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# Financial Stability Review

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First half of 2007

**NBP**

**National Bank of Poland**

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The aim of this Review is to assess financial system stability in Poland. Financial system stability is a situation when the system performs all its functions in a continuous and efficient way, even when unexpected and adverse disturbances occur on a significant scale.

The stability of the banking system is of particular importance to the financial system stability. This is due to the role banks play in financing the economy and in the settlement of payments. It also results from the scope of risk transformation performed by banks for other entities. Therefore, a special emphasis is put on the analysis and assessment of the banking system stability.

Maintaining the stability of the financial system is of particular importance from central banks' perspective. This is due to the fact that the financial system stability is closely related to the primary task of the central bank, i.e. maintaining price stability. The financial system plays a key role in the transmission of monetary impulses to the real economy and its instability may hamper the efficient implementation of the monetary policy. Another reason for the involvement of the National Bank of Poland in activities supporting the stable functioning of the financial system is the fact that the central bank is entrusted with the supervision of systemically important payment systems. One of the conditions for efficient operation of payment systems is the safe functioning of financial institutions which are an integral component of these systems. Yet another reason for the National Bank of Poland's interest in the stability of the financial system is its duty to create conditions necessary for the development of the banking system.

Through the publication of the "Financial Stability Review", addressed to financial market participants as well as other persons and institutions interested in the subject, the National Bank of Poland aims at presenting the conclusions from analytical and research work on financial system stability, including the assessment of its resilience to potential disruptions. The dissemination of the results of this knowledge should support the maintenance of financial stability, through, *inter alia*, better understanding of the scale and scope of risk in the financial system. It may increase the probability of a spontaneous correction of the behaviour of those market participants that undertake excessive risks, without the necessity of public entities' intervention into market mechanisms. Thus, the information policy of the central bank becomes an important instrument for maintaining financial system stability.

The National Bank of Poland presents the results of its analyses in extensive annual „Financial Stability Reports” as well as shorter – “Financial Stability Reviews” – discussing developments in the first half of the year. This Review was adopted by the Management Board of the National Bank of Poland at the meeting on October 18, 2007.

## Executive summary

The *Review* presents an assessment of the Polish financial system stability in the first half of 2007. However, owing to a large scale of turbulence noted on global financial markets since the beginning of the second half of 2007, the analysis of the impact of the developments on the financial markets on the stability of the financial system was carried out for the period from 1 January 2007 to 31 August 2007, i.e. in a different way than the analysis presented in the remaining part of the *Review*.

In the first half of 2007, short-term domestic threats to financial system stability remained at a low level. Like in 2006, the assessment of short-term risks for the financial system reflected mainly the improvement in the financial condition of the financial sector's clients – corporates and households. The improvement in non-financial sector finances was also conducive to an increase in demand for financial services and the expansion of activities by financial institutions.

The growth in loans to corporates triggered by rising investments did not lead to an increase in this sector's financial leverage owing to a parallel increase in assets and an improvement in enterprises' financial performance. A stable financial leverage and corporates' improved profitability contributed to the reduction of their insolvency risk.

The aggregate loan-repayment burden on households went up as a result of a fast growth in lending and a rise in the number of loan repaying households. However, the rise in household incomes reduced loan-repayment burden of households that took out loans in previous years. On the other hand, NBP surveys show that in the case of new housing loans the loan-repayment burden on borrowers' incomes was higher than in previous periods. This was the consequence of the growth in average loan amounts, resulting from high accumulated rise in residential property prices in the recent 6 quarters and more lenient credit policies pursued by banks. In 2006 and 2007, banks broadened their target groups to reach the hitherto non-serviced, less affluent customers and pursued more lenient policies for granting loans, including housing loans. These facts may indicate that the banks' credit risk appetite, which has been increasing since 2006, is still on the rise.

Some symptoms of a gentle slowdown in housing prices could be noticed on the housing market. Should those tendencies be confirmed in the coming quarters, they would be beneficial to the financial system stability. A continuation of the high growth rate of property prices would increase the risk of a sharp correction which – if coupled with a rise in the percentage of non-performing loans – may pose a risk to the stability of the financial system.

At the beginning of the third quarter of 2007, global financial markets saw a large correction coupled with a rise in volatility and liquidity problems on certain markets in developed countries. Liquidity problems resulted from a considerable uncertainty as regards the impact of disruptions on the American subprime mortgage market on financial institutions and the related reduction in their mutual credit limits leading to an increase in money market rates. Some central banks decided to intervene to maintain liquidity on the money market.

