0.6% GDP	PLN 5.8–6.8 billion
Cost of the euro introduction for the banking sector	0.12–0.15% GDP	PLN 1.4–1.7 billion
Share of individual categories in the costs of the banking sector		
Adjustment of IT systems		31%
Adjustment of ATMs		21%
Additional labour costs		17%
Logistics		15%
Development of procedures		6%
Marketing		6%
Training		4%

Source: Deutsche Bank (2001).

The presented estimations of costs for the banking sector are just approximations since they are based on figures for the countries which introduced the euro as first. The exact costs for the Polish banking sector will depend on, *inter alia*, the adopted scenario for the euro introduction, the duration of the potential transitional period, the duration of dual circulation period and a number of detailed decisions which are yet to be taken. The possibility to use experience of predecessors supplies the Polish financial institutions with information about the areas where savings are possible.

Costs for the non-financial corporations sector

The outlays of the corporations sector for the activities related to the euro introduction may be estimated on cost forecasts for other countries. No detailed studies on the

4.3 Short-term costs and threats



Table 4.15 Costs of the euro introduction by place of their generation – banking sector (II)

Cost of the euro introduction for the banking sector	0.1–0.3% GDP	PLN 1.2–3.5 billion
Share of individual categories in the costs of the banking sector		
Adjustment of IT systems		54%
Logistics		8%
Adjustment of procedures		4%
Marketing and PR		15%
Training		10%
Office materials, forms, brochures		6%
Adjustment of accounting		3%

Source: National Bank of Poland (2008b), according to Rehman (2000).

subject have been conducted among the Polish entities so far (mainly due to high uncertainty related to the detailed course of the euro introduction process). The cost categories and their estimated amount were indicated according to reports and studies by Deutsche Bank (2001), Dirschmid, Fluch, Gnan (2001) and Bannock Consulting (2001), and the survey conducted by the NBP among the corporations.

For non-financial corporation, the euro introduction may entail the necessity to incur the costs of the following preparatory activities:

- adjust IT systems processing financial data;
- adjust bookkeeping and accounting systems, as well as the payroll system (outside IT systems);
- prepare new price lists and in parallel quote prices in zlotys and euro within the dual price display period⁷⁰,
- train employees on, *inter alia*, accepting payments in the new currency or protection against forgery;
- adjust machines and equipment to the euro (sorters, coin slot machines, supermarket trolleys, parking machines, etc.).

The costs of the euro introduction will mainly affect the entities whose activities encompass a large number of cash transactions, i.e. first of all the retail sector. Table 4.16 presents the costs estimations by three independent institutions for the euro area countries. It should be noted that the presented figures are based on the scenarios of the euro introduction used in individual member countries and may differ from the solutions to be applied in Poland. A possible scenario for Poland is the big band scenario with a short dual circulation period which should significantly reduce the costs resulting from the long-term settlement of transactions in the two currencies. In addition, certain discrepancies in the estimations of the changeover costs may result from the differences between the new and the old Member States with respect to the importance of cash and non-cash circulation, number of ATMs, payment terminals in shops, vendor machines, etc. (Szeląg, 2008). In order to cut costs, enterprises may plan the investments necessary

⁷⁰ Double display (double quoting) of prices is a measure recommended in the period preceding the introduction of the euro, as well as after its introduction. It consists in displaying the amounts both in the old and new currency in order to protect the customers from unjustified price increases.

Table 4.16 Costs of the euro introduction for the enterprise sector

Institution	Percentage of annual turnover	Amount (in PLN billion)
Deutsche Bank	0.5–0.8	8.3–13.2
Eurocommerce	1.3–1.4	21.5–23.2
Goldman Sachs	0.5–1.0	8.3–16.6

Source: Dirschmid, Fluch, Gnan (2001), Deutsche Bank (2001).

Table 4.17 Costs of the euro introduction for enterprises depending on their size

Number of employees	Costs as a part of annual turnover (%)
< 10	3.9
10–49	0.4
50–199	0.2
> 199	0.2
Total	0.5

Source: Bannock Consulting (2001).

for other reasons than the currency changeover (e.g. modernisation of IT systems or investment in new equipment) to coincide with the changes related to the euro introduction. Thus, expenditure may be significantly reduced, while in the majority of the studies it is difficult to separate the said effect.

The amount of costs for enterprises may depend on their size.

The costs of the change from zloty to euro incurred by enterprises may depend on their size. According to the calculations of Bannock Consulting, the changeover costs may prove to be relatively the highest for the smallest enterprises (see Table 4.17). Such distribution of costs is confirmed by surveys conducted by Národná banka Slovenska (see Box 4.18).

Box 4.18 Costs of the euro introduction in Slovakia

Národná banka Slovenska estimated the costs related to the changeover from koruna to euro for Slovak enterprises, surveying a sample of 955 small and medium-sized enterprises and 68 large enterprises. The average costs of changeover from koruna to euro for enterprises employing less than 250 people are estimated at 0.27% of their annual turnover and for large companies at 0.09% of the turnover. The study also attempted to assess the costs of the changeover from koruna to euro depending on the sector in which a given enterprise operates^a. The results are presented in the table below.

Table Costs of the changeover from Slovak koruna to euro, by sectors

Sector	Share of enterprises from a given sector in the sample (%)	Costs as a part of annual turnover (%)
agriculture, hunting, forestry, fishing and fish farming	3.0	0.2
mining	0.02	2.0
manufacturing	19.0	0.3



production and distribution of electricity, gas and water	2.0	0.1
construction	13.0	0.2
wholesale and retail trade	40.0	0.3
hotels and restaurants	1.0	0.4
transport, warehousing, posts and telecommunications	7.0	0.2
finance and insurance	0.1	0.1
real estate, rental and trade activities	2.0	0.1
education	0.03	0.6
health and social assistance	2.0	0.2
other societal, social and personal services	3.0	0.7
other industries	9.0	0.3

Source: Árendáš (2006).

The analysis of estimations for Slovakia is further developed in the works of: Šuster (2006), Szelağ (2008), Górska, Siemaszko, Lip (2008).

^a Due to a small sample, the results for large enterprises are not considered representative. The sample features an overrepresentation of enterprises from the wholesale and retail trade sector and an insufficient number of entities from such sectors as education, finance and insurance and mining. Results should thus be assumed as approximations.

Source: NBP study.

Costs of an information campaign

A large-scale information campaign for society about the euro is a prerequisite for the successful introduction of the common currency. A separate administrative decision (cf. Szelağ, 2008) is required to distribute the costs of the campaign between individual entities (NBP, public administration, European Commission and others). The estimation below is net of the costs of information activities carried out voluntarily by private entities, such as banks and other financial institutions, enterprises or non-governmental organisations.

Experience of the euro area member states shows that an efficient information campaign, whereby the citizens may learn in advance the most important aspects of the currency changeover, makes a considerable contribution to the efficient course of the process, allows to overcome the fears of society stemming from uncertainty regarding the consequences of the new currency introduction and helps eliminate threats related to irregularities in the process. Throughout the process of euro introduction in Poland, each citizen should be informed about the costs and benefits of the common currency adoption, the date of accession to the euro area, conversion rate of zloty into euro, rules governing the conversion of amounts denominated in zloty into euro, methods of protection of consumers against unfair practices, the look of new banknotes and coins and their security features.

More specifically, it is complicated to establish the costs of the information campaign, as no binding decisions are in place on the scope of information activities, campaign duration and the selection of communications tools. As recommended by the European Commission, information campaign should begin early, even before the final date of

A well-organised information campaign significantly improves the euro changeover process.

accession to the euro area is indicated, so that necessary information was provided to society at each stage of preparations to the accession. Knowledge about the most important aspects of the euro introduction should be available for all citizens, also those with more difficult access to information, e.g. elderly people, sensorically disabled, detainees or national minorities. It is often emphasized that an information campaign should reach every citizen, so that they did not have to seek information themselves.

Due to a high level of complexity, the information campaign implies high costs, which may, nevertheless, be effectively reduced.

Very cautiously and thoroughly planned information campaign through various communication tools is vital to implement the above objectives. The scale and degree of complexity of the process of informing society about the euro implies its relatively high costs. On the other hand plenty of possibilities reduce the total costs of the campaign, due to the effective use of a wide range of tools and methods to reach the audience. The way in which the decision on the euro introduction strategy influences the costs of the campaign is worth emphasizing. From the point of view of communication costs, the Madrid scenario is more costly than the big bang scenario, since it requires a longer duration of the campaign and the provision of more complex information (on the issues related to the settlement of transactions in two currencies or on the legal status of the cash euro, which potentially appears in the cash circulation – see information in Box 4.16). Moreover, the costs grow proportionately to the duration of dual circulation, when information activities are necessary. The ECB may be expected to support the information campaign in Poland, as in other euro area countries, by providing some materials and publications on the euro. A several-year partnership agreement may also be concluded between Poland and the European Commission, pursuant to which the Commission would cover as much as 50% of the costs of information activities on the euro in Poland.

Summary

The introduction of the euro in Poland is a project which requires not only as substantial organisational effort, but also a one-off payment of costs of large-scale preparatory activities. The precise estimation of costs will be possible only after the adoption of detailed decisions concerning the scenario of accession to the euro area, duration of the dual circulation period, method of cash provision, communication strategy and numerous other aspects of the analysed process. Currently it is only possible to approximately identify the areas where activities requiring financial outlays will be necessary to allow state institutions and private entities to begin appropriate preparations which will help minimize the costs of the whole process.

According to the estimations, the big bang scenario is the cheapest to implement. However, detailed analyses are required to determine which scenario is optimal for a country as Poland. A comprehensive plan of the euro introduction should be prepared and implemented using experience of other countries. The plan should include appropriate preventive measures aimed at minimizing potential costs related to the currency changeover (Szeląg, 2008). Table 4.19 presents the summary of approximate costs of the big bang scenario and the scenario with a phasing-out period for various entities.

The situation of Poland in this context is special due to the scale of cash circulation in Poland (which is significantly higher than in the countries which adopted the euro using the big bang scenario), related to the large population, conditions for non-cash circulation, channels of cash distribution or the area of Poland.



Table 4.19 Approximate costs of the euro introduction into cash and non-cash circulation in Poland for the big bang scenario and the scenario with a transitional period (PLN billion)

Type of entity	Big bang scenario	Scenario with a phasing-out period
NBP	1.5–2.0	1.5–2.0
Public administration	0.9	1.1
Financial sector	2.3	2.6
Enterprises	15.7	17.0
Total	20.4–20.9	22.2–22.7

Source: National Bank of Poland (2008b).

Chapter summary

With the adoption of the euro, Poland will cease to conduct an autonomous monetary policy and the interest rates will be determined by the Governing Council of the European Central Bank, as it is the case in other economies of the euro area. The President of the National Bank of Poland will become a member of the Governing Council and will have the right to participate in discussions and voting. Although after the reform of the voting system in the Governing Council, not all governors of national central banks will participate in individual voting, the change will not affect the power of Poland significantly. Since the members of the ECB Governing Council should keep in mind the interest of the euro area as a whole⁷¹ and given limited impact of the representatives of Poland on interest decisions, as compared to the current situation with an independent monetary policy, it is important to determine the risk of inadequacy of the ECB's monetary policy for the needs of the Polish economy.

Poland will have a limited impact on the ECB's decisions on interest rates.

The inadequacy may be related to long-term mismatch of the nominal rate level or the non-synchronised business cycle in Poland vis-à-vis that of the euro area (Clarida, Galí, Gertler, 1998). Likely reduction of the long-term level of interest rates, a decrease in the real interest rate and an increase in aggregate demand should not have a significant boost on inflation: a considerable part of nominal convergence in interest rates has already been completed and the external competitive pressure prevails in the open economy.

The scale of potential inadequacy of the ECB's monetary policy depends on the efficiency of the competition channel...

The risk of cyclical divergence derives from potential asymmetric shocks and their asymmetric transmission in the economies of Poland and the euro area. In accordance with the study by Adamowicz et al. (2008) certain structural differences point to the probability of such shocks. The results of studies on the previous cycle synchronisations are strongly dependent on the applied methodology (cf. Skrzypczyński, 2008; Konopczak, 2008a; Adamowicz et al., 2008). The intensification of trade and financial relations may result in an increase of such synchronisation over time (cf. European Commission, 2008b).

...and the symmetry of shocks and their transmission in future.

Gradzewicz, Makarski (2008) estimate that, from the point of view of a decrease in social welfare, the cost of the loss of autonomous monetary policy is as acute as a 0.055% reduction of consumption in the balanced situation. The authors consider the cost to be insignificant as compared to similar results from the literature and to potential benefits.

The cost of the loss of monetary independence for welfare is considered low.

In addition, the cost of resignation from autonomous monetary policy calculated without taking into account advancing globalisation processes would probably be higher

The autonomy of monetary policy is limited by advancing globalisation processes.

⁷¹ Kosior, Rozkrut, Torój (2008) demonstrate that such a solution is optimal not only for the euro area as a whole, but also for the majority of individual countries.

than if those processes were taken into account. Globalisation processes hamper the monetary policy in a small economy, as a result of empirically confirmed increasing importance of the global inflation component (Borio, Filardo, 2007). Monetary authorities in a small open economy have to accept global inflation as a given element, while the European Central Bank (particularly in cooperation with other large central banks) may attempt to actively influence global inflation. Furthermore, globalisation implies the necessity to incur similar costs as monetary integration, in particular due to the necessity to carry out reforms making the market more flexible.

A floating nominal zloty rate is both an absorption mechanism and a source of shocks.

With the accession to the euro area, Poland will not only lose the autonomy of its monetary policy, but will also irrevocably fix the zloty exchange rate against the euro. According to the results of conducted analyses the zloty exchange rate is a mechanism absorbing real shocks in case of asymmetry of those shocks between Poland and the euro area. If the convergence of real shocks symmetry does not take place and the effectiveness of alternative adjustment mechanisms is insufficient, the adoption of the common currency may cause increased volatility of output. On the other hand, resignation from the zloty floating exchange rate would entail a chance to avoid the costs related to the nominal exchange rate fluctuations which are not related to fundamental factors that have an important impact on the nominal and real exchange rate of the zloty.

The threats in medium term may result from the growth in prices.

In addition to the obvious long-term costs which can be minimized by making the economy more flexible, the euro adoption may entail certain threat in the medium term. The threats include mainly the deviation of the price growth rate from the balance growth path and its consequences for the sphere of real economy.

As a result of deviation of the conversion rate from the equilibrium exchange rate relative price performance may change in the long run.

The sources of such a threat include the adoption of a non-optimal conversion rate from zloty into euro. The results of conducted analyses show that the conversion rate which is significantly different from the equilibrium exchange rate would distort the production growth rate in the short and medium term and change the relative price performance in the long run (National Bank of Poland, 2008d). In addition, if possible, the process of establishing the conversion rate should take into account its impact on price effects of the euro introduction and aim at making the conversion rate as round as possible (Rozkrut, Jakubik, Konopczak, 2008).

Inflation differences between the countries may lead to pro-cyclical effects in the real sphere.

Long-lasting inflation differences between Poland and other euro area countries, with a common nominal rate, may have pro-cyclical effects in the real sphere, since real interest rates in the countries with higher inflation are low and additionally stimulate economic activity. For this reason, the greatest challenge seems to be the process of unification of the mechanisms determining inflation expectations in the euro area countries (the experience so far points to its significant unification in the last decade), as well as the elimination of persistence of inflation and institutional differences (e.g. rigidity of markets, automatic indexation mechanisms) which strengthen inflation differences stemming from asymmetric shocks (Torój, 2008). One should keep in mind, however, that the differences in inflation rates among the euro area countries in the short run may result from effective functioning of the competitiveness channel as an adjustment mechanism. The European Central Bank emphasized that the indicators for specific countries are not a direct objective for the ECB's policy, as its only objective is the price stability in the whole euro area.

Excessively fast growth of wages and prices is unlikely, though it depends on structural reforms.

In the longer perspective, the difference in inflation between Poland and the euro area may be related to Poland's catching up with more developed economies. Higher inflation of wages and prices may be anticipated, but it will be mainly determined by the real convergence process and increased labour productivity. It will be a natural phenomenon, compliant with the equilibrium, and thus it should not result in deterioration of



economic stability or international competitiveness. The potential risk of excessively fast growth of wages in Poland as compared to the labour productivity growth rate may be related to the institutional framework of the wage negotiation process. In effect of excessive centralisation wages may level off among companies or whole sectors, despite potential differences in their productivity growth rate at the aggregate level. The risk factor is the low effective supply of labour in Poland, which may contribute to an increase in unit labour costs and deterioration of competitive position of the Polish economy.

Certain risks concern excessive price growth on the assets market, including real estate, as well as a decreased financial stability as a result of increased lending due to the expected reduction of interest rates. The results of conducted analyses (Łaszek, Augustyniak, Widłak, 2008) confirm those concerns only to a limited extent. The relation of loans for private sector to GDP is expected to increase (from around 39% to around 44% during the Poland's participation in ERM II and in the first year of its membership in the euro area), as well as the prices of apartments. Although the estimated scale of increase in lending does not pose a significant threat to financial stability, it may distort the cycle on the real estate market. The central bank and the government have tools to efficiently neutralise negative consequences of the euro introduction, which are mainly related to the tightening of prudence standards.

The central bank may counteract the negative impact of reduced interest rates on financial stability and cycle on the real estate market.

Technical and organisational costs for Poland due to the changeover of zloty into euro will be visible first. Those costs will be borne by the public administration, financial sector and non-financial corporations and their amount will depend on a number of decisions on the scenario for euro introduction and external circumstances. The required activities will include frontloading of euro coins and banknotes, adjustment of IT systems and payment systems, preparation of a nationwide information campaign and delivery of trainings for employees and their increased workload during the currency changeover. Drawing on the experience of other countries, one must remember about the specific situation of Poland due to its large territory (as compared to other countries which have employed the big bang scenario so far) and a large scale of cash circulation.

Technical and organisational costs will be incurred in the short run.

Certain short-term threats result also from the necessity to meet the Maastricht criteria. If inflation is not lower than the reference value, measures reducing the price growth rate will be required. The measures may lead to a decrease in the economic growth rate in a short time. According to the estimations in the most pessimistic scenario, with the assumption that inflation has to be reduced by as much as one percentage point, the GDP growth rate will decline by around 0.8 percentage point an average within two years. Nevertheless, the social welfare loss due to the fulfilment of the Maastricht criteria will not be high (Lipińska, 2008b).

The fulfilment of the price stability criterion may require the disinflation policy measures...

One must not forget about the threats due to the fact that monetary policy is subject to the requirement of maintaining the zloty exchange rate against euro in the ERM II system for two years (i.e. the so-called "impossible trinity"). Some threats may be related to the parallel fulfilment of inflation and exchange rate criteria, due to the appreciation pressure on real exchange rate in the catching-up economy. Analyses demonstrate, however, that the probability of success is high if monetary and fiscal policies are rational (cf. Beza-Bojanowska, MacDonald, 2008; Lipińska, 2008b; Koloch, 2008).

...which may impede the fulfilment off the exchange rate stability criterion.

Exchange rate stabilisation may be impeded not only by the necessity to maintain relatively low inflation, but also by fast capital flows in the case of a small foreign exchange market and a potential foreign exchange crisis. A particular exposure of the Polish market to the decisions of portfolio investors results from its shallowness on the one hand, and from the fact that it is the largest market in the region which ensures

During the participation in the ERM II, threats may include tensions on financial markets and difficulties in meeting other criteria.

relatively low entry and exit costs, on the other hand. Other threats may include speculation on parity revaluation (Sławiński, 2008) and the contagion effect related to the troubles of other countries. The experience of Greece shows that depreciation of currency does not have to be interpreted as serious tensions, provided that it results from the situation on financial markets and not from weak foundations of the economies. The central parity may act as a “magnet” for the market exchange rate. It does so, if the market is positive about the prospect of meeting the convergence criteria and the fast euro adoption, and the level of foreign exchange reserves is high.

According to the pessimistic scenario, increase in prices due to rounding should not exceed 2–3%.

Another short-term threat stems from a possible increase in prices denominated in euro, as a result of rounding. The estimations of potential price effects of this character in Poland point to a 2–3% increase in the overall price level in the worst case (Rozkrut, Jakubik, Konopczak, 2008). Moreover, pessimistic scenarios are unlikely to materialise, since the final scale of price effects results from a number of factors, such as: (1) level of competition on a given market; (2) a point of the business cycle, where the currency changeover takes place; (3) level of social awareness (consumer vigilance). An important role is also played by the activities of consumer organisations and state institutions consisting in the monitoring of price movements within several months surrounding the currency changeover, the communication with society, initiation of agreements with economic operators on refraining from using the currency changeover to the detriment of consumers or the use of appropriate institutional tools, including mandatory dual pricing. In effect of increase in the prices of most purchased goods and services, discrepancy may occur between the actual and perceived inflation, which may affect the real economy through a decline in consumption demand or increased wage demands.



Chapter 5

Shock absorption mechanisms

Chapter purposes

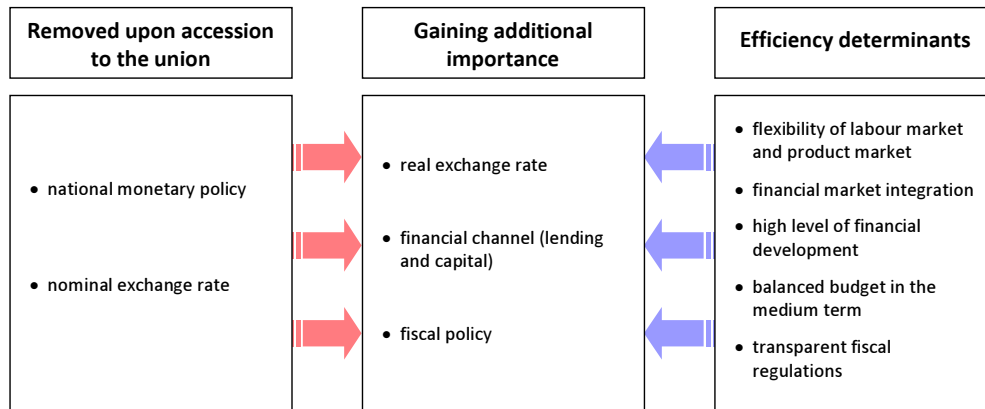
The purpose of the chapter is to demonstrate that the balance of cost and benefits of participation in the monetary union may be largely determined by the flexibility of market instruments and fiscal policy in responding to shocks, mainly asymmetric ones. With no monetary and exchange rate policy, the role of various adjustment mechanisms activated in response to shocks increases. A common monetary policy conducted by the ECB, which responds to shocks at the level of the whole euro area (symmetric), remains a mechanism stabilizing the fluctuations of the GDP gap and inflation in the entire monetary union. The mechanisms presented in Diagram 5.1, which function only at the national level, are of particular importance in the case of shocks affecting only one country (asymmetric). The European Commission (2008b) and Langedijk, Roeger (2007) distinguish various sources of shocks with which individual economies of the euro area had to deal in the first ten years of the monetary union. Roubini, Parisi-Capone, Menegatti (2007) and HM Treasury (2003b) identify a number of basic channels of macroeconomic adjustments in the monetary union which are presented in Diagram 5.1:

Various sources of asymmetric shocks.

- fiscal policy;
- real exchange rate channel;
- financial channel (lending and capital).

Specific conditions are required for individual channels to operate efficiently. The efficiency of fiscal policy depends both on the balancing of the budget in the medium term and transparent fiscal regulations. The effectiveness of the real exchange rate channel (also called the competitiveness channel) to a large extent reflects the degree of flexibility of the labour and product market. The degree of integration and development of financial market, including the scope of home bias reduction, affect the financial markets' ability to act as the shock stabilizers.

Diagram 5.1 Adjustment mechanisms in the monetary union



Source: own study.

5.1 Fiscal policy

Role of fiscal policy in the monetary union

The role of fiscal policy increases along with the loss of autonomous monetary and exchange rate policy.

The accession to the euro area entails the resignation from two major tools of macroeconomic policy, namely the national monetary and exchange rate policy. Fiscal policy will have to bear the burden of macroeconomic stabilisation of Poland after its accession to the euro area and, in particular, to absorb asymmetric shocks. And yet it is not only macroeconomic stability that poses a challenge to the fiscal policy. Fiscal policy should create conditions for sustainable economic growth. At the same time, the public finance system has to be constructed in a way which prevents the general government deficit from exceeding 3% of the GDP and the public debt from exceeding 60% of the GDP. For a country acceding to the euro area, the concern for an efficient fiscal policy boils down to two main issues:

1. How to increase the possibilities of the automatic stabilisers in operation (cf. Box 5.1)?
2. How to structure budget revenues and expenditure, while ensuring appropriate supply of pro-growth expenditure, to meet the requirements of the Stability and Growth Pact which disciplines the fiscal policy of the UE and euro area countries?

The answers to the above questions are related. A condition for efficient fiscal policy, as a tool adjusting to economic shocks and stabilising the business cycle fluctuations, in the euro area is the appropriate structure of budget revenues and expenditure which does not lead to uncontrolled growth of the budget deficit, should the economic situation deteriorate. According to the fiscal rule in force in the euro area (included in the Stability and Growth Pact), that structure of revenues and expenditure is optimal which allows to accumulate savings of the budget in the period of good economic situation and thus increase expenditure should the situation deteriorate. Not only does a relatively good fiscal position at the onset of a worse economic situation facilitate the functioning of automatic stabilisers, but it also allows to maintain (and even to increase contrary to the cycle) investment and pro-growth outlays within the framework of the so-called discretionary policy.



Box 5.1 Automatic stabilisers

Automatic stabilisers are mechanisms embedded in the fiscal system which increase aggregate demand while the economic growth decreases and reduce its growth rate in the period of an economic boom (cf. e.g. McConnell, Brue, 2005, pp. 2018–19). The most important characteristic of automatic stabilisers is the fact that they act automatically (along with the changes in the economic trend) and do not require any additional decisions.

The major automatic stabilisers include:

- taxes – on the part of revenues;
- unemployment benefits and other social benefits which partly offset lost revenues – on the part of expenditure.

Thanks to automatic stabilisers, disposable income of citizens decrease more slowly than gross income during the economic slowdown. Respectively, the decrease in demand in the economy is also slower. The above mechanisms change the relation between budget revenues and expenditure, i.e. the budget deficit by itself adjusts to the economic trend.

It is worth emphasizing that due to an uncontrolled growth in expenditure and a decline in revenues during the economic slowdown deficit widened, to encounter the financing barrier on the part of investors and debt accumulated. Therefore, the accumulation of the savings reserve (i.e. the so-called rainy days funds, cf. e.g. Canzoneri, Grilli, Masson, 1992, p. 223) during the good economic situation allows to release the reserve when an asymmetric shock occurs, with a lower risk of excessive growth of deficit and public debt.

Source: NBP study.

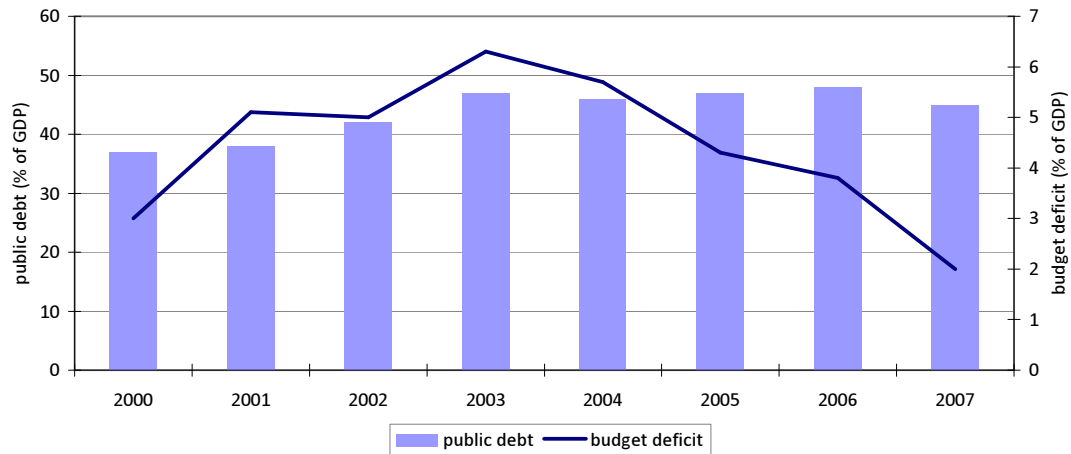
The above solutions raise a question about the preparation of the Polish fiscal policy to perform the role of an effective tool for macroeconomic stabilisation after the accession of Poland to the euro area. The following issues are of particular importance:

- Can automatic stabilisers freely operate in Poland?
- What is the efficiency of individual stabilisers embedded in the Polish public finance system?
- Is the fiscal policy in Poland responsible (countercyclical)?
- Do the structural conditions of the Polish public finance allow to pursue an effective fiscal policy without damage to the economic development of Poland after its accession to the euro area?

Quality of fiscal policy in Poland

The quality of fiscal policy tends to be generally assessed in terms of the changes in the public finance balance. Except for 1999 and 2000, in the whole period since

Chart 5.1 Deficit of the general government sector (according to the methodology ESA'95) and the public debt between 2000 and 2007



Source: Eurostat.

the beginning of transformation until 2006, the Polish economy recorded the budget deficit (of the general government sector) exceeding the reference level of 3% of the GDP. A high budget deficit in a catching-up country is to a certain extent justified by i.e. complementarity in numerous areas of public and private investment (and the EU investment in the case of Poland). The investments are important as the conditions for the economic development.

The deficit is currently lower, mainly as a result of the good economic situation in the period between 2003 and 2008.

If the stability of the Polish public finance system is measured by the current budget deficit, Poland performs relatively well as compared to (some) euro area countries and other new Member Countries (cf. also Darvas, Szapáry, 2008). In 2007 the deficit of the general government sector dropped to 2.0% of the GDP¹, i.e. by as much as 1.8 percentage points as compared to 2006, due to the good economic situation. In July 2008, the Council of the European Union decided to abrogate the decision on the existence of an excessive deficit in Poland, which was adopted on 5 July 2004. What is important, an increasing trend in the public debt observed until 2003 was also halted. Thus threat of the debt reaching 60% of the GDP was eliminated. In other words, negative consequences of high debt (cf. Box 5.2) continue to affect Poland to a lesser extent than many countries from the euro area. The budget balance and public debt to some extent reflect the general condition of public finance and the responsibility of the fiscal policy, but do not determine its efficiency in stabilising the economy.

Box 5.2 Negative consequences of excessive debt

The following arguments are most often presented as evidence for negative consequences of an excessive share of the public sector in redistribution of the

¹ According to the methodology applied by the Polish Ministry of Finance, the deficit would be lower by 1.4% of the GDP. The Polish methodology for calculating the business deficit was questioned by the decision of the Eurostat of September 2004. As a result of the decision, open pension funds were excluded from the public finance sector after the expiry of a specified transition period (cf. Ministry of Finance, 2005b).

GDP (Afonso and Furceri, 2008 – EBC No. 849, Schuknecht, 2004 – EBC No. 421; Żabińska, 2002; Lutkowski, 2004):

- Along with an increasing share of the state in the GDP redistribution, public expenditure increases and fewer funds are at the disposal of private entities, which results in the reduction of private investments creating new jobs. A large share of the state in the GDP and increasing public expenditure reduce the role of the market mechanism. This may lead to inappropriate allocation of funds, slower structural changes and lower growth rate of the economy.
- With a large share of the state in the economy, the government has to expand the state administration to appropriately manage public resources and distribute the funds. By way of illustration, Greece is at the 152nd place in terms of economic freedom, according to *Doing Business*, and at the same time posts the largest expenditure for administration (around 10% of the GDP).
- As a result of the large share of the state in the GDP changes may appear in social awareness and behaviour, more specifically in demanding attitudes, which are very difficult to eradicate and are characteristic of societies where over half of the GDP is managed and distributed by the state.
- In effect of increasing public spending uncovered by budget proceeds budget deficits deepen and accumulate in the long run in the form of the growth of public debt. High debt of the countries leads to high costs of its servicing and thus reduces the discretion of the government with respect to the fiscal policy.
- High budget deficits tend to encourage the so-called effect of crowding the private sector out of the credit market by the public sector, as a result of offering high interest on granted loans by the budget (crowding-out effect). The financing of the deficit, which is to stimulate the economy by means of the issue of securities on the financial market, may increase interest rates and dampen investments of enterprises.
- Where a state budget debt exceeds a certain threshold, the expectations may occur that the government will have to increase taxes to repay the debt. As a result, expenditure for consumption may decline and the tendency to save may increase in anticipation of larger burdens in future. Respectively, increasing fiscal expansion may produce negative effects and may not increase the demand. According to the new classical economy, if the public debt is relatively high and its servicing is a burden for the economy, the reduction of the deficit even in the time of recession will have a stimulating effect on the economic growth. This phenomenon is known as the non-Keynesian effect. It contributes to the dispersion of doubts concerning possible long-term consequences of increased debt and interest rates by increasing confidence in the economic policy and stabilizing inflation expectations.

Source: NBP study.

The efficiency of automatic stabilisers in Poland is relatively low.

The efficiency of the Polish fiscal policy in stabilising business cycle fluctuations depends both on the effectiveness of automatic stabilisers and on the quality of discretionary fiscal policy. Analyses show that automatic stabilisers smoothed around 14% of the GDP fluctuations in Poland between 1995 and 2007 (cf. Mackiewicz, Krajewski, 2008). According to the Bundesbank model, the impact of automatic stabilisers was similar in Italy and the Netherlands, and slightly higher in France (19%), Germany (23%) and the United Kingdom (24%) (cf. Creel, Saraceno, 2008)². The scale of increase or decrease in the public finance deficit in response to economic trend fluctuations depend on its flexibility to changes in production. The reaction depends on flexibility of individual budget categories with regard to the GDP (cf. National Bank of Poland, 2004a).

Table 5.1 Efficiency of automatic stabilisers in Poland

Budget category	Impact of an increase of a budget category by 1% of GDP in reaction to a decrease in GDP fluctuations (in %)
Corporate income tax (CIT)	2.98
Value added tax (VAT)	0.54
Passive forms of unemployment prevention	0.39
Excise tax	0.26
Personal income tax (PIT)	0.12
Contributions to special purpose funds	0.08

Source: Mackiewicz, Krajewski (2008).

CIT is the most effective stabiliser in Poland; PIT flattens the business cycle fluctuations to a lesser extent.

The studies conducted for the purposes of the *Report* show that the efficiency of individual categories of revenues and expenditure in the role of automatic stabilisers is varied in Poland (cf. Table 5.1)³. CIT proved to be by far the most effective stabiliser. It was a characteristic feature of Poland also in some earlier studies (cf. National Bank of Poland, 2004a). From the point of view of smoothing out the business cycle, it would be efficient to increase the share of this category in budget revenues. However, one must remember that increasing the CIT rates has much larger negative consequences for economic activity, including mainly for attractiveness of investing in Poland (Mackiewicz, Krajewski, 2008). Table 5.1 shows that other categories, including personal income tax (PIT), are much less effective in stabilising business cycle fluctuations. This may result from the discrepancy between nominal and effective income tax rates (stemming from numerous tax reliefs and deductions) which mitigate the progression of taxation and from multiple indexations of tax thresholds in the analysed period (1995–2007).

The discretionary fiscal policy has often been pro-cyclical in recent the 10–20 years.

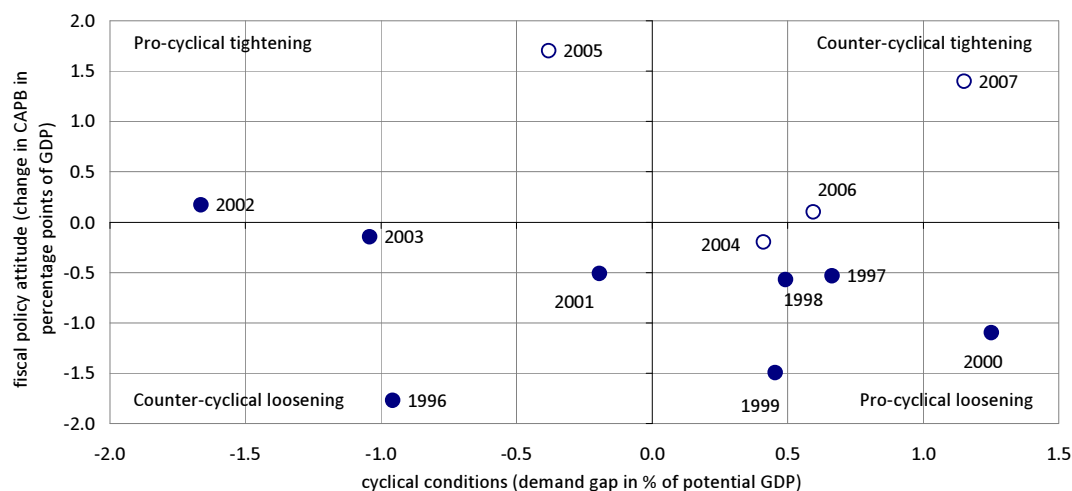
Whereas automatic stabilisers smooth out up to one third of negative consequences of cycle fluctuations, the discretionary fiscal policy is of high importance for overall effectiveness of fiscal policy in stabilising macroeconomic fluctuations. The studies for the purposes of this *Report* show that at the onset of the transformation period the Polish fiscal policy was pro-cyclical and neutralised the non-cyclical impact of automatic stabilisers. On the other hand, the results of the analyses on later years are not so straightforward. Mackiewicz, Krajewski (2008) prove that the quality of the discretionary fiscal policy improved in 1997, as a result of the new Constitution which included the public debt rule. Jędrzejowicz, Kitala, Wronka (2008) suggest, however,

² However, the estimates of the effectiveness of automatic stabilisers differ significantly depending on the applied model.

³ Short-term flexibility of individual categories with regard to the GDP presented in Table 5.1 should be interpreted with caution due to the probable and not eliminated lack of stationarity of the time series used to estimate the flexibility (Mackiewicz, Krajewski, 2008).



Chart 5.2 Cyclical character of fiscal policy in Poland between 1995 and 2007



Source: Jędrzejowicz, Kitala, Wronka (2008).

that the fiscal policy in Poland was pro-cyclical during the boom in the second half of the 1990s. What is interesting, the authors see the reason for the procyclicality also in the said constitutional public debt rule which (as they argue) could force the fiscal tightening in the period of economic slowdown.

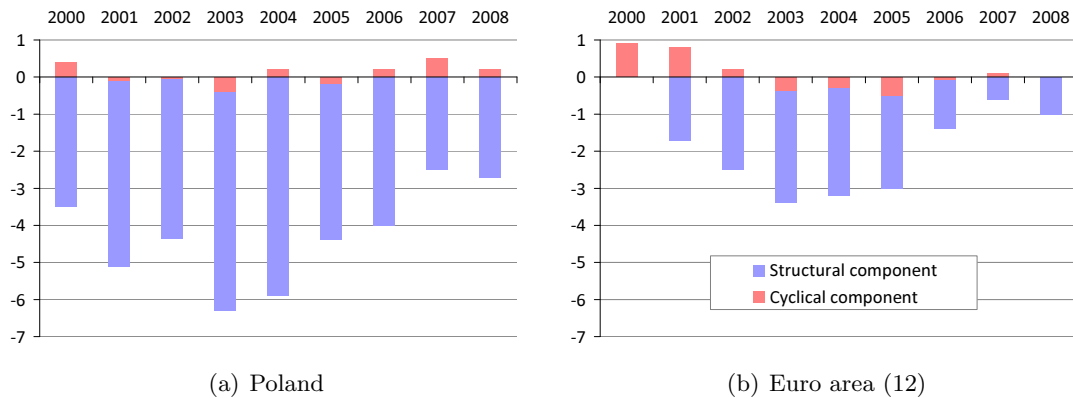
In view of ambiguous conclusions stemming from the analyses of the fiscal policy character from 1997, other studies have to be considered. Several empirical studies were conducted on the Polish fiscal policy. The analyses by i.a. international institutions (OECD, IMF) between 2002 and 2007 allow to put forward a hypothesis that the discretionary fiscal policy in Poland tended to be pro-cyclical (cf. Jędrzejowicz, Kitala, Wronka, 2008). However, it is worth noting the tendency to tighten fiscal discipline following the accession to the European Union (cf. also Chart 5.2) required from Poland as a result of obligations stemming from the SGP and which was best reflected by adopting a decision on the existence of excessive deficit in Poland. Countercyclical character of the discretionary fiscal policy failed to consolidate and some signals point to pro-cyclical loosening of the fiscal policy in 2008 (cf. OECD, 2008c, p. 63).

Conditions for stabilizing and pro-growth role of fiscal policy in Poland

Effective functioning of automatic stabilisers requires such a condition of public finances that the nominal deficit of 3% GDP referred to in the SGP is not exceeded in the period of economic slowdown. According to the amendments to the SGP, adopted in 2005, the medium-term objective (MTO, cf. Box 5.4) of the budget balance requires the structural component of the general government deficit in Poland to amount to 1% of the GDP. Such a deficit is the most liberal objective accepted as MTO and concerns only the countries with a high growth potential and a relatively low debt. According to the analysis of the European Commission, as a result of the reduction in the structural deficit to 1.5% of the GDP in Poland automatic stabilisers will be able to operate freely (cf. Jędrzejowicz, Kitala, Wronka, 2008). Meanwhile in 2007, despite a significant improvement in this regard in recent years, the structural component of the deficit remained at around 2.5% of the GDP and it will deepen further (according to the Eurostat's estimates) in 2008 (cf. Chart 5.3). In other words no conditions for efficient operation of automatic stabilisers are in place and should the economy slow

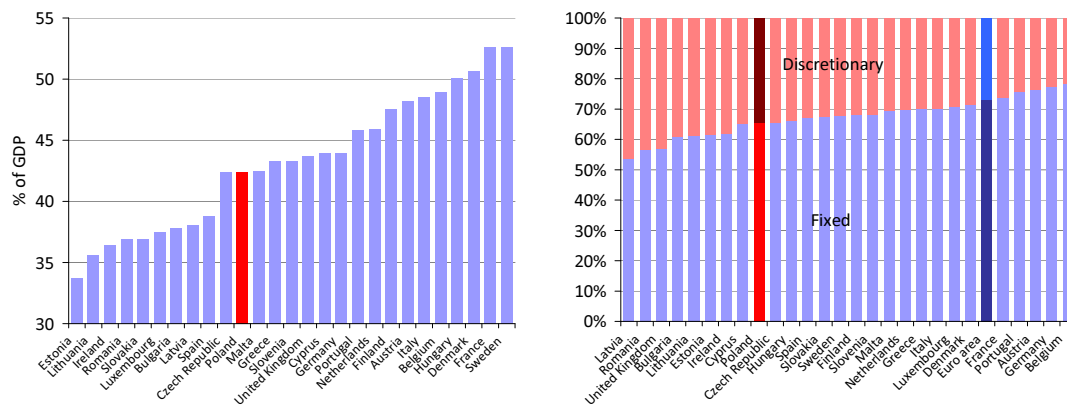
The reduction in the structural deficit from 2.5% to 1.5% of the GDP would ensure the freedom of operation of automatic stabilisers.

Chart 5.3 Cyclical and structural budget deficit in Poland and the euro area (% of GDP)



Source: NBP study based on Eurostat data.

Chart 5.4 Budget expenditure (as % of GDP) and its structure in the EU-27 in 2007



* Fixed expenditures are a total of social spending, remuneration of the budget sector, subsidies and interest (cf. Mattina, Gunnarsson, 2007).

Source: Eurostat.

down, deficit increase and tightening occur, the fiscal policy in Poland may become pro-cyclical.

As mentioned earlier, the structure of public finance on the part of expenditure comes among the major determinants of the efficiency of discretionary policy. In comparison with other European Union countries, Poland currently has a relatively favourable structure of expenditure (cf. Chart 5.4). Only in the Baltic states, the Balkan Member States and in the United Kingdom and Ireland is the share of fixed expenditure visibly lower than in Poland. The average share of fixed expenditure in the euro area is high, more specifically due to France and Germany.

The share of expenditure in the GDP in Poland is below the average for the euro area countries...

The share of the public finance sector in the GDP, measured by the share of budget expenditure in the GDP, in Poland is at the similar level as in the majority of the euro area countries and new member States (it amounted to 42.4% of the GDP in 2007, cf. Chart 5.4, and was 5 percentage points higher than in 2003). The share of the government sector in the GDP is the highest in France and Scandinavian countries, namely Sweden and Denmark. The share of the public sector in those countries significantly exceeded 50% of the GDP (which had a positive impact on the efficiency of automatic stabilisers of the business cycle) (cf. Jędrzejowicz, Kitala, Wronka, 2008). Among the countries of the region, such a high percentage was recorded only in Hungary



Table 5.2 Public expenditure in Poland and the developed countries in the period of similar GDP per capita

Country	Year	GDP per capita (USD according to purchasing power parity in 2000)	Expenditure of the public finance sector (% of GDP)
Spain	1973	11,915	23.6
Norway	1963	11,442	32.0
Sweden	1961	11,637	33.4
Italy	1968	11,887	33.5
France	1965	11,849	38.7
Poland	2005	12,052	43.3
Ireland	1981	11,643	54.7 (but 34.1 in 2006)

Source: Forum Obywatelskiego Rozwoju (2007).

(50.1% of the GDP). The share of government expenditure in the GDP is the lowest in the Baltic states, namely Lithuania and Estonia (35.6% and 33.7% of the GDP, respectively).

The above optimistic conclusions are undermined by the comparison of the share of budget expenditure in the GDP in Poland and developed European economies, where they were at the similar level of development as observed currently in Poland. It turns out that in the overwhelming majority of the countries the share of public expenditure in the GDP was significantly lower in the period when they posted a similar revenue level as the one recorded currently in Poland (cf. Table 5.2).

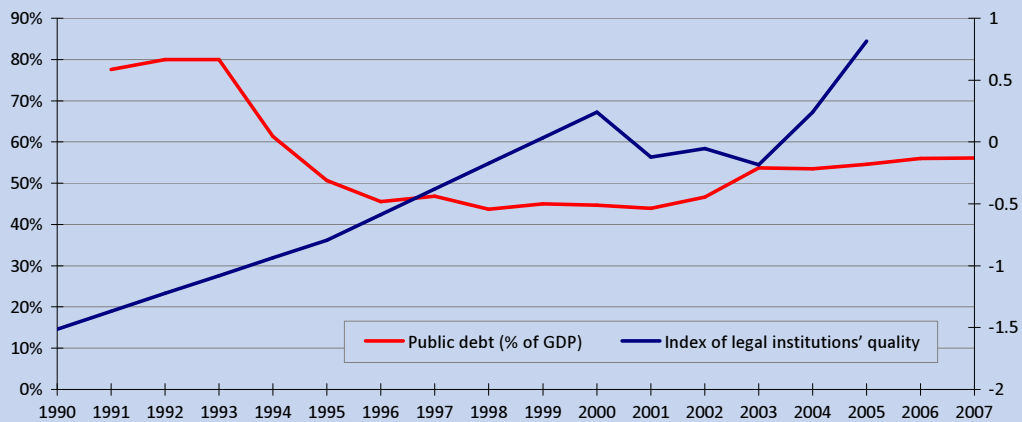
...but it is higher than corresponding shares in those countries, where they were at the similar development stage as currently in Poland.

Another important area which affects the effectiveness of the fiscal policy in stabilizing fluctuations and absorbing asymmetric shocks is the political and institutional environment. Although in comparison with other countries, the quality of the political and institutional environment is relatively low, the progress made since the beginning of the 1990s is visible (cf. Mackiewicz, Krajewski, 2008; Box 5.3).

Box 5.3 Institutional determinants of countercyclical discretionary policy in Poland

According to some theories institutional weaknesses are an important reason for pro-cyclical fiscal policy (cf. e.g. Wyplosz, 2002; Hallerberg, Wolff, 2006). By way of illustration, in the model of Alesina and Tabellini (according to Mackiewicz, Krajewski, 2008), corruption is the main factor responsible for pro-cyclical fiscal policy. Studies show that the institutional environment, quantified by the index of the quality of legal institutions which is a component of the Index of Economic Freedom, has a considerable impact on the degree of pro-cyclicality of the fiscal policy. The deterioration of the quality of institutions corresponding to one standard deviation of the index from the entire analysed sample would result in the decrease in cyclical flexibility of budget balance by 0.3–0.4. The index of the quality of legal institutions in Poland pointed to its dynamic improvement in almost the whole period between 1990 and 2005 (except for 2001–2003).

Chart Institutional determinants of the fiscal policy cyclicality



Source: Mackiewicz, Krajewski, 2008.

Source: Mackiewicz, Krajewski (2008).

Structural determinants of the Polish public finance are relatively favourable...