In Poland, the impact of disruptions on the global markets was limited to a fall on the stock market. No disturbances were observed on the Polish interbank market. Poland lacks an active market for credit derivatives and banks operating in Poland were not involved in such transactions on the international financial market. Likewise, there are no specialized institutions trading in such instruments in Poland. In addition, deposits of the domestic non-financial sector prevail in the funding structure of Polish banks. Therefore, Polish banks were not affected by the disruptions on the international money market.

The correction on the Polish stock market had an impact mainly on the value of households' financial assets and the value of assets held by some financial institutions (in particular, investment funds and open pension funds

(OFE)). The exposure of Polish households to the stock market remains rather low and it may be expected that the impact of the stock market correction on households' consumption via the wealth channel will be insignificant.

The financial position of the financial system's key component – the banking system – was very good in the first half of 2007. Compared to the corresponding period of 2006, banks' earnings increased, in the wake of the continuing fast growth in lending and rising net interest income. Net non-interest income also rose and a particularly large growth was recorded in net fee income related to intermediation in the sale of non-bank financial products (particularly participation units in investment funds and insurance policies). The quality of loan portfolios continued to improve as demonstrated, *inter alia*, by a fall in charges to irregular loans. However, the fall in the ratio of irregular loans resulted primarily from increased lending. The impact of the present growth in loans on financial system stability in the coming years will largely depend on whether banks adopt a prudent approach towards the selection of their borrowers, and whether the conditions in which banks and their customers operate remain favourable. This is particularly important in the view of banks' broadening their client base to include less affluent customers as well as intense competition between banks.

Credit growth exceeding the growth in banks' capital base led to a fall in banks' capital adequacy ratio and their ability to absorb potential losses. Simulations of various hypothetical paths of deterioration in the loan portfolio quality indicate that the capital resources of the banking sector are sufficient (in proportion to the present value of loan portfolio) to absorb potential losses resulting from a decline in loan portfolio quality, even without support from strategic investors. In order to maintain the present increase in lending in the medium-term, banks will have to increase their capital, the source of which may be their present good financial performance. In the long-term, high growth rate of long-term loans will cause the acquisition of stable sources of long-term financing to become a challenge for the banks.

As in previous years, in the first half of 2007, the assets of non-bank financial institutions rose more quickly than the assets of banks. Most non-bank financial institutions also reported increased profits and better efficiency of operation. The financial position of this sector does not indicate that it may become a source of risks to the financial system stability in the near future.

Despite low risk to the financial system stability in the short-term, risk factors may emerge in the long-term, primarily as regards the banking sector. In particular, the situation on the credit market should be noted in this context. The growth rate of household loans significantly exceeds the growth rate of households' incomes. At the same time, there is intense competition between banks seeking to attract clients, which leads to a loosening of the credit policy. These symptoms demonstrate that banks tend to accept higher and higher credit risk. This risk is enhanced by developments on the real estate market, in particular, a possible correction on some housing property markets, which would have an impact on the value of collateral taken by banks. If such risk factors materialise, their consequences may be particularly severe during a period of economic slowdown. It should also be noted that the present good financial condition of the banking sector is a natural consequence of the high growth rate of the economy and may deteriorate should macroeconomic conditions become less favourable.

## 1. Real sector performance

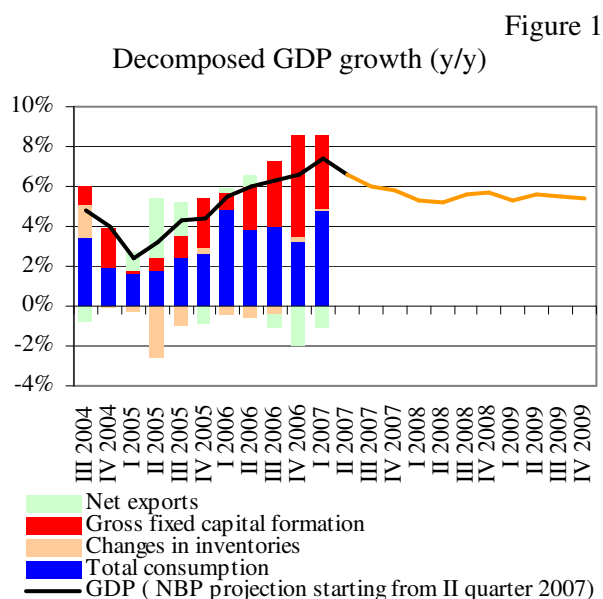
The macroeconomic conditions in the first half of 2007 were conducive to preserving financial sector stability. The economic growth rate and high profitability of enterprises remained high. The situation on the labour market (further fall of the unemployment rate, rise in employment and increase in salaries and payroll fund) reduced the risk deriving from lending to households and led to broadening customer base of financial institutions. In terms of financial system stability, positive trends in the economy should be maintained in the next quarters. This is indicated, among others, in the GDP projection prepared by the NBP (see “Inflation Report – July 2007”).