Summing up, from the points of view of the possibility to ensure efficiency of the fiscal policy as a tool for macroeconomic stabilisation, initial conditions with regard to structural determinants of public finance may be assessed as relatively favourable. On the other hand, efforts should be made to prevent the evolution of the budget expenditure structure towards “rigidity” and to maintain the tendency to reduce public expenditure to GDP ratio.

...but the effectiveness of public expenditure is low...

Fiscal policy, which needs to be pursued on the road to the euro area, requires the maintenance of discipline and effective expenditures. Meanwhile, relatively favourable structural determinants of discretionary fiscal policy in Poland are not used appropriately, taking into account the effectiveness of budget expenditure. Although the share of budget expenditure in the GDP in Poland is relatively low as compared to other European Union countries, but the efficiency of the government sector in spending, measured by the Government Efficiency (GE) index of the World Bank is unsatisfactory (cf. Kaufmann, Kraay, Mastruzzi, 2008). The GE index includes the perception of the quality of public services and institutions, their independence from political pressure, as well as the quality and credibility of the government’s activities. In terms of the GE index, Poland is at one of the last places (only before Bulgaria and Romania) in the enlarged European Union. Moreover, in 2007 Poland achieved the lowest value of the index since 1996 when the index was first published (cf. Kaufmann, Kraay, Mastruzzi, 2008).

...and pro-growth expenditures are low priority.

One of the major structural problems of public finance in Poland is also a very low share of pro-growth expenditure which determines the quality of the factors of production, as other reports pointed out (cf. e.g. Boni, 2008). The share of research and development expenditure is below 0.6% of GDP, i.e. three times less than the average for the European Union⁴.

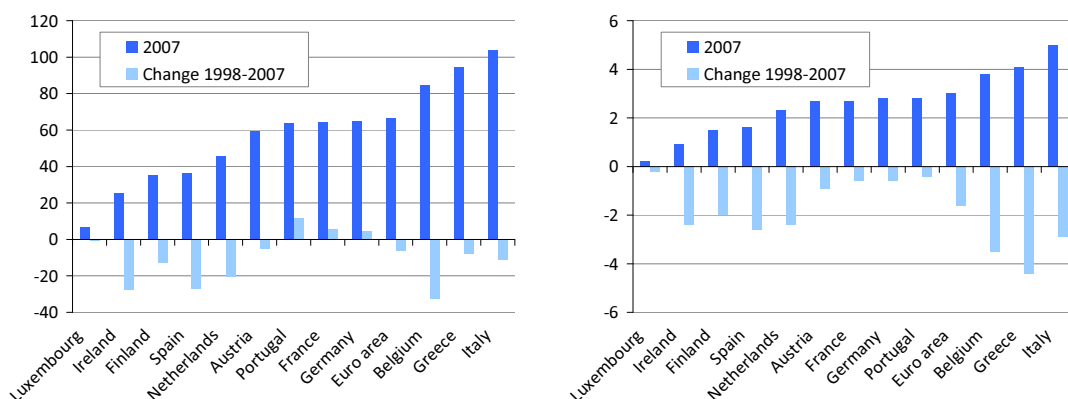
⁴ Data for 2006, source: Eurostat.



Fiscal policy on the road to the euro area

The Polish fiscal policy has to face two types of challenges on the road to the euro area. Firstly, by the moment of accession to the euro area, the public finance system should become an efficient tool of macroeconomic stabilisation, resistant to the temptation to increase spending, and at the same time it should obtain a structure ensuring the appropriate flow of pro-growth expenditures to the economy. Secondly, already in ERM II fiscal policy has to be reliable and predictable to prevent the risk of missing individual convergence criteria and to maintain the zloty exchange rate within the standard fluctuation band. At the same time, in order to reduce and permanently maintain the budget deficit at the level lower than 3% of GDP, Poland will have to significantly reduce the structural component of the deficit (cf. Jędrzejowicz, Kitala, Wronka, 2008). This is also an element of the government budget strategy to be attained in 2011.

Chart 5.5 Public debt and interest payments in the euro area countries



(a) Public debt in 2007 (% of GDP) and its changes between 1998 and 2007

(b) Interest payments as % of GDP and their changes

Source: Eurostat.

The observations so far has indicated that it has been much easier to meet the nominal convergence criteria in the countries aspiring to the euro area than to ensure their durability. The good economic situation where the convergence criteria were met was of fundamental importance for the improvement of fiscal indicators in many cases (in particular in Greece and Portugal). It was conducive to the growth of revenues and reduced the pressure on the disciplinary measures on the part of expenditures of the budget. The smaller fiscal burden resulted also from one-off events, such as slashing the debt service costs due to the reduction of long-term interest rates (cf. Chart 5.5), and from privatisation revenues. The study by Alesina and Perotti (1996) shows that the reduction in the fiscal deficit by the reduction in budget expenditures is more durable and pro-growth than the reduction as a result of increasing the taxes. Those conclusions are supported by the low quality of fiscal adjustments in Portugal and their impermanence in the euro area (Portugal was subject to the decision on the existence of an excessive deficit on two occasions: in 2001 and 2005). After the qualification to the euro area, the reforming zeal died down and the attachment to price stability, which was sought before the implementation of the third stage of the EMU, was significantly

The reduction in the deficit by means of cutting the budget expenditure proved to be more durable and pro-growth than the reduction by means of increasing taxes.

reduced⁵. The divergence process began for such indicators as the inflation rate, deficit and public debt.

The lower the credibility of the national fiscal policy, the higher utility of the so-called anchor from Maastricht.

The experience of peripheral countries (Spain, Portugal, Greece and Ireland) allows to argue that the longer the distance those countries had to travel to meet the convergence criteria and the less credible their earlier macroeconomic policy, the more useful convergence criteria proved to be as a nominal anchor. The criteria were a mechanism disciplining the examined countries in their efforts to restructure economies and implement institutional reforms (Leiner-Killinger et al., 2007).

Box 5.4 Evolution of the Stability and Growth Pact

Under the Stability and Growth Pact (SGP) of 1997, countries have been committed to achieve medium-term budget positions of close-to-balance or in surplus (medium term objective – MTO).

In 2002, the SGP was amended by adding that MTO should be understood as the cyclically-adjusted budget balances. MTO was identical for all countries with its purpose being to maintain the positions close to balance. Eurogroup also decided that the countries which do not meet the MTO requirements should each year carry out adjustment activities reducing the deficit by at least 0.5% of GDP.

The SGP reform of 2005 introduced certain amendments. In order to fulfil the budget deficit rule (maximum 3% of GDP), ensure stability of public finances and necessary room for operation of automatic stabilisers, the countries were committed to achieve and maintain individual MTO, established according to the following formula: $MTO = -3\% + \text{safety margin}$.

The safety margin is determined from country to country, on the basis of numerous factors, with the least ambitious MTO for the euro area countries and the countries participating in the ERM II being the structural deficit of 1% of GDP. According to the most recent estimates (of 2007), MTOs for individual euro area countries are within the range from -1% of GDP to +1.6% of GDP.

As from 2009, the MTO estimates will change, as additional variables, including the ageing of the population, will be included in their calculation.

Source: NBP study.

Although the Maastricht Treaty requires durable fulfilment of nominal criteria, the Stability and Growth Pact remains the only real instrument to discipline economic policy following the adoption of the euro. Its fulfilment, particularly in the largest member countries, proved to be ineffective, mainly for political reasons, which undermined its credibility. Deteriorating condition of the economies reduced the chances to continue reforms, a number of them preliminary, initiated to meet the Maastricht criteria. A strong institutional anchor which would spur countries to further restructure their economies was missing in many countries.

The efficiency of the SGP was questioned in the past and led to its reform.

Even though it is generally believed that the Maastricht criteria and then the Stability and Growth Pact increased the transparency and countercyclicality of fiscal policy in the

⁵ The incentives for reforms weakened also as a result of almost perfect convergence of long-term rates of the euro area countries, irrespective of creditworthiness demonstrated by the rating. More on the convergence and harmonisation of long-term rates on the road to the euro area and later in Grodzicki (2008).

euro area countries (von Hagen and Wyplosz, 2008; European Commission, 2007), many aspects of the SGP were criticised leading to further reforms of the Pact (cf. Box 5.4). Nominal convergence criteria proved to be much more efficient in terms of discipline, as their fulfilment opened the road to the use of the euro. The Stability and Growth Pact does not offer such a reward, but imposes certain penalties which (perhaps because they were distributed over long time) failed to be a sufficient incentive for reforms. As from 2005, the SGP has recommended the debt ratio low enough at the stage of economic growth so as to constitute a buffer allowing for a rapid reduction in revenues and an increase in expenditures when the economic situation deteriorates, without the risk of budget instability.

The experience of the European Union countries shows that appropriate fiscal rules may permanently secure public finances against excessive growth in expenditure in the fields ensuring significant political benefits (cf. Box 5.5). These are to eliminate the discretionary nature of the fiscal policy whereby in the economic policy objectives are adjusted to the current situation. As a result, the macroeconomic policy may not reflect the changes in business cycle but tends to follow the changes in election cycle. This may lead to numerous negative consequences of excessive debt (cf. Box 5.2).

Appropriate fiscal rules may be efficient tools disciplinating expenditure.

Box 5.5 Fiscal rules

Fiscal rules durably restrict activities in the fiscal sphere. They take the form of quantitative limits and appropriate procedure, institutional and control framework with regard to the fiscal policy (cf. Jędrzejowicz, Kitala, Wronka, 2008). In practice, the main purpose of the rules is to stop politicians from excessive increasing expenditure during an economic boom, since the resulting budget deficit hampers the expansive fiscal policy during the economic slowdown. The rules may:

- set the upper limit of budget deficit or public debt;
- set the upper growth rate of government expenditure;
- balance the budget over the cycle;
- set the tolerance limit permissible for cyclically-adjusted budget balance (cf. Mackiewicz, Krajewski, 2008).

The upper limit of the budget deficit for the euro area countries, amounting to 3% of GDP and specified in the SGP exemplifies a fiscal rule with a wide application.

Another example of a fiscal rule is the Polish constitutional rule concerning the level of public debt, whereby according to which “It shall be neither permissible to contract loans nor provide guarantees and financial sureties which would engender a national public debt exceeding three-fifths of the value of the annual gross domestic product” (Article 261 of the Constitution of the Republic of Poland). There are three thresholds the exceeding of which triggers specific activities. Should the level of public debt exceed (cf. Jędrzejowicz, Kitala, Wronka, 2008):

- 50% of the GDP, the government is committed to pass the draft budget act whereby the budget deficit to revenues ratio would not exceed the corresponding ratio reported in the current year;

- 55% of the GDP, the government is committed to pass the draft budget act whereby the public debt to GDP ratio would not exceed that reported in the current year;
- 60% of the GDP, the public finance sector units lose the right to grant guarantees and sureties. The budget act and the acts on the budgets of local government units for the following year cannot include a deficit. Moreover, the government has to present the recovery programme to decrease the public debt to the level not exceeding 60% of GDP.

Source: NBP study based on Jędrzejowicz, Kitala, Wronka (2008) and Mackiewicz, Krajewski (2008).

The efficiency of fiscal rules is reflected in their increasing popularity.

The rules enhance the efficiency of fiscal policy in smoothing out the business cycle, but at the expense of a reduction in the policy's flexibility. Nevertheless, the number of fiscal rules in the European Union increased from 13 to 57 between 1990 and 2005. Those on budget deficit (22), debt (16) and government expenditure (14) (cf. Debrun et al., 2008) are most commonly applied.

The effectiveness of expenditure rules is particularly well assessed.

The analyses conducted for the purposes of the *Report*, which take into account also the experience of western European states, show that the introduction of the expenditure rule into the budget planning system may prove particularly efficient. Bruck, Zwiener (2006) also point out that if the adopted principle is based not on the budget deficit but refers to the level of expenditure automatic stabilisers would operate more efficiently, as expenditures (which are predominantly fixed) are generally less variable than revenues which depend mainly on the current economic trend. So far there has been only one attempt to impose a limit on public expenditure in Poland, i.e. the so-called Belka rule, whereby the state budget expenditure was to grow not faster than inflation plus one percentage point (cf. Jędrzejowicz, Kitala, Wronka, 2008). With the accession to the euro area and resignation from the national monetary policy, the expenditure rule may prevent a situation when pro-cyclical tightening of the fiscal policy in the period of economic slowdown affects firstly the investment expenditure. This conclusion may be important given that co-financing of investments in Poland from the EU funds is necessary also in the period of economic slowdown. The experience of such countries as Sweden or the Netherlands shows that efficient expenditure rules are usually binding, multiannual limits on public expenditure which are a starting point to draft annual budgets for the following years. The limits are often political agreements adopted for the term of office of the incumbent coalition.

Responsible and credible fiscal policy allows to avoid many threats during the participation in ERM II.

Reforms increasing the flexibility of fiscal policy and its ability to support economic growth after Poland's accession to the euro area provide for long-term development. One should not ignore however the challenges of pursuing fiscal policy during the participation of Poland in the ERM system. Experience proves that the most important issue during the participation in the ERM II is to pursue reliable fiscal policy and undertake credible activities (cf. Abreu, 2003).

The Polish fiscal policy after accession to the euro area will be conducted in a new institutional and economic environment governed by different rules. First of all, external effects of economic policy (including fiscal policy) will be visible on a larger scale. As a result of those effects the policy conducted in one member country to a certain extent affects other countries of the monetary union (cf. e.g. Beetsma, Uhlig, 1999; Fatás, Mihov, 2007; Jędrzejowicz, Kitala, Wronka, 2008). In addition, the structure of

institutional framework of the functioning of fiscal policy in the EU allows the so-called interest free ride, in other words countries are not sufficiently punished (with the growth of long-term interest rates) for their inadequate macroeconomic policy. Respectively a temptation may occur in the monetary union to pursue irresponsible fiscal policy, since its costs are partly transmitted to other member countries (cf. Jędrzejowicz, Kitala, Wronka, 2008). The experience of the euro area shows that loosening of the discipline by financial markets with regard to the member states of the monetary union had a dampening impact on incentives for reforms undertaken to improve the condition of public finances⁶. This leads to the conclusion that all reforms improving the quality of fiscal policy, including its position with regard to the cycle, should be implemented with the floating exchange rate, since they are less costly than with the fixed exchange rate (cf. Lane, 2005a).

Long-term system reforms

As a result of the introduction of the euro the issue of sustainable public finances gained importance. The prevention of excessive burden on budgets in the long run is necessary, as individual countries, despite fiscal limits imposed by the Stability and Growth Pact, have then enough room for manoeuvre to allow automatic stabilisers to act, while negative asymmetric shocks appear.

Although the fiscal policy in the euro area has improved in recent years, it still raises some concerns. Despite the recent period of economic boom, some euro area states were unable to achieve and maintain a durable and strong fiscal position. Difficulties with durable sustainability of the budgets of the euro area states raise concerns, in particular vis-à-vis fiscal challenges those economies are to face in the following years. Ageing of societies has a large importance for the prospect of balancing the public finances. This phenomenon, along with the decrease in the relation of the number of people in the working age to the number of people past the working age, will have gross consequences for the potential economic growth, public finance balance, functioning of the labour markets and financial markets and the distribution of national product. The prospect of increasing burden on pension systems, and thus a dramatic increase in contributions to this end from the working part of the population, is particularly worrying (European Commission, 2008b).

According to the most recent estimates of the European Commission and the Economic Policy Committee of the EU, public expenditures on pensions, health care and long-term care for elderly persons in the euro area will increase by 4.7% of GDP on average between 2004 and 2050. However, in such countries as Cyprus, Portugal, Slovenia or Spain no decisive activities have been commenced to curb the growth in expenditures related to the increased proportion of elderly persons in the population. Respectively, further dramatic changes will occur in the burden on the budget (see Table 5.3). In comparison with other European countries, the prospects of Polish public finances are remarkably optimistic. Poland is the country with the highest forecast decrease in expenditure for pension benefits among all EU Member States⁷. The forecast increase in expenditure for health care and long-term care also seems moderate as

⁶ The SGP was structured to avoid such a situation. The creation of appropriate conditions for the operation of automatic stabilisers was also important. The study of Jędrzejowicz, Kitala, Wronka (2008) shows that the countries with excessive structural deficit pursued procyclical fiscal policy. This could have been related to the necessary procyclical tightening when the nominal budget deficit approached the reference value of 3% of GDP.

⁷ The forecast was prepared with a bold assumption on the growth of vocational activity, particularly among people aged 55–64 (from around 30% in 2004 to almost 50% in 2050).

compared to fiscal challenges faced by other European countries (Economic Policy Committee, 2006).

Table 5.3 Forecast changes of selected indicators of expenditure related to the ageing of populations with relation to the GDP (2004–2050)

	Pension benefits		Health care		Long-term care		Total	
	EC/EPC	OECD	EC/EPC	OECD	EC/EPC	OECD	EC/EPC	OECD
Belgium	5.1	5.1	1.4	3.3	0.9	1.9	7.4	10.3
Germany	1.7	2.0	1.2	3.6	1.0	1.9	3.9	7.5
Ireland	6.4	6.5	2.0	4.0	0.6	3.8	9.0	14.3
Greece	–	3.9	1.7	3.9	–	2.7	1.7	10.5
Spain	7.1	7.0	2.2	4.1	0.5	2.4	9.8	13.5
France	2.0	2.1	1.8	3.5	0.2	1.7	4.0	7.3
Italy	0.4	0.4	1.3	3.8	0.7	2.9	2.4	7.1
Cyprus	12.9	n.a.	1.1	n.a.	n.a.	n.a.	14.0	n.a.
Luxembourg	7.4	7.4	1.2	1.4	0.6	3.1	9.2	11.9
Malta	-0.4	n.a.	1.8	n.a.	0.2	n.a.	1.6	n.a.
Netherlands	3.5	3.8	1.3	3.8	0.6	2.0	5.4	9.6
Austria	-1.2	-1.0	1.6	3.8	0.9	2.0	1.3	4.8
Portugal	9.7	9.3	0.5	4.2	0.4	2.0	10.6	15.5
Slovenia	7.3	n.a.	1.6	n.a.	1.2	n.a.	10.1	n.a.
Finland	3.1	3.3	1.4	3.6	1.8	2.4	6.3	9.3
Euro area	2.6	3.0	1.5	3.7	0.6	2.2	4.7	8.9
Poland	-5.9	n.a.	1.4	n.a.	0.1	n.a.	-4.4	n.a.
Slovakia	1.8	n.a.	1.9	n.a.	0.6	n.a.	4.3	n.a.
United States	n.a.	1.8	n.a.	3.4	n.a.	1.7	n.a.	7.0

Source: European Central Bank (2008f); Economic Policy Committee (2006); OECD (2007a).

The majority of the euro area countries have implemented more or less decisive reforms in order to guarantee the long-term balance of public finances due to the progressing ageing of the societies. Such reforms include mainly the changes in pension systems, health care systems and increasingly also the reforms of the systems of long-term care for elderly persons. The said institutional changes had various forms, starting from small changes of the parameters of existing systems to their total transformation (European Commission, 2008b). The following paragraph (Health care system reforms) will introduce the scope and nature of changes which have taken place in this regard.

The reforms of the pension system began in the euro area countries in the 1990s, mainly due to the Maastricht criteria. In most cases, the pension system reforms preserved the basic structure of those systems and were limited to the attempts to halt the dramatic increase in expenditure by changing the parameters of the systems, e.g. the statutory retirement age, replacement rate or rules governing benefit indexation. The solutions applied in the majority of the euro area countries included increasing the retirement age to adjust it to the increasing average life expectancy⁸, changes in the

⁸ For example, in Germany, Denmark and the United Kingdom, the retirement age was increased above 65 years of age. Finland and Portugal totally abolished the regulations specifying the retirement age. Moreover, Spain and Ireland introduced flexible retirement age with remuneration for additional years of work. Numerous countries restricted the possibility of early retirement.

benefit accumulation rate, method of calculating the salary for determining the amount of benefits⁹, as well as the methods for their valorisation and indexation.

Some countries introduced changes to the method of financing the pension system. Not only did they increase contribution rates but also consolidated the link between the amount of benefit and the contribution to the system during the whole working life. In addition, the aim was to increase the importance of financing from individually accumulated funds in public pension systems as compared to financing from public funds. Some countries established special pension reserves funds to accumulate funds on account of future increase in expenditure under the system. Furthermore, pension system reforms in some EU countries (but to a significantly smaller extent in the euro area countries) were aimed at increasing the share of private funds, as supplementary sources, in financing pensions, as compared to public funds. Sweden and the majority of new Member Countries adopted solutions where a part of mandatory pension contributions is deposited with private pension funds. Germany was the only country in the euro area where such solutions were implemented (see Box 5.6).

Box 5.6 Pension system reforms in Germany

As a result of the 1972 reform, the German pension system became one of the most generous in the world. It posted a high replacement rate and allowed relatively early retirement (in practice between 60 and 65 years of age). Respectively, Germany has the second largest pension budget in the OECD (after Italy), which amounted to 11.8% of GDP in 2001. Not only did German authorities increase the transfers to the system but also had to gradually increase pension contributions paid by working people. Whereas unfavourable demographic trends pose a serious problem of increasing burden of pension benefits in many countries, the developments that the German system has to deal with are particularly challenging. Firstly, the change in the age structure of the society is expected to be more dramatic in Germany (as a result of the lag in demographic processes vis-à-vis other European countries). Secondly, according to the demographic projection of the OECD, the lowest fertility rate (after Italy and Spain) will contribute to a nearly twofold increase in the demographic dependency ratio from 24% in 2000 to 43% in 2030.

The reform of the German pension system began in 1992 and lasted for 15 years. Major changes were implemented during the three large reforms:

- The 1992 reform indirectly reduced the pension burden on public finances by changing the basis for the calculation of benefits (net wages instead of gross wages were taken into account), thus linking the expenditure on pensions with the society's social insurance contributions and an element of intergenerational solidarity. In addition, the reform introduced actuarial adjustments of benefits to the retirement age which do not encourage early retirement. As a result of the change the German defined benefit scheme shifted towards the defined contribution scheme.
- The purpose of the 1999 reform was to reduce the replacement rate according to the so-called demographic factor which, *inter alia*, reflected life expectancy. This element was revoked soon by the new social democratic government. As

⁹ The salary from all years of work, and not only from the period when they were the highest or from the last years before the retirement.

a consequence of the unrevoked part of the reform, is the retirement age for women and unemployed gradually increases (from 60 to 65), and tightening is reported in eligibility rules for early retirement. The new rules will have been fully effective by 2017 and will increase the effective retirement age from 60 to around 62 years.

- In 2001, the Riester reform, which transformed all the German pension system, was implemented. The key element of the reform is a partly substitution of pay-as-you-go (PAYG) financing by funded pensions. The reform aimed to achieve three main objectives: Firstly, it was to stabilize contribution rates to achieve a fairer intergeneration distribution of burdens and to limit further increases in non-wage labour costs. According to the adopted regulations, contribution rates to the public retirement insurance scheme cannot exceed 20% by 2020 and must remain below 22% by 2030, while the minimum replacement rate is 67%. Secondly, the reform was to stabilise the amount of pensions, at the same time reducing the replacement rate from 70% to 67–68%. In addition, the reform changed the procedure for calculating the reference earnings (by subtracting 4% of gross earnings which hypothetically should be allocated for investment into new funded supplementary private pensions), which further reduced the amount of benefits paid out from the part of the scheme financed according to the PAYG principle. The third major objective of the reform was to introduce mechanisms whereby the decline in the amount of benefits from the public pension system will be offset by supplementary pension savings plans under voluntary private or occupational pension plans. Those schemes are exempt from tax or subsidized by the state.
- The reform implemented by 2001 proved to be insufficient to prevent difficulties in financing pensions, therefore, further changes to the system were proposed in 2003. The most important elements of the reform include the increase in the standard retirement age from 65 to 67 and the modification of indexation formula linking benefits to dependency ratio. The latter element links the benefits to the overall demographic situation, instead of only life expectancy, and also to the situation on the labour market.

Source: Börsch-Supan, Reil-Held, Wilke (2007).

Health care system reforms

Robust growth in health care costs in the euro area countries are yet another threat for maintaining fiscal sustainability in the long run. In recent decades, the growth rate of expenditure for health care per capita has exceeded the GDP growth rate in most of the euro area countries. Although demographic factors are not the only reason for the growth in costs related to the health care system, they play an important role in this regard which will definitely gain even more importance in future. It should be noted that the forecast growth of the number of elderly people¹⁰ will result in a marked increase in demand for long-term care which already now is a serious problem in the European countries. Better access to such services, as well as the appropriate integration

¹⁰ The population aged over 80 is expected to increase three-fold by 2050 (European Commission, 2008b).

of their different forms (non-institutional care, home care, institutionalized care) will be necessary in future to optimize the costs of such care. The appropriate balance between the financing from public and private funds will also be required (European Commission, 2008b).



Box 5.7 Structural reforms in Ireland

In the 1980s, the Irish labour market featured high unemployment combined with low economic activity rate. However, from the beginning of this decade Ireland has posted one of the lowest proportions of the unemployed. This success is owed mainly to the reforms initiated in mid 1980s:

- Reduction in nominal wages growth rate. The labour cost per hour, adjusted for productivity growth and seasonal factors, decreased by 20% thanks to the amended rules of determining the wages agreed during negotiations between social partners. At the same time, the Irish government undertook to offset the low wage growth rate by decreasing the taxes on earnings.
- Reduction of tax wedge. Between the beginning of the 1980s and the current decade, tax wedge has declined by 14 percentage points while its average value in the European Union has slightly increased. In addition, the highest tax rates on earnings have been significantly reduced and individual tax thresholds have increased.
- Reform of the benefit system. The benefits from the state budget were moderate in Ireland from the beginning, but in the discussed period their amount as compared to income was reduced and the criteria for granting the benefits were tightened. As a result, employment incentives were strengthened.
- Reduction in expenditure on wages in the public sector, mainly by the reduction in employment and the growth in wages in the public sector.

Source: NBP study.

5.2 Real exchange rate channel in the monetary union

The restoration of the balance in the economy affected by an asymmetric shock, which is not independent with regard to monetary and exchange rate policies, does not have to consist only in the use of fiscal tools. The real exchange rate channel (also called the competition channel) is a component of the adjustment process based solely on the functioning of market mechanisms.

Real exchange rate channel is a market adjustment mechanism.

The accession of a country to the monetary union does not change the fact that it is the real exchange rate that determines the competitiveness of the economy with regard to foreign countries. However, taking into account its definition (5.1):

The real exchange rate growth rate reflects differences in price levels.

$$R_t = E_t \cdot \frac{P_t^*}{P_t} \quad (5.1)$$

where E is the nominal exchange rate with regard to foreign countries, it may be noted that the real exchange rate (R) growth rate as compared to other euro area

countries is determined only by the relative growth rate of prices at home (P) and abroad (P^*). The price level in the common currency becomes the only determinant of the competitive position with regard to other countries of the monetary union. The nominal euro exchange rate against other currencies continues to control the growth rate of the nominal effective exchange rate. It is true for the euro area as a whole in accordance with the equation (5.1) and for individual countries to the extent to which they trade with countries from outside the euro area. Box 5.8 presents detailed information about exchange rates in the context of the monetary integration.

Box 5.8 Exchange rates in the monetary union

The table compiles various types of exchange rates after the integration of a country with a monetary union. The first column includes exchange rates for the monetary union as a whole (which corresponds to the situation of a single country outside the union). The second and third columns describe the exchange rate for an individual country, for countries from outside and inside the common currency area, respectively. The lines present nominal and real exchange rates, as well as bilateral and effective rates (indices based on the average of nominal rates for a given currency weighted by the share of other currency areas in its foreign trade).

The common currency obviously has a common external value, both against other currencies and in the category of effective exchange rate of the euro area. There may, however, be divergence between the euro area countries with regard to various categories of exchange rate. Their reasons are marked red in the table. Bilateral real exchange rates of country X and country Y against country Z may differ due to different price growth rate in country X and in country Y. Divergence of real effective exchange rates may be additionally deepened by different shares of trade partners in foreign trade in each economy. Analogous reasoning applies to real bilateral exchange rates and effective exchange rates with the countries not affiliated with the monetary union. In this case, different changes of exchange rates of various currencies against the euro may be additional sources of differences. It happens when different shares of specific currency areas of the world in the foreign trade of the euro area countries influence divergences in nominal effective exchange rates of individual countries.

In the context of the real exchange rate channel as an adjustment mechanism inside the monetary union, in this chapter we are interested in real effective interest rates in individual countries against the rest of the monetary union, which is presented in the right bottom field of the table.

Table Exchange rates in a monetary union

		For the entire union vs. the rest of the world	For individual countries of the union vs. the rest of the world	For individual countries of the union vs. the rest of the union
Nominal	Bilateral	Common nominal exchange rates with other currency areas of the world		Irrevocably fixed
Nominal	Effective	Common nominal exchange rates	Common nominal exchange rates	Irrevocably fixed
		Aggregate weights	Asymmetric weights (cf. Chart 5.10b)	–

5.2 Real exchange rate channel



Real	Bilateral	Common nominal exchange rates Aggregate internal deflator Common external deflator	Common nominal exchange rates Asymmetric internal deflators Common external deflator	Irrevocably fixed Asymmetric internal deflators Common external deflator
Real	Effective	Common nominal exchange rates Aggregate weights Aggregate internal deflator Common external deflator	Common nominal exchange rates Asymmetric weights Asymmetric internal deflators Common external deflators	Irrevocably fixed Asymmetric weights Asymmetric internal deflators Common external deflators

Note: Common = equal for all monetary union member countries; asymmetric = different for monetary union member countries; aggregate = weighted average of values for individual monetary union member countries.

Source: NBP study.

Table in Box 5.8 presents various types of exchange rates, at the level of both the entire monetary union and individual countries. The common currency obviously has a common external value, both versus other currencies and in the category of the effective exchange rate (average of nominal rates weighted according to the share of other currency areas in the trade of the entire monetary union). Nominal effective exchange rates of individual countries may, however, diverge from the common external value of the euro due to different structures of foreign trade of the countries. The real bilateral exchange rates of the euro area countries versus a country from outside the euro area are influenced not only by the euro exchange rate against its currency but also by the price dynamics in that country and in the euro area member country. Different price dynamics may be the only source of divergence in such exchange rates. The real effective exchange rate of a monetary union member country is the best measure for price competitiveness and at the same time the most complex case, which consists of the relative price dynamics versus other euro area countries (according to their share in trade) and the relative price dynamics in trade outside the monetary union combined with the changes in the external value of the common currency. In the latter case the divergence may stem from different price dynamics in the country, different trade structure within the monetary union, as well as from the share and structure of trade with the countries from outside the euro area (due to different impact of the changes in the euro exchange rates against other currencies and the price dynamics in the countries outside the monetary union).

Adjustments through the real exchange rate channel are related to the real exchange rate versus other monetary union countries, which is presented in the right bottom field of Table in Box 5.8. A country where prices increase quickly loses price competitiveness against other members of the monetary union and this effect cannot be mitigated by the nominal depreciation of the national currency (cf. Box 5.9). Domestic prices have to restore the market equilibrium. In effect of the loss of competitiveness the domestic output declines as compared to the potential output, exporters lose their market shares and the goods market comes back to the equilibrium.

The nominal exchange rate still determines the competitiveness with regard to the countries outside the monetary union, depending on the trade structure.

The real exchange rate channel is to restore the macroeconomic balance in the monetary union.

Box 5.9 The real exchange rate channel and absorption of asymmetric shocks

A demand shock in one of the monetary union countries entails the growth of inflation pressure and thus the prices. The GDP gap is initially increased as a result of its own inertia, potential autocorrelation of the shock and the real exchange rate effect (see Section 4.2.3), but the accumulated price growth gradually reduces the competitiveness of domestic operators and the GDP gap gradually closes up. If the GDP gap and inflation are intrinsically persistent, the equilibrium levels may be overshoot. The response of the monetary policy to the shock is limited.

Diagram Competitiveness channel in a monetary union

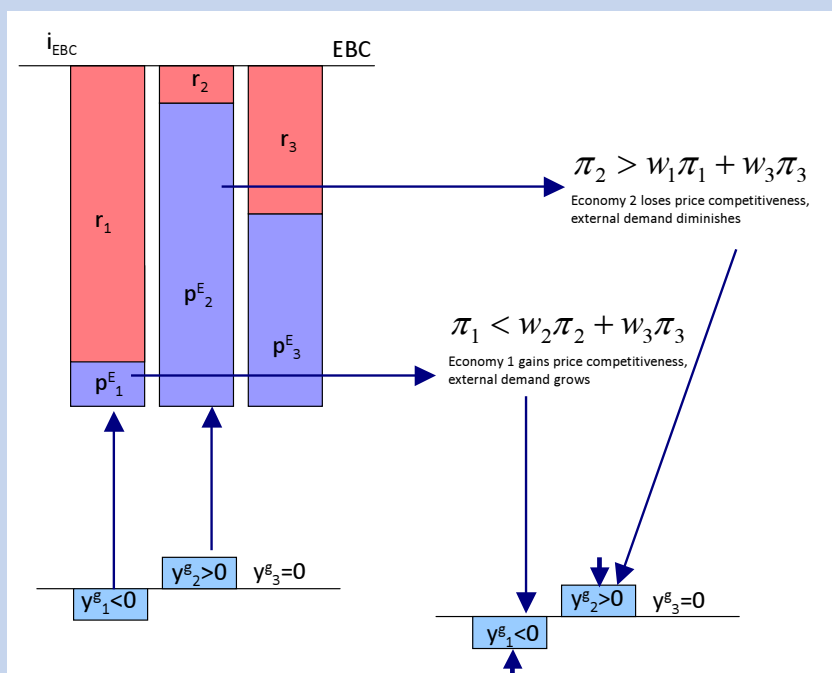
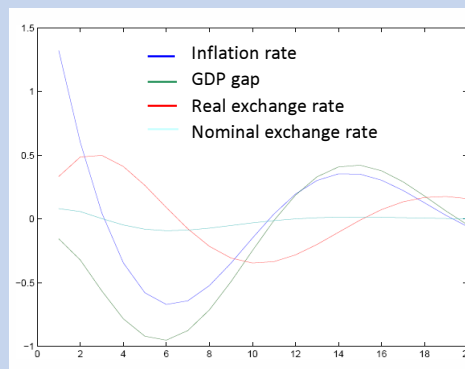
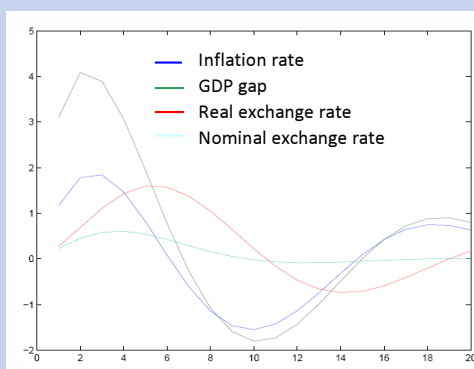


Chart Response to an asymmetric shock in a country belonging to a monetary union

(a) after demand shock

(b) after supply shock



The response of the GDP gap, the real exchange rate and inflation in a country and the nominal interest rate in the monetary union after a unit demand shock (left panel) and a unit supply shock (right panel), in percentage points of divergence from the equilibrium path.



As a result of the supply shock (exogenous surge in inflation) the price competitiveness of the country immediately deteriorates and the demand gap becomes negative. Such shocks are particularly dangerous in a small economy without its own monetary policy. The only stabilisation tool is a prolonged recession resulting in disinflation and recovery of competitiveness. The stabilisation process is supported by higher anticipation level of economic operators.

Source: Torój (2008).

The European Commission (2006c, 2008b) pays particular attention to the use of an appropriate deflator to evaluate price competitiveness of a country. Between 1997 and 2007 the real appreciation of consumer prices was the strongest in Ireland, followed by Spain and Portugal (Chart 5.6)¹¹. The systematic depreciation took place in Germany. The real exchange rate calculated on the basis of other deflators may lead to different conclusions. Various degrees of exposure to competitive pressure may result in the productivity rate growing faster in the tradable goods sector than in the nontradable goods sector, due to the Balassa-Samuelson effect. Then the real effective exchange rate based on consumer inflation or even on unit labour costs in the entire economy is not an ideal measure of the country's external competitiveness. The "dual inflation" phenomenon (Lopez-Salido, Restoy, Vallés, 2005) suggests rather the evaluation of the country's external competitiveness by means of price dynamics in the tradable goods sector.

Germany regained price competitiveness thanks to real depreciation.

In the case of the real exchange rate based on unit labour costs (wages adjusted by the productivity growth rate), the appreciation is the most visible in the case of Portugal and the Netherlands, with Ireland joining the group only in 2004. Also in this context, Germany was the country with the strongest real depreciation among the euro area countries between 1999–2007. Chart 5.7 presents the changes in labour productivity (in percentage points of the difference from the euro area average) and the real exchange rate based on CPI (in percentage) between 1997 and 2007. Both countries which experience high consumer inflation within that period, i.e., Ireland and Portugal, posted different labour productivity dynamics – Ireland recorded a significant growth, while Portugal recorded no significant changes against the euro area average. Greece also enjoyed high labour productivity growth rate with the slower real appreciation. Germany experienced real depreciation in the context of CPI with unchanged productivity per worker. The most unfavourable trend occurred in Italy where the real appreciation coincided with a significant decline in labour productivity.

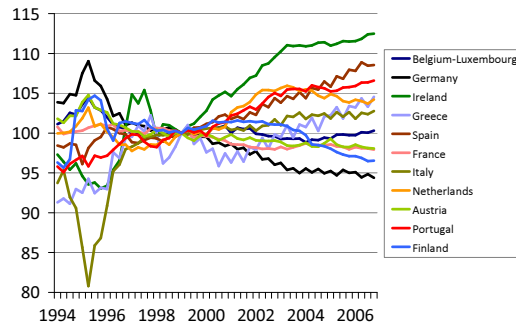
Real appreciation took place in Portugal and Ireland, but Ireland recorded a fast productivity growth.

The real exchange rate calculated by dividing the producer prices by an average for the monetary union points to a very fast real appreciation and the loss of competitiveness of Portugal after 1999. The slight real appreciation and from 2003 the depreciation in Ireland deserves attention, as it points to the concentration of the price growth in Ireland in the nontradable goods sector and thus indirectly to the Balassa-Samuelson effect related to quickly increasing labour productivity in the tradable goods sector. Producer prices indices also suggest slight depreciation in France, Austria and, to a lesser extent, Germany since 1999.

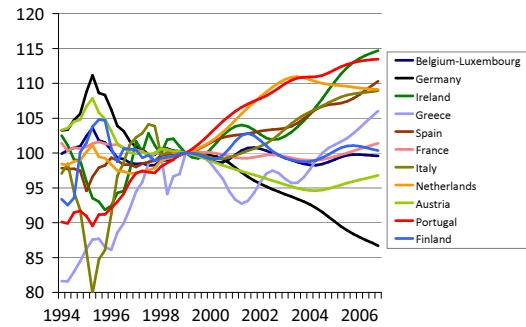
Price growth in Ireland concentrated in the nontradable goods sector.

¹¹ Chart 5.6 presents the dynamics of real effective exchange rates calculated in 12 euro area countries (without Slovenia, Malta and Cyprus) with the use of various deflators. The data come from the Eurostat database, the exchange rate based on PPI was calculated by dividing the PPI of the country by the producer price index for the entire monetary union. All series were graduated so that January 1999 was 100. Panel (d) shows the accumulated change from the first quarter of 1999.

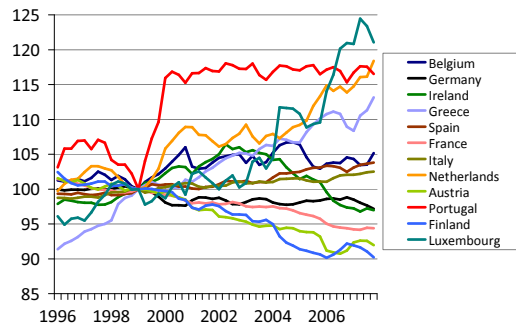
Chart 5.6 Divergences of the real exchange rates of the euro area countries



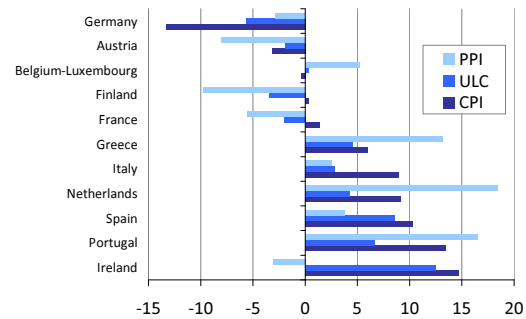
(a) real effective exchange rate, trade partners from the euro area, deflator: CPI, Q1 1999=100



(b) real effective exchange rate, trade partners from the euro area, deflator: unit labour costs, Q1 1999=100



(c) PPI of the country vs. PPP of the euro area, Q1 1999=100



(d) accumulated change of real exchange rate from Q1 1999 to Q4 2007

Source: Eurostat, NBP calculations.

Summing up, the assessment of the change in competitive price position may depend on the choice of deflator for the real exchange rate. In the case of Germany and Austria, various measures all point to the real depreciation in the period of the euro area functioning, and the real appreciation for Portugal, Spain, Netherlands and Italy. The price growth in the entire economy in Ireland probably did not entail a significant loss of competitiveness abroad. Visible divergences of real exchange rates may indicate structural differences in the economies, as well as various asymmetric shocks and adjustment processes.

The competitiveness channel is effective, provided that the markets are flexible and the economy is sensitive to the real exchange rate.

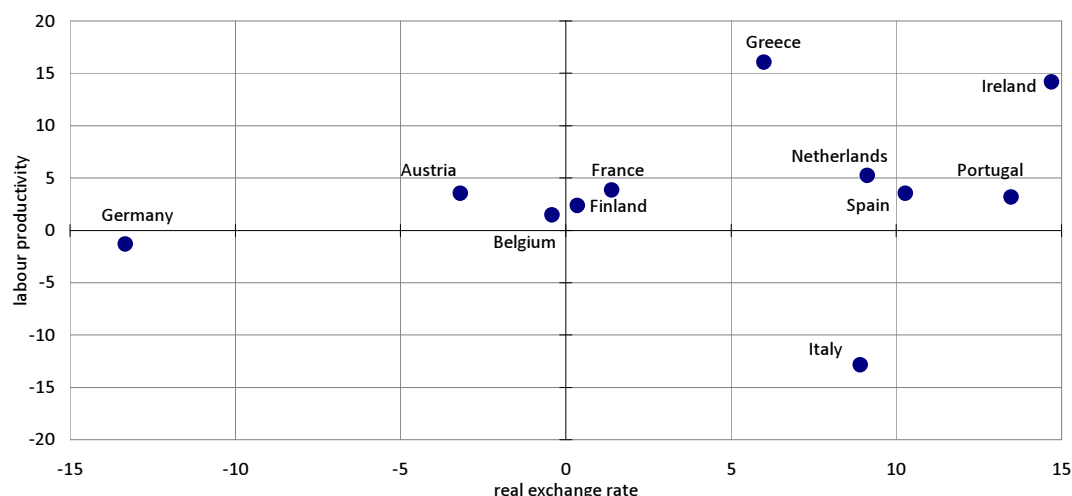
Efficiency of the real exchange rate channel in stabilising the economies after asymmetric shocks is determined by two factors. The former is the speed of the reaction of the GDP gap to excessive appreciation or depreciation of the real exchange rate. The latter is the market flexibility, i.e., fast response of the price level to the position of the country in the cycle. It results in real appreciation or depreciation in the economy, which cannot be efficiently stabilised by the common monetary policy due to asymmetric macroeconomic situation.

Estimation results confirm effective functioning of the competitiveness channel...

The strength of the impact of the real exchange rate on the difference in GDP gaps of a given country as compared to the rest of the monetary union was subject to a panel econometric analysis in the reports of the European Commission (2006f; 2008b). Calculations confirm that a country with a higher relative GDP gap experiences real appreciation as compared to the rest of the monetary union. However, price flexibility in the majority of the countries of the present euro area is not high as compared to

5.2 Real exchange rate channel

Chart 5.7 Change in labour productivity and real exchange rate against the euro area average (1999–2007)



Labour productivity per worker, growth between 1999 and 2007 against the euro area average. Real effective exchange rate against other euro area countries (REER12), based on CPI, growth between 1999 and 2007, growth means appreciation.

Source: Eurostat, NBP calculations.

the USA¹². The impact of low market flexibility at the decrease in adjustments is demonstrated on Chart 5.12. In the context of fixed markets the adjustment processes take longer and real variables variation increase.

The results of the European Commission's estimates point to difference responses of the real exchange rate to an asymmetric shock depending on whether the absorption of the shock requires appreciation or depreciation. Real appreciation accompanied by a positive relative GDP gap is stronger than the real depreciation, while the GDP gap is negative¹³. Roubini, Parisi-Capone, Menegatti (2007) point out that downward nominal price rigidities result in a significant prolongation of the adjustment period after an economic boom and a price growth related to e.g. a decline in interest rates. Real depreciation is possible mainly due to their slow growth accompanied by their simultaneous faster growth in other monetary union member countries. Such a scenario is most often attributed to Portugal (cf. Roubini, Parisi-Capone, Menegatti, 2007; Aghion et al., 2008).

...but the accommodation of shocks requiring real depreciation is more difficult.

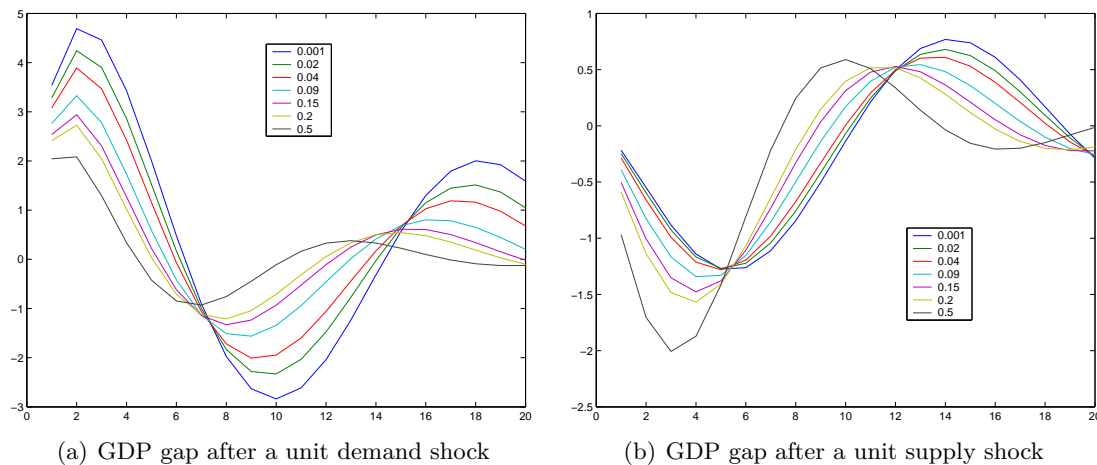
A stronger response of the GDP gap to a deviation of the real exchange rate from the equilibrium path ensures faster adjustments (cf. Chart 5.8). It may result from e.g. high degree of openness of the economy. Hoeller, Giorno, de la Maisonneuve (2004) write about difficulties in the adjustment process encountered mainly by such large countries as Germany, France or Italy. An initial adjustment period after a demand shock deserves special attention. The adjustments seem faster but also more costly in the short run. The combination of inflexible markets and the GDP gap which is insensitive to the loss of price competitiveness of the economy is the worst only in the case of a demand shock. A negative supply shock causes the highest losses (in terms of

Responses to asymmetric demand and supply shocks are different.

¹² Median of significant estimations of the γ parameter among the euro area countries in a study by Torój (2008) was below the consensus in the literature (cf. e.g. Lindé, 2005; Galí, Gertler, 1999), and in many cases the impact of the current GDP gap proved to be insignificant.

¹³ The European Commission considers the deviation of the GDP gap in a country from the euro area average as the relative GDP gap.

Chart 5.8 Effectiveness of the competition channel with various sensitivity of the GDP gap to real appreciation/depreciation



The lines correspond to a different sensitivity of the GDP gap to excessive appreciation/depreciation of the exchange rate in the IS curve (β_c parameter in a study by Torój, 2008).

Source: Torój (2008).

the output volatility) in the case of an economy which is not flexible but features large external exposure.

Adjustments are the more effective the more rational are the expectations of the operators.

The degree of operators' anticipations and the weight of rational expectations in inflation also play an important role in adjustment processes. Chart 5.9 points to a high importance of rational expectations on both the future GDP gap and (in particular) inflation. The lesser weight of such expectations in the price and output dynamics, the higher volatility of production after an asymmetric shock¹⁴.