### 1.1. Corporate sector

In the first half of 2007, the GDP growth rate was high. Gross fixed capital formation and total consumption (see Figure 1) were the key factors contributing to economic growth. According to the NBP July 2007 projection, the GDP y/y growth may be expected to reach 6.4% in 2007 and around 5.5% in the subsequent two years.

The high value of industrial production was accompanied by a rise in the level of production capacity utilisation, whose value has been increasing for a few years now and amounts to 84%<sup>1</sup>. Enterprises forecast that in the coming quarters high demand for their products will be maintained. NBP surveys confirm that the percentage of enterprises reporting problems in finding customers is the lowest in the survey history.<sup>2</sup> The lack of threats to continued economic growth on the demand side and the high utilisation of production capacity translate into the increase in investments whose growth on a year-on-year basis may, according to the NBP projection, reach 20% in 2007 and exceed 10% in the subsequent two years. In addition to the favourable economic growth prospects, foreign direct investment and EU funds absorption constitute an important factor stimulating investment growth.

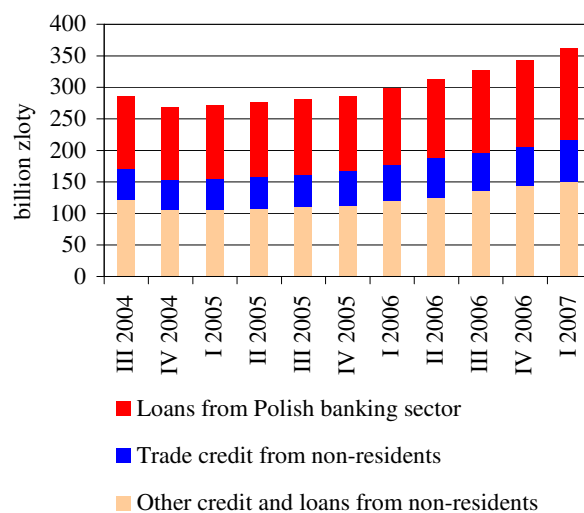
However, the growing problems in finding skilled employees may become a barrier to further development of enterprises. Enterprises list this problem as the key barrier to their growth.<sup>3</sup> Moreover, discrepancies between demand and supply may contribute to the deterioration in the ratio of productivity to salaries growth. In future, it may result in



Source: NBP estimates based on GUS data.

Figure 2

Selected debt components of Polish enterprises



Note: the category „other credit and loans from non-residents” includes the total of liabilities to non-residents apart from trade credit, e.g. investment loans.

Source: NBP.

a decline of profitability and competitiveness of enterprises and thus reduce the tendency to develop their business.

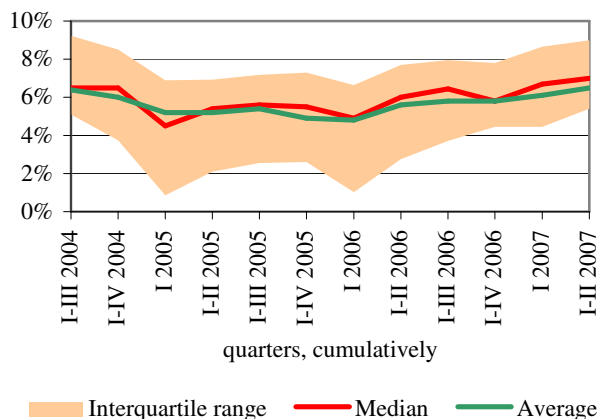
In the first half of 2007, enterprises' demand for funding, acquired through all available channels, increased considerably. Enterprises' indebtedness in the domestic banking sector rose by 24% compared to June 2006. According to the analyses of enterprises' indebtedness, in the first half of 2007, loans to finance current activities (overdrafts and operating capital loans) rose faster than investment loans. The highest growth rate among loans to corporates was recorded in property loans. Enterprises also used internal financing. NBP surveys<sup>4</sup> point out that the share of enterprises declaring the use of internal financing to finance investment projects has been rising since the second half of 2006. The analysis of data published by the Association of Leasing Enterprises suggests that the value of leasing contracts used to finance investment projects has also been rising.<sup>5</sup>

Balance of payments statistics<sup>6</sup> indicate an increase in enterprises' debt to non-residents (see Figure 2). The debt is, however, concentrated within a small group of companies. As there has also been an increase in liabilities towards direct investors, which represent 45% of companies' foreign debt, it can be assumed that a large part of foreign debt was a consequence of transactions taking place within capital groups. Therefore, the debt represents a smaller risk for companies with such liabilities.