There is evidence for efficient operation of the real exchange rate channel.

According to the authors of empirical analyses (cf. Roubini, Parisi-Capone, Menegatti, 2007; Aghion et al., 2008; Langedijk, Roeger, 2007; European Commission, 2006c), Germany is the country which owes the economic recovery after stagnation to the impact of the competitiveness channel. A systematic depreciation is considered a source of the country's success and its foundations include a moderate wage growth and structural reforms. The real depreciation, also in Austria and Finland, coincided with the improvement of the current account balance and the economic boom.

Ireland and Italy are also among the countries with the most characteristic adjustment paths described in literature, although they had different labour productivity dynamics. In the case of Ireland, the dynamic productivity growth rate concentrated mainly in the tradable goods sector. Respectively, the real appreciation of the exchange rate based on the deflator for the entire economy produced no significant loss of internal competitiveness in the first years of the monetary union functioning. The labour productivity in Italy suffered some negative shocks which reduced its external competitiveness, in particular in view of the increasing global competition in the manufacturing of labour-intensive products (Langedijk, Roeger, 2007). Both key parameters proved irrelevant for Portugal where the dynamic growth of prices in the monetary union caused a gradual loss of external competitiveness and then a long period of stagnation.

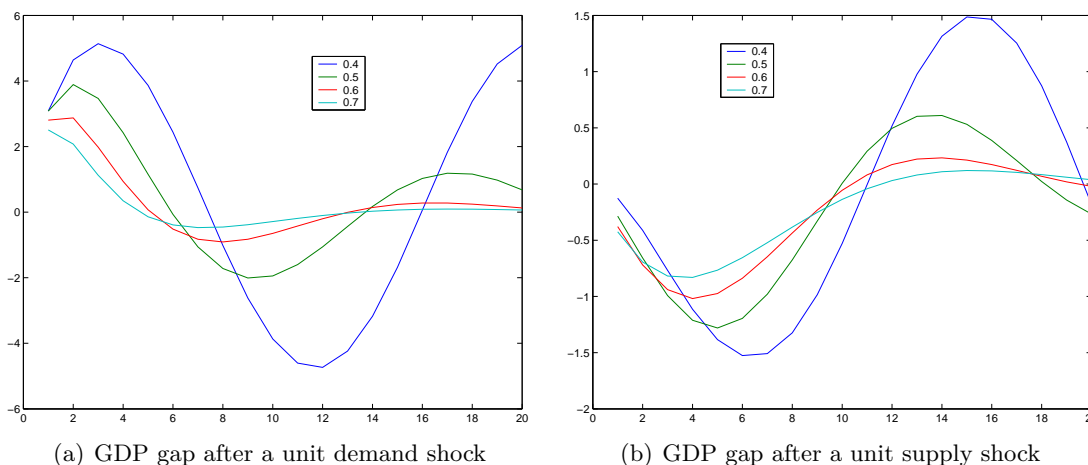
Exporters may reduce their margins instead of increasing the prices on non-competitive markets.

The efficiency of the real exchange rate channel in absorption of asymmetric shocks

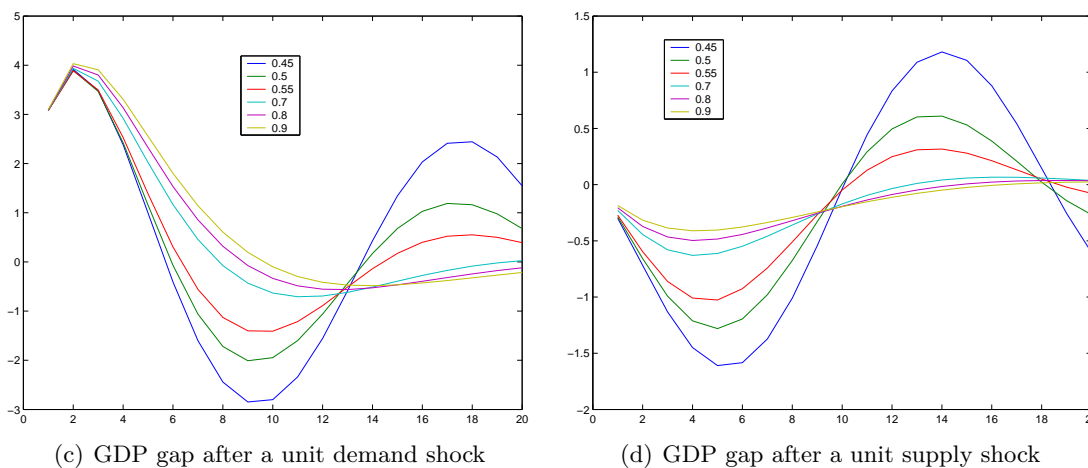
¹⁴ Even small increases in the parameter with inflation expectations in the hybrid Philips curve result in a significant growth of the speed of adjustments and the reduced scale of the asymmetric shock effects.

5.2 Real exchange rate channel

Chart 5.9 Adjustments of production to the equilibrium level with different weights of rational expectations in the decisions of economic operators



The lines correspond to different weights of rational expectations on the IS curve.



The lines correspond to different weights of rational expectations on the Philips curve.

Source: Torój (2008).

depends also on microeconomic factors related to the price strategies followed by exporters on the internal markets of the monetary union and the structure of the market. The European Commission (2006c) points out that the adjustment mechanism may be less efficient if the markets are not perfectly competitive. In a country affected by a significant growth of unit costs of factors of production (e.g. labour), exporters may decrease their profit margins instead of increasing the prices on foreign markets. Such a strategy would be motivated by the wish to avoid the loss of the share in the market. The comparison of the real exchange rate dynamics based on the export prices index and unit labour costs (European Commission, 2006c) shows that Italian and Greek companies translated the growth of unit labour costs into prices to the largest extent, thus risking the loss of their share in the markets. In the Netherlands, Portugal and Spain export prices grew slower than unit labour costs which suggests that exporters reduced their margins. Profits of German exporters increased, as the decline in export prices in Germany was slower than the decrease in unit labour costs.

In the case of the countries with a large share of trade outside the euro area, bilateral inflation differences cannot be the only factor taken into account while determining the changes in their competitive position. A significant factor is the volatility of the nominal euro exchange rate against other currencies (cf. Table in Box 5.8). On the one

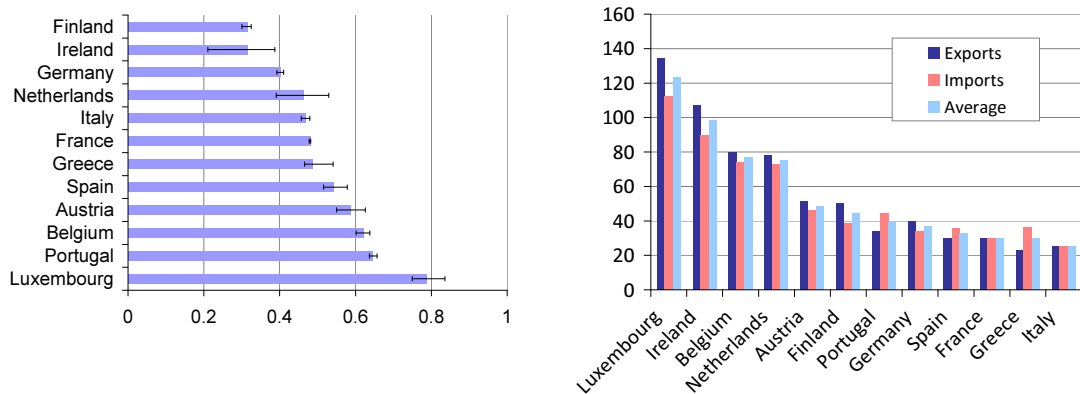
An open economy with a high share of trade outside the monetary union is exposed to nominal exchange rate shocks.

hand, fluctuations of the nominal euro exchange rate may distort the efficiency of the competitiveness channels as an adjustment mechanism in those countries. On the other hand, volatility of the nominal euro exchange rate against other currencies may be a source of shocks. Lane (2005b) points out that those effects may be particularly strong in the case of small economies which are considerably open to trade with the countries from outside the euro area, such as Ireland. It should be remembered, however, that the strength of those shocks is limited by the role of the euro as invoicing currency.

Ireland and Finland are the economies largely open to the outside of the euro area.

Chart 5.10 presents the information about the share of foreign trade in GDP (considered in literature as the measure of economic openness) and the share of trade partners from the euro area in the total trade of a given country. The average share of foreign trade in GDP between 1998 and 2006 was the largest in Luxembourg, Ireland, Belgium and the Netherlands (over 50%) and the smallest in the relatively large economies (Spain, France and Italy) and in Greece. The degree of openness of Germany, calculated as above, was moderate, but it should be remembered that it is the largest economy of the euro area. In literature Germany is also presented as a country where the competitiveness channel contributed to restoring equilibrium in recent years (cf. Roubini, Parisi-Capone, Menegatti, 2007 and Chart 5.6). Finland and Ireland are the countries with the smallest share of trade in the euro area. Such economies, i.e. small and trading mainly with the countries from outside the EMU, were the most exposed to the fluctuations of the external euro value.

Chart 5.10 Degree of economic openness and share of trade with the euro area (average between 1998 and 2006)



(a) share of trade with the euro area countries in foreign trade, deviations mean the share calculated using only exports or imports

(b) share of exports, imports and total foreign trade in GDP

Source: OECD ICTS, Eurostat, NBP calculations.

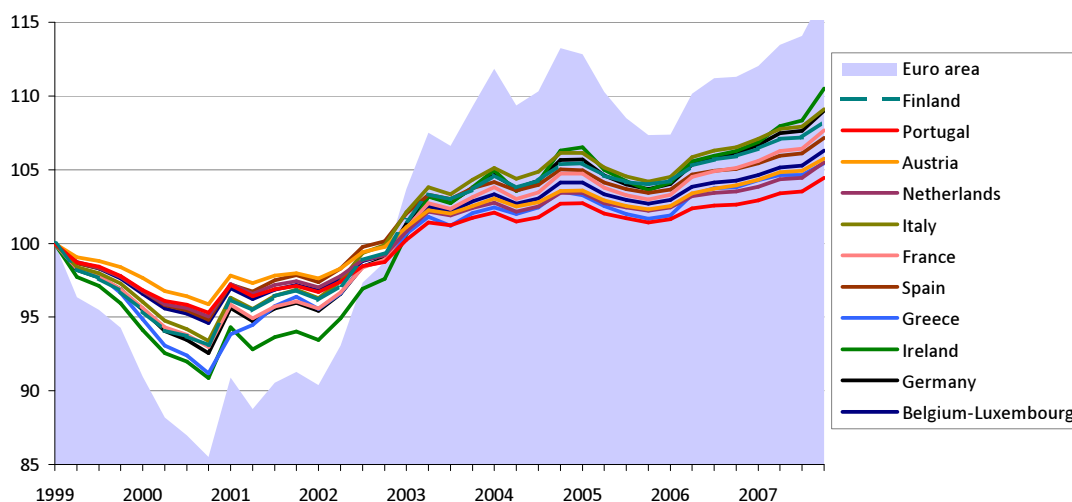
There are differences among the nominal effective exchange rates of the euro area countries.

In accordance with the expectations which may be formulated on the basis of Chart 5.10, changes in the nominal euro value are transmitted into the nominal effective rate for Ireland, as well as, for Germany, although to a lesser extent (see Chart 5.11). Volatility of the nominal euro value is less visible in nominal effective exchange rates of Portugal, Belgium or Finland. The description of the impact of the volatility on the competitiveness of individual countries is obviously incomplete, as it must be supplemented with relative price changes in individual countries. This should be kept in mind while assessing the structure of the Polish international trade in the context of monetary integration.

5.3 Product market flexibility



Chart 5.11 Nominal effective exchange rate of the euro area and individual countries between 1999 and 2007 (Q1 1999 = 100)



Source: Eurostat.

5.3 Product market flexibility

Significance of the product market flexibility. As emphasized above, the appropriate functioning of the competition channel in a member country of the monetary union requires high flexibility of the goods and services market. The flexibility not only ensures better functioning of the competition channel, but also has a positive impact on the functioning of the labour market. From this point of view, a country acceding to the monetary union should first of all conduct necessary reforms ensuring the efficient functioning of the goods and services market.

Flexible product market is conducive to efficient functioning of the monetary union member countries...

The literature points to the relation between the product market reforms and the labour market reforms. The reforms making the product market more flexible may facilitate the reforms of the labour market¹⁵ (cf., *inter alia*, Duval, Elmeskov, 2006; Fiori et al., 2008). In addition to the above, the benefits from the labour market reforms may prove to be limited on strongly regulated product markets. The low level of competition may result in the situation where the majority of benefits from reduced labour costs are absorbed by enterprises in the form of higher profits (European Commission, 2006c).

...therefore, the accession to the monetary union should be accompanied by reforms.

Box 5.10 Product market flexibility

The flexibility of the product market determines the ability of the product market to perform the role of an efficient adjustment mechanism in the case of shocks and long-lasting structural changes in the economy, as well as its ability to quickly return to equilibrium.

A flexible market is a market where the economy finds a new equilibrium after a macroeconomic shock (e.g. terms of trade or productivity shock) relatively

¹⁵ The mechanism behind this regularity is based on arguments from political economy. Due to monopoly rents, the existing interest groups may oppose the labour market reforms which could affect their privileged position in the process of the rent distribution. The reforms of the goods and services market which intensify the competition reduce monopoly rents and thus remove the reason for opposing the labour market reforms (Berger, Danninger, 2006).



quickly, assets are smoothly reallocated between the most effective enterprises and unprofitable companies reduce the scale of their operations or even leave the market (Lewandowski, Koloch, Regulski, 2008).

Adjustments on the product market take place mainly through the price channel (by means of flexible prices of goods and services). Price flexibility means a greater ability of enterprises to quickly adjust the prices of goods and services they produce after the occurrence of an asymmetric shock. Apart from price adjustments, the product market flexibility is also measured by the speed of the adjustment of production to the conditions after the price shocks.

Source: Lewandowski, Koloch, Regulski (2008).

In the context of a country's accession to the euro area, as a result of flexible prices economic operators could also quickly adjust to increased competition on the market of goods and services while a country joins the common currency area. In the case of an asymmetric shock in the economy with a floating exchange rate, prices of goods and services may change immediately as a result of the change in the nominal exchange rate. If there is no nominal exchange rate, the immediate change of all prices to restore equilibrium is impossible, since not all producers may afford to re-establish optimal prices at any time¹⁶. In the case of price rigidities, the response of prices to the GDP gap is insignificant and the adjustments take place through the real exchange rate channel and the competitiveness channel (European Commission, 2008b).

Adjustments progress relatively slowly in both the euro area and Poland.

Torój (2008) analyzes the dynamics of the GDP gap adjustments under the stylized new-Keynesian model of countries which created a heterogeneous monetary union. He also analyses the value of the Philips curve's parameters for the euro area countries. The results of the study show that the market flexibility in those countries is low which results in a relatively long period of adjustment to macroeconomic shocks. Analyses of the scale and pace of output response to price shocks in Poland as compared to the new Member States indicate that they are also relatively low (Lewandowski, Koloch, Regulski, 2008). A high degree of the product market regulation, as compared to other European Union Member Countries, is considered to be the main determinant of relatively slow adjustment processes in Poland. The economies of Estonia, Latvia and Slovakia proved to be the most flexible.

Price setting in the euro area

Price rigidities are characteristic of new-Keynesian models and their most popular microeconomic justification is the so-called Calvo mechanism based on the assumption that a constant percentage of producers at any time cannot (for any reason) change the prices and have to retain their current level (see Box 5.11). The value of the Calvo parameter affects the strength of the inflation response to the GDP gap in the Philips curve. The model analysis of the adjustment path sensitivity in the model described by Torój (2008) is presented in Chart 5.12. It shows the path of adjustments of the markets in response to shocks, depending on the value of the parameter with the GDP gap in the hybrid Philips curve¹⁷. The lower the value of the parameter with the GDP

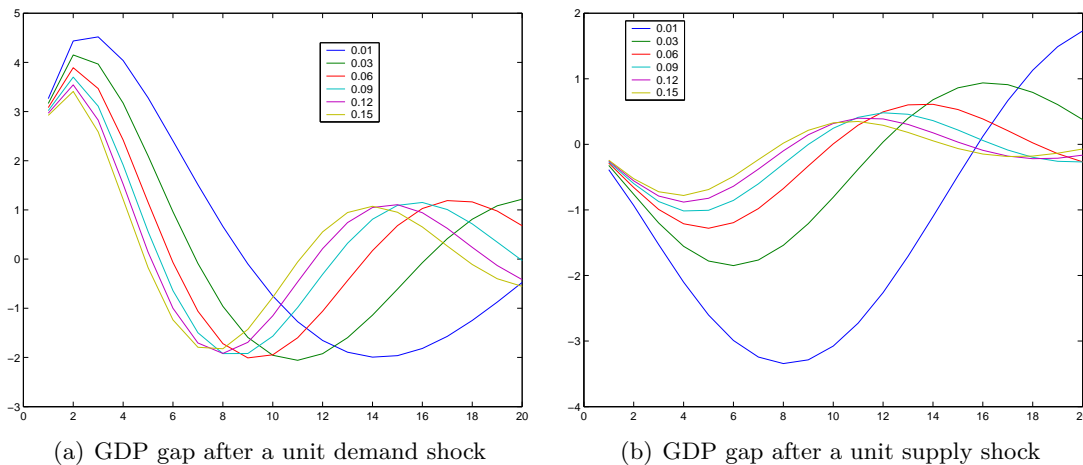
¹⁶ Product market rigidities are the main subject of the studies on adjustment processes after asymmetric shocks (cf. i.a. Deroose, Langedijk, Roeger, 2004; Hoeller, Giorno, de la Maisonnette, 2002; Hoeller, Giorno, de la Maisonnette, 2004; or Torój, 2008).

¹⁷ The charts below present the adjustment path of the GDP gap for various values of the parameter in the country with a 0.1 weight in the monetary union (cf. Torój, 2008).

5.3 Product market flexibility



Chart 5.12 Role of market flexibility (γ parameter) in the course of adjustment processes



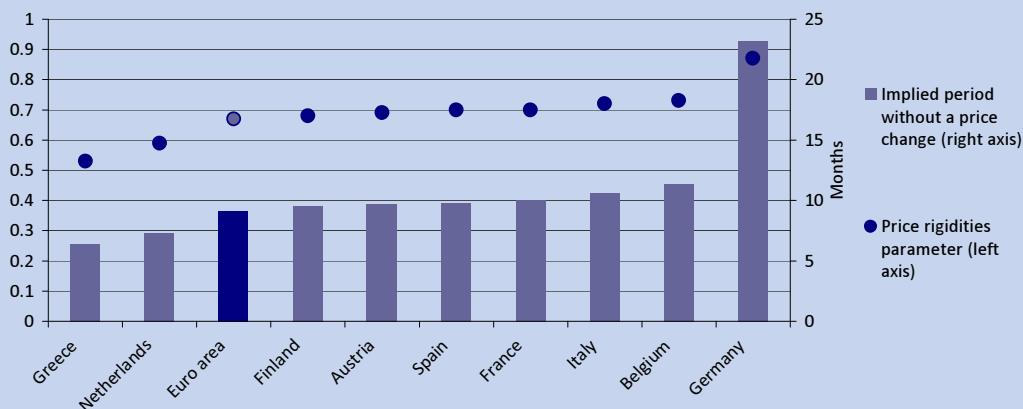
Source: Torój (2008).

gap, the less flexible domestic markets. It translates into much longer amplitude of fluctuations of the GDP gap and a longer period of adjustments.

Box 5.11 Calvo rigidities in the euro area countries

Rumler (2007) assesses the market flexibility directly, estimating the Calvo parameters for individual euro area countries on the basis of time series from between 1980 and 2003. He also calculates (in months) the average time between price changes in individual countries implied by such parameter values. The German market proved to be particularly rigid in the study, while the product markets in Greece and the Netherlands were more flexible than the average for the euro area. However, it should be emphasized that the sample used by the author for estimations is relatively long and structural reforms related to the preparations to establish the monetary union probably affect the real values of parameters at present. Germany is a country with low (historically) inflation rates which may contribute to long periods between price changes, not necessarily linked to rigidities on the market.

Chart Price rigidity according to the Calvo model in the euro area countries



Source: Rumler (2007).

The product market rigidity may be assessed by analysing the price rigidity.

Responses of prices to macroeconomic shocks are of particular importance for member country of a monetary union. The pattern of setting retail and producer prices in the economy, and in particular the rate of their changes, is considered a measure of goods and services market flexibility.

Literature emphasizes flexibility of nontradable goods (with a major part of them being services) as essential for the adjustment mechanism of the monetary union member countries. Tradable goods are under strong competitive pressure from foreign producers, hence their prices are usually highly flexible¹⁸. Such pressure does not affect nontradable goods and their prices depend mainly on the regulation and the level of competition on domestic markets (European Commission, 2008b). Results of empirical studies show that the flexibility of prices of nontradable goods in the euro area is significantly lower than that of other products.

Flexibility of prices of goods and services in the euro area is varied but on average lower than in the USA.

Dhyne et al. (2005) analysed the volatility of the prices of fifty narrowly defined products, representative for the whole baskets of goods and services used for determining the consumer price index in the euro area countries¹⁹ and compared the results with the corresponding study for the United States. The results of the study show that the frequency of price fluctuations²⁰ in the euro area (estimated at around 15%) is significantly lower than in the United States (around 25%). The results of the study also reveal a clear variation in the price volatility between individual sectors with the prices of products related to energy and of unprocessed food being highly volatile, while the prices of other industrial products and services changing relatively seldom. There are also differences in the rate of price changes between individual countries, but they are significantly smaller than the sectoral differentials (cf. Chart 5.13). The study did not prove the downward price rigidity, as price decreases account for 40% of price changes on average. The services sector is an exception where the rate of price changes amounts to only 6%, with only 20% of the changes being decreases (which is a visibly different result from the percentage of price decreases in other sectors).

Prices of nontradable goods are more rigid than prices of tradable goods.

The inflation rate in the services sector in the euro area countries in the last decade usually exceeded the corresponding indicator for goods which may confirm the downward price rigidity in the services sector (European Commission, 2008b). The phenomenon is alarming, as the services sector plays an important role in the economies of the euro area countries where it accounts for around 80% of GDP and employment (European Commission, 2006g).

Vermeulen et al. (2007) performed a corresponding analysis by using the data on producer prices in selected euro area countries²¹, which to a large extent confirmed the results obtained by Dhyne et al. (2005). The estimated average rate of producer price changes proved to be slightly higher than in the case of consumer prices (21%)²², but general regularities revealed by both studies are the same. Volatility of producer prices is also significantly varied depending on the analysed sector, but the rankings of sectors in terms of the rate of price changes proved to be similar in individual countries.

Price rigidity results from inappropriate regulations.

Surveys conducted by Fabiani et al. (2005) on the methods of setting prices by operators in the euro area explain certain reasons for price rigidity in the member states. Fabiani

¹⁸ In particular, the law of one price applies in their case.

¹⁹ The data concerned consumer prices collected in retail outlets in Austria, Belgium, Finland, France, Germany, Italy, Luxembourg, Netherlands, Portugal and Spain.

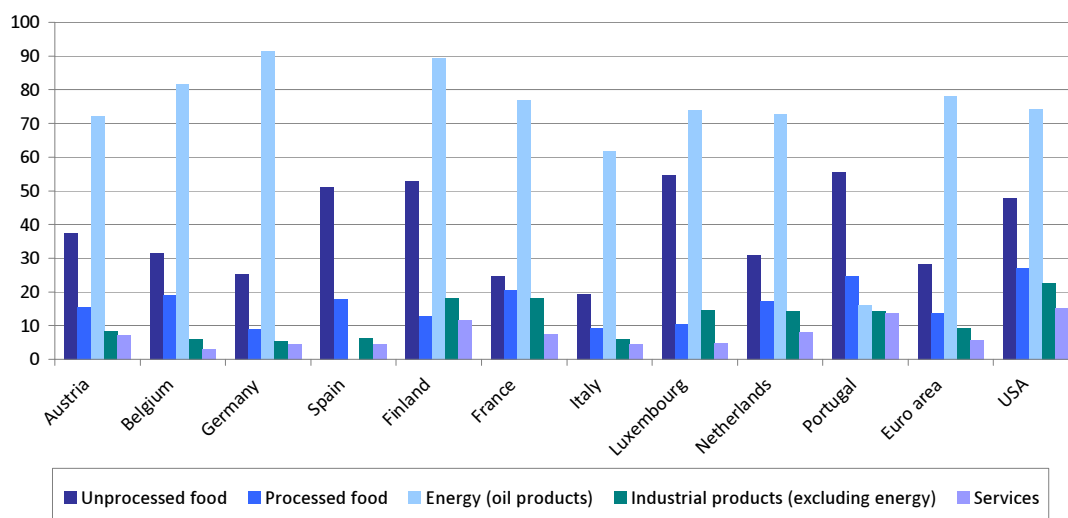
²⁰ Frequency of price changes is a percentage of prices which changes in a given period. In the discussed study, the period is one month.

²¹ They include Germany, France, Italy, Spain, Belgium and Portugal.

²² Those indicators are not comparable due to the different baskets of goods used to estimate the consumer and producer price indices.



Chart 5.13 Frequency of retail price changes in selected euro area countries and the United States



Note: Analyses of price volatility for individual countries were made in various time ranges, the longest of which covered the period from January 1989 to December 2001 (for Belgium) and the shortest from November 1998 to April 2003 (for the Netherlands).

Source: Dhyne et al. (2005).

et al. (2005) show that the reasons for rare price adjustments include mainly the wish to maintain long-term relations of suppliers with the customers, contracts preventing price changes and applied price strategies²³. However, the most important reasons for rigidity on services markets include institutional conditions which mitigate the competition on the product market (European Commission, 2008b). This is confirmed by the results of studies (Fabiani et al., 2005), which prove that the prices of products sold by companies operating in a strongly competitive environment were analysed and adjusted on much more occasions.

Price flexibility in Poland compared to euro area countries

The analyses of price flexibility conducted at the National Bank of Poland point to numerous similarities between the behaviour of enterprises in Poland and in the euro area member states (Jankiewicz, Kołodziejczyk, 2008 and Fabiani et al., 2005). The existing differences diminish, and as a result the behaviour of Polish enterprises with regard to price setting becomes increasingly similar to the operations of the companies from the euro area²⁴.

The rate of price analyses and changes in Poland is on average higher than in the euro area countries.

If price rigidity in Poland is measured by rate of price changes, the median of the number of price changes made in a year in Polish enterprises is the same as in the euro area countries. It amounts to 1 in Poland and the majority of the euro area countries.

²³ The prevailing price strategy in the euro area is to set the prices exceeding variable costs by a fixed or floating margin. Price discrimination is also common (Fabiani et al., 2005).

²⁴ The analyses were made by surveys on a representative sample of non-financial corporations. Price rigidity is measured by three methods, namely, by frequency of price changes (measured as an average period between price changes or the number of price adjustments in a year), by frequency of price analyses (measured as an average period between price analyses or the number of price analyses in a year) and as a percentage of enterprises using the “state-dependent” vs. enterprises using the “time-dependent” method of price verification (Jankiewicz, Kołodziejczyk, 2008 and NBP internal materials).

The use of another method (rate of price analyses by enterprises) confirms that the price rigidity in Poland is lower than in the euro area countries. Polish enterprises analyse prices once a month on average, while enterprises in the euro area countries do so once a year on average.

However, different results are obtained while the price rigidity in Poland and the euro area countries is compared by using the third method, i.e. by comparing the share of enterprises using “time-dependent” method in price analyses and the enterprises using “state-dependent” pricing. The rigidity measured in such a way is higher than in the euro area countries. This indicates that the assessment of the price rigidity in Poland and the euro area countries is not completely unambiguous. Results of the studies confirm that the percentage of enterprises which analyse prices by using “time-dependent” method decreases while the share of enterprises analysing the prices by using “state-dependent” method grows. In addition, the percentage of enterprises which verify the prices most seldom increased, while the share of those which analyse the prices most often declined. Both the price analyses and changes continue to happen on more numerous occasions than in other European countries but the difference decreases.

This may result from the higher rate of inflation.

As emphasized above, the previous Polish experience must be taken into account while comparing the rate of analyses and price changes made by enterprises in Poland and the euro area countries. For the major part of the transformation period in Poland, enterprises were used to higher inflation rate than in the euro area countries which forced them to make more analyses and price changes.

Degrees of price rigidity vary.

The degree of price rigidity in Poland, as in the euro area countries, varies by sectors. Price changes are the most frequent in the trade sector (over a half of enterprises changes prices at least once in three months). Price changes are less frequent in the case of services, which coincides with the results received in the majority of the euro area countries. Price volatility in individual sectors in Poland is related to different competitive pressure from the environment. Enterprises under the strongest competitive pressure adjust their prices more often. As pointed out above, weaker competitive pressure in the services sector may to a certain extent explain lower flexibility of prices in that sector. High price rigidity of services results also from a relatively high share of labour costs (Jankiewicz, Kołodziejczyk, 2008).

The results are important in the context of the prospective accession of Poland to the euro area. The increase in competitiveness anticipated after the accession to the euro area may translate into an increase in price flexibility. Hence, the decrease in the product market flexibility may be endogenous. In addition, the studies indicate that further changes in the structure of production in Poland may be significant for price flexibility.

Degree of the product market regulation in the euro area countries and Poland

Institutional factors are important for price flexibility.

The previous paragraph shows that the analysis of price volatility point to the existence of price rigidity in some areas of the goods and services market, both in Poland and in the euro area countries. The literature of the subject lists a number of factors which may prevent or prolong price adjustments, such as the degree of the product market regulation²⁵, competition level, degree of sectoral diversification of production,

²⁵ Product market regulations are regulations which affect the behaviour of enterprises on the markets and the decisions of enterprises on entry or exit from the market, prices of offered goods and services, size of investment, etc.

5.3 Product market flexibility

as well as the openness of the economy and the foreign trade structure (cf., *inter alia*, Lewandowski, Koloch, Regulski, 2008). Those factors affect the functioning of the economy as a whole by influencing the goods market.

The regulations of the product market determine the conditions for conducting economic activity and influence the decisions of enterprises on both the size of production and the prices of produced goods and services. The regulations which affect the level of competition are of particular importance for the degree of price flexibility. They include in particular the barriers to entry to the market, restrictions on economic freedom and obstacle in enterprise development.

In the case of perfect competition, flexible prices automatically adjust to changing conditions (cf. Snowdon, Vane, Wynarczyk, 1998). On an imperfectly competitive market, decisions on price changes are taken by enterprises themselves. The change entails certain costs (cf. Romer, 2000). The costs are related to the collection of information, menu printing and renegotiations with trade partners. If the costs of price changes are high, the changes may become unprofitable for enterprises. As a consequence, enterprises leave the prices unchanged but adjust the size of production. If all enterprises act likewise, the costs of nominal rigidities on the macroeconomic scale are much higher than in the case of a single enterprise and are related to a decrease in the total production and employment in the economy (cf., *inter alia*, Snowdon, Vane, Wynarczyk, 1998, p. 313 and Darvas, Szapáry, 2008, p. 54).

Excessive regulations of the goods and services market, which reduce the role of competition, have an adverse impact on the allocation of assets, labour productivity and economic growth rate (European Commission, 2008b). In addition, they hinder the functioning of alternative adjustment mechanisms in the countries participating in a monetary union. The deregulation of the goods market consisting in the introduction of changes facilitating the establishment and operation of businesses is conducive to the reduction of unemployment and the increase in real wages. A larger number of companies on the market leads to the reduction of margins and prices of sold goods (cf. i.a. Wojciechowski, 2008). The conducted studies (cf. i.a. Schiantarelli, 2005) point to the statistically important relation between the degree of the product market regulation and the amount of margins and the effectiveness of the factors of production allocation and thus the labour productivity and GDP per capita.

The degree in which the regulations are restrictive may be measured by such indicators as the product market regulation indicator of the OECD (cf. Box 5.12), economic freedom indicator (*Economic Freedom of the World*) and the ease of doing business index of the World Bank (*Doing Business*).

Price rigidities hinder effective macroeconomic adjustments in a monetary union.

Box 5.12 Indicator of product market regulation

The indicator of product market regulation (PMR) developed by the OECD allows to make international comparisons of numerous indicators measuring the level of competition on the product markets where competition is viable. The indicator takes into account the regulations on the national level, as well as the market environment in the OECD countries in 1998 and 2003 (it was not updated after 2003).

As a result of the methodology applied, the values of indicators are compared both in time and between individual countries (Nicoletti, Scarpetta, Boylaud, 2000 and Conway, Janod, Nicoletti, 2005). The OECD indicator of product market regulation

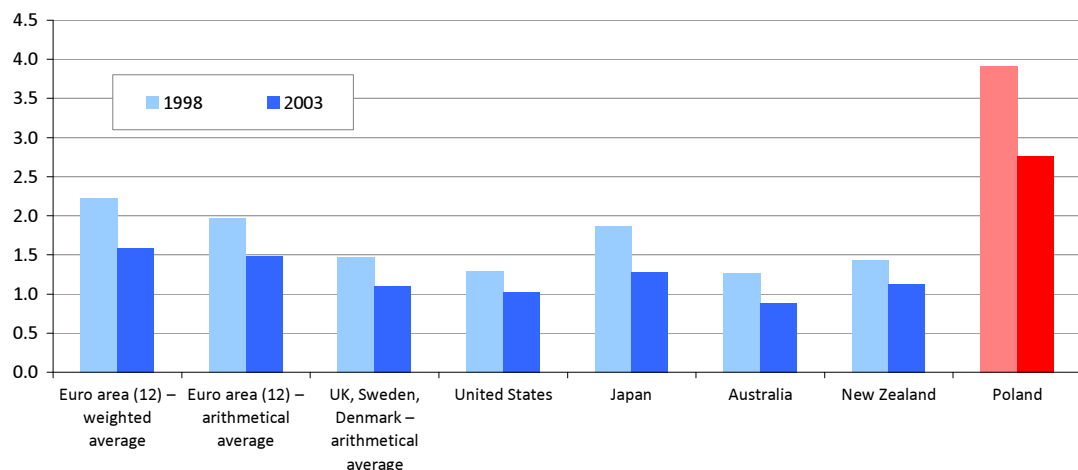
illustrates the restrictiveness of product market regulations on a scale from 1 (the least restrictive regulations) to 6.

The indicator covers regulations in the following areas: state control of business enterprises, legal and administrative barriers to entrepreneurship and barriers to international trade and investment.

Source: Nicoletti, Scarpetta, Boylaud (2000) and Conway, Janod, Nicoletti (2005).

The comparison of the changes of the product market index in the analysed period (cf. Chart 5.14) points to a marked deregulation of the goods and services market in the euro area between 1999 and 2003. The international convergence towards more liberal regulations is also visible. In addition, the variation of the analysed index between the countries has also decreased, mainly as a result of the highest intensity of reforms in the countries with the most regulated product markets, such as Italy, Greece, France and Spain. The decrease in the index was the largest in Finland, which in 2003 was at the second place, after Ireland, in terms of the low regulation of the market. The Italian, French and Greek markets remain the most regulated markets in the euro area.

Chart 5.14 The OECD product market regulation index



Note: The first figure presented on the chart is the weighted average of GDP of individual countries, while the second figure is the ordinary arithmetical average.

Source: Conway, Janod, Nicoletti (2005).

The decline in the average indicator of regulations for the euro area results mainly from the changes in the degree of state control over the economy (in particular the reduction in direct control over enterprises and price regulation), as well as barriers in investment and trade (in particular the reduction in custom duties and of barriers for foreign investors). Despite the changes recorded after 1998, the OECD analyses show that product markets in the euro area remained more regulated than the markets of Western European EU countries from outside the euro area or the markets of other highly developed states.

Degree of the product market regulation in Poland is very high.

The degree of the product market regulation in Poland is deemed very high, as compared to the euro area countries and other new EU Member Countries. In 2003, the degree of the product market regulate on in Poland was the highest among all analysed



OECD countries²⁶, with the differences as compared to other economies being relatively significant. The value of the index for Poland amounted to 2.8 in 2003 (cf. Chart 5.15), and for other, also poorly assessed economies in this regard, i.e. Hungary, Italy and Greece it totalled 1, 1.9 and 1.8 respectively (see also Conway, Janod, Nicoletti, 2005). In other words, before the accession to the EU the degree of regulation in Poland was visibly different from the already strict standards in place in the Member States.

The analysis of the Poland's position in the areas analysed by the index shows that in 2003 Poland occupied the last place among all countries covered by the study, both in terms of state control of business activity and existing obstacles to international trade and investment. The index was higher only for the Turkish economy in terms of legal and administrative barriers to business activity.

The assessment of the nontradable product market regulation is of particular importance from the point of view of the monetary union functioning, as nontradable products are to a greater extent subject to national regulations. The services sector accounts for around two thirds of employment and GDP in the EU countries. At the same time, the share of this sector in the intra-EU trade is disproportionately small (at around 20%; de Bruijn, Kox, Lejour, 2008)²⁷. The comparison of the degree of regulation of selected services sectors in the euro area countries and in other highly developed countries (cf. Chart 5.15) shows that the differences in the strictness of regulations in those sectors are much higher than in the case of indicators covering the entire economy, even though the indicators declined significantly in the euro area at the turn of the decades. The scope of measures implemented by the euro area countries in order to deregulate the services market remains, however, limited²⁸, as evidenced by earlier mentioned downward rigidity of prices and relatively high inflation in the services sector. The data on the degree of nontradable product market regulation in Poland are incomplete, but the comparison of indicators of strictness of regulation in 2003 shows that the specialist services regulations in Poland were at the similar level to the euro area countries (cf. Chart 5.15). In the case of trade, the degree of regulation strictness in Poland was higher.

Assessment of the nontradable product market regulation is particularly important.

The newer data on the degree of product market regulation in individual countries are presented in the ease of doing business index published annually by the World Bank. The index contains information about institutional environment facilitating or hampering business activity in individual countries²⁹.

Among the euro area member countries, only Ireland is in the top ten of the Doing

The majority of the euro area countries have implemented relatively strict business activity regulations.

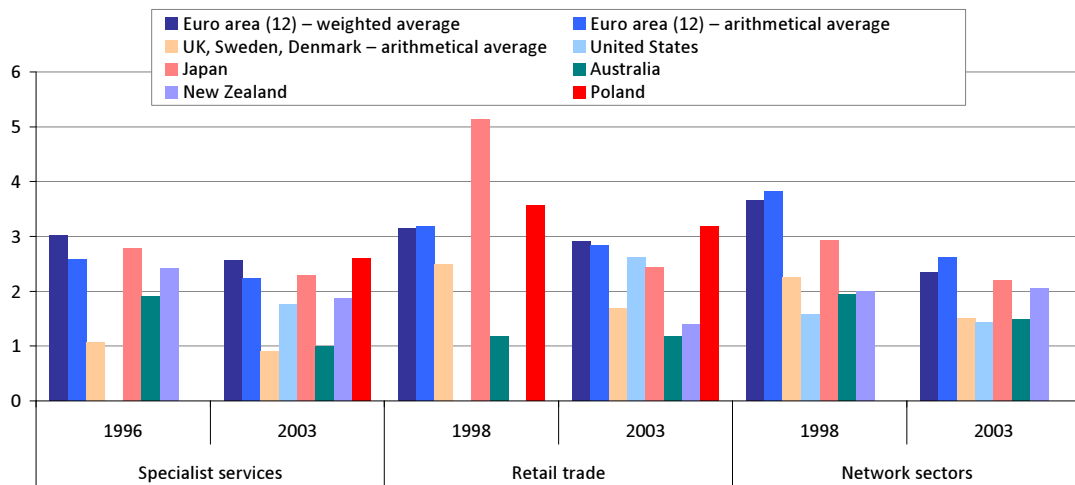
²⁶ It should be emphasized that the latest available indicator of product market regulation was published by the OECD in 2003. The current assessment of the Polish economy could thus vary from the one stemming from the last study.

²⁷ It is partly the result of the nature of services themselves, many of them being nontradable goods. Nevertheless, Kox, Lejour, Montizaan (2004) point out that the integration of national services markets would allow to increase the internal trade in services in the EU by 30–60%, which would be tantamount to the increase in total trade in the EU by 2–5%. The provision of services outside the country of origin involves currently a number of obstacles for enterprises. They include not only strict regulations, but also their significant diversity in individual euro area countries.

²⁸ The Services Directive adopted in 2006 which was to liberate the services market in the euro area is worth paying attention. The first official proposal of the directive on services on the internal market occurred in January 2004. The first wording of its contents arose a lot of controversy, in particular with regard to its most important element, i.e. the country of origin principle. After numerous amendments, the directive was adopted by the European Parliament and the EU Council as late as December 2006. The modified version of the directive did not contain the country of origin principle which greatly reduced its impact on the services market functioning.

²⁹ It includes in particular the regulations on starting a business, dealing with licences, hiring and firing workers, registering property, getting credit, protecting investors, paying taxes, trading cross border, enforcing contracts and closing a business.

Chart 5.15 Indicator of the OECD product market regulation in services sectors



Note: Average indicators for the euro area were calculated without the data for Luxembourg in the case of “retail trade” and “network branches” and without the data for Greece in the case of “specialist services” in 1996.

Source: Conway, Nicoletti (2006).

Business 2009 ranking, preceded by Denmark and the United Kingdom. Respectively, the majority of the euro area countries have implemented relatively strict regulations hampering business activity. Such countries as Finland, Belgium, Germany and the Netherlands do only slightly poorer than the European countries from the top of the ranking. However, the results of Greece, Italy, Spain and Portugal are visibly divergent from the results of the countries where the regulations are the most conducive to doing business³⁰.

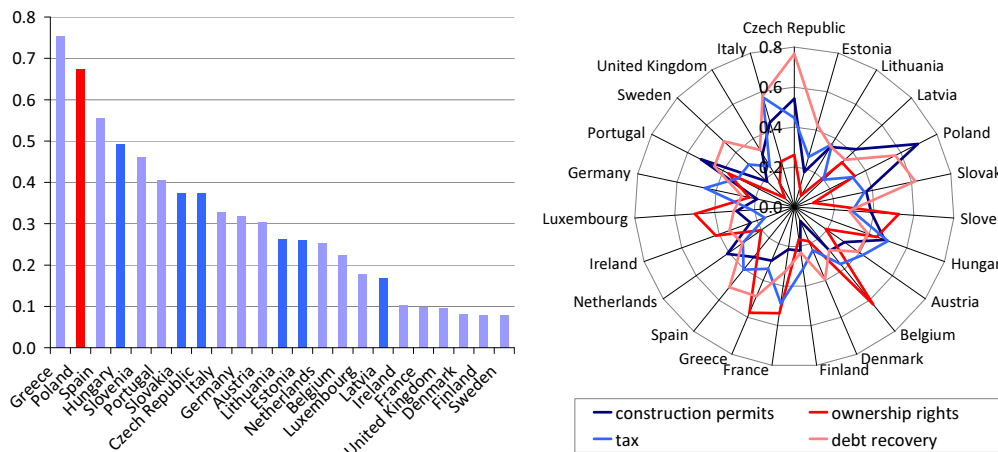
The comparison of the Doing Business index in Poland and in the countries of the euro area and the region shows that the degree of product market regulation in Poland remains very high. As regards the ease of doing business in 2008, Poland was 76th among 181 countries, which marks a drop of four places as compared to the previous year. Among the European Union Member Countries, only Greece is at the lower position, while all new Member Countries proved to be better than Poland (Doing Business 2009, 2008). The over-regulation of the Polish economy is particularly visible in obtaining building permits and enforcing contracts (cf. Chart 5.16). The construction of a warehouse in Poland requires 30 formal procedures lasting for 308 days on average (Doing Business 2009, 2008), while Denmark and Sweden require less than ten procedures. As regards enforcing contracts before courts, the procedures lasted for 830 days on average in Poland in 2008. This gives Poland 68th place among 181 countries (Doing Business 2009, 2008).

Another analysed indicator, i.e. Economic Freedom of the World, evaluates regulations in individual countries on a scale from 1 to 10 (with ten indicating the maximum economic freedom). One of its components involves the regulations on business

³⁰ Although Greece was at the very low 96th place in the last ranking, its result was much better than in the previous year. From the time of the last study, it has significantly improved its results in the areas with the lowest marks, i.e. protection of investors, starting of business and hiring workers. Apart from that, a considerable improvement of regulations took place in the area of taxes.

5.3 Product market flexibility

Chart 5.16 Doing business in Poland as compared to euro area countries and new EU Member States*



* Average values for 2004–2008. The figures for individual areas were obtained by calculating the average of subindices normalized to (0,1) range, with values closed to 1 meaning the conditions more conducive to flexibility.

Source: Lewandowski, Koloch, Regulski, 2008.

activity³¹. The left part of Chart 5.17 shows that the euro area countries achieve poorer results (on average) than the EU-3 countries (Denmark, Sweden and the United Kingdom) in all analysed areas. As compared to other highly developed countries, the results of the euro area are worse in the majority of analysed subcategories. The regulations on starting a business and the costs of bureaucracy, where all analysed industrialised countries are at similar places, are an exception.

The analysed indicator shows that the degree of economic freedom in Poland is much lower than in the Western European countries. Other new EU Member States, i.e. Estonia, Lithuania, Latvia, Slovenia, Slovakia, Czech Republic and Roumania, received better marks than Poland in terms of economic freedom. Poland received the lowest marks in categories related to the administrative requirements burden and price control. Poland achieved a relatively good result with regard to starting a business, but also here it was at the low, 96th place among 140 analysed states.

The degree of economic freedom in Poland is much lower than in the Western European countries.

Over the course of the three last decades, the EU initiated a number of activities aimed at reducing the regulation of goods and services markets in its Member Countries and intensifying the trade between them. Nevertheless, product markets in the euro area are perceived as excessively regulated and unfavourable for competition. Significant differences persist with regard to strictness of regulations between the euro area countries and the EU-3 countries, USA, Australia, New Zealand or Japan, as evidenced by the above analysis. From the points of view of the functioning of the economy in a monetary union, the degree of regulation of the goods and services market in the euro area still requires reforms increasing flexibility.

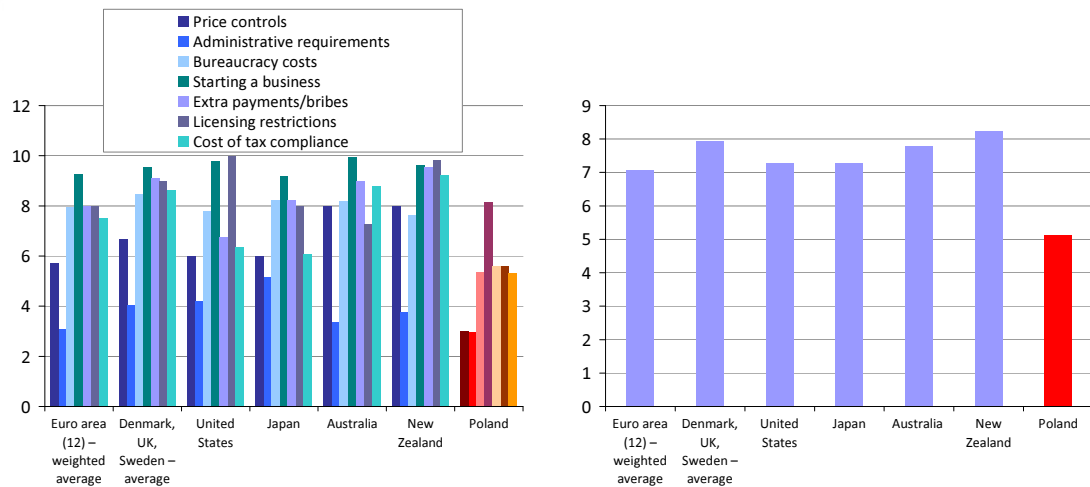
Impact of the euro on product market regulation

It is emphasized on a number of occasions that by enhancing integration, effectiveness

The common currency was expected to contribute to the intensification of reforms...

³¹ The component includes information on price control, administrative procedures, time spent on bureaucratic procedures, degree of complexity of the procedure for starting a business and the necessity to pay irregular fees.

Chart 5.17 Economic freedom index in 2006



Note: The chart on the left presents the results of selected countries in specific categories included in the economic freedom index. The chart of the right shows the aggregate economic freedom index.

Source: Gwartney, Lawson, Norton (2008).

and flexibility of the product market, its reforms³² may contribute to better functioning of adjustment mechanisms in a monetary union. According to the analysis presented in the previous section, goods and services markets' flexibility in the euro area is insufficient, particularly in the services sector. The establishment of the euro area was related to expectations that the common currency will stimulate the Member States to make the goods and services markets much more flexible.