The easing of lending policy towards enterprises contributed to the increase in the value of loans extended by domestic banks. In the next quarters, banks expect this trend to be maintained, both as regards small and medium enterprises, and (to a smaller degree, though) large enterprises. The surveys show that banks eased their lending policies mainly by reducing loan spreads and, to a lesser extent, by prolonging acceptable loan maturity periods and reducing requirements as regards credit collaterals.<sup>7</sup>

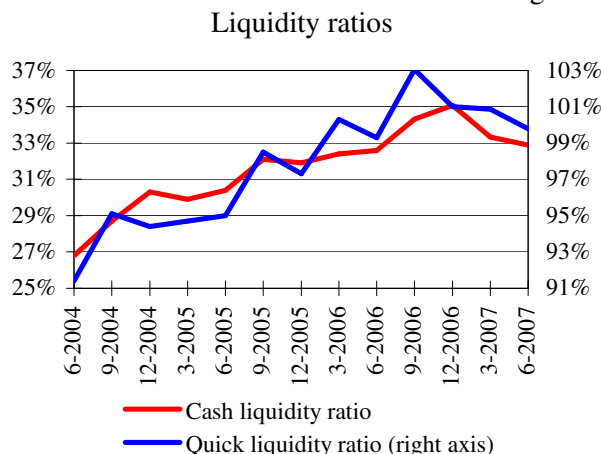
The high rate of economic growth contributed to the improvement in companies' profitability (see Figure 3). At the same time, enterprises' liquidity ratios were high (see Figure 4). It should be noted that the growth rate of the ratios was curbed in the first half of 2007. Problems in maintaining liquidity are reported only by small companies.<sup>8</sup>

Figure 3  
Dispersion of pre-tax profit margin in sections of the corporate sector



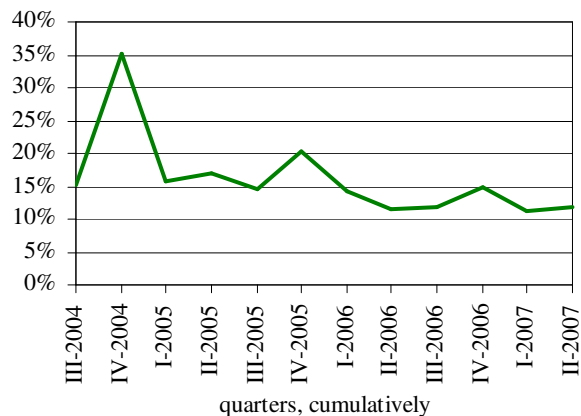
Note: median and average calculated on the basis of pre-tax profit margin of individual sections, average calculated on the basis of corporate sector aggregate data. .  
Source: NBP calculations based on GUS data.

Figure 4



Source: GUS.

Figure 5  
Interest burden on net operating income (total corporates)



Source: GUS.



Despite the increased scale of new loans to corporates no material changes were recorded in companies' debt burden. The stable value of financial leverage shows that the debt growth rate was close to the increase in companies' balance sheet total. At present, enterprises' rising debt does not negatively affect their performance (see Figure 5), which means that the growth in loans need not be connected with an increased risk regarding lending to corporates.

In the first half of 2007, the percentage of enterprises servicing their debt in a timely manner was at a historical high (see Figure 6). It may mean that in the situation when Poland's economic growth is accelerating, the credit risk is going down. This is confirmed by changes in borrowers' structure in terms of their profitability. The value of loans extended by banks<sup>9</sup> to enterprises whose financial situation is the worst, i.e. those with negative pre-tax profit margin lower than 15%, went down (see Figure 7) while indebtedness in the group of highly profitable enterprises went up.

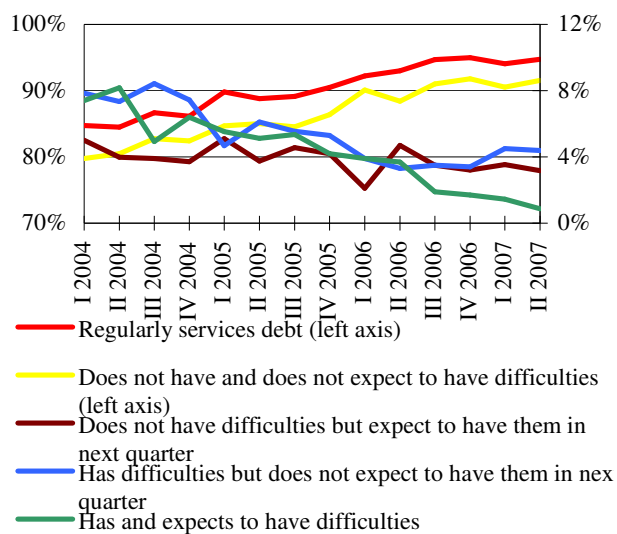
When assessing the general situation in the corporate sector, it may be concluded that both the current situation and prospects for the sector show that there credit risk of corporate loans is on average low.

## 1.2. Household sector

One of the results of the high economic growth in the first half of 2007 was a further improvement in the financial standing of households. The unemployment rate continued to fall rapidly (see Figure 8). The growth rate of employment and salaries accelerated, which was conducive to a high rise in payroll fund and individual consumption (see Figure 9).

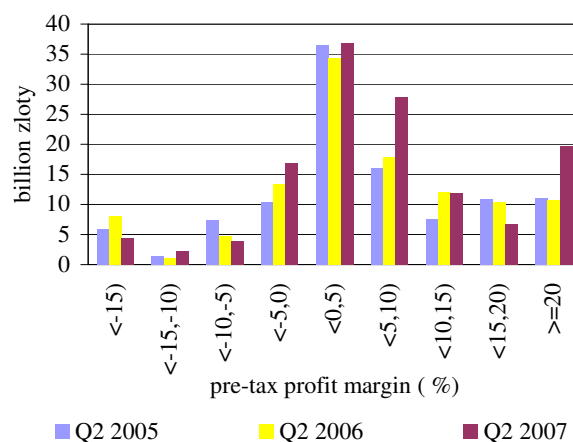
Other factors that contributed to the increase in households' incomes were the rise in income deriving from employers' operating surplus and self-employed persons as well as private transfers from persons employed abroad. The acceleration of salaries' growth rate was caused by both increased problems of enterprises in hiring and retaining employees that resulted from a high demand for labour (as a consequence of a quick economic growth) and a fall in the number of economically active persons (among others, as a result of labour migration and voluntary early retirement). In addition to the expected further rise in households' incomes, in the second half of 2007 and in 2008, cuts

Figure 6  
Corporates' expectations as to the possibility of settling liabilities



Source: NBP quick monitoring survey data.

Figure 7  
Distribution of bank loans by corporate profit margins



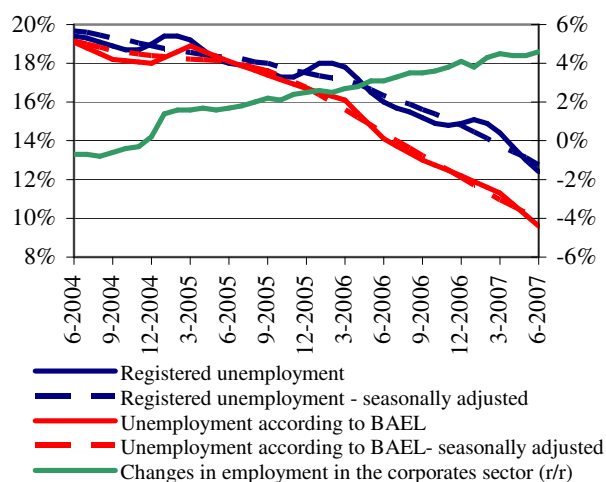
Source: NBP calculations based on GUS data.

of disability pension contributions since 1 July 2007 and 1 January 2008 will also contribute to the increase in net payroll fund and individual consumption. Households' incomes will also go up as a result of the two-year cumulative indexation of old-age and disability pension benefits planned for 2008.

The rise in households' incomes and the excellent situation on the stock market in the first half of 2007 resulted in a high growth (12.6%) of the value of households' financial assets. At the same time, there was a shift of savings towards more risky investments, in particular, investment funds, shares, and unit-linked life insurance (UFK). These forms of savings taken together represented more than 90% of the rise in households' financial assets in the first half of 2007. In parallel, there was an increase in the share of equities in the investments of the investment funds, which led to a rise in the average risk level underlying investment in such financial instruments (see Chapter 5). Thus, there was a rise in the sensitivity of households' financial assets value to price fluctuations on financial markets. Changes in the value of financial assets may in turn have an impact, via the wealth effect, on the level of consumption. No research has been conducted to date on the scale of this effect in the Polish economy. However, taking into account the results of research carried out in other countries and a low direct and indirect (via investment funds and UFK) involvement of Polish households in the stock market it may be expected that this effect is insignificant.