...as it is the basic method to neutralise the risk related to the loss of autonomous monetary and exchange rate policies.

The most important argument for stronger incentives for structural reforms in a monetary union, including the reforms of the goods and services market, is the fact that flexible markets are the basis for adjustment mechanisms in case of asymmetric shocks. In addition, the common currency was to ensure more transparency (e.g. thanks to easy comparison of prices on the markets of Member States), thus highlighting the costs stemming from the lack of flexibility and limited competition reflected in the prices of goods and services.

Real impact of the euro on reforms requires empirical studies.

Intensified competition was expected on final goods markets following the introduction of the common currency and intensification of trade. The competitive pressure on the part of producers from other euro area member countries was to reduce the monopolistic rents which would in turn remove an important reason of opposition against product market liberalisation (Duval, Elmeskov, 2006). At the same time, it should be emphasized that the literature abounds in theories arguing for an adverse impact of the monetary union on incentives for structural reforms³³. In particular, they point out that with no coordination at the level of the euro area, the central bank cannot respond to structural reforms increasing the production capacity of an economy, and respectively, short-term cost of reforms rise. Due to the lack of conclusive findings in the theoretical literature, the real impact of participation in the EMU on the pace of

³² Product market reforms are changes in regulations determining the functioning of the goods and services market, concerning in particular the internal EU market, competitiveness policy, regulations of network sectors (railway, air and municipal transport, supply of energy, gas and water, telecommunications, postal services), degree of state interventions in the economy and the creation of business-friendly environment (European Commission, 2006c).

³³ A short review of theoretical literature on incentives for structural reforms in the monetary union may be found in e.g. Duval, Elmeskov (2006) and in Eijffinger, de Haan (2000), as well as in this publication in the section on the labour market flexibility.



reforming the economies remains an empirical question. The analysis of the impact of the common currency on intensity of reforms on product market regulation in the euro area countries is of particular importance in the context of Poland's accession to the euro area, since, as earlier mentioned, the price adaptivity to macroeconomic conditions cannot increase without product market reform.

The section comparing the product market institutions in the euro area emphasized that the period between 1998 and 2003 witnessed a partly deregulation of the goods and services market in the euro area and a reduction of the variation of regulation strictness on average to the level of countries with relatively flexible goods and services markets. The European Commission (2006c) points out that numerous positive changes took place since the introduction of the euro. Important directives were adopted at the EU level which improved the functioning of the internal market of the Community and significant measures were taken to liberate network sectors and strengthen the role of competition on the single market, as well as to facilitate starting a business. It is, however, difficult to determine the role of the common currency in acceleration of structural reforms.

The introduction of the euro coincided with the reforms in the euro area.

Alesina, Ardagna, Galasso (2008) carried out a formalized empirical study on the impact of the common currency on the strictness of product market regulations. The results confirm that the euro contributed to the acceleration of the pace of reforms making product markets in the euro area more flexible in the analysed sectors³⁴. The authors warn that it may result from the real impact of the euro on political support for product market reforms or from a coincidence, e.g. the expiry of the deadline for implementation of some European Commission directives at the end of 1990s. It should be emphasized that despite the obligation to implement all EU directives by all EU Member States within the time specified by the Commission, countries differ in terms of time and correctness of transposition of the EU directives to the national laws (see Box 5.13).

There is evidence for a positive impact of the euro on the goods and services market reforms.

Box 5.13 Progress in implementation of the EU directives to the national law

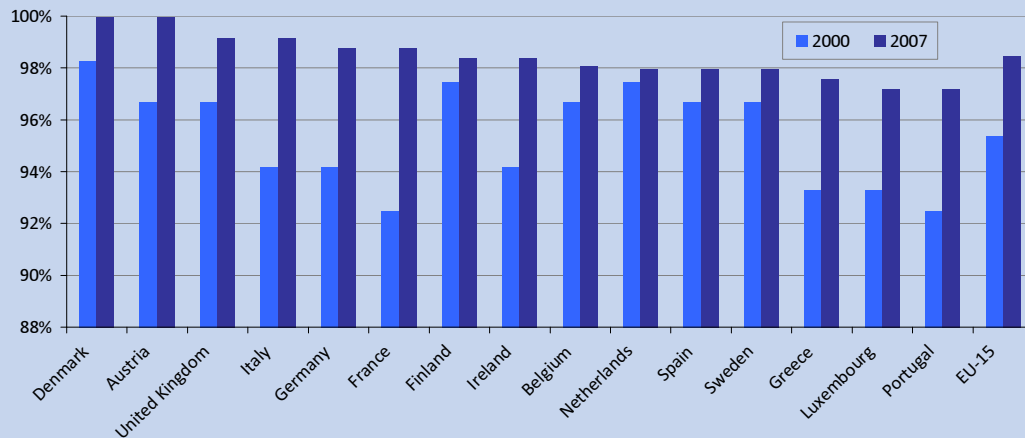
The European Union Member States have recently made significant progress in the implementation of the internal market principles laid down in the EU directives to the national law. The EU directives are legal regulations laying down the objectives to be attained in each Member State, usually granting certain discretion to the lawmakers with regard to the method of attaining the goals. They require lawmakers in individual countries to adjust national law to the requirements of directives, specifying the deadline for entry into force of the relevant regulations. In many cases, the Member States fail to implement the provisions stemming from the directives on time or implement them inappropriately.

According to the latest table of results in the internal market area, compiled by the European Commission (European Commission, 2008c), eight EU Member Countries managed to attain the ambitious goal to reduce the deficit in the transposition of the EU directives on internal market regulations to 1% and another four to 1.5%. Nevertheless, the pace and method of implementation of the directives by individual countries calls for improvement.

³⁴ The author analyse the OECD indicator of regulation described in detail for seven sectors from outside the industry, i.e. for energy and gas sector, road transport, passenger air transport, railway transport, postal services and telecommunications.

Among the euro area countries, Portugal and Luxembourg are the countries with largest problems in implementing the directives. The greatest negligence was recorded with respect to regulation on free movement of persons and financial services.

Chart Degree of transposition of the directives on internal market



Source: European Commission (2008c).

As in the case of labour market reforms, it is difficult to isolate the impact of the common currency on the intensity of reforms of the product market regulations among other factors. According to the Maastricht Treaty, the European Central Bank is responsible for monetary policy in the euro area, the ECOFIN Council³⁵ (assisted by the European Commission) is responsible for a major part of decisions on economic policy, while the responsibility for structural policy, including labour market regulations, remains in the hand of national authorities (van den Noord et al., 2008). Product market regulations are largely the responsibility of the European Union bodies. In the course of the single market policy implementation in the EU, barriers to the free movement of goods were practically removed. This is for sure a huge success, as a result of which trade and competition intensified, productivity grew, whereas GDP and employment increased in the European Union Member States³⁶. Nevertheless, the scope of activities necessary to create conditions for full integration of goods and services markets of the euro area remains significant.

Some areas requiring determined actions still exist.

Firstly, single market principles cover the services sector only to a limited extent and its regulations depend mainly on the authorities of individual countries. Large diversity of national regulations on the sector is a serious obstacle to the provision of services or establishing service establishments outside one's country, which in turn hampers the creation of the correctly functioning single services market in the EU, and in the euro area in particular (Kox, Lejour, Montizaan, 2004). Secondly, the lack of a single, fully integrated financial services market is a major obstacle to the efficient functioning of the euro area. There is a deficit of efficient measures in this regard. Thirdly, it must be pointed out that the countries differ in terms of the pace of adjusting their national

³⁵ The Economic and Financial Affairs Council is one of the configurations of the Council of the European Union. It consists of finance and economy ministers of the EU Member States. Ecofin Council is a decision-making body of the EU on financial and economic matters.

³⁶ http://ec.europa.eu/internal_market/10years/background_en.htm.

regulations to the EU law, which also contributes to the diversity of regulations between the Member States, even with regard to issues which are officially within the powers of the EU authorities.

Where the euro area was established, there were still numerous barriers to free competition on the product market, despite the significant progress made in the 1990s. The measures adopted in order to reduce the barriers concerned mainly the competition policy and the economic interventionism of the state (in order to reduce distortions on the markets due to interventions). The recent 10–20 years saw a huge progress in integration of the markets of the euro area countries. Nevertheless, the market integration remains incomplete, as evidenced by e.g. incomplete convergence of the price of goods and services in the euro area (De Grauwe, 2005). The services sector is the area which requires further activities. The high degree of regulation of this sector is considered one of the reasons behind divergence of inflation rates between the euro area countries.

5.4 Labour market flexibility

Role of labour market flexibility in a member country of the monetary union

As emphasized hereinabove, efficient absorption of asymmetric shocks is possible if the competition channel is functioning effectively and the product market is flexible. The condition for full effectiveness of adjustments cooperating with market mechanisms is high labour market flexibility (see Box 5.14)³⁷.

Labour market flexibility is of huge importance for price stability and economic growth rate.

The labour market flexibility is important to maintain price stability in the economy and the economic growth rate. If the labour market is less flexible, the long time of shock absorption means longer imbalance in the economy and lower economic growth rate. Such a situation is unfavourable for Poland which is a catching-up economy.

Box 5.14 Labour market flexibility

The flexible labour market is most often defined as a market which quickly and efficiently adjusts to the changes in the economy and quickly returns to the equilibrium (Pissarides, 1997). Solow (1998) describes the flexible labour market as a market with low structural inadjustments.

After a shock on a perfectly flexible labour market, there are constant price and quantity adjustments, labour force is fully used and the unemployment is at the level of frictional unemployment and there is no structural unemployment. Flexible labour market ensures “smooth” adjustments of the economy in the case of negative demand shocks. Market mechanisms ensure instant adjustment of the number of unemployed and vacancies, while the institutional factors do not limit the functioning of the market mechanisms (cf. i.a. Pissarides, 1997 and Atkinson, 1984).

Labour market flexibility consists of the following (cf. Pissarides, 1997 or Blanchard, 2005, p. 12):

³⁷ Simulations of the European Commission (2008b, p. 181) point to e.g. faster and deeper adjustment of factors of production productivity after the shock when the labour market of the country in the monetary union is more flexible.

- Wage flexibility shows how quickly wages adjust to changes in the economy. The adjustments may take place through changes of nominal wages, of real wages and relative wages.
 - Nominal wage flexibility determines the speed of adjustments of nominal wages on a given labour market to changes in the economy, in particular to price changes.
 - Real wage flexibility determines the speed of adjustments of real wages to the equilibrium wage stemming from labour productivity. It is the time when, with a given unemployment, the employees are able to accept a decrease in the wage growth rate stemming from the decline in the labour productivity growth rate. The slower the adjustment processes, the longer effects of a negative shock for the unemployment.
 - Relative wage flexibility determines whether and how fast wages adjust between individual segments of the labour market, i.e. regions, sectors or professions.
- Labour force/labour supply flexibility shows whether and how fast labour force adjusts to changes on the labour market. It consists of spatial flexibility (mobility) and functional flexibility (of qualifications and professions).
 - Spatial mobility of labour force is related to adjustments of labour force in response to shocks.
 - Functional mobility determines the ability to make changes to the labour force structure (changes of qualifications and professions, acquisition of new skills and absorption of technological changes).
- Employment flexibility shows how fast employment adjusts to changes on the labour market. Adjustments may consist in the changes of both the level and forms of employment.

In fact there are no perfectly flexible labour markets as wage and quantity adjustments are not instantaneous. Both employers and employees need time to adjust to changing conditions. Secondly, market mechanisms are subject to limitations stemming from the functioning of institutional factors in the economy. They translate into the reduction of the labour market's ability to absorb shocks. Therefore, in the case of a shock, the time of the economy's return to its long-term equilibrium is prolonged.

Source: NBP study.

If monetary policy does not absorb a shock in a single country...

Wage flexibility and/or labour force mobility will be important for maintaining the economy's competitiveness after the accession to the euro area in the case of a lack of autonomous monetary policy and exchange rate mechanism (Aghion et al., 2008). The importance of both mechanisms in shock absorption may be illustrated on the example of an asymmetric shock affecting two countries (Zasova, Melihovs, 2005).

...changes in wages may lead to equilibrium...

In the case of a negative shock in country A and a positive demand shock in country B, country A will experience a decrease in aggregate demand and in demand for labour. An increase in unemployment, as a result of a decrease in demand for labour, will translate into a decline in the wage growth rate. In country B an increase in aggregate

5.4 Labour market flexibility

demand will entail an increase in demand for labour, a decrease in unemployment and will cause pressure on wage growth. If wages and prices in country A are flexible, a negative demand shock in country A will result in a decrease in wages and prices, while in country B both wages and prices will increase. As a result, the competitiveness of country B will deteriorate and the competitiveness of country A will increase. The demand for goods and services produced in country A will increase, while the demand for products in country B will decline. Wage mechanism will restore equilibrium on both markets.

Mobile labour force, as well as wage mechanism, help the economy adjust after a shock and allows faster return to equilibrium. In the case of an asymmetric demand shock affecting two economies, the wage pressure in country B will depend on the level of labour force mobility. High mobility of labour force from country A to country B will reduce wage pressure in this country and thus will enable faster return of both economies to equilibrium. Inflexible labour market hampers the implementation of the above scenario.

Rigid markets of production factors, along with a rigid product market limit the effectiveness of the competition channel, as they prevent fast changes in prices in order to restore equilibrium in the economy. Real marginal cost, which consists mainly of remunerations of employees, is one of the factors influencing price changes. Flexible price adjustment is difficult when institutional factors does not allow to parallelly adjustment wage levels. In the case of a negative demand or supply shock, insufficiently flexible wages may translate into the reduction of the economy's competitiveness (European Commission, 2004b, p. 107).

Secondly, labour market institutions contributing to the existence of real and nominal rigidities may strengthen the differences in inflation rates (Campolmi, Faia, 2007) and in consequence activate the real exchange rate mechanism. As emphasized by the ECB (European Central Bank, 2008e, p. 13), persistence of inflation was a consequence of labour market rigidities, in particular wage rigidity. This in turn may result in excessive (as compared to labour productivity) accumulated price growth and the loss of competitiveness.

Moreover, the growth in inflation expectations in a single country or excessively optimistic expectations concerning its future economic situation may themselves become a source of asymmetric cost shock, if they are reflected in domestic inflation expectations and in consequence in wage dynamics. According to ECB (European Central Bank, 2008e, pp. 11–12), an asymmetric labour supply shock (related to e.g. migration or demographic factors) may contribute to the transfer of the adjustment burden from wages to real values (employment, production) while real wages are rigid, contracts are insufficiently flexible and law is restrictive. In such a situation, prolonged adjustments of the employment level may be expected due to lack of market equilibrium and social costs.

Thirdly, flexibility of the supply side of the labour market is necessary for the long-term macroeconomic stability in the euro area to translate into an increase in employment and welfare (even if the Stability and Growth Pact imposes the necessity of fiscal adjustments which may be related to unemployment increase in the short perspective (Viñals, Jimeno, 1998). Less flexible and highly regulated labour markets may influence the employment in the economy by encouraging entrepreneurs to function in the grey zone and employ workers illegally. High level of labour market regulation leads to increased labour costs. Studies point to a strong positive correlation between the labour market regulation index and the size of the grey zone. The higher the level of labour market regulation, the larger the share of grey zone (Schiff et al., 2006, p. 40).



...as may labour force flows.

Labour market as a basis for adjustments by means of the competitiveness channel.

Labour market rigidity strengthens inflation differences.

Labour market may also be a source of asymmetric shocks.

Insufficiently flexible labour market may encourage operations in the grey market.

If the labour market is rigid, a negative asymmetric shock may permanently increase unemployment.

Flexible labour market allows to avoid social costs related to long-term unemployment growth above its natural rate as a result of a negative shock affecting one of the monetary union member countries (European Central Bank, 2008e). A reaction to the shock is usually a temporary deviation of the unemployment level from the long-term equilibrium. The more flexible the labour market, the more intensive adjustment processes and the faster the unemployment returns to equilibrium. Adjustment processes are longer in the case of barriers restricting the functioning of economic operators. It should be noted that due to downward rigidity of nominal wages, the deliberations on the difficulties of adjustments on the labour market concern in particular the situation where the reduction of unemployment would require the reduction of wages, i.e. negative shocks at the national or sectoral level.

Labour market institutions are the most important for flexibility and their interactions with shocks explain persistently high unemployment.

Appropriate institutional environment is the most important for easy adjustment of labour markets to the situation after a shock. Blanchard, Wolfers (2000) showed the importance of interactions between macroeconomic shocks and labour market institutions in the course of adjustment processes and for the explanation of the phenomenon of long-term high unemployment in the western European countries. Studies show that high unemployment in some countries cannot be explained by the institutional rigidity itself, or by negative shocks to which a flexible economy may easily adjust, but that the interactions between those factors is the most important. Similar results are presented by Duval, Elmeskov, Vogel (2007), who prove the impact of stronger labour (and product) market regulation on sustainability of GDP deviations from the potential level, with the reduction of their initial reaction. Further similar studies concentrated on consequences of asymmetric shock in the monetary union. Campolmi, Faia (2007) prove that institutional diversity of the labour market translates directly into the durability of diversity of inflation rates between the euro area countries, which in turn has a direct impact on prolonged macroeconomic adjustments concerning the real exchange rate channel.

Both the wage flexibility and the labour and employment supply flexibility are important.

The literature shows that adjustments on the labour market may take place through different channels: by means of changes in wage levels, changes in size and structure of labour force and changes in employment (Pissarides, 1997). Underlining a particular importance of the labour market mechanism in efficient functioning of the economy in the monetary union, Mundell (1961) pointed to the special importance of wage flexibility and labour force mobility, both spatial mobility and functional mobility (cf. Box 5.14).

Wage flexibility

Wage flexibility in the tradable goods sector enables the functioning of the competition channel...

Distortions in the free functioning of the wage channel are translated into the extension of the period of shock absorption in the economy (Lewandowski, Koloch, Regulski, 2008). If the functioning of the wage mechanism on the labour market is restricted, adjustments must take place through quantitative changes (of unemployment and employment). Excessive price growth in the tradable goods sector of an overheated economy translates into deteriorated competitiveness of exporters, as it forces them to increase prices and lose their share in the markets.

...and facilitates the flow of resources in the nontradable goods sector.

European Commission (2008b, p. 180) also points to the role of wage flexibility in the nontradable goods sector. Flexibility allows for fast reallocation of labour resources between the sectors, if required by the adjustment process concerning the competitiveness channel.

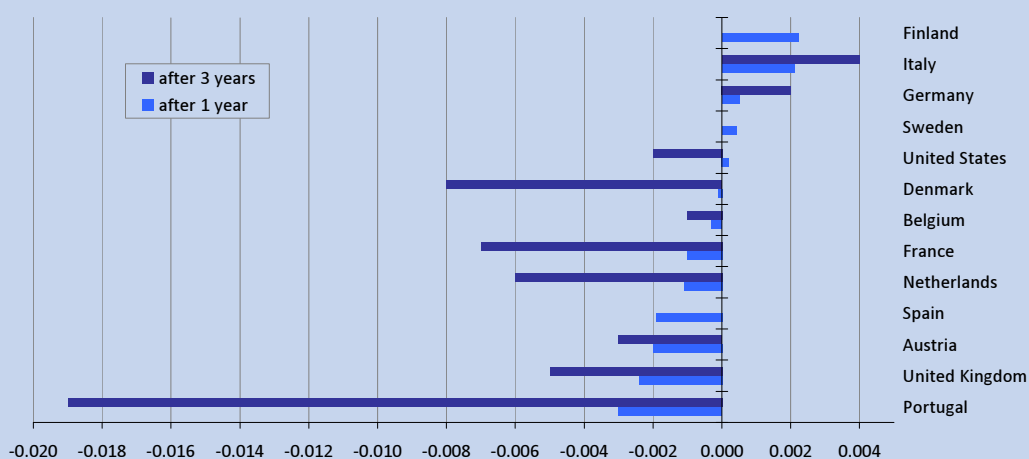
5.4 Labour market flexibility



Analyses show that the wage flexibility level is diversified between individual euro area countries and that it is relatively low as compared to other developed economies (USA, the United Kingdom). Arpaia, Pichelmann (2007) estimated the flexibility of unit labour costs against the GDP gap proving that the reaction was the strongest in Germany, Spain, Ireland and Italy. In addition, the results of their analyses point to a certain asymmetry in responses to a positive and a negative GDP gap – in time of recession wages' response to cycle position is weaker, though also here there are differences between the countries. Zasova, Melihovs (2005) estimated the responses of wages to labour supply shocks using the SVAR models (cf. Box 5.15) and, though the results of estimations should be approached with caution due to institutional changes in the sample period, it may be stated that the diversity of results among the countries confirms the fears of distortions in the competitiveness channel's functioning as a result of rigidities of labour markets and method of wage forming.

Box 5.15 Flexibility of labour markets in the euro area

Chart Flexibility of real wages in respect of labour supply shock in the short and medium run



Sources: Zasova, Melihovs (2005), NBP study.

Fabiani, Rodriguez-Palenzuela (2001) proposed an index of labour market flexibility based on the SVAR model including real wages, output growth rate, and unemployment. In individual equations, shocks are defined as labour productivity shock, labour supply shock and demand shock, respectively. Traceability of the model is ensured by imposing three long-term restrictions styled after Blanchard, Quah (1989): lack of long-term reaction of real wages to a labour supply shock and to a demand shock (only the labour productivity shock is significant) and of output growth rate to a demand shock. Zasova, Melihovs (2005) use the method to evaluate flexibility of labour markets of different countries taking into account short- and medium term reactions (after 3 and 12 quarters) of real wages to a labour supply shock (cf. Chart). A decrease in real wages in the short run is supposed to ensure fast restoration of balance on the market.

In the short run, reaction of wages in the majority of euro area countries is weak or inconsistent with expectations (Finland, Italy, and Germany). Portugal is the only exception here as well as the United Kingdom which is not a member of the

euro area. In the medium term, real wages react the strongest in Portugal and the unfavourable short-term effect is also eradicated in Finland. In a number of euro area countries, a slight decrease in real wages in the short run deepened after three years (Belgium, France, Netherlands, and Austria). The above measure, based on model response functions, is obviously imperfect due to structural reforms of the labour market introduced also in the sampling period which may result in a change to wage reactions.

Arpaia, Pichelmann (2007) suggested a different approach. They estimate flexibility of unit labour costs in respect of GDP gap delayed for a year for each country and come to results presented in Table below. The sample on the basis of which the parameters have been estimated covers the period between 1970 and 2005, which also suggests imperfections of estimates connected with a change in the monetary regime and reforms introduced.

Table Flexibilities of unit labour costs in respect of the GDP gap in euro area countries

Country	Economy as a whole		
	all observations	GDP gap > 0	GDP gap < 0
Germany	0.86	1.15	1.38
Spain	0.64	1.21	1.02
Ireland	0.54	0.77	0.71
Italy	0.49	1.98	-0.13
Finland	0.42	0.85	0.59
Netherlands	0.32	1.37	-0.09
Portugal	0.32	1.03	-0.68
Belgium/Luxembourg	0.26	0.88	-0.17
France	0.18	0.08	-0.01
Austria	-0.13	-0.3	0.21
Greece	-0.22	0.28	-0.72

Source: NBP study on the basis of Arpaia, Pichelmann (2007).

Statutory indexation as a factor conducive to inflation persistence and hindering adaptation.

The section dedicated to efficiency of the competitiveness channel shows that inflation persistence is one of the most significant factors which hinder adaptation of the competitiveness channel. The charts featured therein illustrate prolongation of adaptation of output to its potential level where a more significant role is played by the autoregressive component of the hybrid Philips curve. Inflation may reasonably persist in labour market institutions which maintain persistent wage increase, e.g. the power of trade unions which base their demands as to wages on past inflation (which initiates the wage-price spiral). Mechanisms of statutory wage indexation in respect of future inflation also play the role. Andersson et al. (2008) show that a wage increase is more self-maintaining than an increase in labour productivity. The authors point to long-term wage contracts and emphasize that in some countries the growth rate of wages in the main industry sectors is an important reference point for other sectors, regardless of the growth rate of labour productivity and local conditions.

In Belgium, an increase in wages is limited due to competitiveness concerns.

Table 5.5 features results of ECB studies on mechanisms of statutory indexation in euro area countries. The ECB Monthly Bulletin of May 2008 concludes that the existence of such mechanisms is of concern to the ECB. As a result of sustained temporary inflation

**Table 5.5 Statutory indexation of wages in euro area countries**

Country	Deflator	Scope
Belgium	CPI excluding fuels, tobacco, and alcoholic beverages	ca. 100%
Cyprus	CPI	ca. 65%
Greece	CPI	non-banking private sector
Finland	CPI	100%
France	CPI	ca. 13%
Spain	CPI	ca. 68% of the private sector
Luxembourg	CPI	100%
Malta	retail price index	n.a.
Italy	CPI	private sector
Slovenia	CPI forecasts	ca. 20%
Germany, Ireland, Netherlands, Austria, and Portugal – slight scope of statutory indexation or none whatsoever		

Source: Andersson et al. (2008) after ECB Monthly Bulletin (May 2008).

increase the economy may permanently lose its price competitiveness. Andersson et al. (2008, p.25) particularly stress the danger inherent in such a scenario in Belgium, Spain, France, and Luxembourg. Andersson et al. (2008, p. 37) point to an interesting aspect of statutory indexation in the context of the competitiveness channel. Due to competitiveness of Belgian enterprises, the wage increase may not exceed the expected wage increase in Belgium's main trade partners, namely Germany, France, and the Netherlands, within two years.

The prolonged period of wage increase at a pace incommensurate with labour productivity results in an increase in unit labour costs and deterioration of the country's competitiveness. Experience of some euro area countries confirms the conclusion. A sudden increase in real wages in Portugal prior to euro area accession and at a pace incommensurate with labour productivity extended the period of preparations in the initial years of the country's membership in the monetary union. A similar effect was observed in Italy in the initial years following introduction of the euro. Fast increase in wages in Ireland did not result in deterioration of competitiveness of the country due to high growth rate of labour productivity, particularly in the tradables sector. On the other hand, a decrease in real wages in Germany paved the way for real depreciation and correction of the competitive position of Germany (cf. European Commission, 2008b, p. 184).

Results of evaluation of wages in Poland are ambiguous. On the one hand, studies of the enterprise sector conducted by the National Bank of Poland³⁸ show that flexibility of nominal wages³⁹ in Poland is comparable to that of euro area countries (cf. Chart 5.18).

On the other hand, the study emphasizes that the percentage of enterprises where wages were reduced during the last five years was relatively small. At the same time, enterprises under analysis indicated that the reason behind maintaining wages

A flexible labour market turned out an indicator of success of euro area countries.

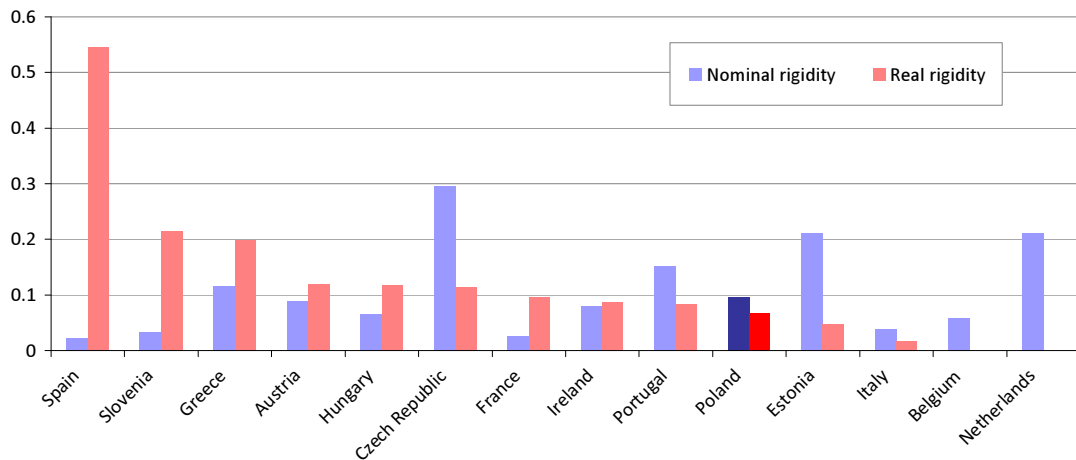
Poland has relatively high flexibility of nominal wages...

...although few employers reduced wages in the recent years.

³⁸ In order to evaluate flexibility of wages in Poland against euro area countries, the National Bank of Poland conducted studies on the Polish enterprise sector (cf. Strzelecki, 2008). A group of 1,200 enterprises operating in Poland underwent analysis. The merit of the analyses is that their results can be compared with results of studies conducted in euro area countries as they covered 26 Member States of the European Union and applied the same research methods.

³⁹ In the framework of the study, rigidity of nominal wages was measured as the percentage of answers to the question on employers' reluctance to decrease nominal wages. Thus, rigidity of nominal wages occurs when enterprises freeze wages instead of lowering them (Strzelecki, 2008).

Chart 5.18 Nominal and real rigidity of wages in Poland as compared to other EU Member States (as a percentage of enterprises)



Source: Strzelecki (2008).

unchanged are not labour market regulations but fear of losing highly qualified employees (Strzelecki, 2008)⁴⁰. Relatively slight rigidity of nominal wages in Poland is also confirmed by earlier studies (cf. e.g. Brzoza-Brzezina, Socha, 2006).

Indexation of wages in Poland is applied to a limited extent.

While comparing rigidity of wages measured as a percentage of enterprises which adjust nominal wages to price changes (Strzelecki, 2008), it turns out that wages in Poland are highly flexible as compared to other countries under analysis due to incidental use of wage indexation by Polish employers. The majority of entrepreneurs, while asked about the relation between changes in prices and wages in their companies, revealed they did not take price changes into account when they changed wage levels (Strzelecki, 2008). At the same time, studies revealed that the relation between wages and situation on the labour market was weak. While setting wages for newly employed staff, wages of employees of the given company as the most significant, not external conditions (conditions on the labour market; cf. Strzelecki, 2008).

Non-wage labour costs constitute the main adaptation channel.

Study results show that wages do not constitute a mechanism used to absorb shocks. In case of a negative demand shock, enterprises under analysis pointed to a decrease in non-wage labour costs and to a lesser extent also a reduction in the number of employees as the potential main adaptation channel (Strzelecki, 2008). In case of a price shock (increase in prices of intermediate goods), enterprises declared an increase in prices of their goods and services. This shows that during a slowdown, it is expected that adaptation of enterprises would rather consist in reducing the number of employees than decreasing nominal wages.

Macroeconomic studies revealed quite high wage inertia.

Also studies conducted on the macroeconomic level point to wage rigidity⁴¹. Shock inertia was moderate in Poland as compared to new Member Countries, but rigidity in

⁴⁰ According to efficiency wage theories, rigidity of wages results from rational behaviour of entrepreneurs who are not interested in reducing wages as they believe that employees' effort (efficiency) depends on wage levels (cf. e.g. Rogut, 2007). The perspective on the relationship between wage and efficiency postulated by R. Solow (1979) was a direct inspiration to economists interested in the efficiency wage theory. Solow believes that rigidity of wages is in the interest of employers as a reduction of wages would result in a decrease in efficiency and an increase in labour-related costs.

⁴¹ Studies of flexibility of the Polish labour market as compared to other countries in the region (cf. Lewandowski, Koloch, Regulski, 2008) were conducted on the basis of indices used to evaluate flexibility of real wages and flexibility of reallocation of factors of production (a detailed description of indices used can be found in: Lewandowski, Koloch, Regulski, 2008).

reply to other structural shocks was quite high. This was largely a result of rigidities in reply to labour demand shocks (Lewandowski, Koloch, Regulski, 2008). The authors claim that distortions of the wage-setting process, e.g. a change in relative bargaining power of employers and employees, have no permanent effects on the economy. In their opinion, rigidity of wages in the aftermath of other shocks (efficiency, demand for jobs, and labour supply) is high. Studies suggest that wages in Poland did not react sufficiently to shock-related changes in demand of companies on labour force, particularly on reduced demand on jobs. This translated into relatively long (as compared to other countries in the region) period of shock absorption (Lewandowski, Koloch, Regulski, 2008).

Flexibility of relative wages consists in turn in fast adaptation of wages to conditions on respective regional labour markets (cf. Box 5.16). Empirical analyses revealed a negative relation between wages and the unemployment rate on local labour markets in Poland, yet they show that the unemployment rate is not the major factor to explain the differences in wage levels (cf. Chart 5.19 and Rogut, 2007). Explanation of differences in wages between respective provinces (“voivodeships”) lies rather with factors other than the unemployment rate, particularly those connected with sectoral structure of the employed, and with regional diversification of human capital and real capital, i.e. factors which determine differences in labour productivity (cf. also von Hagen, Traistaru, 2005).

As compared to other euro area countries, Poland displays low flexibility of relative wages.

Box 5.16 The wage curve

Flexibility of wages across regions is also linked with the idea of a wage curve proposed by Blanchflower and Oswald (1990), according to which there is a non-linear negative relation between the level of wages and the unemployment rate on a regional labour market (cf. Blanchflower, Oswald, 1990; Blanchflower, Oswald, 1994; or Blanchflower, Oswald, 2005). According to the idea, regions with high unemployment rates should post lower real wages than regions where the unemployment rate is lower.

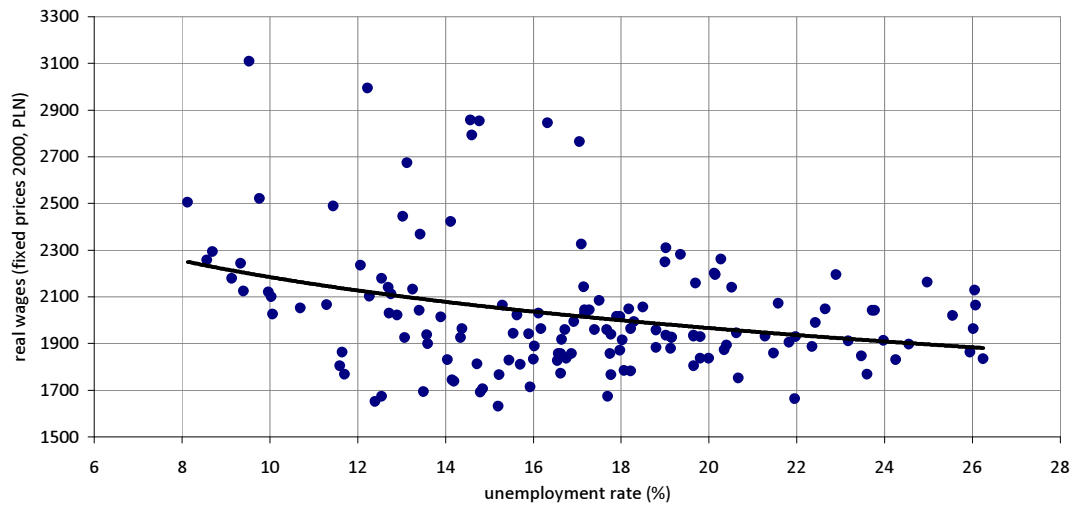
The authors of the idea assumed that labour markets do not function in perfect competition conditions and wages are not formed at a level which clears the market. Theory underlying the wage curve is based on models of neo-Keynesian economics: wage bargaining models, unwritten implicit contracts, and most of all (as stressed by the authors, cf. Blanchflower, Oswald, 2005) on efficiency wages theory. Efficiency wage models postulate that even if the unemployed would be willing to work for lower wages, enterprises are not interested in reducing wages as they are convinced that the effort (efficiency) of employees depends on pay.

In the shirking model (which is one of efficiency wage models), rigidity of wages is explained by inability of accurate monitoring of efforts of employees throughout their working time as it would be very costly. An enterprise then sets the wage rate at a higher level than that resulting from market relations in order to discourage its employees from “shirking” work.

Empirical analyses conducted by Blanchflower and Oswald in forty countries not only confirmed the existence of negative relation between wage level and unemployment rate in the majority of developed countries, but also the fact that flexibility of wages in respect of the unemployment rate on regional labour markets in the countries under analysis was similar and at about 0.1 (cf. Blanchflower, Oswald, 2005).

Source: NBP study.

Chart 5.19 The wage curve in Poland over the period 1999–2007



Source: NBP study based on the Central Statistical Office data.

Wages depend on the situation on the local labour market only slightly.

Analyses which take into account heterogeneity in the analysed period reveal that flexibility of wages in Poland was higher in periods where labour market conditions were favourable and the unemployment rate was on the downside. In the years 1995–1998 and 2002–2005, short-term flexibility of wages in respect of the unemployment rate was about -0.05. In the years 1999–2001 however, the relation between the wage level and the unemployment rate was much weaker (cf. Rogut, 2007). This proves the occurrence of certain downward wage rigidity in Poland. Study results also show that price adjustments do not occur immediately. Wages adapt to changes on local labour markets with a time lag of one year (cf. Rogut, 2007), as confirmed by other studies on the wage curve in Poland (see e.g. Iara, Traistaru, 2004), as well as studies on flexibility of wages conducted by Babetskii (2006). Babetskii points to a significant decrease in flexibility of wages in respect of unemployment in Poland in the years 2000–2004 (more information: cf. Babetskii, 2006).

Results of studies on flexibility of wages in Poland are significant in the context of adoption of the euro. The existence of certain downward rigidity of wages, confirmed by studies, may constitute a potential threat in case of a negative demand shock (cf. the Portuguese scenario described in Roubini, Parisi-Capone, Menegatti, 2007).

Labour force mobility as an adjustment mechanism

Internal mobility is limited in euro area countries...

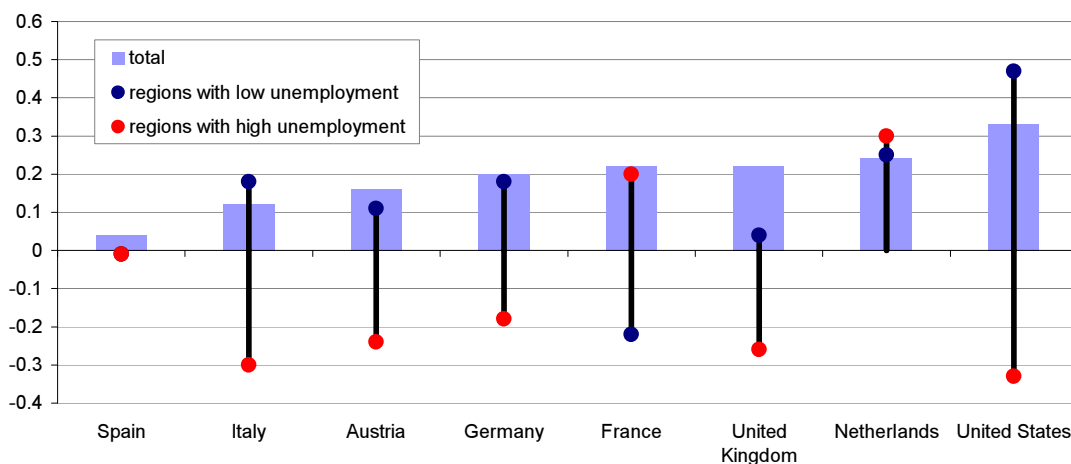
The classical theory of optimum currency areas attributes significant role to migrations of the labour force which were to facilitate absorption of asymmetric shocks (cf. Mundell, 1961). A country with higher mobility of the labour force could evade adaptation problems in the aftermath of asymmetric shocks which can affect euro area countries. However, contemporary studies concerning the euro area as a monetary union (e.g. De Grauwe, 2005) do not focus on the issue as mobility of the labour force in the euro area is not considered a mechanism which could absorb asymmetric shocks in Europe in an efficient manner (HM Treasury, 2003b).

...as evidenced by considerable differences in unemployment between regions...

The European Central Bank (2008g, p. 78) considers permanent differences between unemployment rates in euro area regions as the joint effect of low flexibility of wages and low mobility of the labour force. The effect is not pronounced in small countries (Ireland, the Netherlands), but it assumes greater scale in countries such as Germany (high



Chart 5.20 Net migration balance between regions in selected euro area countries and other states



Source: NBP study on the basis of OECD Employment Outlook 2005.

unemployment in the eastern part of the country, but the disparity is on the downside), Italy, and Belgium (high unemployment in southern regions of the countries).

OECD data on regional balances of net migrations in selected euro area countries in the years 1998–2003 point to lower intra-country mobility in many euro area countries (excluding the Netherlands) as compared to the United Kingdom and the United States (Chart 5.20). Migration balances of regions with high and low unemployment levels evidence that in some countries migrations help balance the labour market, but not in France (net outflow from areas with low unemployment, influx to areas with high unemployment) or in Spain (slight mobility regardless of unemployment rates).

...as well as OECD data on intra-country migrations.

The relatively insignificant role of migrations on European markets in absorbing asymmetric shocks is confirmed by studies on flexibility of labour markets of highly developed economies (cf. Decressin, Fatás, 1995; and Blanchard, Katz, 1992). Study results show that while in the case of in the United States those are labour force migrations which constitute the major absorption channel, in most European economies labour market adjustments take place by way of changes in coefficients of economic activity of the population (cf. also Tyrowicz, 2008, or Rogut, 2008b).

Appropriate conduct of the migration policy is also important from the point of view of labour supply. The European Central Bank (2008e, pp. 34–37) analyses the experience of euro area countries with high migration rates: Spain (from Africa), Italy (from Africa, Albania, Romania), Ireland (from the United Kingdom and Eastern Europe), and Austria (from Eastern Europe). Attention should be paid to the significant role of immigrants on the labour market as well as to the fact that the most intensive flows took place outside the euro area, not between its Member Countries.

Labour force mobility is also important for the supply side of the labour market.

It is difficult to evaluate the degree of mobility of the Polish labour force due to significant changes in the aftermath of Poland's accession to the European Union, changes to factors which determine mobility of the Polish labour force (cf. Box 5.17), and lack of precise statistical data⁴².

⁴² Conducting analyses of mobility of the Polish labour force, both external mobility (migration to foreign countries) and internal mobility (inter-province migrations) is very difficult due to lack of precise statistical data. Studies on the scale of migration are based on estimates.

Box 5.17 Reasons behind migration

The reasons behind international migration movements usually consist in joint impact of factors conducive to the phenomenon. The model which takes into account the push and pull factors is rudimentary.

The push factors, which include economic conditions, demographic pressure, and high unemployment rates in the country of origin, usually co-exist with such pull factors in the destination country, such as employment opportunities or prospects of higher earnings.

Factors which limit the size of migrations include language and cultural barriers – one of the reasons behind lower mobility of the labour force in Europe as compared to the United States. Other factors mitigating migration include, *inter alia*, costs connected with relocating (residential housing prices) and psychological costs of separating from friends and family.

Source: NBP study.

Increase in external mobility of the labour force in the aftermath of Poland's accession to the European Union...

Estimates of migration flows show that the number of economic migrations to EU-15 countries increased following Poland's accession to the European Union, particularly among the young. Yet, due to diversity of methodologies⁴³ applied, estimates of the total scale of migration from Poland following accession to the European Union differ considerably. The number of Poles who migrated for economic reasons is estimated to range from 600,000 to over 2 million individuals (Ministry of Economy, 2007). Data gathered by the Ministry of Labour and Social Policy (MPiPS) show that the number of permits issued to Polish citizens wishing to take up employment in European Economic Area countries in 2005 and 2006 were 401,000 and 610,000 individuals, respectively (Ministry of Economy, 2007). A study by Budnik (2007) shows that in 2006 about 6% of Polish citizens i.e. about 1.9 million individuals aged over 15 with permanent residence in Poland stayed in fact abroad. As compared to 2004, the number increased by almost 0.9 million individuals (Budnik, 2007). Similar estimates presented by the Central Statistical Office (GUS) show that in the years 2004–2007 the number of Polish citizens staying temporarily in other Member States increased from about 750,000 as at the end of 2004 to 1,860,000 as at the end of 2007 (cf. also World Bank, 2008).

...influenced effective labour supply in Poland.

Study results show that both migrations and changes in labour force participation of Poland's population translated into a decrease in effective labour supply in Poland. Following Poland's accession to the European Union the percentage of the employed among migrants increased, while the share of the unemployed and the economically inactive decreased (cf. Budnik, 2007). Strong migration processes translated into shortage of labour supply in some industries and professions. Accompanied by a marked revival in the Polish economy, they triggered pressure on increase in wages (cf. also World Bank, 2008).

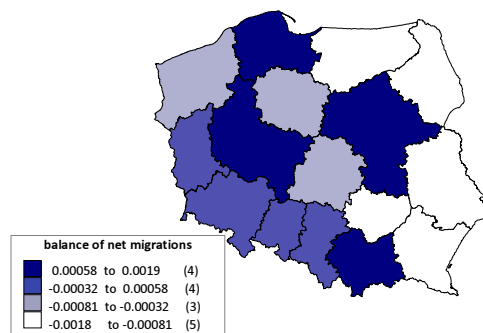
The impact of migration on the domestic labour market weakens gradually.

At the same time, it is emphasized that the impact of migration on the Polish labour market has weakened gradually since mid-2007 (Gumula, 2008). In May 2008, employers believed that external economic migrations impacted the Polish labour market to a much weaker extent than in the previous year. The number of the unemployed willing to leave the country for economic reasons also decreased.

⁴³ E.g. taking into account family members, repeated leaves of the same individuals to perform seasonal work.



Chart 5.21 Balance of inter-province net migration flows in Poland, average over the period 1995–2007



Source: NBP study based on the Central Statistical Office data.

It is also difficult to evaluate internal mobility of the Polish labour force. Analyses of regional data published by the Central Statistical Office⁴⁴ show that it is relatively low (cf. also OECD, 2008c). As a result, regions still tend to differ in terms of employment and unemployment rates (cf. also OECD, 2008c).

Low internal mobility of the labour force...

The highest rates of inter-province net migration inflows were posted by the Mazowieckie, Pomorskie, Małopolskie, and Wielkopolskie Provinces (cf. Chart 5.21) – regions with high labour productivity, low unemployment rates, and relatively high GDP per capita (cf. also Roszkowska, 2008). The lowest rates of net inflows were posted by provinces located in Eastern Poland. They are mainly regions without large cities, with a high percentage of farmers and high hidden unemployment in the sector.

...although higher in regions developed economically to a greater extent...

The reasons behind low internal mobility in Poland and in other countries in the region as compared to euro area countries are: primarily, the relatively low supply of housing, including a high percentage of privately owned apartments (about 85%–90% in the majority of new EU Member States UE⁴⁵), and a weakly developed transport infrastructure which hinders and extends potential commute (OECD, 2008c). Relatively low mobility of labour force is also a result of low economic activity in Poland (cf. e.g. Tyrowicz, 2008; or Darvas, Szapáry, 2008, p. 31).

...results from weakly developed house rental market and transport infrastructure.

At the same time, analyses reveal positive changes in inter-regional mobility of labour force (cf. Chart 5.22). As compared to late 1990s, Poland saw an increase in both inter-province and inter-communal flows (inflows and outflows) (Roszkowska, 2008). The increase in internal mobility in Poland is confirmed by analyses of inter-regional diversification of employment and unemployment rates (cf. Rogut, 2008b).