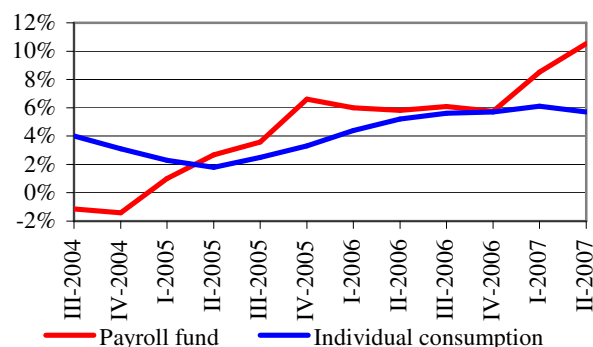
In the middle of 2007, there was a rise in the growth rate of household loans and the amount thereof, both in the segment of consumer and housing loans (see Figure 10). In particular, the gradual acceleration of consumer loans growth rate taking place since the middle of 2006 should be noted. At the end of the first half of 2007, their growth rate approached 30% on a y/y basis. In the same period, housing loans growth rate was close to 60% y/y. In the first half of 2007, there was a significant decline in the growth rate of foreign currency-denominated housing, which fell in favour of zloty-denominated housing loans (see Figure 11). The reason for the above was tightening of credit standards and terms and conditions for currency loans by banks as a result of implementing the provisions of Recommendation S<sup>10</sup> banks tightened credit standards and terms and conditions for currency loans. Another reason was the rise in interest rates on currency loans resulting from

Figure 8  
Unemployment according to BAEL and registered unemployment (left axis) and changes in employment in the corporates sector (right axis)



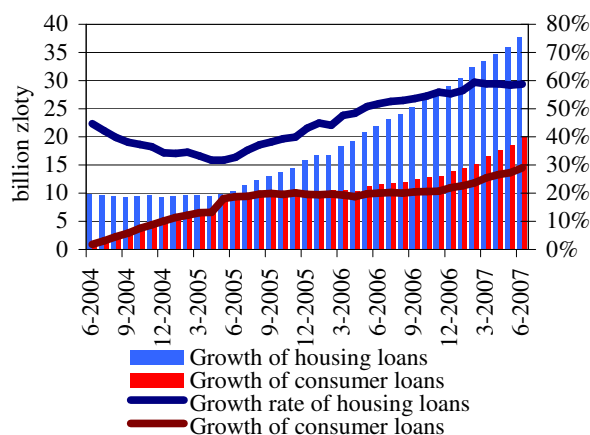
Source: GUS, NBP seasonal adjustment.

Figure 9  
Growth in individual consumption vs. change of real payroll fund in the economy (y/y)



Source: GUS.

Figure 10  
Growth in loans to households (y/y)



Note: data adjusted for exchange rate movements.  
Source: NBP.

an increase in interest rates across the world, in particular in Switzerland<sup>11</sup>, leading to a declining interest rate differential.

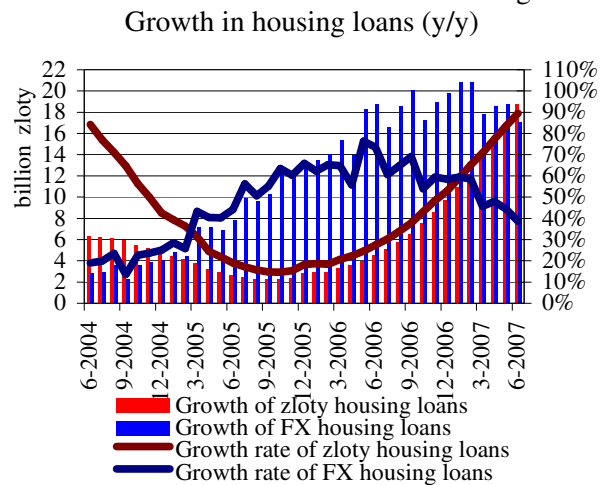
A much better outlook for such developments as households' financial standing, Poland's economic situation as anticipated by households, and their assessment of unemployment risk had a positive impact on loans growth rate.<sup>12</sup> At the same time, households' positive assessment of their financial standing in the future and a decline in fears connected with income loss positively influence decisions on taking out loans. This be especially valid for housing loans owing to their large value and a long repayment period. Loan growth was also accelerated by the continued easing of lending policy by banks, which was mainly the consequence of the observed competition pressures.<sup>13</sup>

A consequence of the high growth rate of loans to households was the rise in debt burden indicators, credit to financial assets ratio (see Figure 12) and households loan service ratio (see Figure 13). The rise in interest on loans, in particular foreign currency loans, had a smaller impact on the rise in loan service ratio. In the first half of 2007, the factors that led to a curb on the growth rate of debt service ratio were the rise in households' incomes, longer average maturity of housing loans and the strengthening of the zloty.

The rise in the aggregate household debt service ratio may be caused by two factors. First, the aggregate indicator may increase when there is a rise in the share of borrowers among households (*ceteris paribus*). Second, even if the share of household borrowers remains stable, the aggregate debt service burden ratio would grow when the average debt service burden ratio for individual household borrowers goes up. Box 1 and 2 present an analysis of household borrowers' debt burden owing to which the results of the analysis are not distorted by the impact of changes in the share of household borrowers in the analysed population.

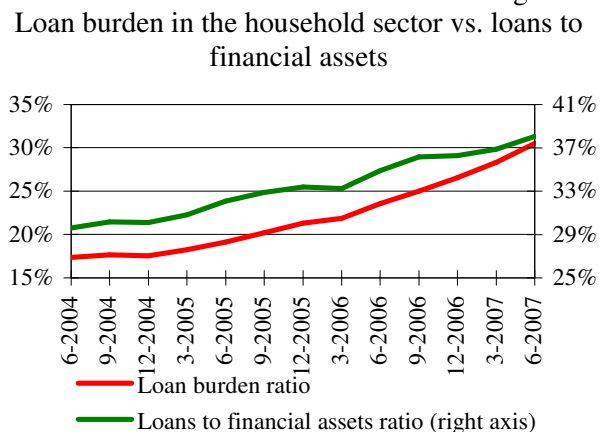
According to NBP surveys, in the first half of 2007 the average housing loans service burden in the group of households that took out housing loans in that period (see Box 2) increased considerably. The results of the household budget (hereinafter referred to as BGD) survey analysis carried out by GUS may constitute a source of data for an assessment of the average debt service burden among all household borrowers. However, the results of this survey are published with delay. The latest average yearly data were

Figure 11



Note: data adjusted for exchange rate movements.  
Source: NBP.

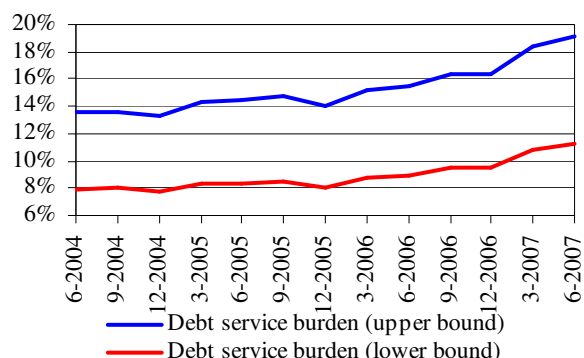
Figure 12



Note: ratios calculated on the basis of data for the whole household sector.  
Source: NBP.

published for 2006 (see Box 1). The overall assessment of all trends in the household sector shows a major improvement in the sector's current financial standing. However, the trends regarding loans to households show that households that took out loans in the first half of 2007 were characterised by higher risk than borrowers who had been granted loans in previous periods.

Figure 13  
Debt service burden in household sector



Note: debt service burden – ratio of the total of principal and interest instalments paid by households to disposable income. Due to the lack of data on average maturity of consumer loans, the calculations have been made for maturities of one year (upper bound) and two years (lower bound). The ratios calculated on the basis of data for the whole household sector. Source: NBP.

### Box 1: Loan service burden on households in 2006 based on individual data from household borrowers

The box presents an analysis of data at the individual level limited to only those households that have taken out loans. The methods adopted for the analysis ensures that the calculated indicators are not disrupted by the above mentioned influence of the rise in the share of household borrowers in the population of household. The results and conclusions of the analysis refer to the households that took out loans before the end of 2006.

The results of household budget survey analysis show that 2006 saw a decline in the average debt service level of household borrowers (see Figure 1.1). It should be borne in mind, however, that owing to its character the average yearly debt burden ratio did not fully reflect the significant increase in debt service costs of a part of loans to households that took place in the second half of 2006. The rise in debt service costs was caused by the increase in the average value of new housing loans and a rise in interest on foreign currency loans.

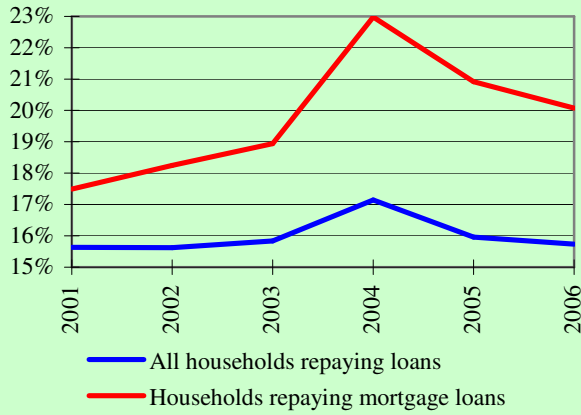
The main reason for the decline in the debt repayment ratio in 2006 was the increase in household borrowers' incomes that was particularly marked in the case of households repaying mortgage loans (rise by 18.5 % y/y). Other factors that contributed to the decline in service costs of some loans were the decline in interest on zloty-denominated loans after a series of cuts in interest rates in the years 2005-2006, a decline in banks' margin for new housing loans, a rise in the average maturity period of housing loans and the strengthening of the zloty.