Functional mobility of the Polish labour force

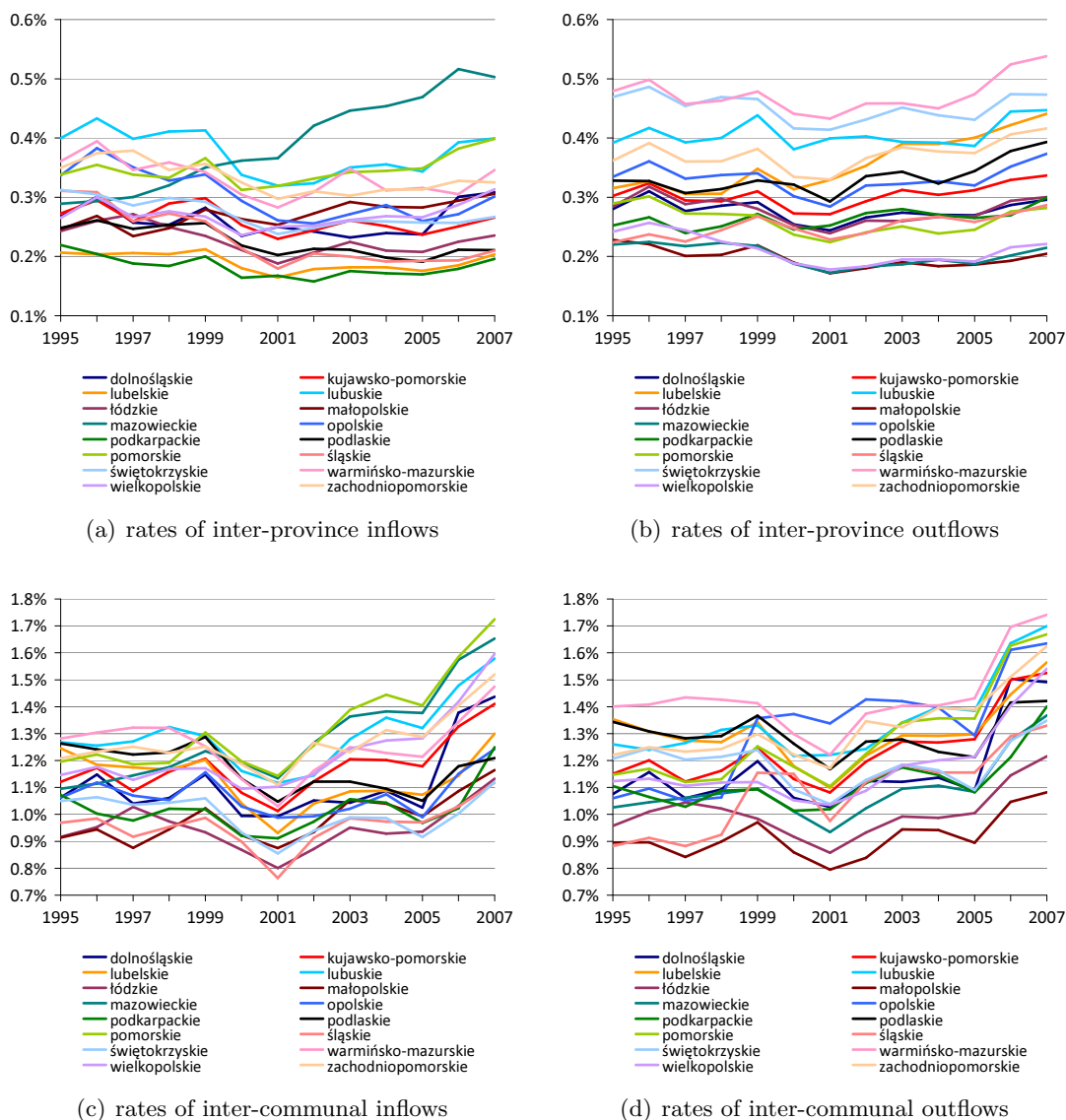
In addition to labour force mobility, functional (professional) mobility is of particular importance from the point of view of smooth functioning of the labour market. It reveals

Functional mobility limits structural inadjustments.

⁴⁴ Data of the Central Statistical Office underestimate the scale of internal migrations. Data on inter-province migrations published by the Central Statistical Office are based on the number of individuals resigning from permanent residence in one provinces and taking it up again in another province. However, the estimates do not include individuals who live and work in a province other than their place of permanent residence or those commuting. The extent of internal migrations is thus largely underestimated, but the data can be used to determine the major directions of internal migrations.

⁴⁵ The exception is Slovakia where the percentage of privately owned apartments is about 49% (Darvas, Szapáry, 2008, p. 31)

Chart 5.22 Inter-province and inter-communal of inflows and outflows of labour force in Poland over the period 1995–2007



Source: NBP calculations after Roszkowska (2008).

whether the given labour force resource undergoes adjustments, primarily between individual sectors and groups of professions. Due to low functional mobility the economy retains high structural inadjustments of the structure of demand for labour to the structure of labour supply.

Box 5.18 The Beveridge curve

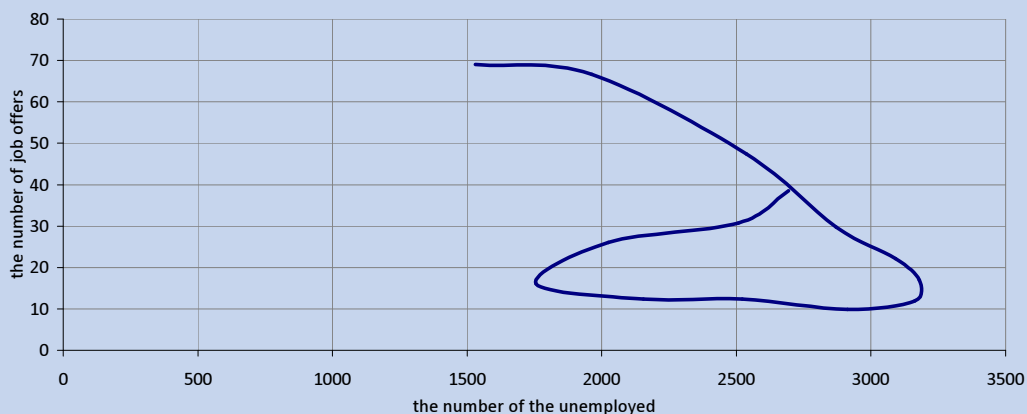
The Beveridge curve shows the relation between the size of unemployment and the number of job vacancies. The relation is negative and non-linear. As unemployment increases, the number of vacancies tends to decrease and *vice versa*. A decrease in economic activity is followed by a decrease in demand for labour force on the part of employers which, on the one hand, translates into a decrease in employment and a lower number of job offers on the other. While the economic situation improves,



demand for labour force increases, unemployment decreases, employers find it more difficult to find suitable employees and thus the number of job vacancies increases.

The dots on the Beveridge curve stand for all possible combinations of unemployment and job vacancies in the economy with the given efficiency (flexibility) of the labour market. The higher the efficiency, the faster the unemployed adjust to vacancies (the closer the curve to the origin of the coordinate system).

Chart The Beveridge curve for the Polish economy over the period 1995–2007



Source: Statistical Bulletin of the Central Statistical Office, various issues of 1992–2008; NBP study.

Analysing the labour market with the use of the Beveridge curve constitutes one of the measures of the size of structural mismatch in the economy (cf. Box 5.18). In the case of the Polish economy (cf. Chart in Box 5.18), it features significant changes taking place on the labour market in the period under analysis. The strong decrease in unemployment accompanied by an increase in the number of job vacancies⁴⁶ proves that there has been a positive demand shock since 2004. Yet even despite strong economic revival, the registered unemployment rate remains around 9% (as of October 2008) which proves that structural mismatches still remain in the Polish economy.

In spite of the favourable situation on the Polish labour market, large structural mismatches persist...

This is confirmed by labour market studies conducted by the National Bank of Poland. Their results show that in May 2008 over 40% of employers experienced problems finding employees with suitable qualifications to perform the given jobs (in May 2007 the percentage was 42.2%)⁴⁷.

...which translates into problems finding employees.

Persisting structural inadjustments are one of the factors which translate into low effective supply of labour force in Poland. The problem is particularly significant in the

Low effective labour supply may weaken competitiveness of the economy.

⁴⁶ Data on the number of job vacancies provided by Labour Offices are not fully reliable as employers do not submit data on all vacancies in their enterprises to Labour Offices. The information provided to Labour Offices usually concern less attractive positions which are more difficult to staff. The data nevertheless provide some insight into the direction of changes in the number of job vacancies, as the changes are quite pro-cyclical.

⁴⁷ The decrease in the scale of the said problem is a positive effect. As shown by studies of the enterprise sector (cf. *The condition of the non-financial enterprises in 2008*), when asked about barriers to development in Q3 of 2008, 6.3% of enterprises invoked difficulties finding employees (two times less than in the previous year).

context of Poland's accession to the euro area. The shortage of efficient labour force persisting in economies translates into an increase in wages which takes place faster than that resulting from an increase in labour productivity, which may weaken price competitiveness of Polish exports in the monetary union.

Flexibility of employment

Flexibility of the size and forms of employment is another element of labour market flexibility.

In addition to flexibility of wages and labour force mobility, changes to the size and forms of employment are the third channel of labour market adjustment. Institutional factors influencing flexibility of employment, such as strong employment protection, prevent employers from immediate adjustment of the size of employment in case of external shocks. For instance, whereas legal forms of employment contracts impose specific duties on employers in respect of redundancy rules, they are not flexible about taking on new employees due to potential costs of redundancy procedures and attempt at extending the working time of their current employees. Employers are willing to increase employment only when the economic situation is on the upside for a considerable period. In effect, decisions on hiring new employees are delayed in respect of the decision on increasing the size of production (Góra, Sztanderska, 2006).

Flexibility of employment in respect of output increased in Poland...

Changes in flexibility of employment which took place on the Polish labour market were very significant. As emphasized by the World Bank (2007a), Poland saw a considerable increase inflexibility of employment in respect of output over the period 2004–2007, primarily due to enhanced significance of the labour factor in the production process. Flexibility of employment (measured as the force of reaction of employment to changes in the size of output), which amounted to 0.21 in the years 1995–1998 and assumed a negative value (–0.77) over the period 1999–2002, increased in the years 2004–2007 to 0.4 (cf. Socha, Sztanderska, 2000; Kryńska, 1999; and Rogut, 2008a).

...due to changes in restructuring strategies assumed by enterprises.

As pointed out by the World Bank report, the increase was mainly an effect of changes in restructuring strategies assumed by enterprises. At the outset of the transformation period enterprises reduced the number of their employees and used the increase in productivity to boost production. Increasing production translated into an increase in competitiveness of new Member Countries thus allowing them to further develop and enter new markets for their products, which translated into an increase in employment.

Poland has a low percentage of part-time employees.

The Polish economy differs from other European countries in the negative sense as to the use of flexible forms of employment (cf. Chart 5.23). In 2007, only about 9% of all employees were employed part-time. In this respect Poland is way behind other euro area countries (the euro area average was 19.6% in 2007). The Netherlands is the leader in the area as 46.8% of total employees are employed on a part-time basis there (cf. e.g. Tyrowicz, 2008). The low percentage of employers taking on part-time employees is one of the reasons behind low employment rates in the Polish economy, particularly among women and youth (those aged 15–24).

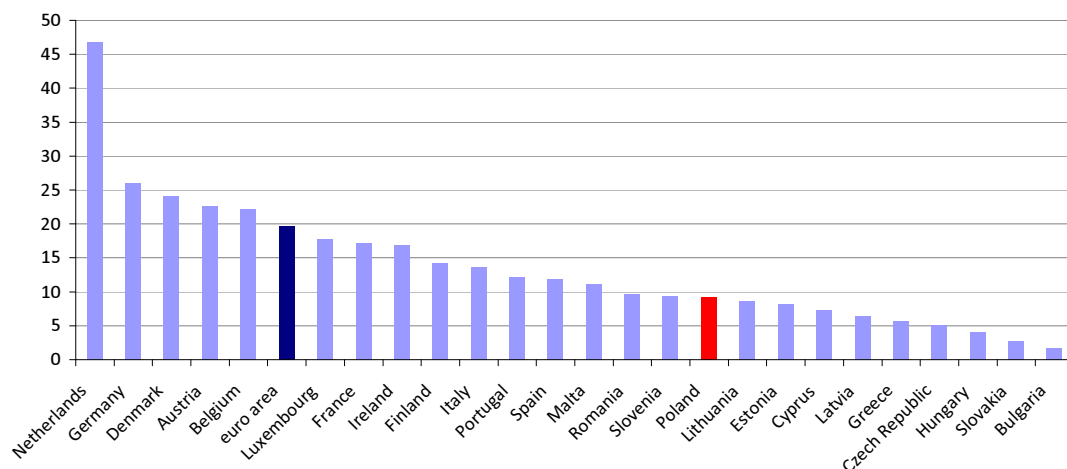
Restrictiveness of employment in Poland is relatively low.

From the point of view of employment flexibility, the degree of restrictiveness of legal protection of employment is a significant factor determining employers' behaviour in this respect concerning both the size and the form of taking on new employees. It is measured with the use of employment protection legislation index (EPL). Comparison between EPL indices as of 2006 positions Poland relatively well against euro area countries as well as other new Member States (cf. Chart 5.24). The degree of employment protection in Poland is average, only the degree of regulation of group layoffs is relatively high (cf. e.g. Bukowski, 2008). The lowest value of the index was posted by Ireland and the highest restrictiveness was observed in the Portuguese economy.

5.4 Labour market flexibility

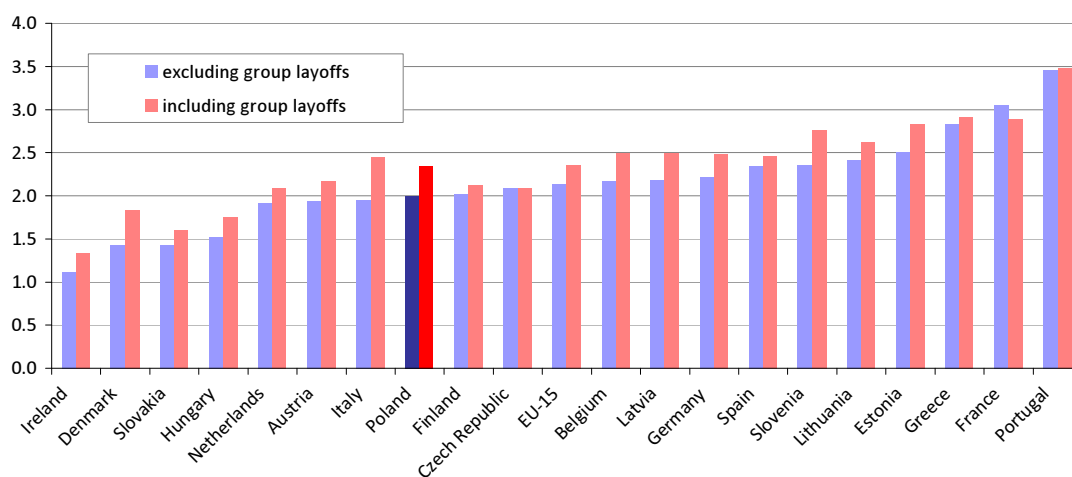


Chart 5.23 The share of part-time employees in Poland as compared to euro area countries and other countries in the region in 2007 (% of total employees)



Source: Eurostat.

Chart 5.24 Employment protection legislation (EPL) index in Poland as compared to euro area countries and new EU Member States in 2006



Source: Lewandowski, Koloch, Regulski (2008).

In order to evaluate flexibility of euro area labour markets from a more general perspective, authors of the Treasury report (2003a) construed a synthetic index of labour market flexibility based on seven different variables which describe institutional environment. Weights of those variables correspond with the relative influence on the market's capacity to quickly absorb shocks⁴⁸. In addition to the EPL index, the synthetic index of labour market flexibility comprises also expenditure on active labour market policy, the rate of replacement of wages with an unemployment benefit, the period of benefit eligibility, the tax wedge, the percentage of employees who belong to trade unions, the percentage of wages included in collective bargaining, and the degree of coordination of the negotiations. A market with a moderate degree of flexibility (as compared to other countries) is attributed the value of 7. The conclusion is close to the conclusion featured in Chart 5.24: labour markets of euro area countries are less flexible than labour markets in the United States or the United Kingdom (the value of the index

Synthetic indices of institutional conditions suggest low flexibility of labour markets in the euro area.

⁴⁸ The weights correspond to coefficients estimated in the study by Blanchard, Wolfers (2000).

below 6), Ireland has the most flexible labour market environment (slightly above 6), and the majority of euro area countries rank between 7 (Austria) and 8 (France). The Belgian market is the least flexible in the group (above 8).

In spite of less restrictive protection of employment, adjustments of the Polish labour market proceed slowly as compared to the euro area...

Less restrictive protection of employment does not, however, translate into a faster pace of adjustments on the Polish labour market as compared to labour markets of euro area countries. Studies on flexibility of the Polish labour market conducted in the framework of drafting the *Report* show that labour market adjustments proceed at a slower pace than in Member States of the monetary union (Rogut, 2008b). After being thrown off balance in the aftermath of a negative demand shock, employment returns to the equilibrium level after about 6.5 years – a period comparable to shock absorption by employment in euro area countries (cf. Rogut, 2008b).

...particularly in case of unemployment rates and the labour force participation coefficient.

Adjustments take much longer in case of unemployment rates and the labour force participation coefficient. Analyses show that in the case of the Polish economy, the variables feature quite high degree of inertia. After being thrown off balance due to a negative demand shock, both unemployment and economic activity regain long-term balance after 9–10 years. In euro area countries, the effects of a negative demand shock expire after about 7 years (cf. Rogut, 2008b)⁴⁹.

Institutional factors determining adaptation of the Polish labour market

Adaptation of the Polish labour market is slow due to its institutions.

Analyses of Polish labour market flexibility indicate that adaptation processes of wages and labour force slower than in euro area countries are largely linked with impact of institutional factors. As identified by the authors of studies conducted for the needs of the *Report*, the most important issues are: high tax wedge, high accessibility of social transfers, and a high degree of regulation of the product market.

The Polish economy reports the highest and least progressive tax wedge among euro area countries and the region.

Poland applies above-average labour taxation not only as compared to euro area countries but also with other countries in the region (Lewandowski, Koloch, Regulski, 2008; and Darvas, Szapáry, 2008, p. 30). Also, in the years 1997–2005 Poland saw the highest increase in the average tax wedge in the region. In the period, the Polish economy also had the lowest progressiveness of the tax wedge, which could additionally result in low labour market participation of individuals with the lowest wages (Lewandowski, Koloch, Regulski, 2008). The difference between the highest and the lowest possible taxation of different groups of households amounted to only 4 pp in the years 1997–2005⁵⁰.

High taxation limits labour supply in Poland.

High labour taxation in Poland translates into an increase in costs incurred by employers; it also results in lower wages received by employees, thus negatively impacting labour supply (cf. e.g. Tyrowicz, 2008). This results in fixing wages as well as weaker adaptation of the labour force. High tax burdens may also translate into an increase in grey zone employment. Particularly in case of individuals with little qualifications, the value of output they produce is only slightly higher than the cost of their employment (cf. i.a. OECD, 2008c; or Bukowski, 2008).

The replacement rate is high...

The ratio of unemployment benefits to wages is relatively high as compared to EU Member States. In 2006, it stood at 0.59⁵¹. Among the countries under analysis,

⁴⁹ Studies conducted in a cross-section of provinces also point to differences in adjustment of the labour force between Polish regions. In case the regions are affected by asymmetric shocks, this may translate into persisting differences in unemployment rates and employment rates between regions (more in Rogut, 2008b).

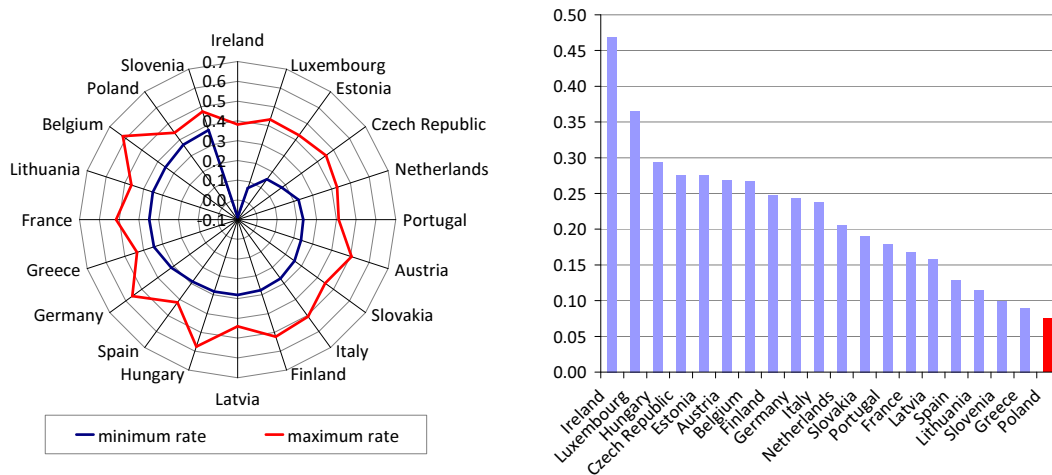
⁵⁰ More recent data are unavailable.

⁵¹ More recent data are unavailable from the Eurostat database.

5.4 Labour market flexibility



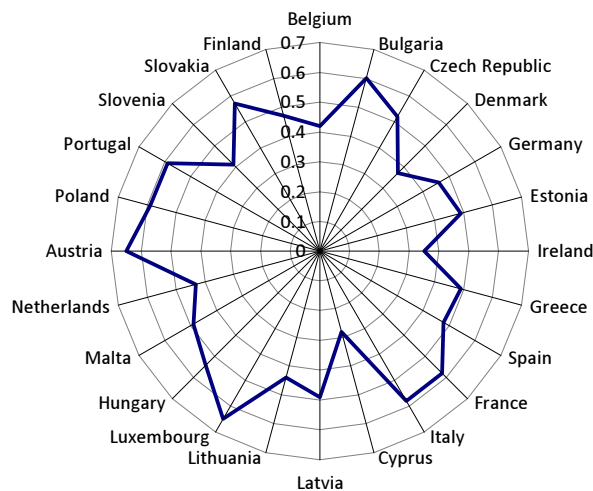
Chart 5.25 Minimum and maximum tax wedge and the degree of its progression in Poland against EU countries (average in the years 1997–2005)



Source: Lewandowski, Koloch, Regulski (2008).

only Luxembourg, Austria, Bulgaria, and Sweden saw higher value of the index than Poland. The lowest replacement rate was posted by Cyprus (0.28) and Ireland (0.35). High replacement rate is a factor which lessens motivation of the unemployed to seek employment while on unemployment benefit, which translates into longer periods of shock absorption.

Chart 5.26 Replacement rate in Poland as compared to selected countries of the euro area and the region in 2006

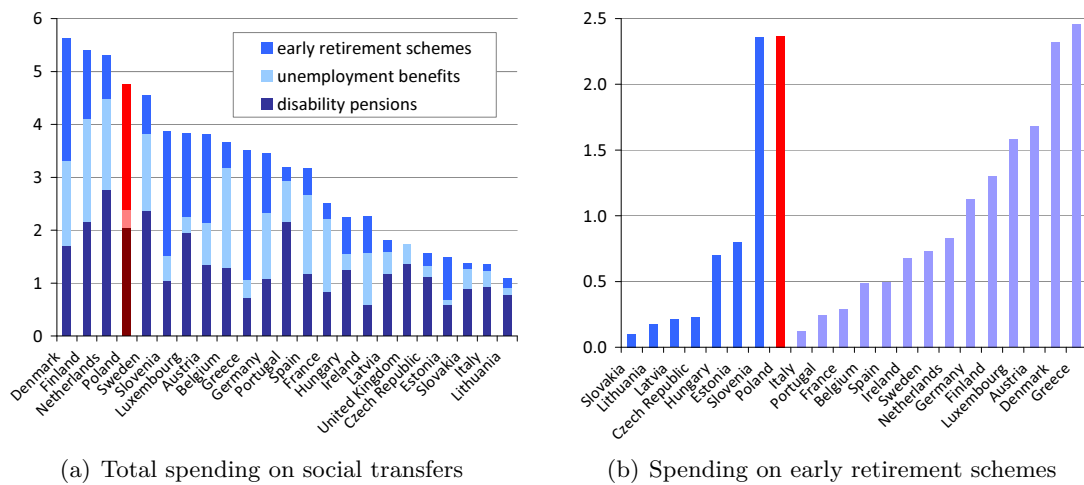


Source: Eurostat.

The total value of transfers granted to individuals in productive age linked with the labour market is high as compared to euro area countries and countries in the region (unemployment benefits, disability pensions, pre-retirement allowances, and early retirement schemes). In the years 1996–2005 the transfers amounted to an average of ca. 4.75% GDP (over twice as much as in other countries in the region and even more than in the case of Germany where the share amounted to about 3.46%). In the years 1996–2005, Poland spent an average of 2.37% of GDP on early retirement schemes alone (cf. Chart 5.27).

...as is the amount of transfers granted to individuals in productive age...

Chart 5.27 Total expenditure on social transfers and spending on early retirement schemes in Poland as compared to EU countries (% of GDP, average in the years 1996–2005)



Source: Lewandowski, Koloch, Regulski (2008).

...which limits labour supply and efficiency of adaptation processes.

A generous social transfer system translates into longer periods of professional inertia thus extending the period when the size of supply adapts to equilibrium after a shock. As indicated in the report by the World Bank, high availability of social transfers, particularly early retirement schemes, is one of the factors conducive to low effective labour supply in Poland (cf. World Bank, 2007a).

The degree of restrictiveness of the goods market is high.

The degree of regulation of the goods market also significantly influences flexibility of employment (cf. European Commission, 2008b, p. 84). Limiting regulation, thanks to which competition on the goods market increases, results in lower margins on the one hand, and on the other, higher activity results in higher employment. When compared to other states, the situation in Poland is unfavourable and was ranked by Doing Business 2009 (2008) as 145th among 181 states⁵².

Spending on active labour market policy is low.

Spending on active forms of labour market policy in Poland is relatively low as compared to EU Member States. The size of spending on active labour market policy in Poland per one unemployed individual was a few times lower than in euro area countries (cf. Chart 5.28).

In Poland, participation ratio is low...

The above factors significantly influence the low effective labour supply which is one of the most pressing problems of the Polish labour market. This is particularly important in the context of Poland's accession to the euro area and may limit economic growth rate, thus hindering Poland's growth opportunities. In 2007, the labour force participation ratio⁵³ in Poland was one of the lowest among European Union Member States (63.2% of productive age citizens). Lower labour force participation was observed only in the Hungarian (61.9%) and the Italian economy (62.5% of population in productive age). In euro area countries, the average participation ratio amounted to 71.1% in 2007 (according to Eurostat).

...particularly among women, the young, and the elderly.

As stressed in literature, the degree of labour market participation results from social (length of the education process), cultural (role of women in the family),

⁵² More on the subject in section devoted to flexibility of the goods market.

⁵³ Labour force participation ratio (economic activity ratio) measures the share of professionally active citizens (the employed and the unemployed) in total population in productive age (after GUS, <http://www.stat.gov.pl>).

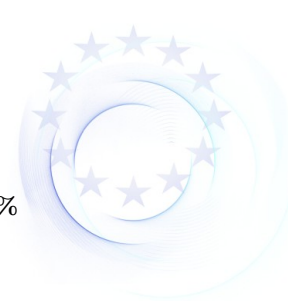
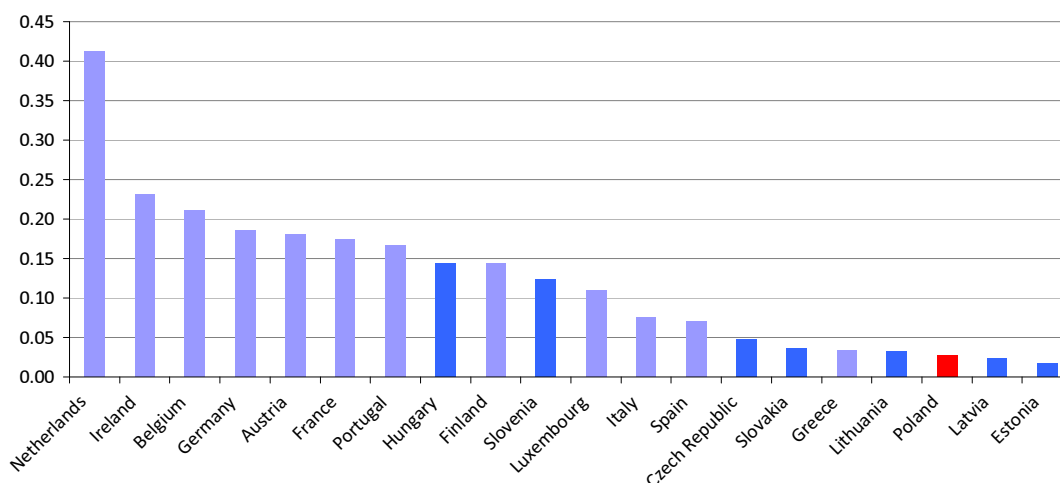


Chart 5.28 Spending on active labour market policy per one unemployed individual (% of GDP)



Source: Lewandowski, Koloch, Regulski (2008).

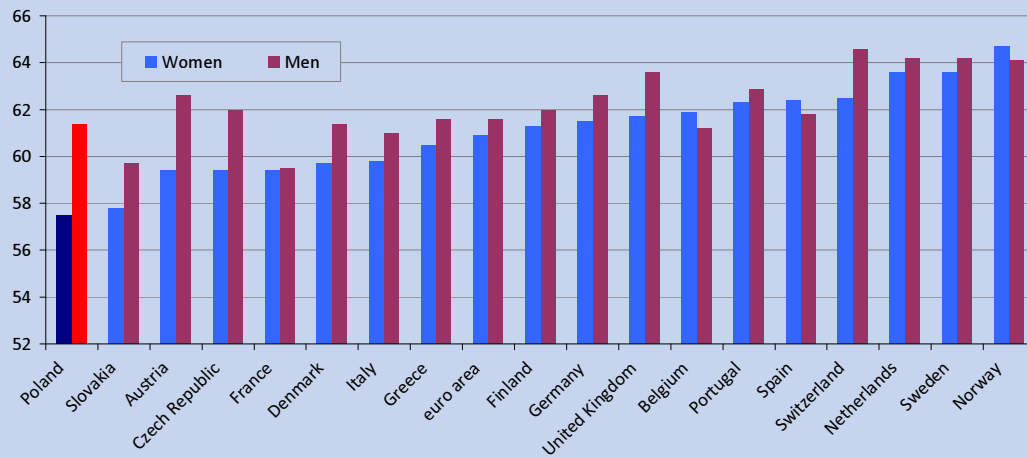
institutional (retirement age), and demographic factors (age structure of the population; see European Commission, 2008b, p. 168). Economic factors linked with availability of sources of income other than labour are also of great importance. Low labour force participation in Poland occurs primarily among those aged 55–64, women and the young. Low employment rates occur in Poland among those aged 15–24, aged 55–64, and women (in 2007, the figures were 25.8%, 29.7%, and 59.6%, respectively). In the euro area, mean values stand respectively at 38%, 43.3%, and 58%. Lisbon Strategy objectives concerning employment, adopted in 2000, assumed an increase in employment in Member States to reach 60% in the group of women, 50% in the group of those aged 55–64, and 70% for total employment rates.

Box 5.19 Low labour force participation of selected social groups in Poland

Particular problem of the Polish economy consists in very low economic activity of those aged 55–64. In 2007, participation ratio in the group stood at 31.8% and was the lowest throughout the European Union. The euro area average was then 46.3% (data for 2007, cf. Chart 5.29). As stressed by the European Commission (2008), the reason behind low economic activity of the elderly in Poland is relatively high accessibility of early retirement schemes. Thus, the actual retirement age is considerably lower than that resulting from the relevant act (World Bank, 2007b). In 2006, the average retirement age for men was 58 – despite the statutory 65 (cf. Chart).

The problem of low economic activity of the elderly is important in the context of ageing of the society. The share of those aged 65+ in total Polish population increases (in 2005, the share was 13.3%; in Western European countries – 17.7%). Projections show that in 2050 it will amount to 31.2% (27.7% in Western Europe; Boni, 2008, p. 136). Deepening of unfavourable demographic processes in the long run may become an important problem of public finance due to difficulty in providing state care to older generations.

Chart Actual retirement age in Poland as compared to euro area countries and other EU Member Countries in 2007



Source: Eurostat.

Low economic activity in Poland concerns also women (56.5% against the average of 63.3% in the euro area). This is largely due to difficulties in finding employment following a period of upbringing children as well as institutional factors including, in particular, low availability of nursery schools and kindergartens. Reasons behind low labour force participation of women also include transfers from abroad which largely impact the situation of households in terms of their income (labour market studies conducted by the NBP).

In Poland, the participation ratio of those aged 15–24 is also low (33% against the average of 44.7% in the euro area). As indicated by the Labour Force Survey (LFS), the reasons are, on the one hand, economic migration of the young, and on the other hand, low supply of part-time jobs which allow parallel work and education.

Considerable differences between regions are also a problem here. Provinces located in western and northern Poland posted the lowest participation ratios and the lowest employment rates in 2007. Relatively high employment and participation ratios are achieved by regions located in eastern and south-eastern Poland (more in: Rogut, 2008b).

Low economic activity observed in the Polish economy translates into low employment rate which increased from the lowest level among all EU Member Countries (54.5% in 2006, cf. Chart 5.30) to reach 57% in 2007. In 2007, among euro area countries, only Malta posted a lower employment rate (55.7%). The euro area average was then 65.7% (all data after: Eurostat).

Source: NBP study.

Low employment rate may limit economic growth rate, thus delaying the catching-up process...

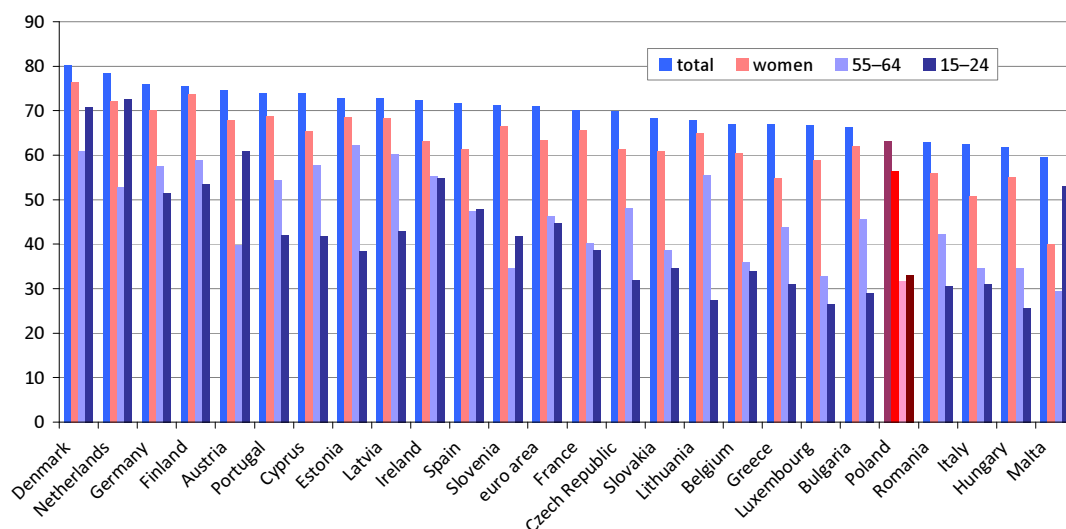
As a result of the low employment rate a relatively low number of individuals in productive age participate in the production process and a large group is supported by the state. Persistent low employment rate is an unfavourable phenomenon considering the development gap between Poland and euro area countries as it may result in extension of the catching-up period.

...and impair competitiveness of the Polish economy.

Low effective supply of labour in Poland in conjunction with economic revival since 2004 translated into a relatively fast increase in wages (as compared to growth rate of labour

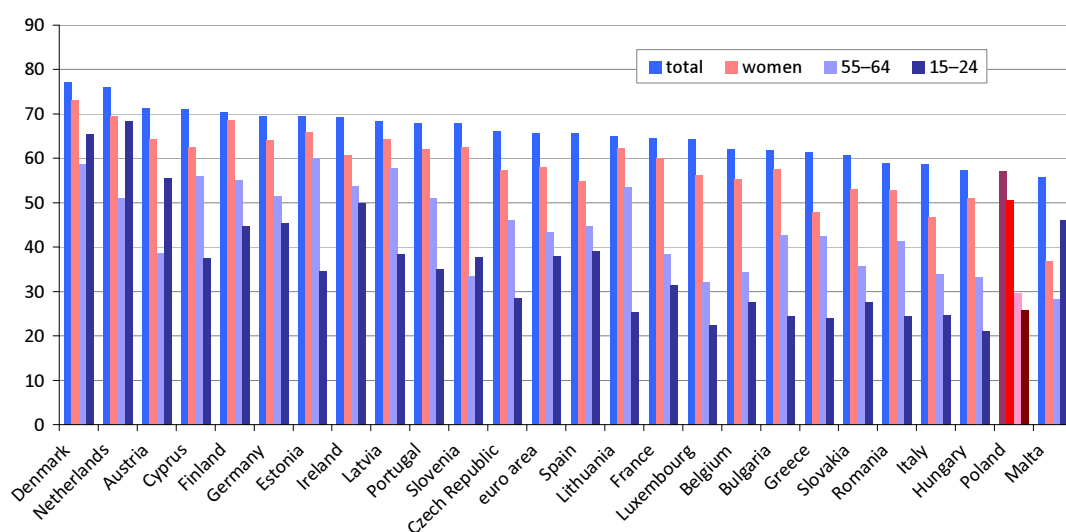


Chart 5.29 Participation ratio in Poland as compared to euro area countries and new EU Member States in 2007



Source: Eurostat.

Chart 5.30 Employment rates in Poland as compared to euro area countries and other countries in the region in 2007



Source: Eurostat.

productivity) and an increase in unit labour costs. Studies into the economic situation conducted by the National Bank of Poland show that the percentage of enterprises for which an increase in wages translates in an increase in prices of their products increased in 2008 (from 5% in Q4 of 2007 to 6.6% in Q1 of 2008). Retaining the growth rate of wages at the level higher than the growth rate of labour productivity in the longer run may translate into lower competitiveness of the economy.

Impact of monetary integration of labour market reforms

The role of flexible labour market in adaptation processes after asymmetric shock discussed hereinbefore is contrary to labour market rigidities existing in the euro area at different planes. The high rigidity of Western European labour markets has been

Monetary integration is a challenge to rigid labour markets of the euro area.

the subject of macroeconomists' discussions for years now. When plans of monetary integration in Europe were announced, concerns were raised as to inadjustment of labour market institutions to challenges connected with monetary integration (see e.g. Pissarides, 1997). In this situation, structural reforms of labour markets became a particularly important objective of economic policy. They were primarily designed to: (i) make labour markets more flexible; (ii) enhance capacity of the economy thanks to changes on the supply side of the labour market⁵⁴. The above picture of flexibility of the Polish labour market gives rise to the question whether the euro may act as a catalyst for reforms of the market. Experience of euro area countries allows one to attempt an answer.

Reforms concentrated on a few areas.

Duval, Elmeskov (2006) distinguish between seven basic areas of reforms which take into account the said objectives on the basis of OECD data and a study by Brandt, Burniaux, Duval (2005), while the European Commission (2008b) describes the reasons behind neglecting reforms in the areas which hinder the functioning of the economy in the monetary union⁵⁵:

- Active labour market policy. It includes trainings and internships, occupational advisory assistance, employment services, public works and intervention works which translate into an increase in labour supply flexibility.
- Tax wedge. Burdening of labour with high taxes limits labour supply and competitiveness of the economy.
- Legal protection of jobs. Restrictive protection of employees against redundancy discourages taking on employees (particularly with rigid wages), hinders perspectives of young labour market participants, and blocks circulation of innovations in the economy, thus extending adaptation processes in the economy.
- Unemployment benefits. Generous and long-term provision of unemployment benefits limits the alternative cost of remaining unemployed. Lack of motivation on the part of redundant employees to return to the labour market makes reinstating balance in the economy more difficult.
- Collective bargaining. Negotiating wages on the sectoral level may result in a gap between labour productivity and remunerations. This may result in insufficient consideration for effects of excessive increase in wages to competitiveness of the whole economy and single enterprises. The consequences may entail a long and expensive adaptation process in the framework of the competitiveness channel.
- Flexible working time. Flexible regulations in this respect enhance labour supply.
- Early retirement schemes. Such schemes are a burden on public finance. They hinder conduct of monetary policy as an adaptation scheme and limit labour supply. Sometimes, they also result in the disabled exiting the labour resource.

Labour market reforms are the responsibility of respective states.

The need to prepare the labour market appropriately and in accordance with the above

⁵⁴ In practice, it is difficult to isolate the effects of respective reforms according to the above criterion. Attempts at empirical analysis (Saint-Paul, Bentolila, 2000) indicate that countries were willing to put effort into reforms streamlining the process of macroeconomic adaptations, while measures aimed at enhancing the capacity of the economy and its institutional competitiveness were more difficult to implement.

⁵⁵ The European Commission (2008f) conducted a similar disaggregation on the basis of its own LABREF database.

5.4 Labour market flexibility

principles concerns all member countries of the monetary union which also commonly pursue the Lisbon Strategy (2004b, p. 157). Nevertheless, even as the goods and services market in the European Union undergoes reforms mainly on the central level, amendments to labour market regulations in the euro area are introduced generally on the national level. Providing the economy with the capacity to absorb asymmetric shocks should be in the interest of respective Member Countries of the monetary union as no alternative is available, i.e. an autonomous monetary and exchange rate policy (the TINA⁵⁶ argument). Increasing transparency of markets, competition, and competing to attract foreign investments may additionally motivate a country to introduce structural reforms aimed at ensuring competitiveness of the economy.

Membership in the monetary union may however, for a number of reasons, discourage governments from introducing structural reforms (cf. Table 5.6). Macroeconomic consequences of the above reforms in a country member of a monetary union are different from those in an independent country. With common monetary policy, capacity-enhancing reforms in a single country may not trigger an immediate reaction of monetary authorities (see Table 5.6). Such a reform results in an asymmetric positive supply shock (Everaert, Schule, 2006) which increases the real interest rate and reduces consumption. Support for positive effects is possible only in the longer run thanks to the real exchange rate channel. Everaert, Schule show that reforms introduced to the labour market in one country do not positively impact other countries (spillover effects). This additionally limits chances for a joint reaction of the monetary union. The effect of disappearance of risk premium of the given country is “consumed” upon its euro area accession and may not constitute a prize for economic reforms. Social protection of reforms is more costly if free conduct of fiscal policy is limited by the Stability and Growth Pact⁵⁷.

A number of additional factors decide which group of arguments would prevail, such as the size of the country. According to Duval and Elmeskov (2006), a large country with a relatively closed economy and a marked influence of internal demand on operation of the economy bears higher adaptation costs if it introduces reforms by itself (with limited monetary policy)⁵⁸. Indeed, more reforms within the monetary union were introduced by countries with small open economies (e.g. Finland, the Netherlands) where international competitive pressure is more intensive and thus changes are more socially welcome. Additionally, in a country with strong trade unions it is difficult to introduce reforms aimed at increasing flexibility of demand on labour towards wages, which would disempower trade unions.

In connection with opposing arguments as to strengthening motivation of a country to reform the labour market by participating in monetary integration, the total influence of euro area accession on reforms remains an empirical issue. Such evaluation is not an easy task as there is no established consensus in literature. There are a few reasons for that:

- Effects of the same reform could differ depending on its location within the comprehensive package of changes. According to the European Commission (2007c), effects of labour market reforms depend not only on their introduction,

⁵⁶ There Is No Alternative.

⁵⁷ Ernst et al. (2006) conclude that a reduction in the rate of legal employment protection is conducive to an increase in efficiency of adaptations and improves inter-period consumption smoothing, but it also brings about negative effects – an increasing risk of redundancy in households.

⁵⁸ The authors formulated the conclusion on the basis of probit regression which describes factors enhancing the likelihood of taking up reforms in countries with a rigid exchange rate. They also warn that membership in a monetary union is a more serious and irreversible obligation.



Monetary integration may also demotivate to introduce labour market reforms.

Efficient introduction of reforms depends on the size of the country and the strength of trade unions.

Difficulties evaluating the impact of monetary integration on reforms...



Table 5.6 Arguments supporting strengthening and weakening motivation to introduce labour market reforms in a Member State of a monetary union

Motivation of a country to introduce labour market reforms in a monetary union is...	
...higher because:	...lower because:
<p>Adaptations on the labour market constitute one of the few ways in which the economy can absorb an asymmetric shock. In a monetary union, it is impossible to adapt neither through autonomous conduct of monetary policy nor through changes to nominal exchange rate. As a result of limited labour force mobility in euro area countries and restrictions imposed by the SGP on fiscal policy, labour market reforms are indispensable when preparing the economy for smooth absorption of macroeconomic shocks.</p>	<p>The cost of a structural reform in a Member Country of a monetary union is higher. Increase in potential output accompanying the reform is not immediately “supported” from the demand side thanks to lower interest rates and nominal depreciation of the currency. The effect is achieved in the longer run due to lower inflation than in other members of the monetary union, which triggers real depreciation.</p>
<p>According to Krugman’s (1993a) reasoning, membership in a monetary union may increase likelihood of asymmetric shocks due to higher specialisation of individual economies. Should such processes actually occur, the labour market would have to be better prepared for the shocks.</p>	<p>As the capacity of fiscal policy to mitigate social costs of reforms was limited by the SGP, making the decision on their implementation is more difficult from the political point of view. Increasing market risk exposure may even create social need of enhancing institutional protection, particularly among groups which believe to be at high risk of redundancy (European Commission, 2007c).</p>
<p>Introducing the single currency enhances transparency of markets and competitiveness. Relative prices directly mirror noncompetitiveness resulting from structural rigidities. This results in reduction of economic rent, which could be collected by certain entities in connection with lack of reforms, and weakens their aversion to reforms. This facilitates political forcing of reforms.</p>	<p>Unemployment lower than NAIRU is linked with inflation pressure. Reforms result in decrease in the very equilibrium rate, which is related to reducing the anti-inflation bias of monetary authorities in the longer run. It is highly unlikely that the ECB reacted in this way to reforms introduced in a single country, which weakens political determination of governments to introduce reforms.</p>
<p>Increase in mobility of capital in the monetary union may motivate governments of individual countries to conduct structural reforms with view to attract the capital.</p>	<p>While improving their capacity of smooth absorption of macroeconomic fluctuations, structural reforms of markets stabilise real production and limit its volatility. This in turn decreases risk premium and allows improving competitive position as compared to other countries. In a monetary union, it is impossible to receive an individual premium. The fact additionally weakens motivation to introduce reforms. Also, while structural imbalances in a country outside a monetary union are displayed by financial markets to a lesser extent, the need to introduce reforms reveals itself gradually and slowly.</p>

Source: NBP study based on Duval, Elmeskov (2006); Leiner-Killinger et al. (2007); European Commission (2007c).



but also on interaction with simultaneous changes on product and capital markets. Everaert, Schule (2006) suggested a potential increase in efficiency of labour market reforms when the market of products is less regulated. Annett (2007) points to complementarity with fiscal reforms, taking into account experience of, *inter alia*, the Netherlands and Ireland.

- Establishing the monetary union in Europe was not the only significant change in the economy within the last two decades. Significant role was also played by, *inter alia*, globalisation processes, ongoing technological changes influenced organisation of work, and structures of economies evolved (European Commission, 2004b, p. 154). In case of euro area countries, the need for reforms on the supply side of the labour market was also a result of demographic and migration processes (European Central Bank, 2008g).
- Labour market reforms were conducted more frequently in countries where competitive pressure and negative shocks exposed the need for reforms resulting from lagging behind for many years (Duval, Elmeskov, 2006; European Commission, 2008b). In the last decade, Western European labour markets experienced a strong need of reforms, only strengthened by plans of monetary integration.
- A considerable part of changes on the labour market took place during preparations for establishing the euro area. Each change was accompanied by specific political determinants (Duval, Elmeskov, 2006). In the period, individual countries were evaluated for meeting specific criteria. According to the authors of the European Commission report entitled *EMU after five years* (2004b), the period may not be easily compared with the period prior to establishment of the monetary union or with the years when monetary integration was not expected by enterprises.
- Structural reforms bring about their effects in the longer run. Materials for analysis gathered during the period of preparations for establishing the euro area and the ten years of its functioning is frequently considered insufficient.

Due to the above factors, it is difficult to unambiguously link changes in euro area labour markets with introduction of the single currency. The above-mentioned difficulties and differences as to methodology translate into conclusions which in a number of cases differ in terms of quality (cf. Table 5.7). Data from the labour market, OECD indices of reform intensity, and databases of the European Commission and the World Bank concerning labour market reforms nevertheless reveal certain basic trends and allow conducting a large-scale evaluation of flexibility of labour markets in countries aspiring to the monetary union or its members.

...result in different research results.

Initial studies of the impact of monetary integration on the pace of reforms resulted in varied conclusions (cf. Table 5.7). Considering implementation of OECD priorities included in *Jobs Strategy* in various Member States of the organisation in the 1990s, Poeck, Borghijs (2001) have not discovered any significant differences between euro area Member and non-Member States. Narrowing the scope of the study to reforms aimed at liberalisation of labour protection regulations and enhancing motivation to work in EMU countries (Bertola, Boeri, 2001) revealed higher intensity of changes in the euro area as compared to other countries, particularly in the years 1997–1999⁵⁹.

Prior to 1999, reforms were more intensive, but introduced only in selected areas.

⁵⁹ The authors came to this conclusion having considered reforms in respect of money transfers for individuals in productive age and spending on labour protection (the scope of reforms taken into consideration is thus different than in the study by Poeck, Borghijs, 2001).

Table 5.7 Review of studies concerning the impact of monetary integration of labour market reforms

Authors of the study	Year	Results
Poock, Borghijs	2001	In the 1990s euro area countries introduced less labour market reforms than other OECD countries.
Bertola, Boeri	2002	Increase in intensity of reforms concerning unemployment benefits and legal protection of employment in the preparation period and immediately following establishment of the monetary union.
Debrun, Annett	2004	After 1999, intensity of reforms increased in three countries: Germany, Spain, and Italy. From the point of view of labour market reforms in various countries, the key issue was accession into the EU, not initiating the process of monetary integration.
Duval, Elmeskov, Vogel	2005	Deceleration of labour market reforms in the years 1999–2004 as compared to 1994–1999. In the euro area, intensity of reforms was lower than in EU countries which do not belong to the euro area.
European Commission: <i>Annual progress report on jobs and growth</i>	2006	After 1999, intensity of reforms increased in six countries: Germany, Spain, Italy, France, the Netherlands, and Portugal.
Duval, Elmeskov	2006	No significant increase in intensity of reforms in euro area countries past 1999.
European Commission: <i>Quarterly Report on the Euro Area</i>	2007	No evidence for acceleration of reforms past 1999; insignificant and gradual changes. In recent years, reforms have been introduced more frequently in countries which need them most.
European Commission: <i>Quarterly Report on the Euro Area</i>	2008	Reforms introduced in various areas with different intensity in individual countries (see Chart 5.32), frequently insufficient (see Table 5.8).

Source: NBP study.

Intensity of reforms differs between countries and regions.

Nevertheless, there was no coordinated plan of reforms for the years 1994–2004. As evidenced by indices of labour market reforms intensity calculated by Duval, Elmeskov (2006), the pace of reforms in the selected period was widely diversified in terms of thematic areas and countries (cf. Chart 5.31). The scale of indices is 0–100, where 100 stands for all plausible reforms in the given area and 0 – absolute lack of progress. Negative values are also possible when actions taken remove the legal status from assumed objectives (Duval, Elmeskov, 2006).

Many supply-side changes and a reduction of the tax wedge, few EPL reforms and wage forming mechanisms.

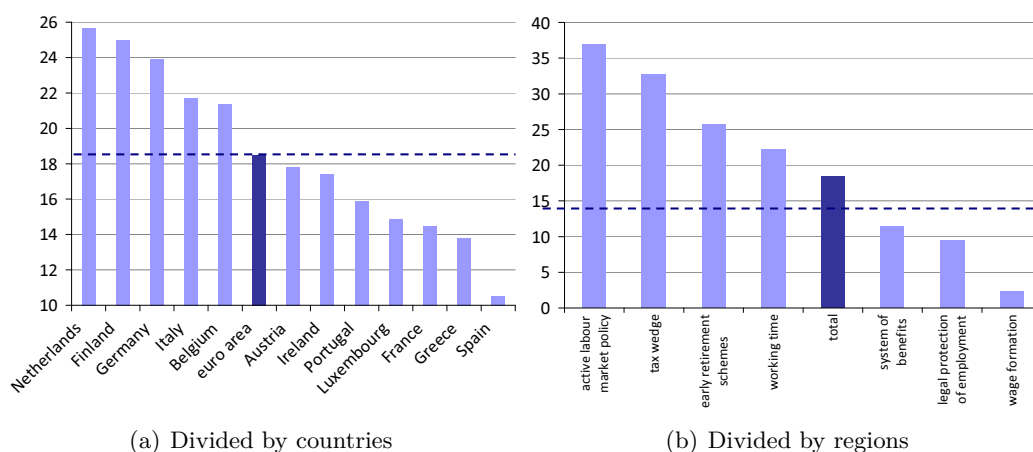
Comparison of the above results shows that labour market reforms conducted in the years 1994–2004 were most intensive in the Netherlands, Finland, and Germany, while the scope of changes was narrower in Spain, Greece, France, Luxembourg, and Portugal than in the euro area as a whole. Changes concerned primarily the area of active labour market policy (see Chart 5.31), the tax wedge, and pension schemes, while reforms of the benefit systems, the right to employment protection and the process of wage forming were conducted on a much lesser scale.

Different reform packages in individual euro area countries.

Considerable diversity of the scope of reforms in every area in different countries proves that actions were not coordinated. The set of Charts 5.32 presents reforms in individual areas in various countries as compared to the average pace of changes in the given area in the whole euro area and the average pace of changes in individual countries. The



Chart 5.31 Indices of labour market reform intensity in the years 1994–2004



Source: Duval, Elmeskov (2006) after Brandt, Burniaux, Duval (2005).

countries have been arranged in a decreasing order according to intensity of reforms in a given area. The leader in the given area is placed on top and subsequent countries are arranged in a decreasing order clockwise (according to the value presented by the blue ring). If the dot on the blue ring is located outside the dark blue circle for the given country, the country introduced more reforms than the average for the euro area as a whole. If the dot is located outside the red ring, the country has introduced more intensive reforms in the area than in other areas.

Firstly, marked changes in the scope of reduction of the tax wedge in Ireland are striking, although the majority of countries under analysis have introduced reforms in the area. Areas where intensive reforms were introduced in a number of countries include also active labour market policy. On the other hand, insignificant intensity of reforms was visible in wage negotiation systems of all euro area countries. Even in case of Spain, Germany, and the Netherlands, where reforms were most intensive, there were changes less changes in the wage negotiation system than the average for those countries.

Results of comparison between other OECD countries conducted by Duval and Elmeskov which covered the period between 1994 and 2004, namely the period of preparations and the initial years of the euro area, suggest that the very fact of establishing the euro area did not significantly influence institutional changes on labour markets. Although reforms in euro area countries were more intensive, the authors attribute them to the necessity of introducing reforms to those markets perceived in Western Europe to a greater extent rather than in other regions of the world (Duval, Elmeskov, 2006).

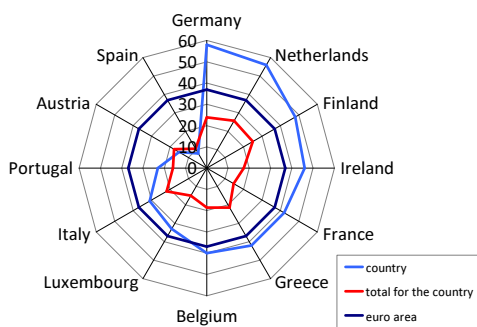
Hardly any breakthrough in reforms past 1999.

The need for such changes stems from lagging behind for many years, yet it seems it was particularly displayed in the monetary union. In order to evaluate the impact of the factor, the European Commission (2008b, p. 90) compared the number of guidelines⁶⁰ issued to euro area countries and other Member Countries of the European Union (“15”) in the years 2000–2005 and concluded that monetary union Member Countries received twice as many guidelines, which translated into greater needs in this area. The European Commission (2008f) also pointed out that intensity of reforms ceased to be the domain of countries with high-quality institutions in the initial years following establishment of the monetary union, as evidenced by a decrease in correlation of the number of reforms and the rate of labour market participation. The relation was previously positive, as

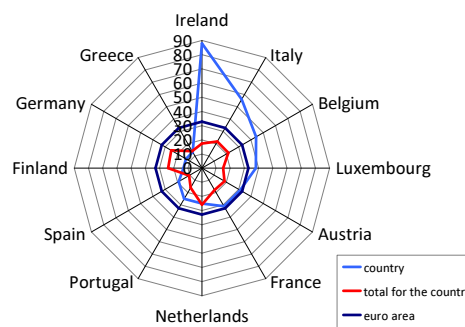
Reforms are introduced where they are needed most.

⁶⁰ *Broad Economic Policy Guidelines.*

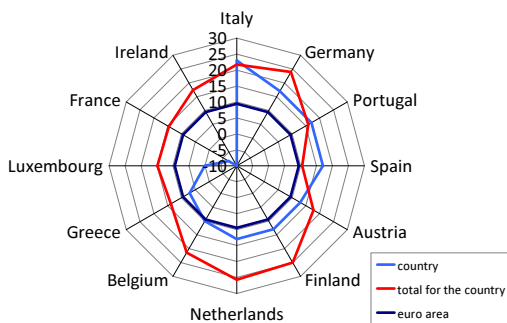
Chart 5.32 Intensity of labour market reforms in the years 1994–2004 according to the object of reforms



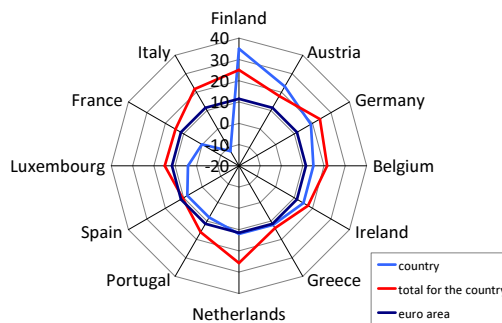
(a) active labour market policy



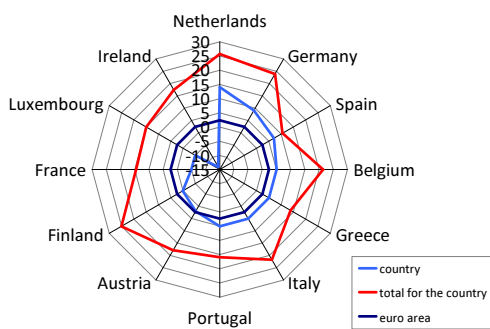
(b) tax wedge



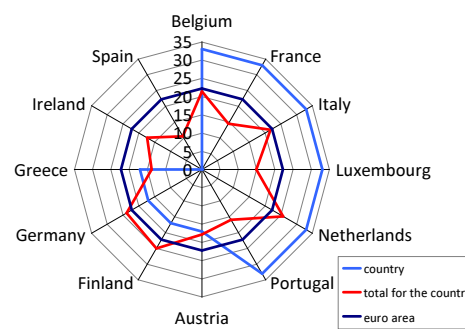
(c) legal protection of employment



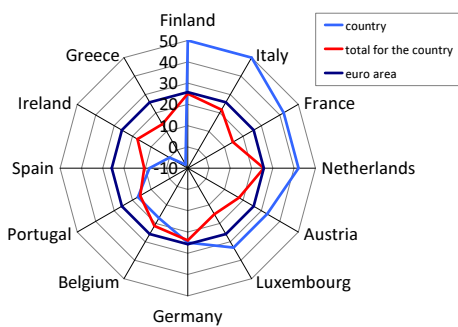
(d) benefit system



(e) wage bargaining



(f) flexible working time



(g) pension scheme

Source: NBP study based on Duval, Elmeskov (2006) after Brandt, Burniaux, Duval (2005).

5.4 Labour market flexibility

confirmed by the existence of a group of reform leaders. The argument on lack of an alternative is invoked when the competition channel had no influence on reinstating equilibrium, e.g. in Portugal.

Though reforms gained more universal character in various euro area countries, changes introduced past 1999 were seldom radical. On the basis of the FRDB (*Fondazione Rodolfo DeBenedetti*) database on labour market reforms, the European Commission (2007c) revealed an increase in minor gradual reforms in euro area countries in the years 1999–2005 concerning legal protection of employment, benefits for the unemployed, and migration policy⁶¹. An insignificant number of broad-based reforms, particularly in respect of legal protection of employment, confirms earlier conclusion that membership in a monetary union does not encourage introducing radical changes, at least partially. Analysis of the LABREF database (maintained by DG ECOFIN and the Economic Policy Committee), which gathers data on labour markets in European Union countries in the years 2000–2007⁶², conducted by the European Commission (2008f) also reveals that the initial years of the euro area brought about continuation of the slow and gradual reforms on the labour market rather than fast and in-depth changes.

Establishment of the monetary union resulted nonetheless in certain changes to areas of main reforms of the labour market. Having analysed the direction of reforms included in the FRDB database, the European Commission (2007c) concluded that after 1999 reforms tended to concentrate on limiting legal protection of employment and creating incentives for active participation in the labour market. Reforms included in the LABREF database concerned primarily improvement in the use of labour resources and labour market flexibility (see Table 5.8). The Commission also presented calculations which show that the number of reforms influences the size of employment favourably. Changes, usually slight, did not concern those whose employment was stable. Changes in regulations of employment of selected social groups resulted in labour market “dualism.” The phenomenon consists in partial slackening of legal protection of employment in case of contracts for a specified period. Chart 5.33 presents changes in the value of EPL indices calculated by the OECD disaggregate for legal protection of employment for contracts for a specified and an unspecified period. Dotted arrows stand for shifts in indices since the 1980s until the 1990s, unbroken arrows – shifts since the 1990s until 2003, and large dark blue dots – positions of countries in 2003. The position of the country below (to the right of) the oblique line suggests that its labour law is more restrictive as to protection of individuals for a definite or indefinite period. The chart shows that slackening of EPL regulations (movement towards the beginning of the system of coordinates in the chart concerns mainly contracts for a specified period (the Netherlands, France, Germany, Belgium, Italy, and Greece). It is also visible that changes which took place at the turn of the century are greater than those which occurred at the end of the 1980s and the beginning of the 1990s. This confirms the conclusion that the effects of monetary integration in the area were not significant. The system of wage bargaining was another issue (along with legal protection of employment) in the case of which reforms proceeded particularly slowly (cf. Chart 5.31, 5.32 and Table 5.8) even as the wage formation process constitutes the basis for functioning of the competitiveness channel. In this area, proper evaluation of changes necessitates taking into consideration institutional reforms as well as less empirically perceptible impact of a change in monetary regime on decisions and actions of economic entities.

⁶¹ Reforms to the pension scheme are an exception.

⁶² The quoted results of analyses are based on data for the years 2000–2006. See: European Commission (2008f).



More reforms, yet shallow.

Reforms gradually concentrate on making the law more flexible.

Amendments to EPL concern mainly contracts for a specified period, no marked effect of euro introduction.

In the wage formation process, changes to behaviour of economic operators are important.

Table 5.8 Labour market reforms in the euro area in the years 2003–2007

Area	Description
Wage forming, collective bargaining	Actual decentralisation of wage bargaining in Germany, Austria, the Netherlands, Spain, and France. Few reforms facilitating reaction of prices to changes in labour productivity in the process of wage formation: in Finland, France, and Portugal, to a lesser extent in Spain and Slovenia.
Working time	Reforms to increase flexibility of working time were introduced in the majority of euro area countries: Austria, Belgium, France, and Germany (supply-side reforms in some groups) and in Austria, Greece, and France (flexible employment schemes).
Benefit systems	Reforms introduced in the majority of euro area countries consisted in creating incentives to take up employment by decreasing the amount of unemployment benefits (e.g. Germany) or limiting the period of eligibility (e.g. the Netherlands).
Tax systems	Reduce the marginal effective tax rate in order to create incentives to take up employment in Spain, France, Ireland, the Netherlands, Austria, and Portugal. Limit the tax wedge in Germany, Portugal, Austria, and Ireland. Strengthen demand for labour through reduction of employer contributions in Italy and Spain, simplify the system in France and Belgium.
Legal protection of employment	The extent of costs is very limited. Restrictive regulations in force in Greece, Italy, and Portugal in spite of low intensity of reforms concerning market protection of the unemployed (insurance against redundancy). The only exception – reforms in Slovenia (in 2007). In certain countries there are marked differences as to legal protection of employment between contracts for a specified and unspecified period (the former are less regulated); attempts at reducing the differences in France and Finland (see Chart 5.33).
Pension schemes	Create regulations and economic incentives which delay retirement (Germany, Spain, Cyprus, Portugal, and Finland). Make the pension system more flexible in Spain and Finland. Abolish early retirement and support employment past retirement age (in a number of countries including, in particular, Belgium, Spain, France, and Italy).
Active labour market policy	According to authors of different studies, this is the area where reforms were most intensive in all euro area countries.

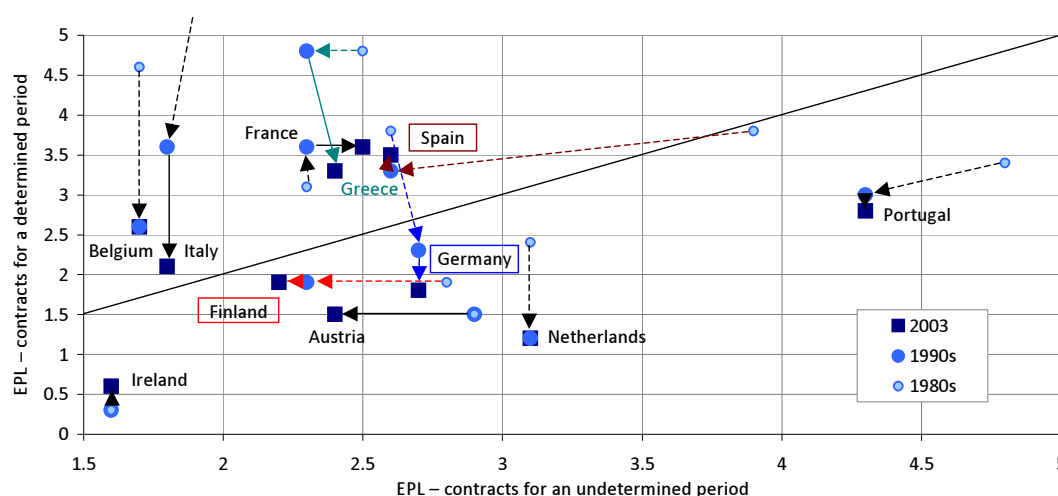
Source: NBP study based on Duval, Elmeskov (2006); European Commission (2008f).

Size of the economy and the wage formation process.

According to some authors, fear of a country losing competitiveness did not prevent trade unions from putting forward wage demands (Posen, Gould, 2006; Viñals, Jimeno, 1998). Reaction of the single monetary policy to events in a single country was weaker than the reaction of former monetary authorities of the specific country. Also, trade unions in a given country must not fear the reply of the single monetary policy to fast increase in wages. It seems that the final impact of monetary integration depends on two additional factors. Marzinotto (2007) suggests that one of the factors is the size of the country. In small open economies an increase in wages is decelerated by concerns about losing competitiveness which are more common among enterprises exposed to international competition. In the largest economies, the main concern of trade unions is in turn if the ECB will be forced to increase interest rates thus suppressing internal demand and demand among trade partners from other countries. According to the author, the risk of fast increase in wages would be the strongest in medium-sized countries.



Chart 5.33 Changes in indices of legal protection of employment in euro area countries



Source: NBP study on the basis of OECD Employment Outlook 2004.

The stage of wage negotiations constitutes yet another factor which impacts efficiency of wage formation mechanisms in a monetary union (European Commission, 2008b, p. 182). It is difficult to unambiguously evaluate higher centralisation of wage negotiations (from a single enterprise and a sector to the economy as a whole) and their coordination (among trade unions associated in a confederation). On the one hand, greater centralisation is conducive to making wage growth rate conditional on labour productivity in individual sectors and suppresses wage incentives conducive to flow of employees between sectors, thus generating real rigidities (Andersson et al., 2008; European Central Bank, 2008e). On the other hand, it ensures compliance of wage growth rate with current condition of the economy (Calmfors, Johansson, 2002) as decisions are taken with view of ensuring competitiveness of the economy. In conditions of decentralisation of the wage bargaining process to the level of the enterprise, parties in turn wish to retain the competitive position of the enterprise. It seems that the most dangerous situation from the point of view of monetary integration is coordination on the sectoral level as none of the parties is driven by the above motivation. In the period of preparations to establish the euro area, the majority of Member States conducted more centralised and coordinated wage negotiations than an average OECD country and the changes – contrary to the general trend in OECD – mainly resulted in higher coordination and centralisation of negotiations (see Chart 5.34). According to the authors of the report entitled *EMU after five years* (2004b, pp. 113–115), a renaissance of wide social pacts took place in individual countries prior to establishing the monetary union.

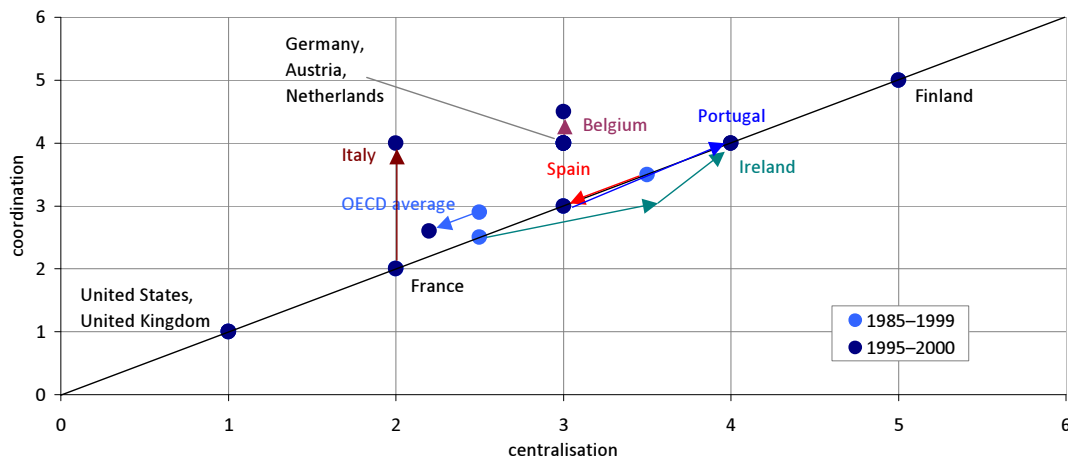
The stage of wage negotiations is decisive for wage competitiveness of a country.

Most recent analyses point nevertheless mainly to strengthening of the process of negotiation decentralisation to the level of companies (European Commission, 2004b, pp. 113–115). The European Commission (2008b, p. 184) stated that the number of regulations which allow individual enterprises to modify the results of wage negotiations achieved for the whole economy slowly increases⁶³. There is also econometric evidence of changes in behaviour of trade unions following establishment of the euro area.

Monetary union – decentralisation.

⁶³ According to the European Commission (2004b, pp. 113–115), there were also attempts at international coordination of wage arrangements between trade unions and at avoiding competition between respective countries which could result in too low wages in the initial years of the euro area. The international aspect of wage negotiations has not yet been the object of in-depth studies.

Chart 5.34 Coordination and centralisation of wage bargaining in euro area countries



1 stands for wage setting on the level of an enterprise, 5 – on the central level.

Source: OECD Employment Outlook 2006.

Strong influence of trade unions of the wage formation process (percentage of wages covered with collective bargaining) was one of the factors hindering the process of macroeconomic adaptation prior to 1999 (European Commission, 2008b, and HM Treasury, 2003b). The factor becomes insignificant if only data post 2000 are taken into account (European Commission, 2008b, p. 183).

The euro and length of contracts on the labour market.

Along with the single monetary policy, also a change in exchange rate regime may be important to the wage formation process in euro area countries. Calmfors, Johansson (2002), Pissarides (1997), and Viñals, Jimeno (1998) suggest that national employers, particularly exporters, will take absolute improbability of nominal depreciation of the euro into account when deciding on the length of contracts. Monetary integration could thus discourage concluding long-term contracts. Such development made labour markets more flexible, yet there is no empirical evidence to confirm the existence of the mechanism.

Consistent improvement on euro area labour markets.

Labour market reforms undertaken by euro area countries did not always bring about immediate effects, but situation on labour markets in the monetary union in the past decade was, generally speaking, improving consistently. The period of the monetary union's functioning turned out favourable to its labour markets.

Increase in employment and labour force participation in the monetary union.

The labour force participation rate⁶⁴ and the employment rate⁶⁵ (Chart 5.35) have been decreasing consistently throughout the monetary union since 1999. The former rate increased in the years 1999–2007 by 3.9 pp, while the latter increased by 5.3 pp thus approaching the target set forth by the Lisbon Strategy, i.e. to the level of 70% for the European Union as a whole (European Commission, 2008b, p. 80). A consistent decrease in Non-Accelerating Wage Rate of Unemployment (NAWRU) was also visible. Even as the changes were not identical in every country (Chart 5.35), in all cases the employment rate and the labour force participation increased, while an increase in the unemployment rate was achieved only by few economies.

Varied decrease in NAWRU.

Considering the effects of structural reforms of the labour market, the change in the natural unemployment rate (NAWRU⁶⁶), which reflects permanent increase in capacity

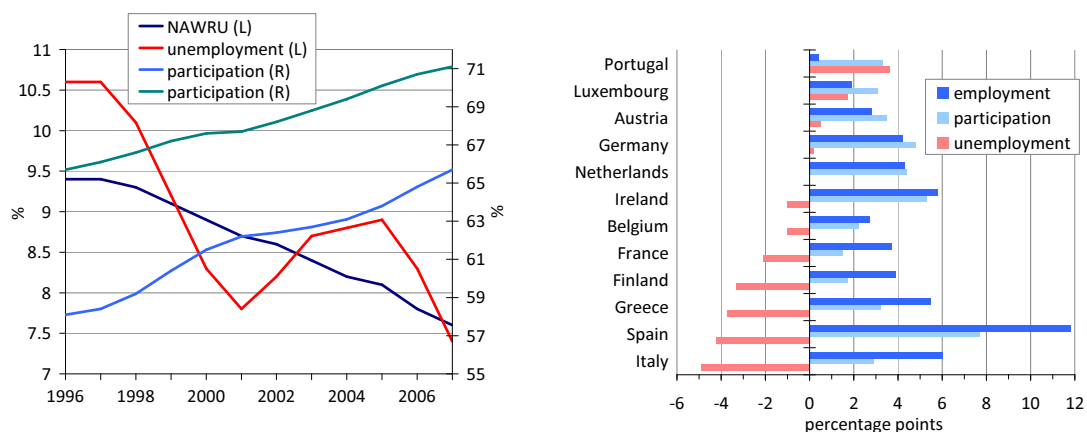
⁶⁴ Share of the employed and the unemployed in total population in productive age.

⁶⁵ Share of the employed in total population in productive age.

⁶⁶ Non-Accelerating Wages Rate of Unemployment.



Chart 5.35 Labour markets in euro area countries

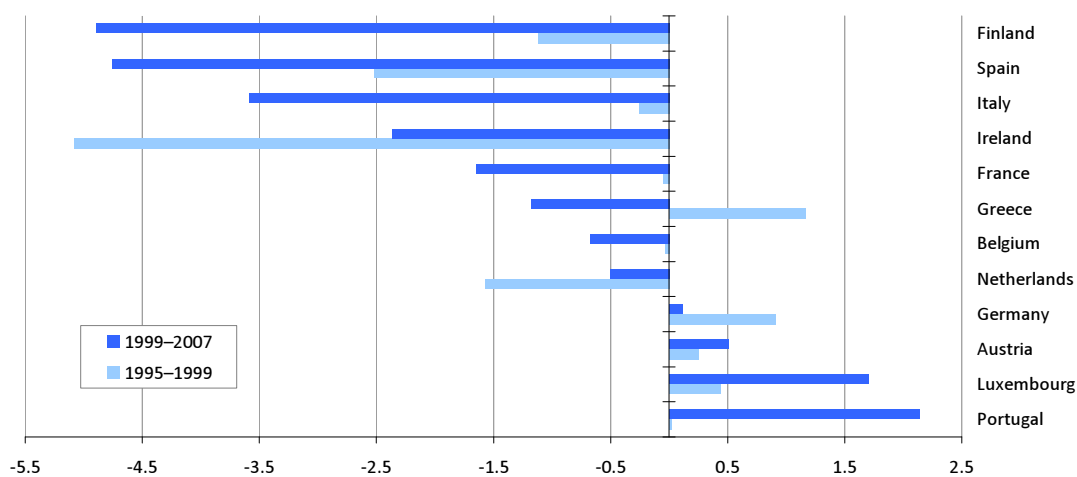


(a) Changes in NAWRU, unemployment rate, employment rate, and labour force participation in the euro area

(b) Changes in employment rate, labour force participation, and unemployment rate in the years 1999–2007 in individual countries

Source: Eurostat, AMECO.

Chart 5.36 Changes to the NAWRU rate in euro area countries



Source: AMECO.

of the economy, seems particularly important. A marked decrease in the rate could be the consequence of institutional changes increasing labour supply. The direction and scope of changes in NAWRU in the years 1995–1999 and 1999–2007, i.e. in the years of preparations to establish the monetary union and in the initial years following its establishment, depends on the country and the period (Chart 5.36), although the majority of states faced its decrease. The changes differed prior to 1999 and past the date. In Ireland and the Netherlands, a more visible change was achieved during the years of preparations to establish the monetary union. On the other hand, greater changes took place only after 1999 in Italy, Spain, Finland, and France. In Greece, which acceded the euro area only in 2001, there is a qualitative difference between the periods: according to estimates of the European Commission, the NAWRU rate began to decrease since 1999, following a previous increase. It must be emphasized here that a decrease in NAWRU in the aftermath of reforms may materialise with a delay.

Potential impact of Poland's accession to the euro area on flexibility of the labour market

Adoption of the euro may result in greater impact of the employment channel and a decrease in real wage flexibility.

Poland's accession to the euro area may result in a decrease in flexibility of real wages due to lower inflation target than the Polish one (cf. Strzelecki, 2008). Also, the employment adaptation channel may have greater importance. With no volatility of nominal exchange rate, adaptation of labour costs in Polish enterprises after an increase in prices of goods and indirect services may consist in changes in employment to a greater extent (Strzelecki, 2008). This may translate into greater fluctuations of both the size of employment and the size of unemployment.

Enhancing flexibility of labour markets regardless of other countries is worth a try.

Experience of euro area countries shows that enhancing flexibility of labour markets regardless of its status in other countries is worth a try. Authors of the Treasury report (2003b) even suggest that the lesser flexibility of markets in other euro area countries, the higher premium for the economy with high flexibility⁶⁷. The suggestion is not, however, confirmed by results of studies by Everaert, Schule (2006) nor by Torój (2008). In the first case, structural reforms in certain countries do not exert a positive or a negative influence on other economies. In the second study, the path of adaptation following a national asymmetric shock is not vulnerable to the parameter of foreign flexibility of markets if domestic market flexibility is stable.

It is best to introduce market reforms prior to monetary union accession.

Labour market reforms which enhance capacity and flexibility of the economy are much needed in countries which prepare for accession into the monetary union. Experience of euro area countries shows that monetary integration motivated them to introduce the reforms, although they proceeded slowly and introduction of the euro can hardly be considered a breakthrough. Theoretical and empirical arguments may prove that euro area membership constitutes a factor which demotivates governments to introduce structural reforms to a certain extent and increases their social costs. Consequently, introducing the greatest number of labour market reforms possible still before integration with the euro area in order to prepare the economy properly and minimise costs seems like the best solution. Postponing changes until accession to the monetary union necessitates later coordination of reforms between Member States. Heterogeneity of reforms introduced in respective economies shows the task is not an easy one.

5.5 Financial channel

Financial stability of the euro area strengthens consistently.

Over the initial years of functioning of the euro area economy, investment conditions on the European financial market improved considerably. While a significant decrease in volatility of prices of tradables was observed, liquidity and the number of market participants increased greatly. The changes are conducive to strengthening the whole system when accompanied by further legislative initiatives aimed at enhancing cooperation between Eurosystem banks. As credibility of the ECB increased and investment conditions improved interest rates decreased in the long run (the situation is temporarily reversed by transitory disruptions on the markets). The ECB reacted relatively well to crisis situations which affected global financial markets in the initial years of the euro area. The behaviour of the ECB during current disturbances on financial markets can be evaluated as relatively good.

⁶⁷ *The less progress on flexibility that is achieved in the EU, the greater the premium on a high level of flexibility in the UK economy.*



The financial channel as the mechanism of shock absorption in the monetary union

Introduction of the euro and mitigating exchange rate risk allowed to diversify the portfolio of assets of enterprises, and, as a result, risk sharing became more significant. Having created conditions for free flow of capital, the single financial market of the euro area diminished dependence of development of individual economies on the domestic resource of savings. Due to facilitated access to foreign markets, the significance of one of alternative adaptation mechanisms – the financial channel – increased. The financial channel plays an important role in the euro area as a mechanism of asymmetric shock absorption operating in spite of absence of an independent monetary policy⁶⁸.

The financial channel is one of alternative mechanisms of shock absorption.

The financial channel comprises the capital market channel and the credit channel. Capital market channel allows domestic entities to draw income from foreign assets through diversification of household portfolio, which moderates its impact on income in case of a negative asymmetric shock (cf. National Bank of Poland, 2004a). As the effects of the shock affect only income from domestic assets, better risk sharing takes place on the international level. Unchanged stream of income from foreign assets allows sustaining consumption due to diversified structure of the asset portfolio (Aghion et al., 2008). The credit channel allows domestic entities to access the foreign deposit and loan market in case of an idiosyncratic shock when a household seeks means to supplement income lost during the shock or strives at locating surplus capital due to the shock (National Bank of Poland, 2004a; Konopczak, 2008c).

Essence of the financial channel's operation.

The above mechanism allows to share risk among a number of countries. Thus, economies in a given area enhance their resilience to asymmetric shocks and strengthen financial stability. In effect, the financial market is able to compensate for insufficient flexibility of other adaptation mechanisms to a certain extent. Additionally, the capital market channel and the credit channel allow consumption smoothing without pressure on changes in interest rates, which could result in e.g. increasing inflation pressure without autonomous conduct of monetary policy and *de facto* fixed exchange rate. It is assumed that efficiency of the capital market channel is established prior to a shock (*ex ante*) and that of the credit channel – after its occurrence (*ex post*).

Box 5.20 Financial channel: the shock absorption mechanism and the channel for transmission of monetary policy impulses

The traditional understanding of the financial channel concerns the transmission mechanism of monetary policy impulses, i.e. reaction of loan and deposit interest rates on a change in interest rates by the central bank. The channel comprises also the capital market channel and the credit channel. Efficiency of the credit channel shows how fast and to what extent changes in interest rates introduced by the central bank translate into changes in interest rates on loans and deposits by commercial banks (Pawłowska, Wróbel, 2002). The capital market channel contributes by changing credit rating of enterprises and demand of households (the so-called wealth effect) as a reaction to changes in interest rates. Yet considering chances and threats connected with introduction of the euro, it is worthwhile to look at the financial channel as the shock absorption channel. It is also worth to indicate relations linking the two mechanisms.

⁶⁸ It is important to differentiate between the financial channel understood as the shock absorption mechanism and the financial channel for transmission of monetary policy impulses – see Box 5.20.

It is assumed that easy access to foreign deposit and credit markets weakens efficiency of the transmission channel of monetary policy impulses. There is also a reverse relation: the strength with which the interest rate shock translates into changes in availability of credit in the economy is very significant to the mechanism of consumption smoothing. Comparing the reaction of the Polish economy and the euro area economy on changes in interest rates by the NBP or the ECB allows estimating changes in lending in the aftermath of changes in interest rates in the euro area (cf. Kokoszcyński et al., 2008; Trichet, 2007b). Delay in respect of the moment when the impulse occurred extends the process of consumption smoothing, due to which the shock is gentler. The scale and the pace of transmission depend, *inter alia*, on the stage of the business cycle and the source of the shock in terms of geographic location^a and the subject^b.

^a The European market is strongly influenced by events on the American market. The Polish market reacts strongly to shocks from the European market. The regularity can be also largely observed today, at the time of turbulence on global financial markets. Cf. also Ehrmann, Fratzscher, Rigobon (2005).

^b Changes in profitability of bonds and the exchange rate have a greater impact than changes in interest rates. Cf. Ehrmann, Fratzscher, Rigobon (2005).

Source: own study on the basis of Konopczak (2008c).

Evaluation of efficiency of the financial channel in the euro area

Efficiency of the financial channel in the euro area is high and on the upside.

Results of studies show that the financial channel in the euro area displays relatively high efficiency and is capable of absorbing an average of over 40% of shocks to product (Balli, Sørensen, 2007; Afonso, Furceri, 2007; Konopczak, 2008c). The credit channel turned out a much more efficient adaptation mechanism than the capital market channel as it allowed smoothing between 25% and 41% of production fluctuations and income (capital market channel – between 2% and 14%). Also, efficiency of the said mechanisms increases in time as financial integration progresses. Studies show that the single currency and the single monetary policy of euro area countries are largely conducive to increasing efficiency of shock absorption. Efficiency of the financial channel for the European Union as a whole is not only lower on average than for the euro area, but it also decreased slightly in the years 2002–2007 (as compared to the years 1995–2001), most probably due to enlargement of the EU by 10 new Member States in 2004 (Konopczak, 2008c).

High level of financial development and considerable financial integration are conducive to efficiency of the financial channel.

The main factors determining efficiency of the financial channel include, *inter alia*, the degree of financial development, the degree of integration of financial markets in countries inside a given area, existence of institutional barriers to free flow of capital, access to foreign credit markets and asset markets, inclination of domestic entities to deposit their savings abroad. It seems that in the case of the euro area, the conditions necessary for efficient absorption of shocks through the financial channels are met very well. Relatively highly developed financial markets of euro area countries are integrated to a considerable extent as numerous measures have been taken with view to lift barriers to free flow of investment capital. With the progress of globalisation of financial markets, liberalisation of capital flows, and weakening of home bias (cf. European Commission, 2007b), integration of financial markets of euro area countries progresses, thus creating favourable conditions for impact of financial mechanisms of mitigating the effects of shocks.

5.5 Financial channel


As suggested by results of studies, the very enlargement of the European Union by new Member States may not be sufficient to increase efficiency of the financial channel⁶⁹. It is also possible that in case of extending the euro area, an increase in efficiency of the said shock absorption mechanism will be possible only when convergence of new Member States in respect of financial development has been sufficiently advanced. It is also important that the single monetary policy and exchange rate policy can accelerate financial integration which may result in an increase in efficiency of the financial channel through accelerating financial development.

It is possible that the current turbulence on global financial market may hinder efficiency of shock absorption of the financial channel in the short run. Due to universally lower availability of credit, also access to foreign credit markets may be limited to EU entities, which may hinder absorption of shocks via the credit channel. Increase in risk aversion and decreases in indices observed on capital markets may in turn result in a decrease in the degree of diversification of assets in household portfolios, thus weakening the capital market channel. The above does not, however, prove general weakness of the financial channel which is assumed to be capable of absorbing solely asymmetric (idiosyncratic) shocks. Thus, the potential decrease in its efficiency may be deemed as the consequence of the specificity of its impact during the global crisis which affects all key markets to a similar extent.

Evaluation of efficiency of the financial channel in Poland

The study results allow to evaluate the approximate efficiency of the financial channel in Poland as relatively poor. The credit channel has the capacity to absorb about one-fifth of shocks to product – less than in case of the average value for EU Member States and less in case of the Czech Republic or Slovakia (Konopczak, 2008c). The capital market channel is not conducive to absorption of shocks, it strengthens them further on⁷⁰. At the level of the EU as a whole, the said channels are capable of absorbing an average of 20% of fluctuations (the credit channel) and slightly over 4% (the capital market channel) (Konopczak, 2008c). Chart 5.37 features full comparison of individual channels in Poland as compared to other states.

Even with the continental model of the financial system dominating in Poland, efficiency of the credit channel may be low due to relatively poor financial development⁷¹. This is particularly confirmed by insignificant share of consumption financed with bank loans and the low quality of financial agency (cf. Chart 5.38). Limited availability of foreign credit markets additionally weakens the impact of the credit channel⁷². Procyclical impact of the capital market may, however, result from i.a. unfavourable structure of asset portfolios of households (cf. Chart 3.12), relatively low liquidity of the capital market, asymmetry of capital flows between Poland and its trade partners⁷³, as well as



The very process of EU enlargement does not guarantee better absorption of shocks.

The impact of the financial channel in Poland is relatively poor.

Low degree of financial development may be the reason behind poor efficiency of the channel.

⁶⁹ Significantly lower degree of financial development of non-euro area countries as well as relatively low degree of integration of their financial markets with the European market may constitute the basis for the decrease in efficiency of the financial channel at the EU level in the years 2002–2007 (Konopczak, 2008c).

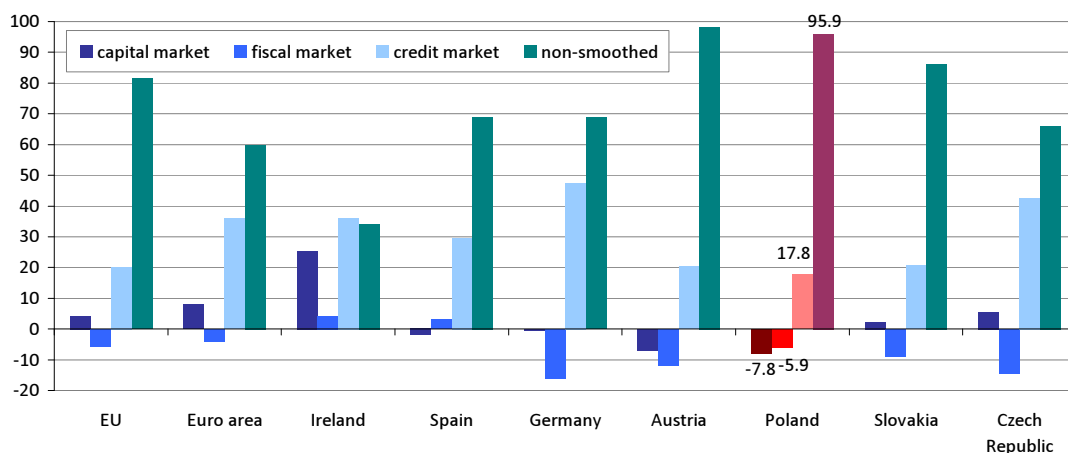
⁷⁰ Stronger negative effect of channel impact was observed only in the case of Portugal. Austria's efficiency of both channels is similar to the Polish one. Cf. Konopczak (2008c).

⁷¹ In the continental model of a financial system, the banking sector plays the dominating role as the basic source of financing of businesses. The Anglo-Saxon model of a financial system is based on the capital market as the superior source of capital.

⁷² Consumption smoothing necessitates making savings during prosperity or positive shocks, which in turn demands high economic awareness from enterprises.

⁷³ Poland is a net importer of capital of which portfolio capital, particularly vulnerable to economic fluctuations, constitutes an important part.

Chart 5.37 Comparison of efficiency of shock absorption channels in selected EU Member States (%)



Source: NBP study on the basis of Konopczak (2008c).

Poland's significant external debt⁷⁴. It is also important to mention that convergence which has been taking place in Poland in the recent years is connected with permanent improvement in expectations as to future income and changes thereof. As a consequence, it is possible that positive shocks to product and income are not always smoothed. In this context, poor efficiency of the consumption smoothing mechanism consisting in constant levelling down should be evaluated positively.

Other factors determining efficiency of the financial channel.

Increase in lending and the scale of monetisation of the economy (cf. Chart 5.39), greater openness of the economy (cf. Chart 5.39), diversification of asset portfolios of domestic entities, and fuller financial integration with EU Member States, which allows free access to foreign credit markets and asset markets, may be conducive to an increase in efficiency of the financial channel. The efficiency of the financial channel is also indirectly impacted by progressing globalisation of enterprises, financial intermediaries, and individual markets. They improve their consumption smoothing capacity on the international level, nevertheless increasing the risk of the contagion effect on financial markets.

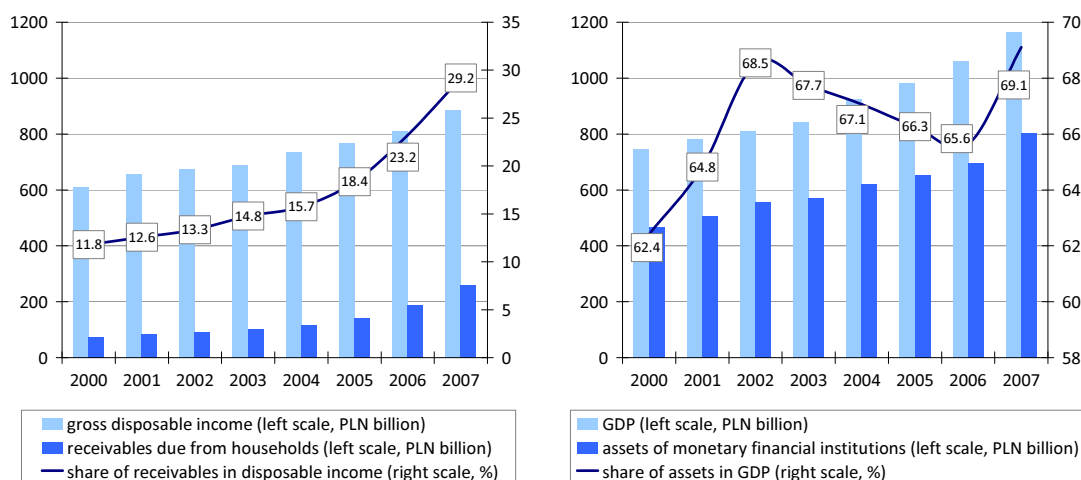
High synchronisation of business cycles in Poland and in the euro area from the point of view of risk diversification in the EU could, contrary to intuition, limit potential benefits from consumption smoothing (Demyanyk, Volosovych, 2005). In the portfolio theory, diversification brings about the best effects when assets with low correlation are combined (Markowitz, 1952; Sharpe, 1964). This sometimes allows achieving higher return rates with lower risk. From the point of view of limiting volatility of income (and indirectly also consumption) of households, high convergence of business cycles could thus be perceived as an undesirable phenomenon⁷⁵. Also, the scale of home bias, which hinders rationality of investment decisions, may impair efficiency of the financial

⁷⁴ WIn the case of a country whose foreign asset resources are visibly lower than domestic asset resources held by foreign entities, a downturn in the economy may result in an increase in debt servicing costs. Such additional outflow of funds adds to a decrease in product and income. As a result, the capital market channel may have a procyclical impact. Cf. Balli, Sørensen (2007); Konopczak (2008c).

⁷⁵ Such a conclusion is contrary to the theory of optimum currency areas – it should be treated as a supplement of the cycle convergence analysis and understood solely in the context of asset portfolio diversification.

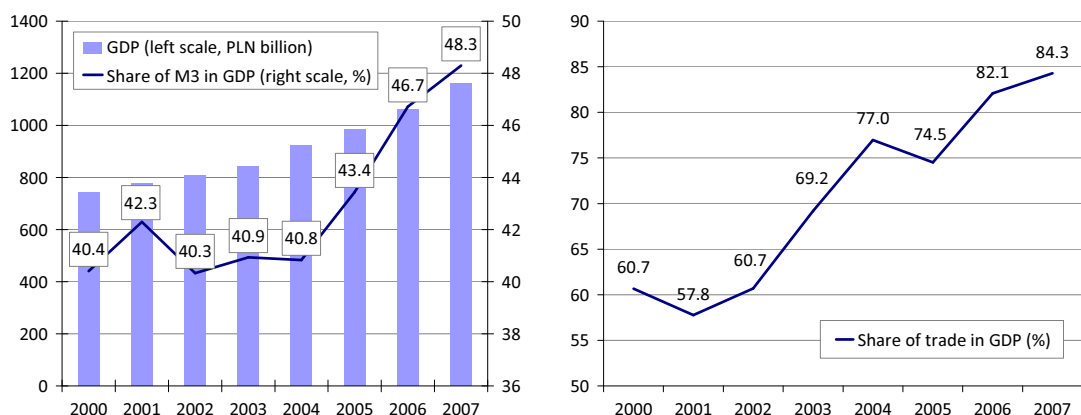


Chart 5.38 Share of monetary receivables of financial institutions due from households in disposable income and the share of monetary assets if financial institutions in Polish GDP



Source: NBP study on the basis of GUS and NBP data.

Chart 5.39 Scale of monetisation and the degree of openness of the Polish economy



Source: NBP study on the basis of GUS and NBP data.

channel. The effect is probably responsible for relatively poor integration of equity markets as well as weaker risk sharing processes⁷⁶.

Summary

In addition to the goods market, the labour market, and fiscal policy, the financial channel is one of alternative mechanisms of shock absorption in the absence of autonomous monetary policy. Evaluation of efficiency of the financial channel reveals its limited capacity to absorb fluctuations of product and income: the current (relatively low) degree of development of the Polish financial market does not allow efficient accommodation of shocks (Konopczak, 2008c). Fast introduction of the euro would

Threats connected with fast introduction of the euro may be neutralised.

⁷⁶ Research results show that intensification of the home bias effect in the euro area is growing weaker, yet mainly in countries where it was relatively low at the beginning of the process of integration of financial markets (European Commission, 2007b). At present, it is difficult to estimate the force of impact of the phenomenon on the Polish market due to lack of data.

result in higher exposure of the economy to asymmetric shocks, thus giving rise to additional threats.

It is noteworthy that the efficiency of the said shock absorption mechanism increases along with the development of the national financial market and along with proceeding financial integration of Poland with euro area countries. Study results show that introduction of the single currency may accelerate the increase in efficiency of the financial channel (Konopczak, 2008c). Supporting measures which stimulate development of the financial market, enhancing diversification of asset portfolios of domestic entities, and fuller financial integration should result in maximisation of potential benefits from fast accession of Poland to the euro area in respect of the financial channel.

Chapter summary

Centralisation of monetary policy in the ECB enhances significance of efficient operation of mechanisms which can replace national monetary policy as stabiliser of economic situation, at least partially. Three channels will be of particular importance: the fiscal, real exchange rate, and the financial channel.

Conduct of fiscal policy during preparations to euro area accession must face two types of challenges. Firstly, by the moment of accession to the euro area, the public finance system should become an efficient tool of macroeconomic stabilisation with a structure that ensures appropriate influx of pro-growth expenditures to the economy. Secondly, already in ERM II the fiscal policy must be particularly responsible and predictable to prevent the threat to stability of the zloty exchange rate in the admissible fluctuation band.

Also, Poland should permanently meet the convergence criteria, including fiscal criteria, concerning general government deficit and public debt. As proven by results of studies (Mackiewicz, Krajewski, 2008; Jędrzejowicz, Kitala, Wronka, 2008), decreasing structural deficit to at least 1% of GDP constitutes the condition for efficient fiscal policy as a tool to adapt to shocks and stabilise fluctuations of the business cycle in the euro area. This allows automatic stabilisers of the economy to operate freely, thus being conducive to permanently meeting the fiscal convergence condition. Experience of European countries to-date (also of those which have been preparing for membership in the euro area) indicate higher permanence of fiscal adjustments based on cutting expenses (cf. e.g. von Hagen, 2004; Cotis, Koen, 2006). In this context, it is also very important to design such a structure of income and expenditure (particularly fixed ones) of the budget which would not result in an uncontrolled increase in budget deficit due to a downturn in the economy.

Another important channel for adaptation to shocks and evolution of economic structures is the so-called real exchange rate channel, also called the competitiveness channel (European Commission, 2006c). While evaluating the manner in which the channel impacts the economy, one has to bear in mind that monetary union eradicates only the nominal exchange rate between its Member Countries. Real exchange rate indicator refers, however, to price competitiveness defined by labour costs and their growth rate. Thus, efficiency of operation of the real exchange rate channel is influenced mainly by the manner in which the labour market and the market of goods and services function. A country with prices increasing quickly loses price competitiveness against other members of the monetary union and this effect cannot be mitigated by nominal depreciation of the national currency.



Experience of euro area countries to-date shows that moderate increase in prices and wages may result in successful improvement of the competitive position of the country and economic revival (e.g. Germany, Austria, and Finland). On the other hand, fast increase in prices and real appreciation as compared to other states of the monetary union may result in a prolonged period of stagnation, particularly in the light of nominal downward rigidities (the case of Portugal). Efficiency of the competitiveness channel is connected with flexibility of markets and vulnerability of the economy to deviation of the exchange rate from equilibrium. The adjustment process is additionally the more effective, the more rational are the expectations of the operators. In case of a small economy with high share of foreign trade outside the euro area, changes to external value of the single currency may result in shocks which diminish efficiency of the competitiveness channel.

Analyses show that flexibility of prices in Poland is similar to that of euro area countries. As concerns the pace of adaptation of the economy to asymmetric shocks, the problem may consist in relatively long period necessary to adapt the size of output. According to study results, it is the effect of high regulation of the goods market as compared to other European countries.

It is difficult to evaluate the flexibility of the Polish labour market. On the one hand, wages in Poland are relatively more flexible than in the countries under analysis due to incidental use of wage indexation by Polish employers. On the other hand, analyses show that there is only weak relationship between wage levels and the situation on the labour market, which may prove occurrence of real rigidities.

Studies of the other adaptation channel, namely mobility of the labour force, reveal positive changes taking place in the area. External mobility of the Polish labour force increased considerably in the aftermath of Poland's accession to the European Union and higher migration flows are also visible in inter-regional cross-section. Evaluation of functional mobility and flexibility of employment is slightly worse. Studies revealed relatively long periods of shock absorption by labour market mechanisms, which is largely due to institutional factors, particularly high tax wedge, the Polish system of social benefits, high replacement rate, and low expenditure on active forms of labour market policy. Comparison of the employment restrictiveness indicator (EPL) shows that Poland does pretty well in the area.

In connection with the crucial role of a flexible labour market in the adaptation process following a potential asymmetric shock, appropriate preparation of the economy for participation in monetary integration necessitates introducing reforms making the market more flexible. Experience of euro area countries to-date does not show that adoption of the single currency is a strong stimulus to intensification of institutional changes. Membership in a monetary union may also discourage governments from introducing reforms due to lack of autonomous conduct of monetary policy, which could mitigate their social costs. Thus, it seems that an optimal solution is to forthwith introduce essential labour market reforms, still prior to euro area accession. In the initial years of membership in a monetary union, the measures will be particularly important from the point of view of wage formation which ensures retaining wage competitiveness of the country.

Along with the goods market, the labour market, and fiscal policy, the financial channel is one of mechanisms of shock absorption in the absence of autonomous monetary policy. Evaluation of efficiency of the financial channel reveals its limited capacity to absorb fluctuations of product and income: the current (relatively low) degree of development of the Polish financial market does not allow efficient accommodation of shocks (Konopczak, 2008c).

It must be nevertheless emphasized that efficiency of the said shock absorption mechanism increases with the development of the national financial market and together with progressing financial integration of Poland with euro area countries. Study results show that introduction of the single currency may accelerate the increase in efficiency of the financial channel (Konopczak, 2008c). Supporting measures which stimulate development of the financial market, enhancing diversification of asset portfolios of domestic entities, and fuller financial integration should result in maximisation of potential benefits from fast accession of Poland to the euro area in respect of the financial channel.



Summary

When Poland joined the European Union it also became a member of Economic and Monetary Union with derogation. This translates into an obligation to replace the national currency with the single currency, but at no specific date.

Joining the system of the single European currency may be a source of a number of important economic benefits for the country. The process of monetary integration may bring about costs and threats.

The *Report* attempted at establishing the scale of both benefits and costs attributable to Poland's membership in the euro area in the longer and shorter perspective.

The nature of the monetary integration project suggests that the summary should start with benefits and costs expected in Poland in the long run. Only a positive balance of flows of long-term benefits and costs proves the whole venture worthwhile.


As indicated in Chapter 3, direct benefits stemming from a decrease in exchange rate risk and transaction costs will be perceptible since the very date of replacing the zloty with the European currency and will accumulate throughout foreseeable future.

Theory of economics and experience of euro area Member States suggest that direct benefits may translate into indirect ones which will be perceived only in the medium and in the long run. They include an increase in macroeconomic stability and credibility, a decrease in macroeconomic risk, as well as chances connected with potential intensification of trade and an increase in investments, both domestic and foreign.

The possibility of risk diversification in the framework of integrated financial markets also constitutes an important chance for the Polish economy. This can be important not only from the point of view of smoothing cyclical fluctuations in the economy, but also due to strengthening stability of the financial system. The positive effects of the said processes enhance chances for acceleration of economic growth rate and achieving higher level of Poland's development. In the long run, the total increase in GDP due to replacing the zloty with the euro may reach 7.5%, the majority of which (as proven by study results) will materialise in the initial decade following euro area accession. Hence, in the period, annual economic growth rate may be ca. 0.7 pp higher per annum than if Poland remained outside the euro area.

An important aspect to consider in the context of evaluation of benefits is their conditionality on economic, political, and social factors. Thus, it seems appropriate to treat them as chances connected with Poland's accession to the euro area.

In the case of costs connected with introduction of the single currency discussed in Chapter 4 of the *Report*, both the theory of economics and studies show that accumulation of costs and threats in time may turn out contrary to benefits. The costs will be largely accumulated at an early stage, while indirect benefits will not be fully visible yet.



Similar to benefits, certain costs will be permanent. This primarily concerns losing independent conduct of monetary and foreign exchange policy. As emphasized throughout the *Report*, the total scale of costs due to resignation from autonomous conduct of the monetary policy will depend on: adequacy of monetary policy of the ECB to the Polish economy, the degree of independence of national monetary policy conducted during globalisation, and efficiency of nominal exchange rate as to absorption of shocks.

Medium term threats result from the risk of losing international competitiveness of the Polish economy, which may be impacted by the conversion rate and the degree of flexibility of markets. Overvaluation of the exchange rate may stem from weakening of economic growth, while undervaluation carries the threat of an increase in inflation. Additional risk factor may consist in too fast increase in prices and wages, and consequently an increase in labour costs resulting in worse competitiveness of the Polish economy on the international arena. The risk of a price increase on the real estate market listed as one of medium term costs of Poland's accession to the euro area will depend on the scale of a decrease in interest rates, an increase in lending, and the stage of the business cycle on the real estate market upon introduction of the euro.

In the short run, the costs of Poland's accession to the euro area are linked to introduction of the euro into cash circulation, the risk of accompanying price effects, and potential costs of tightening macroeconomic policy with a view to meeting nominal convergence criteria.

As indicated by the theory of optimum currency area and experience of euro area Member Countries, optimisation of effects of membership in a monetary union demands permanent meeting of nominal and real convergence criteria. In the case of the Polish economy, the process of nominal convergence is well advanced. Nevertheless, Poland failed to meet the price stability, exchange rate, or legal convergence criteria in 2008. Evaluation of real convergence reveals great disparity of the Polish economy as compared to euro area countries in respect of GDP per capita and economic structures. As concerns convergence of business cycles as compared to new Member States and peripheral economies of the euro area, evaluation of the Polish economy is relatively positive. The evaluation of the degree of trade integration and investment links of the Polish economy with the euro area is likewise.

While assessing potential chances and threats of Poland's membership in the euro area, it needs to be emphasized that the criteria of an optimum currency area may be endogenous. In other words, the monetary union established even if the criteria have not been met in full may in the long run trigger processes which result in accelerating convergence and meeting the criteria *ex post*, not *ex ante*.


Comparison of benefits and costs shows certain asymmetry. Permanent benefits from monetary integration should rather be expected in at least the medium run, while the majority of costs would have to be sustained in the short run. The total scale of costs and benefits will depend on macroeconomic policy in the period of preparations prior to euro area accession and during membership in the monetary union. Necessary measures should be targeted at permanent achievement of nominal convergence criteria, improving the quality of factors of production which influence international competitiveness of the economy, and on introducing structural reforms which improve flexibility of adaptation mechanisms. An important factor in the process of preparing the economy and the society for introduction of the euro is achieving an all-national consensus. The condition is conducive to success of the process.

As the process of implementing research projects for the needs of this *Report* continues over time, it does not cover events occurring on financial markets in the second half of



Summary

2008 and their potential effects for the real sector of the economy. Thus, full evaluation of the balance of benefits and costs of euro area accession, particularly in the short run, demands an in-depth analysis of those events. Respectively, it will be necessary to take steps aimed at updating the results of observations and scenarios of development of the macroeconomic situation in Poland and globally following the publication of the *Report*.







Supplement. Financial and economic crisis – implications for Poland’s integration with the euro area

Introduction

Report on full membership of the Republic of Poland in the third stage of the Economic and Monetary Union constitutes a review of benefits and chances as opposed to costs and threats connected with Poland’s entry into the euro area.

Economic arguments presented in the *Report* prove that the long-term result of membership in the euro area will rather be positive. Monetary integration may bring about a number of benefits, particularly for catching-up economies. The benefits and chances are nevertheless accompanied by certain costs and threats. Respectively, the result will be positive on condition that society and the economy are well-prepared for integration. We also have to remember that simply being well prepared does not guarantee success, it only enhances its probability as the effects of euro area accession may stem from many other factors.

The *Report* also shows that replacing a national currency with the euro is a process of many aspects which concern almost all areas of the economy, therefore it is difficult to conduct full evaluation of benefits and costs. Also, the result of integration is largely uncertain in certain areas as it depends on a number of social and economic factors.

This document is intended to supplement the *Report*. Its objectives result firstly from the fact that a considerable portion of the research program held for the needs of this *Report* was conducted prior to serious turbulence on financial markets. As a result, conclusions from certain research projects do not envisage economic conditions altered due to the crisis which may influence the scale of benefits and costs resulting from introduction of the euro in Poland, particularly in the short run, and possibilities of the venture’s success in the next few years.

Secondly, the scale of the financial crisis and the pace at which it spreads on global financial markets and in the real sector of the global, European, and Polish economy demand a closer look at the sources and consequences of turbulence on financial markets. Also, the current crisis started on financial markets whose proper functioning constitutes one of the benefits of integration, according to the findings of the *Report*. The coming quarters may nevertheless diminish availability of financing, which is particularly important as Poland is a net importer of capital.

Thirdly, significant change in conditions of functioning of economies requires an attempt to evaluate the impact of financial crisis on the scale of benefits and costs of introduction of the euro taking into account short-term challenges faced by economic policy, particularly those related to Poland's capacity to meet nominal convergence criteria.

The structure of the document is as follows: The subsequent part attempts at a brief presentation of determinants of the financial crisis as well as its course and effects in the area of financial markets. Particular attention was devoted to crisis response methods employed by respective European states depending on their conduct of exchange rate policy as well as implications for the Polish economy which functions in conditions of liquid exchange rate. The final part of the document undertakes to evaluate the impact of the financial crisis on selected aspects of the Polish economy, particularly to assess the threats connected with Poland meeting the Maastricht criteria.

Conditions, development and results of the current turmoil in financial markets

The current financial crisis started in mid-2007 with the collapse on the subprime market in the United States. It expanded first to other segments of the American market and other developed markets, and further also to emerging markets. In September and November 2008, global financial markets experienced a strong decline in mutual confidence of market participants, bankruptcy of many financial companies, a rapid drop in liquidity on the interbank market, and a fast decline in the value of financial assets and market capitalisation.

Negative effects of turmoil in financial markets affected real sector of the economy worldwide. In many functional areas of increasingly globalised markets of capital and factors of production, the crisis made it necessary to trigger adjustment processes to correct so-called global imbalances which have been on the increase in the recent years.

A decline in mutual confidence of market participants as well as a drop in liquidity on the interbank market led to the end of the so-called easy-money era. It may imply more difficulties for business entities in getting access to world capital markets. Whereas Poland is a net importer of capital, more difficult financing in the light of Poland's accession to the euro area may bring particularly important implications for our economy.

At the current stage, it is very difficult to specify all factors which could have led to the outbreak and expansion of the current financial crisis. However, this part of the document attempts to present the selected conditions which contributed to global imbalances as well as to put an end to the easy-money era. These are:

Firstly, improvement of macroeconomic stability in the second half of the 1990s and in the early years of the 21st century. This was caused both by a lack of deep shocks (except for the collapse of an Internet bubble on capital markets), as well as an improvement in quality of the monetary and fiscal policy in the world perspective.

Secondly, the reaction of the United States currency authorities to the burst of the Internet bubble and recession threat in 2001 consisting in deep reductions of interest rates. This was one of the factors which led both to an increase in inflation on the real estate and financial assets market, and to an increase in deficit in the United States current account. As a reaction to the deteriorating economic situation in Europe and a



response to significant reductions of interest rates in the United States, the ECB also conducted expansionary monetary policy in the years 2001–2003.

Thirdly, the mercantilist attitude of the South-Eastern Asian countries, China and Japan. Countries affected by the crisis in the second half of the 1990s focused their efforts on assuring effective operation of the exports sector, generating large surpluses on the current account. This resulted in a high accumulation of capital reinvested in the United States.

Fourthly, deregulation of financial markets, fast development of innovations and financial instruments and as well as an increase in market capitalisation. A particular role was played by securitisation of all credit receivables on real estate markets, credit cards and consumer loans in the United States. Securitised assets were classified as having high credit rating. Due to commonly available and cheap money as well as due to increasing risk acceptance, these securities were eagerly accumulated by financial entities from many countries. At the last crisis stage, many such assets appeared to be so-called toxic assets.

Fifthly, ineffective legal frameworks and activities of financial supervision institutions and market information system. Creating many off-balance sheet financial instruments made it more difficult to monitor risk by public supervisors. As a result of unreliable operations of financial intermediaries (*inter alia* those participating in the securitisation process) and rating agencies responsible for providing market information private investors reported excessive exposure to risk.

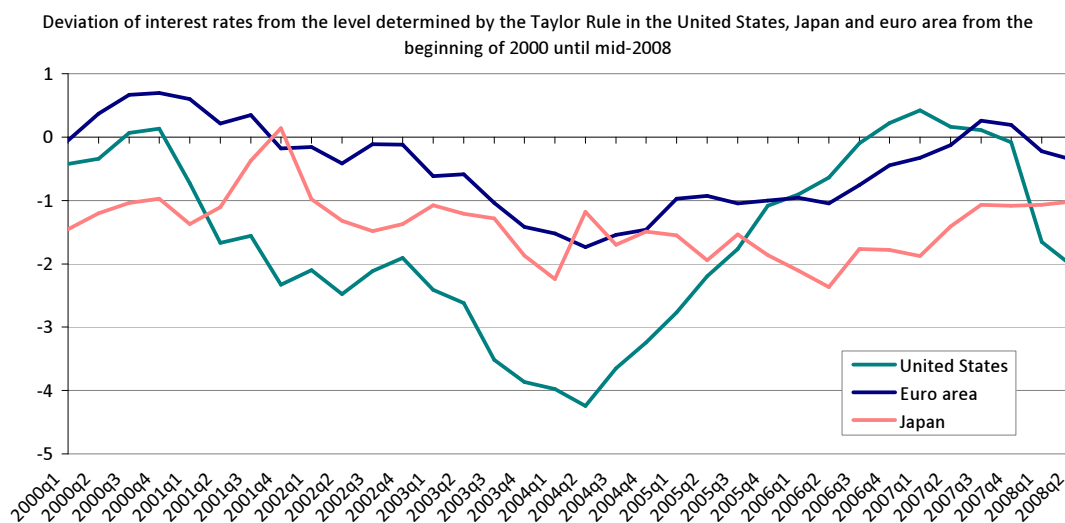
Sixthly, a rapid increase in commodity prices. At the turn of 1998 and 1999, crude oil barrel cost approx. USD 10 and in July 2008 it was at its peak of USD 147. Systematically more expensive crude oil made crude oil exporters significant exporters of capital. Many of these countries set up special state-owned currency funds (*sovereign wealth fund*), whose aim was to invest large capital surpluses abroad. Due to low propensity to save and thanks to highly developed financial markets, the most significant recipient of this surplus was the United States. Additional source of capital inflow, taken relatively low central bank rates, resulted in a further decline in market interest rates.

Seventhly, an increase in risk acceptance as a result of favourable macroeconomic conditions and positive results of the world economy. This was reflected by a record low level of long-term interest rates in both developed and developing countries.

Easy-money era was one of the factors in favour of importers of capital. Low real interest rates, higher availability and free flow of capital on the international market generated fast economic growth in countries of relatively low propensity to save, often additionally stimulated by domestic demand. However, an increased capital inflow led to appreciation of domestic currencies not only in nominal terms, but also in real terms in the case of countries referring to a fixed exchange rate. Appreciation of domestic currencies was one of the factors contributing to deterioration of external competitive position, reflected in the current account balance.

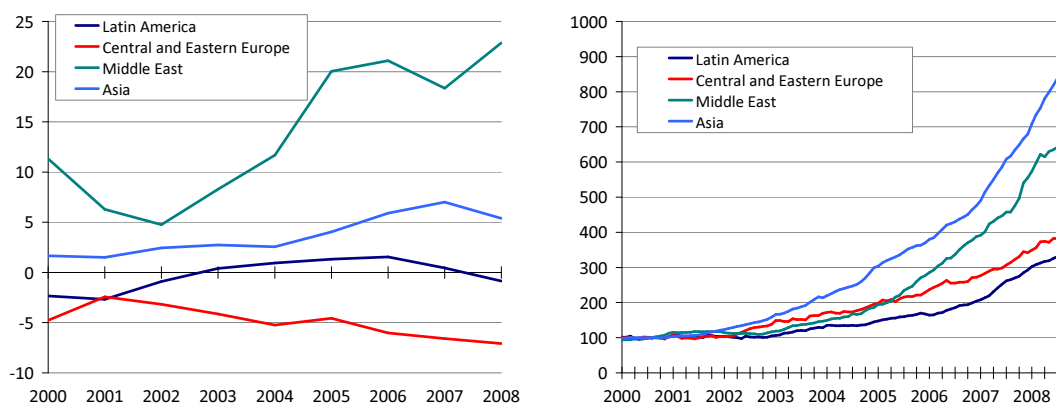
In the case of new European Union Member States, the additional factor supporting an increase in investments was a decline in investment risk due to accession of these countries to the European Union. Lower interest rates led to disturbances in macroeconomic balance, reflected *inter alia* in the arising of a speculative bubble on the real estate market or on the equity market. High deficit on the current account was a significant problem in some new EU Member States. In contrast to other developing economies, an increase in current account deficit was accompanied by relatively slow increase in currency reserves (cf. Chart S.2).

Chart S.1 Interest rates in the United States, euro area and Japan in the years 2000–2008



Source: IMF.

Chart S.2 Current account (% GDP) and currency reserves (2000 = 100) in developing countries in the years 2000–2008



(a) Current account (as % GDP) in emerging economies in the years 2000–2008

(b) Currency reserves in emerging economies from January 2000 to August 2008

Source: IMF.

The conduct of monetary policy played a significant role both before the crisis occurred and during its progress as well as with respect to dealing with its negative effects. Possibilities offered by the conduct of monetary policy were greater in economies with a liquid exchange rate as they provided opportunities for mitigating certain effects of strong capital inflow. This problem is of particular importance for developing countries with appreciation of domestic currency due to an increasing efficiency of the exports sector (Balassa-Samuelson effect). As regards a fixed exchange rate, it leads to an increase in domestic prices, and in economies with a liquid exchange rate – a nominal rate appreciation may compensate the negative consequences of price increases.



The course and effects of the crisis

Capital flow directions on the international scale were determined by variances in interest rates. Among factors determining capital inflow, a significant role was played by loans taken in low interest rate currencies and investing gathered funds in assets of high-interest rate countries (carry trade). Over a long period, the main low interest rate currency was the Japanese yen. As a result of strong interventions of the Federal Reserve in the light of the credit crisis, leading to a rapid easing of the United States monetary policy, the US dollar joined the group of low interest rate currencies. Whereas the Japanese yen was mainly used to borrow funds which were further deposited in Australian and New Zealand dollars, the US dollar became the main source of financing for local investments in Europe, where investors diversified their portfolios taking into account also certain currencies of new EU Member States, including the Polish zloty.

As compared to new EU Member States, a relatively deep currency market demonstrated strong demand for the Polish zloty. The Polish currency came to be perceived as a more profitable currency than deposits denominated in euro. This was influenced not only by higher interest rates and appreciation of the Polish zloty both against the US dollar and the euro. In July 2008, the euro and the US dollar were traded at PLN 3.2 and PLN 2.01, respectively. This translates into appreciation of the Polish currency between July 2007 and July 2008 by approx. 18% and 38%, respectively.

A catalyst for change was financial turmoil on the US market whose most drastic symbol was bankruptcy of one of the largest investment banks, Lehman Brothers, and problems experienced by the AIG group. In this context economic indices implied deterioration of the economic situation of the United States. Initial observations showed that negative consequences of the financial turmoil resulting from the subprime market will be limited for the United States economy. This gave rise to theories of decoupling (i.e. the fact that the rest of the world is more resistant to the results of the United States economy). In autumn 2008, the financial turmoil comprised also the global financial system.

A symptom of the world economy slowdown was the bursting of the speculative bubble on the commodity market. By way of illustration, crude oil barrel price fell from USD 147 in July 2008 to USD 40 in December 2008. This fall affected the situation of crude oil exporters, decreasing their revenues to a considerable extent. In the light of the deteriorating United States economic results, a fast slowdown was also experienced by the exports sector in South-Eastern Asia. Thus, the capacity of capital export by these countries, which previously generated capital surpluses, decreased. As mentioned above, these changes were one of the factors leading to the end of the so-called easy-money era.

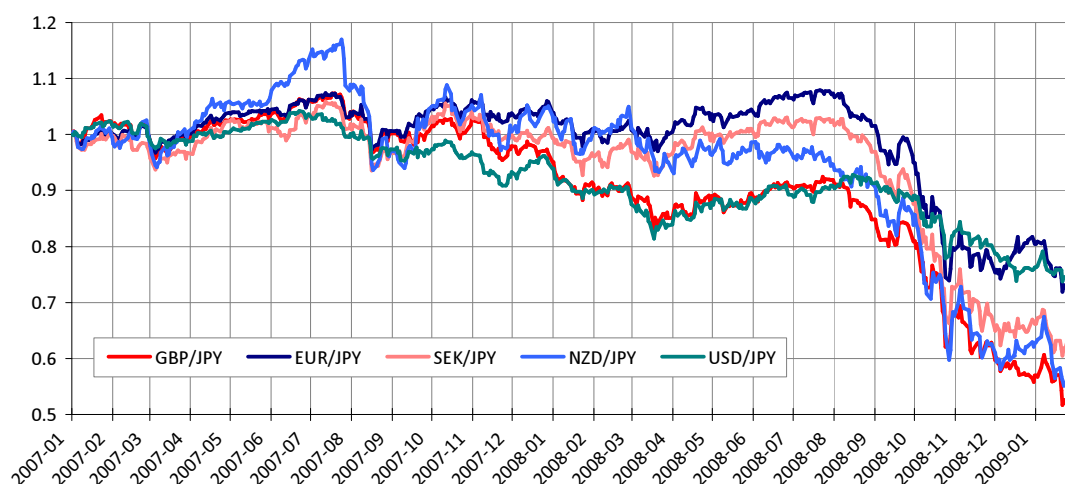
Growing economic problems of the United States economy became a factor influencing the economic situation of other economies which led to unwinding carry trade and resulted in the sale of assets denominated in high-interest rate currencies. This, in turn, led to a massive capital outflow from those countries and a rapid fall in the value of those currencies¹. Unwinding carry trade was accompanied by a sudden appreciation of the US dollar. In the light of a dramatic drop in liquidity on credit markets in the United States, many investment groups searched for sources of financing abroad in order to cover constantly increasing liabilities (repatriation rally). Another factor conducive to unwinding carry trade and intensifying the repatriation rally were prospects of a decline in interest rates. In countries with the lowest interest rates (the United States and Japan), the space for further reductions in interest rates was limited which had a

¹ Between the end of July and a third week of October 2008 (through approx. 85 days), the Polish zloty lost over 35% to the US dollar.



positive impact on the perception of those currencies. In countries with high-interest rate currencies (even such as the euro), deteriorating economic projections stimulated expectations of reductions in interest rates which supported their sale.

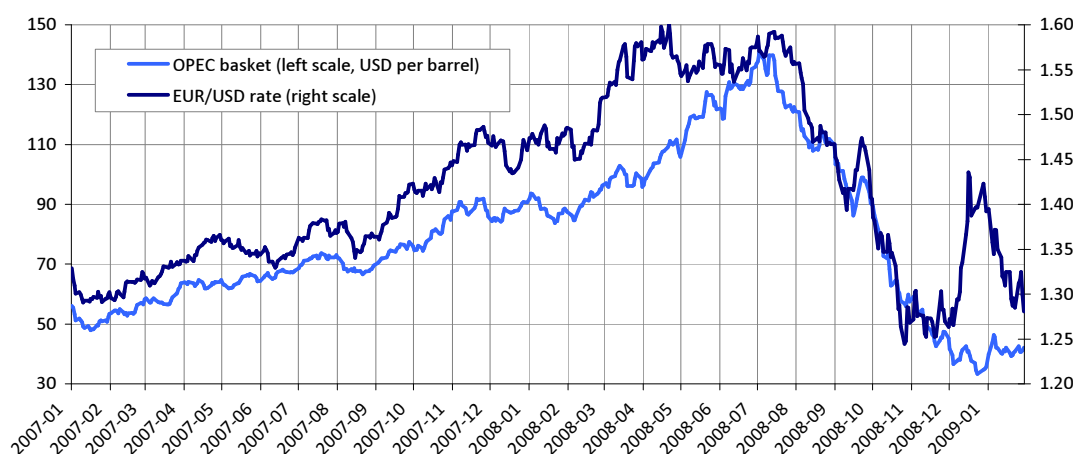
Chart S.3 Scope of carry trade between January 2007 and 31 January 2009 for currency pairs: USD/JPY, EUR/JPY, GBP/JPY, SEK/JPY and NZD/JPY (1 January 2007 = 1)



Source: NBP study based on the Federal Reserve data.

The development of those perturbations in the last phase makes it possible to understand relations existing between crude oil prices and EUR/USD quotations which took place between the beginning of 2007 and the second half of 2008. In the final phase of the easy-money era, crude oil became an alternative to the depreciating US dollar (due to concerns of a deteriorating condition of the United States economy).

Chart S.4 Crude oil prices and EUR/USD rate between January 2007 and January 2009



Source: OPEC and the Federal Reserve.

The financial crisis reopened a discussion on opportunities and threats arising from the participation in the euro area and its implications for Poland. A review of events which took place during the crisis enables us to specify three groups of states: those outside




the European Union, European Union states outside the euro area and European Union states in the euro area.

Table S.1 Stages of the financial crisis

Period	Development
Stage 1 July 2007 – July 2008	<ul style="list-style-type: none"> • Crisis on the structured securities market – CDO, affected mainly the United States. • Decoupling theory of the world economy. • A strong fall in the USD rate as a result of carry trade. • Strong appreciation of the Polish zloty. • Strong increase in prices of raw materials (by over 100%). • Crude oil and high-interest rate currencies become an alternative to USD. • Market capitalisation estimated at approx. USD 8,500 billion.
Stage 2 August 2008 – October 2008	<ul style="list-style-type: none"> • Bankruptcy of Lehman Brothers, collapse in confidence of market participants, eradication of market liquidity. • Strong appreciation of US dollar (repatriation rally). • Decoupling theory becomes less important, the crisis expands out of the United States. • Liquidity shortages resulting from repatriation rally. • A fall in crude oil prices and high-interest rate currencies quotations (including PLN).
Stage 3 November 2008 – December 2008	<ul style="list-style-type: none"> • Radical reductions in money price. • Repatriation rally becomes less important. • Collapse in crude oil prices despite another period of US dollar weakness. • Further liquidity problems – decline in market capitalisation to approx. USD 5,888 billion.
Stage 4 since January 2009	<ul style="list-style-type: none"> • Deterioration of the economic condition of the euro area. • Decrease in rating of Spain and Greece. • Euro weakening against the US dollar. • Increasing depreciation of Polish zloty (as in the case of other Central European currencies). • Further easing of the monetary policy in the EU countries. • Fall in market capitalisation to approx. USD 3,500 billion.

Source: NBP study based on Financial Times data.



As regards the course of the crisis, Iceland is a spectacular example of the first group of states. Given the size of the Icelandic economy, it seems that the events which occur in that country should not result in changes within the European Union, and even more so the debate on the currency future of Europe. However, events which took place in Iceland became one of the factors leading to reopening of the discussion on opportunities and threats arising from the participation in the euro area.

Factors which influenced the crisis development in Iceland were both of external and internal origin. A significant role was played by the size of the domestic banking sector measured in relation to the GDP (assets of three largest Icelandic banks exceeded 900% of Icelandic GDP in 2007). The banking sector crisis resulted in a dramatic fall in the exchange rate of Icelandic krona in 2008 amounting to over 50%. The scale of the crisis was also influenced by the attitude of the Icelandic central bank with respect to financial supervision and exchange rate policy of this country. An intervention buy-out of 75% of capital in Glitnir bank led to Iceland's credit reliability crisis. At the same time, overestimated Icelandic krona became the target of speculative attacks.

One of the key reasons behind the breakdown of the banking sector in Iceland (and of the krona rate) was lack of possibility to apply for the ECB aid, in particular for swap agreements. Icelandic authorities had only swap lines agreed with Nordic countries which turned out to be insufficient (previously, the ECB, the Bank of England and the Federal Reserve refused to sign swap agreements with Iceland). It was only when interest rates increased to 18% that a fall in the exchange rate of Icelandic krona was stopped.

Significant dependency of the economy on the banking sector is also characteristic of the United Kingdom (where the value of the banking sector amounted to 450% of GDP in 2007), Denmark, Sweden, and Switzerland – countries which are not members of the euro area. The case of Switzerland, a country remaining outside the European Union, deserves particular attention. The particular position of Switzerland enabled monetary authorities of this country to sign special agreements with the ECB, in order to ease the pressure on the markets of monetary instruments denominated in Swiss francs. However, this did not save the Swiss franc from a relatively high fall in value against the euro. Between 27 October 2008 and 11 December 2008, euro quotations to Swiss franc strengthened by almost 10%.

The importance of possibilities to conclude a swap agreement with the ECB allows specifying the second group of countries composed of European Union Member States which remain outside the euro area. They can be divided into two subgroups: countries referring to the fixed exchange rate formula and countries applying liquid exchange rate policy.

The Danish krone deserves particular attention as an example of a currency operating within the ERM II system. In order to defend its exchange rate within the ERM II, Danish monetary authorities had to raise interest rates. Furthermore, the central bank had to initiate a swap line with the ECB to improve efficiency of the money market, suffering from liquidity shortages. It amounted to EUR 12 billion.

Denmark (just like Hungary) was compelled to significantly increase interest rates in this period, whereas its major trade partners (Sweden, Norway, the United Kingdom and euro area) decreased interest rates. It was only when the ECB eased the monetary policy that interest rates could fall in Denmark. Despite reduction in interest rates in November, December and January, the difference between Danish interest rates and those determined by the ECB in February 2009 was much larger than at the beginning of 2008.



New EU Member States whose currencies participate in the ERM II system (Lithuania, Latvia, and Estonia) have different experiences. Before joining the European Union, these countries applied a kind of a fixed exchange rate in the form of a widely defined currency board. A fixed exchange rate formula could contribute to the loss of internal (strong rise in inflation) and external (double-digit relations of deficits to GDP on the current account) balance of these economies. In current difficult economic conditions, close relations between currencies of those countries and the euro make it impossible to adjust the money price to the current economic situation. In the light of a fixed exchange rate, those countries become importers of the monetary policy conducted by the ECB. Whereas in the easy-money era interest rates in those countries were at a low level, now they seem too high. It is worth saying that a GDP decline in Latvia in 2009 can amount to as much as 7%.

A different financial turmoil scenario happened in the EU Member Countries remaining outside the euro area and applying a liquid exchange rate formula. Those countries may be divided into 2 subgroups (“old” EU Member States – Sweden and the United Kingdom as well as new Member States – Poland, Hungary or even the Czech Republic). All currencies of those countries depreciate against the euro, but the decline rate was different for the so-called “old” EU Member States and for new EU Member States.

Depreciation of the pound sterling and the Swedish krona against the euro seemed to be under control. In the case of countries such as Poland, Hungary or the Czech Republic, the depreciation scale was very rapid. Between July 2008 and the beginning of February 2009, the Polish zloty lost almost one third of its value against the euro. A rapid liquidity shortage on financial markets of those countries, leading to a significant increase in volatility of their currencies, is indicated as one of the reasons. Another reason was a change in the perception of those countries and their ability to finance deficit in the current account under new circumstances that prevailed in the international currency system until the end of the easy-money era. The situation in Hungary in October 2008 was particularly difficult and Hungarian authorities had to apply for aid to both the IMF and the ECB.

Another factor differentiating the United Kingdom or Sweden from new EU Member States was the scale of easing of the monetary policy (as compared to the reduction in interest rates carried out by the ECB). It was also higher than in new EU Member States (Hungarian central bank even had to increase interest rates by 300 basis points in October 2008). Depreciation of pound sterling and Swedish krona was mainly caused by significant easing of the monetary policy, not by lack of confidence in monetary authorities of the country. This may be confirmed by 10-year Swedish and British Treasury bonds whose valuation was much lower than the analogous one for many countries within the euro area. As regards British Treasury securities, a difference in their interest even decreased as compared to German securities².

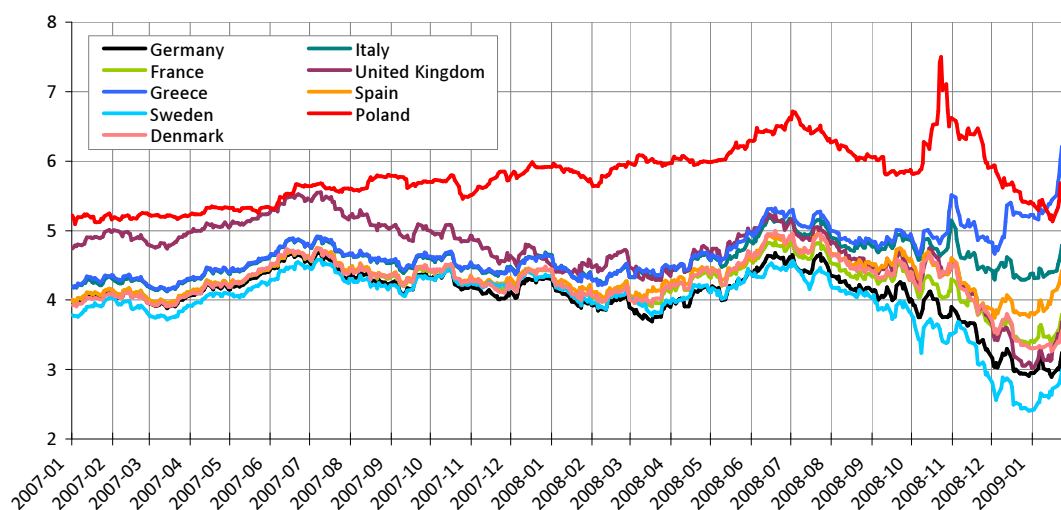
The last group of analysed countries comprises euro area Member States. Participation in the euro area may be perceived as a shield defending them against negative effects of turmoil in the finance zone. If it had not been for the participation in the euro area, currencies of Italy, Greece, Portugal, Spain and Ireland could have undergone larger

² When analysing reasons for a decline in the exchange rate of pound sterling, it is worth remembering that important structural changes occur in the British economy. Firstly, as opposed to the situation a few years ago, the United Kingdom is now crude oil net importer. Therefore, a change was needed in the correlation of crude oil prices and pound quotations. Secondly, in the last 10 years the British economy was based to a significant extent on the financial sector which was of similar importance as the significance of crude oil at the turn of 1970s and 1980s. In the years 1997–2007, the strength of pound sterling led to long-lasting disturbances in the structure of the British economy, based mainly on internal demand.

depreciation, including a speculative one, exposing those countries to additional risks. However, the crisis development on those markets, as compared to more reliable euro area economies (Germany, France), indicates that the protective shield in the form of the euro currency is not sufficient. This may be confirmed by long-term interest rates estimating the ability of the given economy to service public debt. It is worth noting that the difference spread between Italian, Greek and German securities, which amounted to approx. 30 basis points at the beginning of 2007, reached 160 and 300 basis points, respectively, at the end of January 2008. The difference spread between Polish and Italian or Greek 10-year bonds in 2007 and 2008 – despite large volatility – was at a similar level. In January 2009, yields on Greek bonds were higher than those charged on Polish Treasury securities with the same maturity. In the same month, rating agencies decided to downgrade the rating of Spain, Greece and Portugal. Market concerns were also confirmed by the European Commission report dated January 2009. Ireland may serve as an example illustrating the scale of fiscal expansion, as its public debt amounted to approx. 25% GDP in 2007, and forecasts indicate that it may increase in the coming years to as much as over 70% GDP.

Experience gathered by EU Member States within and outside the euro area shows that membership in the euro area brings about opportunities and threats. It should be borne in mind that the participation in the euro area provides no protection against tensions within the fiscal policy. Interest Yields on 10-year Treasury securities of the majority of countries within the euro area exceeded those on Swedish and British Treasury securities. It is worth pointing out that the monetary policy carried out by the United Kingdom and Sweden is more expansive than the ECB policy, and hence there is capacity for more anti-recession measures.

Chart S.5 Yield on 10-year treasury bonds of Poland, France, Denmark, United Kingdom, Germany, Greece, and Italy (between 1 January 2007 and 30 January 2009)



Source: Ministry of Finance based on Bloomberg data.

The analysis of changes both with respect to internal and external stability of Spain, Portugal, Greece and Ireland shows that membership in the monetary union was not always conducive to ensuring it. The ECB monetary policy was not able to guarantee macroeconomic stability in many euro area Member Countries. First of all, it was ineffective in counteracting symptoms of economic overheating in countries such as Spain or Ireland, which experienced decreasing competitiveness in the recent years due to inflation on the assets market and increase in labour costs.



The above considerations indicate that the participation in the euro area does not guarantee effective protection against turmoil in the world economy. What in fact matters is a relevant macroeconomic policy on the national level. The larger macroeconomic disproportions within a given economy, the less effective protection offered by membership in the euro area. Membership in the euro area may be considered a factor facilitating overcoming financial perturbations, however, only in the case of macroeconomic stability of a given economy.

Significance of the crisis to Poland's outlook for introduction of euro


Looking ahead, the current crisis should not significantly influence the balance of benefits and costs related to joining the euro area. The majority of economic arguments subject to analysis in the *Report* indicate a positive net effect of introducing the single currency in the long run. Nevertheless, the scale of turmoil in financial markets and their potential consequences for the real sector of the economy allow considering the possible effect of the accession to the euro area in the short run, if preparations to the accession were to be held during the current crisis.

Events which occurred in 2008 confirmed that the so-called easy-money era ended. Respectively, access to world capital markets may be more difficult in the coming period. It is particularly important for the Polish economy which is under strong influence of external environment. Poland is in the period of catching up with euro area economies, and as a result sources of financing of economic growth are essential for the Polish economy. As a net importer of capital, Poland is largely dependent on access to foreign capital sources. Liquidity shortages on world financial markets will therefore probably influence growth perspectives of the Polish economy within the coming few quarters.

While taking decisions on the date of possible accession to the euro area, it is necessary to evaluate the impact of ongoing turmoil on Poland's ability to meet nominal convergence criteria. In the crisis conditions, it is particularly important, *inter alia*, to apply liquid exchange rate which may strengthen or absorb shocks. An expected slowdown in economic growth rate, combined with the tendency to protect internal markets of countries affected by the crisis consequences, may result in a reduced scale of trade balance and investment activity. It is therefore reasonable to put forward a question on the ability and efficiency of reaction with the use of economic policy tools – both in the conditions of full economic autonomy and the need to meet the Maastricht criteria. The further part of this document attempts to evaluate the influence of the crisis on Poland's ability to meet the Maastricht criteria, which may determine the evaluation of short- and medium-term benefits and costs of introducing the euro in Poland.

Impact of the crisis on economic activity in Poland and in the euro area

The balance of benefits and costs of Poland's integration with the euro area may be related to the crisis development in the financial and real sector, both in Poland and in the euro area. In order to answer the question of crisis implications for the evaluation of Poland's accession to the euro area, it is necessary to analyse changes happening in the real sector of both economies and to formulate a likely scenario of future events.



Turbulence in global financial markets may partially weaken the ability to benefit from the integration, both in the field of financial markets and of the real economy. Recession affecting major trade partners of Poland may reduce the benefits potentially arising from trade intensification or investment growth. Protection of internal markets in Member Countries and a reduction in the scale of openness of economies are a common tendency in the period of worsened prosperity, which may, however, limit short- and medium-term benefits. Increasing economic difficulties experienced by the EU countries may act in favour of protectionist tendencies. Waiving the possibility to use autonomous monetary policy under such circumstances carries a significant risk.

The crisis may also lead to more severe threats related to the loss of autonomous conduct of monetary policy in the case of weaker synchronisation of economic cycles between Poland and the euro area. The analysis of economic cycles³ in Poland and in the euro area, based on data up to the third quarter of 2008, shows that a slowdown in industrial production took place in both economies (cf. Chart S.6), whereas cycles, separated from the GDP series, reveal a different situation of both economies: a positive GDP gap in Poland in the second half of 2008 (however, it became more stable in the third quarter 2008, cf. Chart S.6), whereas euro area economy, from the turn of the third and fourth quarter of 2007 experienced economic slowdown. Differences in GDP cycle as compared to industrial production may partially result from lower mutual dependencies of services sectors in Poland and in the euro area. It is possible that an economic slowdown in the euro area has not affected Polish services sector yet, but it is already visible in the industry largely focused on export. An increase in openness of economies for input replacement and increasing business relations worldwide are the source of many benefits; however, they are also exposed to some threats, including the risk of spreading crisis events.

A fast decrease in the growth rate of output in the euro area and in Poland was accompanied by decisions on the easing the monetary policy in both economies (cf. Chart S.7). Both the NBP and ECB decreased interest rates, but the ECB acted faster and carried out larger reductions in interest rates. A similar scheme of reactions for both central banks indicates that the risk of cyclical inadjustment of the ECB policy to the needs of the Polish economy in the recent months may be recognised as insignificant (*ceteris paribus*). However, it cannot be foreseen how those tendencies would develop within the whole economic cycle.

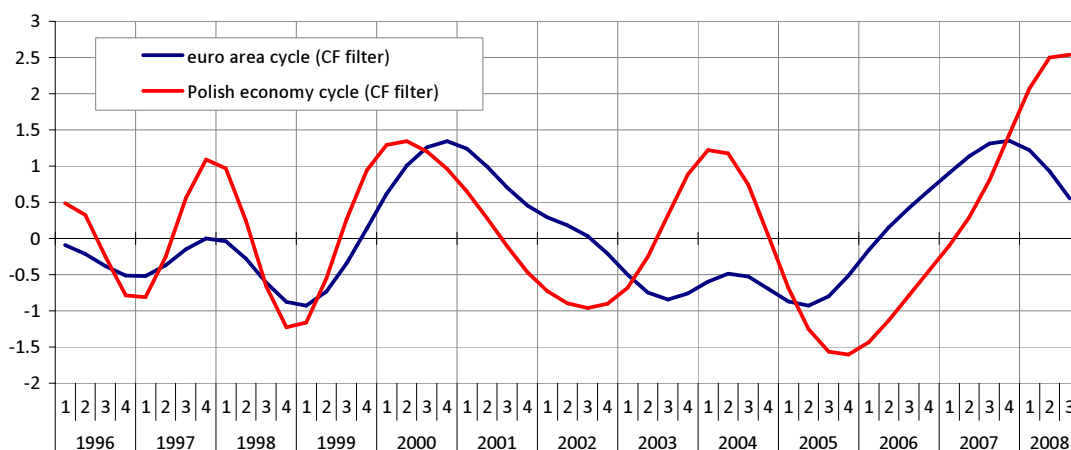
Taking the progress in the observed processes, it may be prudently concluded that the possibility of a strong economic slowdown in the euro area, without its influence on the Polish economy, is very limited. The risk of inadequate ECB cyclical policy for the needs of the Polish economy seems low – at least with respect to the direction of reactions. Nevertheless, taking into account uncertainty as to the scale of recession in the euro area and performance of the Polish economy under such circumstances, the resignation from monetary policy instruments may carry some risk. Furthermore, it is necessary to confirm previously formulated conclusions on negative results of possible asymmetric shocks affecting the Polish economy and the possibility of structurally inadequate ECB monetary policy in the long term, arising from generally lower interest rates in the euro area.

Difficulties in forecasting the development of the macroeconomic situation in Poland arise from the rapidly changing economic situation abroad, in particular in other

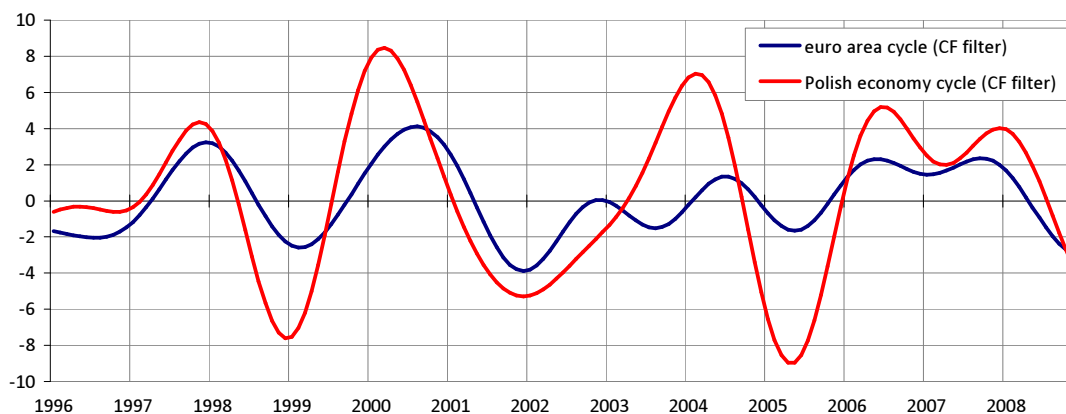
³ Cycle approximation is a cyclical component separated from base series, expressed as one-base index with a base from 2000, using the Christiano-Fitzgerald filter. Fluctuation band included in the cyclical component is 1.5–8 years. Lower frequency fluctuations were classified as trend, and higher frequency fluctuations – as random fluctuations.



Chart S.6 Economic cycles in Poland and in the euro area in the years 1996–2008



(a) Cyclical component separated from the GDP series based on the Christiano-Fitzgerald filter



(b) Cyclical component isolated from industrial production series with the use of the Christiano-Fitzgerald filter

The axis of ordinates shows the value of the cyclical component in the given period, i.e. variances between base series and estimated trend and random fluctuations. This value may be partially identified with the GDP gap. However, as the cycle was extracted from a one-base index series, these figures cannot be interpreted.

Source: NBP study based on Eurostat data.

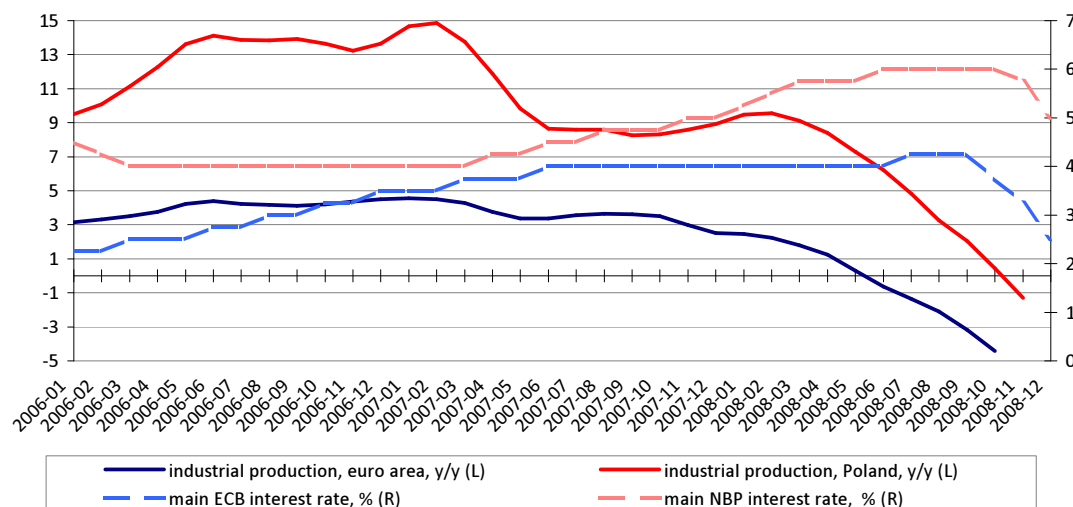
EU Member States, accounting for over 75% of Polish exports. There is significant uncertainty as to the scenario of future events which is confirmed by almost all forecasting centres. Hence, any forecasts should be approached with due caution, in particular in the light of their relatively frequent revisions.

Attempts undertaken to forecast future GDP growth rate in Poland result in a scenario of a gradually improving economic situation in the second half of 2009 and in 2010. The Centre for Social and Economic Research (CASE) prognosticates⁴ the GDP growth rate for 2009 to reach 3.4% (cf. Table S.2)⁵. Forecasts published in January 2009 by the Institute for Market Economics (IBnGR) estimate that the GDP growth rate in Poland will amount to 2.0% (increasing from the third quarter) in 2009 and to 3.0% in 2010. Forecasts for Poland presented by the OECD, IMF, and European Commission are at a similar level and claim that the GDP growth rate will slow down to approx. 2–3%

⁴ The forecast was made in the fourth quarter of 2008.

⁵ Figures for individual quarters are as follows: Q1 – 3.4%, Q2 – 2.2%, Q3 – 2.9%, Q4 – 4.0%.

Chart S.7 Industrial production and main interest rates of the central bank in Poland and in the euro area, 2006–2008



Source: Eurostat.

in 2009 and accelerate in 2010 by further 0.4–1.0 percentage point. Last update of the GDP growth rate forecasts by the government at the end of January 2009 indicates a risk of a slowdown in the GDP growth rate to 1.7%. The NBP forecast dated October 2008⁶ assumes an economic growth rate for 2009 at 1.7–3.5%.

Forecasts for the euro area oscillate at a significantly lower level than analogous values for Poland. The IMF expects a decline in the real GDP of the euro area in 2009 by 0.5%, the OECD expects a decline by 0.6%, and the European Commission – by 1.9% (cf. Table S.2). All quoted forecasts indicate a gradual improvement in prosperity in 2010 and a slow recovery of the GDP (cf. Box S.1 and Chart S.8). According to some research centres, the economic situation may improve as soon as in the second half of 2009 and in 2010.

Forecasts presented in Table S.2 do not significantly differ from forecasts in the switching model (cf. Box S.1). In 2008, where the crisis started in the euro area but was not yet strongly affecting Poland, the correlation coefficient of the Polish economy and euro area decreased (cf. Chart in Box S.1). According to the model prediction, this correlation should, however, significantly increase.

Table S.2 Real GDP growth rate forecasts for Poland and the euro area

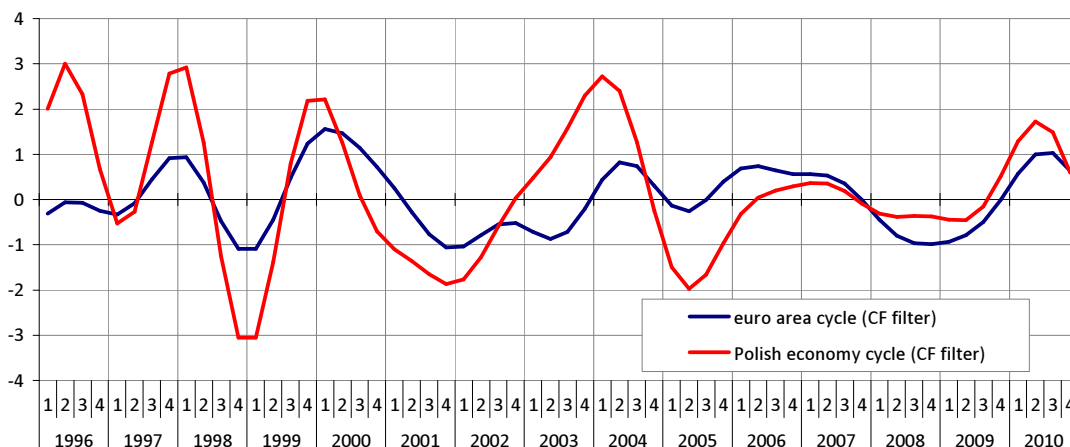
	Poland		Euro area	
	2009	2010	2009	2010
CASE	3.4%	–	–	–
IBnGR	2.0%	3.0%	–	–
OECD	3.0%	3.5%	-0.6%	1.2%
IMF	3.8%	4.8%	-0.5%	1.3%
EC	2.0%	2.4%	-1.9%	0.4%

Source: Centrum Analiz Społeczno-Ekonomicznych (2008), Instytut Badań nad Gospodarką Rynkową (2009), European Commission (2009), OECD (2008a), IMF World Economic Outlook Database October/November 2008.

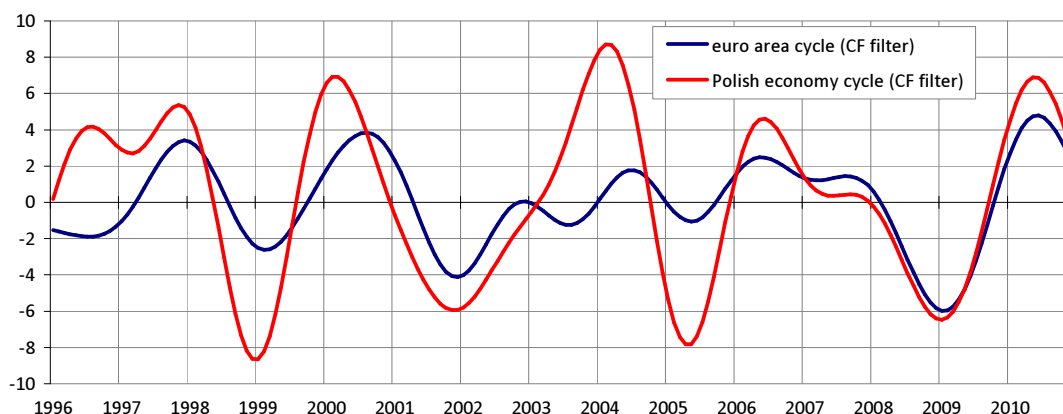
⁶ The GDP series were not available at the date of preparation of this document.



Chart S.8 Economic cycles in Poland and in the euro area in the years 1996–2008 and forecast for the years 2009–2010



(a) Cyclic component separated from the GDP series based on the Christiano-Fitzgerald filter



(b) Cyclical component isolated from industrial production series with the use of the Christiano-Fitzgerald filter

The axis of ordinates shows the value of a cyclical component in a given period, i.e. variances between base series and estimated trend and random fluctuations. The value may be identified with the GDP gap. However, as the cycle was extracted from a one-base index series, these figures cannot be interpreted.

Source: NBP study based on Eurostat data.

Box S.1 GDP and industrial production forecasts for Poland and the euro area based on the switching model

In order to analyse future economic cycles in Poland and in the euro area, two main variables reflecting economic activity – GDP and industrial production – were forecast. Forecasts are formulated based on the Markov switching autoregressive model whose specification was selected in accordance with information criteria and in-sample forecast errors. The forecast comprises a two-year period (9 quarters and 25 months, respectively).

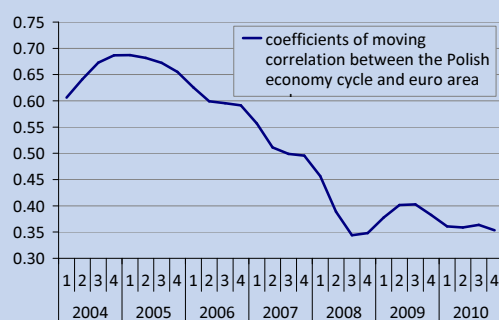
The analysis of the cycle isolated from the GDP series (first panel of Chart S.8) shows that economic slowdown in the years 2008–2009 may be more severe for euro area countries than for Poland. This would be the first case in the analysed period (1996–2010) where a negative GDP gap is lower in the euro area than in Poland.

This may be also a symptom of decreasing cyclical fluctuations in Poland, which were higher than in the euro area in the transformation period.

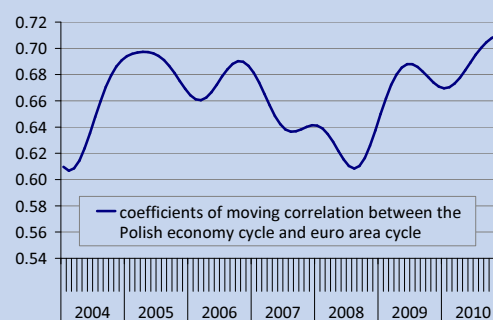
Based on the results, moving correlation coefficients for cyclic components were calculated. A fixed-width window was chosen – 32 quarters and 96 months, respectively. The selection of window length was determined by two factors: firstly, literature on the subject considers 8 years as the upper limit value for the length of fluctuations included in a cyclical component (longer waves are considered to be a long-term component); secondly, this period is approx. the half of the sample length. Values of coefficients suggest a decline in synchronisation of economic cycles between Poland and the euro area after their addition to the sample in 2008, when a strong economic slowdown started. A decrease in economic activity in Poland in this period was relatively low.

At the same time, the cyclical component separated from industrial production series demonstrates at the end of the sample period (and within the sample period) a significant approximation between economic cycles in Poland and in the euro area – both with respect to amplitude and correlation of turning points. This is reflected also in the chart presenting moving correlation coefficients which, after a decline in the years 2007–2008, are on the increase in the forecast period.

Chart Coefficients of moving correlation between the Polish economy cycle and euro area cycle (windows of 8 years fixed length)



(a) Cyclical component isolated from the GDP series based on the Christiano-Fitzgerald filter



(b) Cyclical component isolated from industrial production series with the use of the Christiano-Fitzgerald filter

Source: NBP study based on Eurostat data.

Impact of the crisis on Poland's ability to meet the Maastricht criteria

Fiscal criterion

The Maastricht fiscal criterion relating to budget deficit and public debt is of particular importance for other dimensions of nominal convergence. This results from the fact that the scale of current and accumulated state debt may determine the level of long-term interest rates and exchange rate variability. Furthermore, in the period of the participation in the ERM II system, the stabilising effect of the fiscal policy will become more important as autonomy of conduct of the monetary policy will be limited. As regards the fulfilment of the fiscal criterion, particular attention should be paid to



general government deficit. In a short and medium term, the current public debt should not exceed the acceptable level of 60% GDP⁷ in foreseeable scenarios.

Despite deterioration of the external macroeconomic situation, general government deficit remains below the reference value. In the light of the “Convergence Programme – 2008 Update”, adopted on 30 December 2008, general government deficit as at the end of 2008 is forecast at 2.7% GDP, i.e. 0.7 pp higher than in 2007.

Estimates of the Ministry of Finance show that both budget expenses and revenues in 2008 were below plan by approx. 10%. However, the results of the financial crisis developing from mid-2008 did not lead to a decrease in tax revenues. On the contrary, CIT revenues were at the planned level and PIT revenues even exceeded their level specified in the budget act by 6.3%.

However, deterioration of economic situation is reflected in decreasing budget revenues growth rate at the end of 2008. Budget revenues in the whole 2008 increased by 7.7% as compared to 2007, but annual budget revenues growth rate was negative already in December 2008 (–5.4%). A particularly strong decline in tax revenues as compared to the previous year was observed for indirect tax revenues (–5.7%) and CIT (–16.3%).


Outlook for 2009

The budget for 2009 was not drawn up with consideration of the circumstances predicting a deep crisis in the real sector of the economy. A preliminary balance of revenues and expenses was based on the assumption that the GDP growth rate will amount to 4.8%. The amendment to the draft budget act by the Council of Ministers (form No 1001) adopted on 2 December 2008 approved the revision of the economic growth rate forecast to 3.7% GDP. Given unchanged assumptions on budget deficit amounting to PLN 18.2 billion, a change was made in planned budget revenues and expenses – in both cases amounting to PLN 1.71 billion. A revision of the economic growth rate forecast had a limited impact on other budget parameters (e.g. an assumption on a decrease in unemployment rate from 9.1% at the end of 2008 to 8.5% in 2009 was not corrected). The assumption on the expected unemployment rate differs from other forecasts of this variable indicating a possible increase in unemployment rate to 10–12% at the end of 2009. Potential effects of such large discrepancy between budget expenses and revenues may be significant. Furthermore, government forecasts assume only a slight slowdown in individual consumption and wage growth rate. Despite a probable decrease in tax base, the budget assumes a tax revenues growth rate by over 6% on a year-to-year basis.

One of the expense categories which may be underestimated due to depreciation of the Polish zloty are foreign debt servicing costs⁸. In February 2009, State Treasury debt due to foreign bonds amounted to EUR 87.86 billion, USD 15.5 billion, JPY 384 billion, CHF 4.3 billion, and GBP 0.4 billion. It is worth noting that forecasts assumed high privatisation revenues as a source of financing the deficit. The government estimated privatisation revenues at PLN 12 billion, but reaching such amount may turn out to be difficult due to ongoing turmoil in financial markets worldwide. Consequently, debt and (in further years) debt servicing costs may increase.

⁷ However, it is worth noting that taken into account the arguments presented below, the risk of exceeding the first prudential threshold specified in the Act on Public Finance at 50 % of debt to GDP ratio increases.

⁸ They were estimated assuming the following average exchange rates for 2009: EUR – PLN 3.35, USD – PLN 2.21.



European Commission forecasts dated January 2009 (European Commission, 2009) state that public finance deficit in Poland will amount to 3.6% in 2009 and 3.5% in 2010, and hence the fiscal criterion of convergence will not be met in the coming two years. An increase in deficit to 4% GDP is also estimated for the whole euro area. However, it should be borne in mind that the evaluation of meeting the fiscal criterion by the EC and the ECB does not consist only in checking whether general government deficit is below 3% GDP. It is acceptable to exceed this threshold, if the reason is exceptional and temporary, and the deficit to GDP ratio remains close to the reference value. Nevertheless, the current level of structural deficit (estimated at approx. 2.5% GDP) is much higher than the medium-term objective for Poland (1% GDP).

Meeting the fiscal criterion is subject to the following threats resulting from the financial crisis, including the following:

- Decrease in economic growth rate. If, as a result of a lower economic growth rate, revenues planned in the budget act turn out to be overestimated, expenses – underestimated, or privatisation revenues – lower than expected, Poland's net borrowing requirements will increase. Financing the deficit by increasing debt (both domestic and foreign) brings about negative effects by pushing out private investments in the case of domestic debt, or by increasing exchange rate risk, if deficit is financed by increasing foreign debt. Most probably, a reduction in budget expenses will first hit investment expenditures.
- Increase in interest rate on issued Treasury securities. Poland's gross borrowing needs in 2009 are very high and amount to approx. PLN 155 billion. Due to the financial crisis, many countries face the problem of high budget deficit, which will be largely covered by issuing Treasury securities. Rising borrowing requirements of the majority of developed countries (in particular of the United States and euro area countries) may lead to an increase in interest rates, thus increasing debt servicing costs.
- Increase in exchange rate risk. The scale and pace of Polish zloty's depreciation in the recent months indicate rising debt servicing costs. Approx. 24% of State Treasury debt is of foreign origin, and therefore further Polish zloty's depreciation may result in an increase in servicing costs of debt denominated in foreign currencies.

Higher interest on Polish Treasury securities and lower economic growth rate as well as the PLN exchange rate remaining at a low level will require a higher primary surplus, which in practice may make it necessary to considerably tighten the fiscal policy. Pro-cyclical tightening of the fiscal policy, contributing to even deeper recession, may therefore become a significant cost involved in meeting the fiscal criterion in 2009.

Fiscal policy adjustments in 2009

The government's determination to maintain budget deficit at a level assumed in the draft budget act (PLN 18.2 billion) should be evaluated as a positive signal in terms of meeting the convergence criteria. However, in the period of significant economic slowdown, it may incur additional costs to the real sector of the economy.

The current situation points out the importance of balanced public finance. Low structural deficit, guaranteeing necessary safety margin, would enable Poland to keep general government deficit at an acceptable level in the period of economic slowdown



without the necessity of pro-cyclical tightening of the fiscal policy. Long-term negligence with respect to reforms is also visible.

However, it is worth pointing out that deterioration of the fiscal policy in Europe occurred both in the euro area and other EU Member States. The worldwide crisis encouraged many EU governments to take stabilising actions in the form of fiscal packages comprising additional public spending or reduction in tax burden. Analysis of available data indicates that fiscal expansion in many countries is, and will be, financed mainly by additional debt. The result of the described actions is notable deterioration of the situation of public finance, though most costs will be probably incurred in the years to come. Budget deficit (general government deficit) forecast for 2009 for the euro area amounts to 4% GDP (2.3 pp higher than in 2008), and public debt to GDP ratio estimated by the European Commission – according to the EC estimates – may increase within the current year from 68.7% to 72.7% (cf. Table S.3).

A considerable increase in supply of Treasury securities may lead to an increase in their interest rates. As early as in 2010, debt servicing costs may therefore increase in some countries; however, in the whole UE this effect should not be considerable – mainly due to a fall in interest on German Treasury securities. A primary balance in the EU and in the euro area will deteriorate much stronger. It will amount to 1% of the GDP in 2009 and 1.3% of the GDP in 2010. Deterioration of the fiscal policy in Europe seems to affect the majority of new EU Member States to a lesser extent. Among the Visegrád Group States, Poland is the only country (according to the EC) where deficit may exceed the reference amount of 3% of the GDP. It is worth noting the situation in Hungary where despite a negative GDP growth rate, budget deficit will be lower in 2009 as compared to 2008.

Table S.3 Economic growth and fiscal position in selected EU countries

Increase y/y (%)	Euro area		Poland		Slovakia		Czech Republic		Hungary		United Kingdom	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Real GDP	0.9	-1.9	5.0	2.0	7.1	2.7	4.2	1.7	0.9	-1.6	0.7	-2.8
% GDP												
Budget deficit	-1.7	-4.0	-2.5	-3.6	-2.2	-2.8	-1.2	-2.5	-3.3	-2.8	-4.6	-8.8
Net debt increase	n.a.	n.a.	4.1	3.5	5.4	5.7	0.3	0.8	6.0	4.0	2.0	5.5
Public debt	68.7	72.7	45.5	47.7	28.6	30.0	27.9	29.4	71.9	73.8	50.1	62.6

Source: Eurostat Interim Report of 19 January 2009.

Price stability criterion

Challenges for monetary policy related to the price stability criterion

In a short-term perspective, the crisis may influence Poland's ability to meet the inflation criterion. This influence is ambiguous and will depend on the scale of inflation differences within the European Union, and in particular on the following:

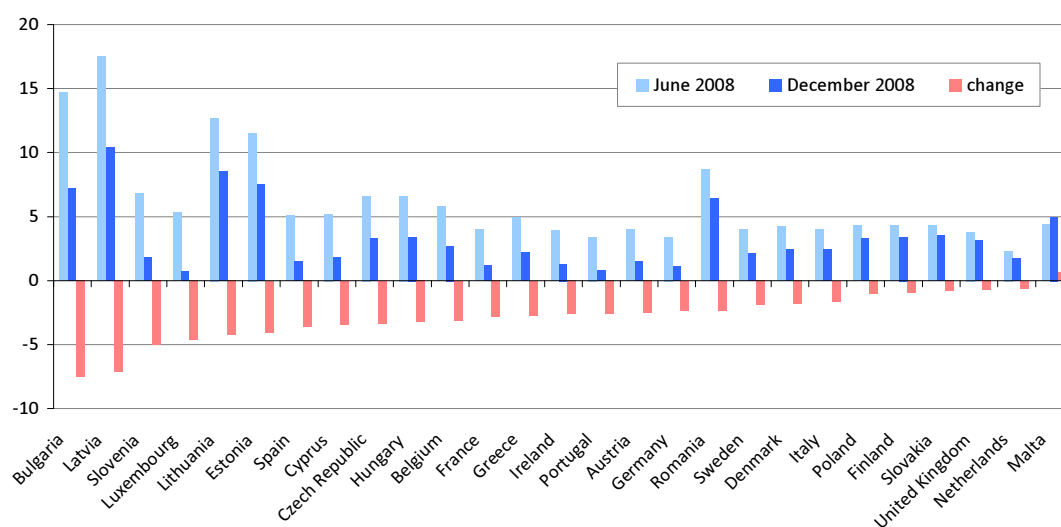
- Strength of the negative demand shock which will affect Poland and other EU countries. If economic deterioration in Poland is less pronounced – as forecasts claim – than in Western Europe, this may *ceteris paribus* contribute to a smaller

reduction in the inflation pressure, and thus to an increase in the inflation rate. GDP growth rates for Poland and other countries, where inflation may potentially influence the reference amount for this criterion, suggest a faster GDP growth rate in Poland than in the euro area (cf. Table S.2) and in the whole EU.

- Strength of reactions of individual economies to the demand shock. It may be expected that for less flexible Western European economies (cf. Kolasa, 2008), a decrease in the inflation rate will be *ceteris paribus* smaller and spread over time, the inflation rate will diminish more considerably and will reach its reference amount more quickly.
- Reaction of the NBP and other EU central banks' monetary policy (in particular the ECB) to the crisis. Should the NBP reduce interest rates at a slower pace than other EU central banks, the likelihood of meeting the price stability criterion may increase.
- Inflation expectations for Poland. The possibility of a more restrictive monetary policy, taken into account in inflation expectations, in relation to the intention to join the euro area announced by the Government may weaken these inflation expectations (cf. Davig, Leeper, 2007 and National Bank of Poland – Monetary Policy Council, 2008, pp. 6 and 12). Uncertainty as to the implementation of the governmental scenario and its possible delay may, in turn, increase these expectations.

The formula of the price stability criterion makes its fulfilment depend on heterogeneity of inflation rates within the EU. Between June and December 2008, the HICP inflation rate decreased in the majority of EU member states, though those declines were diversified and concentrated in economies with highest inflation rates such as the Baltic countries, Bulgaria, Romania, or Spain. At present, the lowest harmonised annual consumer inflation rate is observed for Luxembourg, Portugal, and France (0.7–1.2% y/y), which may suggest that individual economies react differently to the crisis.

Chart S.9 Changes in HICP inflation rates in the European Union between June and December 2008



Source: NBP study based on ECB data.

International institutions' forecasts on future consumer goods inflation rate (cf. Table S.4) are different with respect to the focus on individual factors as well as their update



dates, which may cause certain discrepancies. Common features of the quoted forecasts indicate that there are problems in achieving inflation objective for 2009, mainly due to a lower scale of economic slowdown in Poland as compared to other EU states. Forecasts for 2010 are more varied. Some of them (EC forecast updated in January 2009) suggest that Poland should meet the inflation criterion in 2010 mainly as a result of meeting the inflation objective in Poland earlier than expected⁹. According to OECD (2008a), in order to meet the price stability criterion by Poland, it may be required to reduce the inflation rate at least to the interval midpoint for the inflation objective, i.e. to 2.5%. IMF forecasts for the years 2011–2013 suggest no significant difficulties in meeting the inflation criterion in this period¹⁰. The quoted forecasts state that the average of the three lowest inflation rates for EU member states in the years 2009–2010 may amount to between 0.4 and 1.6%¹¹.

Table S.4 Inflation rate forecasts for Poland and the EU countries as well as the perspective of meeting the inflation criterion

Year	HICP reference value forecast			HICP/CPI forecast for Poland		
	OECD	EC	IMF	OECD	EC	IMF
2009	2.5	1.9	2.8	3.2	2.9	4.3
2010	2.3	2.7	3.1	3.6	2.5	3.4
2011	–	–	3.2	–	–	2.5

Figures in bold stand for meeting the price stability criterion by Poland. The reference value forecast was calculated as an arithmetic mean of the three lowest forecasts of consumer inflation rates for EU Member States. The OECD forecast does not take into account projections for Cyprus, Malta, Lithuania, Latvia, Bulgaria, and Romania which were not covered by the quoted publication.

Source: NBP study based on OECD (2008a), IMF World Economic Outlook 2008 Database, European Commission (2009).

At the same time, it is worth pointing out that in the current crisis phase any forecasts – including those which are used in the present analysis – are subject to considerable uncertainty. Furthermore, price developments for Poland are a determinant of the future monetary and fiscal policy as well as of future events in the real sector of the economy which may be subject to modification.

On the one hand – as shown in the *Report* – a decrease in the inflation rate in Poland by 1 pp in order to meet the price stability criterion may cause a temporary decline in the average annual GDP growth rate by approx. 0.8 pp (within 2 years). On the other hand, accommodation of the crisis results to the real sector of the economy by the economic policy may be desirable. The likelihood of a price increase as a result of the monetary easing seems limited due to recession tendencies in the economy and a considerable fall in world prices of raw materials (in particular crude oil prices). In the case of a deeper slowdown in Poland than the average for the EU, the scope for more significant reductions in interest rates would be limited (in particular within the ERM II system). However, according to forecasts, stronger recession in Poland than in the EU seems rather unlikely (cf. Table S.2).

⁹ It should be borne in mind that forecasts, based on which calculations were made, relate to the whole 2009 and 2010, while the reference value is forecast based on the 12-month moving average of the HICP inflation. As a result, the effects of the inflation rate higher than currently expected in 2009 or 2010 will be taken into account in the criterion also in the following year.

¹⁰ According to the October inflation forecast for 2009 by the NBP, it will amount in 2009 to 4.7 (y/y).

¹¹ Forecasts state that in the coming two years the inflation rate in the EU will most significantly fall in France, Ireland, Germany, Sweden, and the United Kingdom.

To sum up, accommodation of the crisis results and a parallel need to meet the inflation and fiscal criterion may become a significant challenge for monetary authorities in the period preceding adoption of the euro. Current inflation rate forecasts for EU Member States show that this is possible, but may require the tightening of the monetary policy. Should the crisis in Poland be less severe than in the euro area, the scale of the required tightening of the monetary policy may be relatively larger. Significantly higher flexibility of economy in Poland than in many Western European countries speaks for a less severe crisis affecting Poland.

Long-term interest rates criterion

In the recent quarters of 2008, interest rates gradually increased both in Poland and on global financial markets, and afterwards financing costs significantly decreased. However, this did not compensate for the scale of their increase from the beginning of 2008.

A drop in liquidity, trade reduction in some market segments and stricter market evaluation of investment risk in individual countries reflect higher uncertainty and aversion to risk on world financial markets. Furthermore, many economies faced a strong inflation pressure throughout much of the year 2008 which favoured the tightening of the monetary policy by central banks. As a result, an increase was observed in all components of the premium for risk: exchange rate risk (*inter alia* due to higher variability of PLN/EUR rate)¹², credit risk (*inter alia* due to deterioration of expectations of economic situation) and liquidity risk (due to a decline in mutual confidence of market participants and indirectly due to other kinds of risk). In addition to a general increase in the premium for risk, variances in market evaluation of the risk of individual countries became even deeper – debt costs in countries perceived as less stable in macroeconomic terms increased relatively more significantly than in those considered more reliable (cf. Chart S.10)¹³. In a medium term, this may cause a slowdown (or even a short-term reversal) of financial integration in Europe and a fall in growth rate of financial markets. Furthermore, increasing debt servicing costs leave relatively little space to apply fiscal policy tools.

As economic situation and inflation pressure declined, largely influenced by the effects of the crisis, cost of capital stood high due to limited confidence, many central banks – including the ECB – eased the monetary policy¹⁴. Whereas the ECB, as one of the first central banks, started to reduce interest rate earlier than the NBP, a disparity between Poland and the euro area increased from approx. 0.5 pp at the beginning of 2007 to approx. 2.5 pp at the end of 2008 (comparison of the NBP and ECB reference interest rates; source: NBP, ECB). With the easing of the monetary policy in Poland this difference should not become larger, and in a long term this disparity should decrease until it is entirely eliminated, once the euro has been adopted in Poland¹⁵. Adjustments in interest rates may be influenced by the duration and scale of the crisis as well as by

¹² Furthermore, a significant increase in exchange rate variability was probably the reason behind the increase in transaction costs, mainly due to higher costs of security against exchange rate risk.

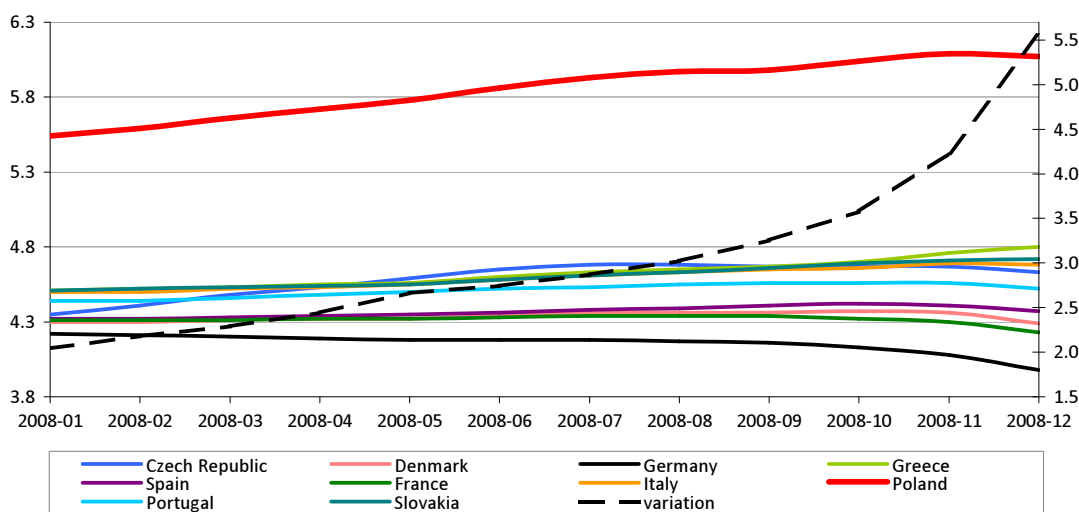
¹³ In some countries, costs related to getting financing even fell. Heterogeneous character of the described reaction is particularly visible within the euro area. Between January and November 2008, variation of debt securities yield within the euro area increased over ten times – e.g. Germany or France are able to get financing at a considerably lower cost than some other countries such as Greece or Italy.

¹⁴ ECB reactions – also in the period of most dramatic turmoil in financial markets – may be evaluated as positive, in particular taking into account its relatively short history and little experience.

¹⁵ The scale of reductions in interest rates in Poland may be – in absolute terms – higher than in the euro area due to a significant difference in interest rate levels in both areas. The space for a fall in interest rates in the euro area may be significantly limited, though it may not be excluded that the



Chart S.10 Differentiation of yield on long-term Treasury bonds for the selected countries, including their variation for euro area countries (%)



Source: Eurostat.

the character of the monetary policy conducted in Poland (as compared to the euro area) in response to the effects of the crisis.

In the light of Poland's preparations for the introduction of euro and the related obligation to meet the Maastricht criteria, ongoing uncertainty on financial markets may constitute a potential threat to meeting the long-term interest rates criterion. Up to December 2008¹⁶, Poland fulfilled this criterion (cf. Chart S.11). However, the safety margin, expressed as the difference between the Polish interest rate and the reference value, significantly decreased in the second half of 2008. In the long run, the risk of failing to comply with the criterion may be considered as relatively low¹⁷. The risk could materialise e.g. in the case of a significant and long-term deepening of the crisis on financial markets or a considerable deterioration of the condition of public finance.

Exchange rate criterion

Integration with the euro area requires the fulfilment of the exchange rate criterion, which consists in maintaining relatively low exchange rate fluctuations during the participation in ERM II. This, in turn, requires a relevant adjustment of the monetary policy instruments and may give rise to certain threats, in particular in the period of ongoing turmoil on financial markets. Therefore, meeting the exchange rate stability criterion may be a serious challenge for the economic policy.

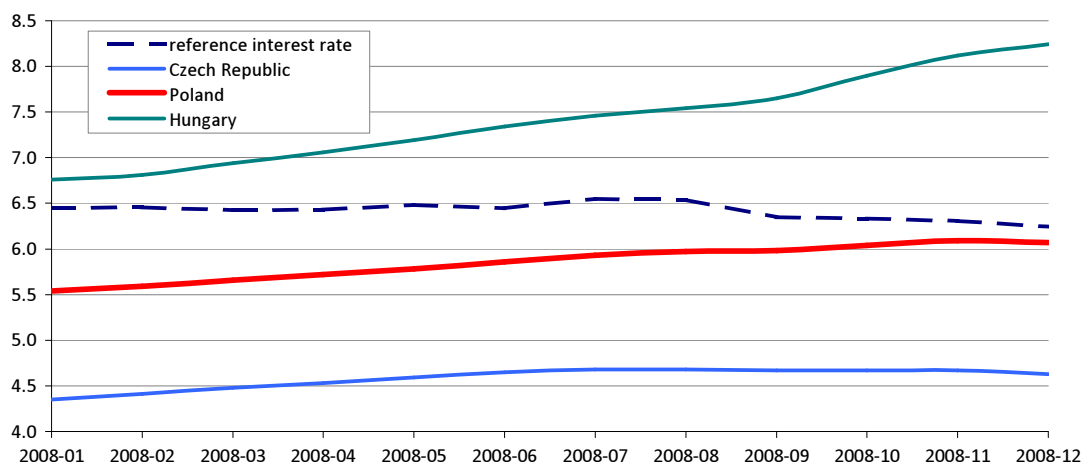
Recent months featured a significant increase in fluctuations and a strong depreciation of the Polish zloty against all most important currencies. It should be pointed out that a fall in the value of the Polish zloty probably did not reflect fundamental factors, but

ECB will take a decision on further easing of the monetary policy, in particular within the coming quarters.

¹⁶ Full data on the inflation rate in January are not yet available.

¹⁷ In order to consider the criterion as met from the formal point of view, it is enough for interest rates to be lower than the reference value for 12 months preceding the evaluation.

Chart S.11 Yield on long-term Treasury bonds used to evaluate the fulfilment of the interest rates criterion for selected countries (12-month moving average, in %)



Source: Eurostat.

mainly resulted from a strong rise in aversion to risk and a collapse of investor confidence in emerging markets – including Central Eastern Europe (cf. Chart S.12). Depreciation of the Polish zloty was also caused by changes in the economic environment which took place in recent months, such as an increase in uncertainty on financial markets, stronger symptoms of economic slowdown in all key world economies as well as a considerable change in the conduct of monetary policy by central banks, resulting first in an increase, and further in dramatic reductions in interest rates.

Exchange rate volatility was largely influenced by unwinding carry trade, resulting in the sale of assets denominated in currencies of countries with high-interest rate, including the Polish zloty¹⁸. Outflow of capital from those countries led to a fall in the value of currencies in those countries. Furthermore, prospective reductions in interest rates related to expected deterioration of the economic situation, additionally stimulated a reverse from carry trade¹⁹. Some influence could have been also exerted by a change in perception of the Polish economy due to an increase in current account deficit and expected recession among Poland's major trade partners.

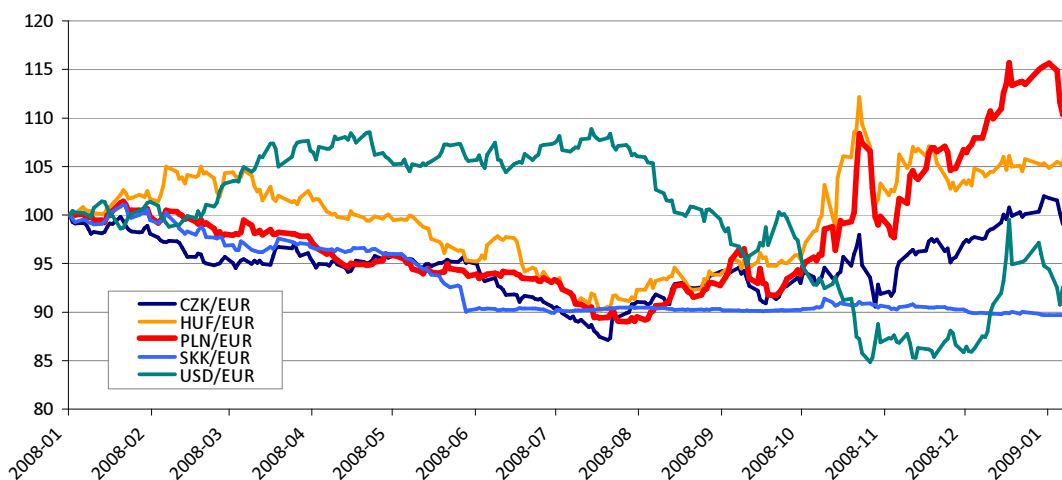
Increased exchange rate volatility of the Polish zloty (and other currencies in the region) is in contrast to relative stability of the Slovak koruna, as a result of the decision to introduce the euro in Slovakia. It may not be ruled out that short-term benefits due to lower exchange rate volatility may turn out to be lower than the costs related to the loss of an instrument to amortise economic shocks. However, according to the study by Błaszczewicz-Schwartzman (2008) and Stażka (2008) for the purpose of this *Report*, depreciation and a strong increase in exchange rate variability of the Polish zloty can be, to a great extent, classified as a shock whose source can be traced back to the nominal sector. In such situation, a liquid exchange rate of the Polish zloty would have to be considered as a factor strengthening shocks, and the resignation from its application would make it possible to evade a shock without incurring costs in the form of lower efficiency of adjustment processes. Slight exchange rate variability of the Slovak koruna

¹⁸ The scale of the carry trade strategy, based on imbalance in international currency system, decreases in the case of increasing aversion to risk. When uncertainty rises, investors close their position in the carry trade strategy.

¹⁹ With respect to the US dollar and the Japanese yen, very low interest rates does not leave much space to central banks for further reductions.



Chart S.12 Exchange rate of the selected currencies to euro in 2008 (2.01.2008=100, increase means depreciation)



Source: NBP.

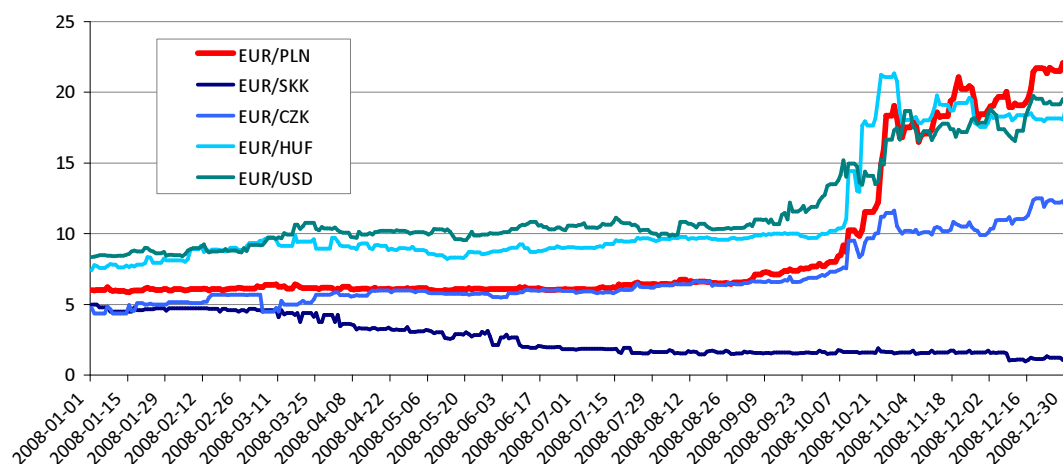
to euro in the last months of 2008 confirms that the central parity within the ERM II system may stabilise the market exchange rate, if market participants are convinced that the introduction of the euro in the foreseeable future is certain. It may not be excluded that, if turmoil in global financial markets had appeared at an earlier date, Slovakia would have not been able to assure exchange rate stability. A particular role in assuring stability is played by the ECB owing to reliability of its policy and confidence of market participants in euro as an international currency.

A strong increase in exchange rate variability of the Polish zloty (and other region currencies, cf. Chart S.13) may make it difficult to determine a central parity in the ERM II system and may make the fulfilment of the exchange rate criterion unlikely. The central parity in the ERM II system should be determined at the equilibrium exchange rate. As a result of strong depreciation in the recent months – as long as it did not reflect fundamental factors, but only an increase in investor aversion to risk in the region – in January 2009, the Polish zloty could be underestimated to euro²⁰. The conclusions formulated in the *Report* claim that the determination of the central parity at an inappropriate level (i.e. over- or underestimated) would have negative consequences for the economy.

With respect to changes taking place in the international currency system, the participation in ERM II is subject to considerable risk. The crisis of confidence, resulting in a drop in liquidity on many markets, favours large exchange rate variability, which makes it difficult to meet the exchange rate criterion. A liquid exchange rate may both be an instrument used to absorb shocks and a factor strengthening shocks. At the same time, a fixed exchange rate results in certain limitations in the autonomy of the conduct of monetary policy, which may cause potential risks in the crisis situation. Ongoing turmoil in financial markets, prospects of deterioration of the economic situation for Poland and its major trade partners as well as strong depreciation of the Polish zloty make it necessary to act very prudently when it comes to designing the scenario of Poland's entry to the ERM II and accession to the euro area. For this purposes, it is necessary to closely monitor the situation on international markets.

²⁰ Analyses of the equilibrium exchange rate, carried out for the purpose of the *Report* in 2008, seem to confirm this thesis assuming that the PLN equilibrium exchange rate did not rapidly depreciate in the recent months.

Chart S.13 Implied variability of the selected exchange rates based on the market option valuations



Source: Bloomberg.

While managing monetary and exchange rate policy, taking into account challenges related both to the developing crisis in the financial and real sector as well as a possible requirement to maintain the exchange rate within the ERM II, it is necessary to point out the following matters.

- The scale of perturbations on financial markets as well as rapidly deteriorating foundations of the Polish and EU economy make it difficult to forecast basic macroeconomic indicators in the coming quarters. This may have significant implications for the ability to meet the nominal convergence criteria. Furthermore, this situation increases the risk of inappropriate determination of the exchange rate parity within the ERM II. Staying in the ERM II in the period of an unstable exchange rate of the Polish zloty may require undertaking currency intervention and cause the risk of losing a part of currency reserves.
- It is necessary to elaborate the strategy of participation in the ERM II which would formulate an optimal policy-mix (combination of the monetary and fiscal policy) during the period of participation in the mechanism. This also relates to the determination of fluctuation ranges to meet the exchange rate criterion²¹.
- It is necessary to formulate the communication strategy for the Ministry of Finance and the NBP with the markets both prior to the entry and during the participation in the ERM II.

Summary

The evaluation of the impact of the ongoing crisis on the balance of benefits and costs related to the introduction of euro in Poland does not change the sense of general conclusions arising from the *Report*. They indicate that the Polish economy

²¹ Experience gathered by member states so far does not state clearly whether the limitation of the Polish zloty exchange rate volatility to $\pm 15\%$ is sufficient from the point of view of meeting the formal requirements. The EU party often underlined that exchange rate deviations above 2.25% (depreciation) may be perceived as severe tensions.


should benefit from the integration with the euro area in the long run, provided that relevant preparations have been made. Nevertheless, the selection of the right date of introduction of euro will be crucial for the balance of benefits and costs in the short term.

Turmoil in global financial markets and economic recession in Poland's major trade partners may partially reduce the ability to benefit from the integration of financial markets, trade intensification or an increase in investments. Protection of Member Countries' internal markets as well as reduction in openness of economies are a common trend in the periods of deteriorating economic situation, which may, however, reduce potential benefits in the case of the scenario of a rapid accession to the euro area. Deterioration of the situation on the labour market may weaken the ability to carry out reforms and increase public expenses. Further exacerbation of economic problems in EU Member States may favour protectionist tendencies. Waiving the possibility to use autonomous monetary policy under such circumstances is related to a significant risk.

Secondly, the main problem which occurred on financial markets were perturbations in operating of the financial channel (capital transformation from lenders to borrowers). The scale and pace of crisis expansion in individual segments of the financial system in 2007 and 2008 proves its exceptional character. Particular concerns arises due to the loss of mutual confidence of market participants in each other which resulted in cutting off sources of financing. This led to liquidity shortages on the interbank markets and to an increase in insolvency risk both with respect to private entities and states. As a result, the crisis expanded from the financial to the real sector of the economy. Easy-money era led to the situation where many world economy sectors depended on the access to loans (e.g. real estate, automotive industry). Those factors cause significant difficulties in precise forecasting of performance of economies in the coming quarters.

Thirdly, in the period of instability of the nominal and real sector, meeting the Maastricht criteria is subject to significant risk. Furthermore, acting in order to meet the criteria may generate certain costs in the case of deterioration of economic situation:

- Inflation criterion: most probably, the condition of the Polish economy will look better than of other EU countries in the coming quarters. However, this means relatively high inflation which may cause difficulties in meeting the criterion. Conducting a restrictive monetary policy, aimed at meeting the inflation criterion, may be less favourable for the real sector of the economy under such circumstances.
- Fiscal criterion: budget deficit for 2009 is difficult to be anticipated and will depend on the probable decrease in revenues (due to a decrease in tax base) and increase in expenses (increase in transfers, unemployment benefits, increase in debt servicing costs as a result of a fall in the exchange rate of the Polish zloty, etc.). At the same time, in the period of economic slowdown the fiscal policy should cope with the task to stabilise economy through optimal use of structural funds and investments related to the implementation of EURO 2012 investment projects. Those factors may make it difficult to meet the fiscal criterion.
- Long-term interest rates criterion: increasing borrowing requirements of governments of countries affected by the crisis pose a threat of imposing an increase premium for credit risk on less reliable borrowers. Despite relatively good economic performance in the recent years, Poland has still a lower rating than euro area economies.

- 
- Exchange rate criterion: exchange rate stabilisation in the ERM II system is a challenge for both the monetary and the fiscal policy. The higher the risk of failing to comply with other criteria, the higher the difficulty to maintain the exchange rate within the ERM II. High PLN exchange rate volatility in the recent months pose a threat of selecting an inappropriate parity. The need to stabilise the exchange rate makes it impossible to use the monetary policy to stabilise the economic situation.

From the point of view of the analysis, it seems that particular attention should be paid to the period of preparation and Poland's membership in the ERM II system, where the impact of processes related to the ongoing crisis may strongly influence Poland's ability to meet all the convergence criteria. In the light of an economic slowdown and arising forecasts of budget deficit, the fundamental threat may be Poland's ability to meet the fiscal criterion, mainly due to high structural deficit.

Exchange rate stability criterion is related to other criteria by a key role of expectations and conviction of market participants that Poland is able to meet other criteria in an efficient manner and in a specified period. The fulfilment of this condition is the only possible way to make sure that the participation in the ERM II may contribute to the stabilisation of the exchange rate around the central parity. It may be therefore stated that turmoil in global financial markets and uncertainty as to their consequences for Poland's ability to permanently meet the Maastricht criteria encourage a profound discussion on an appropriate selection of the date of entry to the ERM II and elaboration of the participation strategy.



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