The results of the household budget survey analysis confirm the decline in the average credit risk level of household loan portfolios in 2006. This is evidenced by the decline in the percentage of households with a high debt service burden ratio (see Figure 1.2) and the decline in the percentage of household borrowers perceiving their situation as bad and their share in total loan repayment (see Figure 1.2 and 1.4).

In the first half of 2007, household debt burden should be higher than in 2006 owing to the further quick growth of loans in the first half of 2007 and the probably larger share of borrowers with lower incomes. However, this hypothesis may only be verified in the middle of 2008 when data for the whole 2007 have been published by GUS.

Figure 1.1

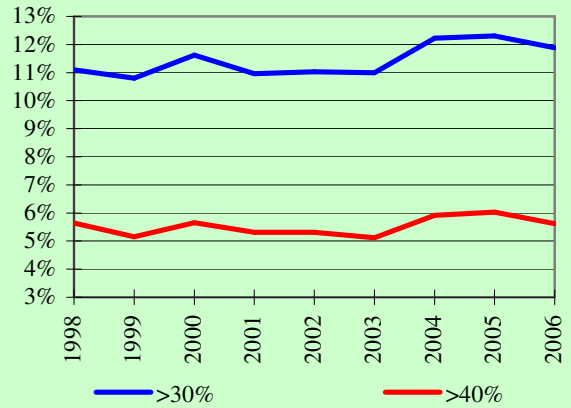
Average debt service ratio in all households repaying loans and households repaying mortgage loans



Source: NBP calculations based on GUS data (BGD).

Figure 1.2

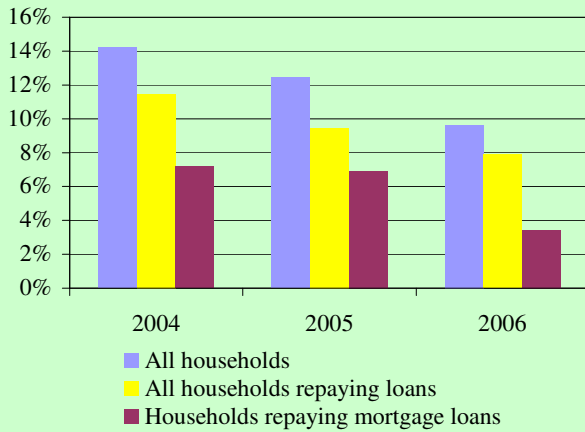
Percentage of households with debt service ratio above 30% and 40%



Source: NBP calculations based on GUS data (BGD).

Figure 1.3

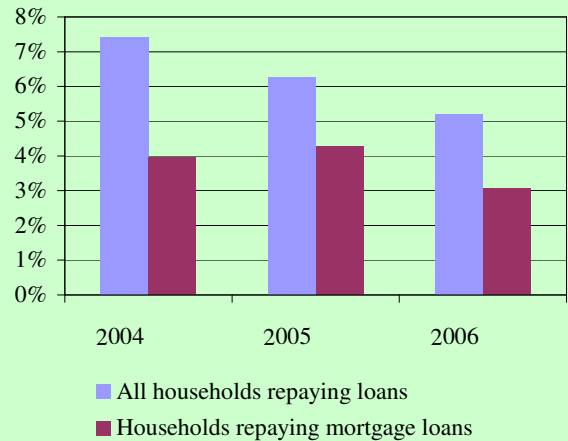
Proportion of households that perceive their situation as bad



Source: NBP calculations based on GUS data (BGD).

Figure 1.4

Share of loan repayment by households that perceive their situation as bad in total loan repayment



Source: NBP calculations based on GUS data (BGD).

**Box 2. Results of stress tests of the sensitivity of households repaying housing loans taken out in the years 2006-2007 to foreign exchange rate and interest rate shocks.**

The results and conclusions presented in this box refer only to households that were granted housing loans by banks in the period from 2006 Q2 to 2007 Q2 and are based on the analysis of data about new housing loans in particular quarters of that period. Such an approach makes it possible to assess changes in the financial standing of households taking out housing loans and changes in lending policies of banks extending loans.

A consequence of the dynamic property price growth in the years 2006-2007 was a large increase in the average value of new loans. Despite a decline in average loan spread and extension of average housing loan maturity, the value of an average instalment of new housing loans went up. This resulted in a rise of the monthly housing loan service burden, which is connected with an increase of households' sensitivity to shocks coming from the financial markets as most loans bear variable interest rates. The effect of the above is that the risk taken on by lenders goes up.

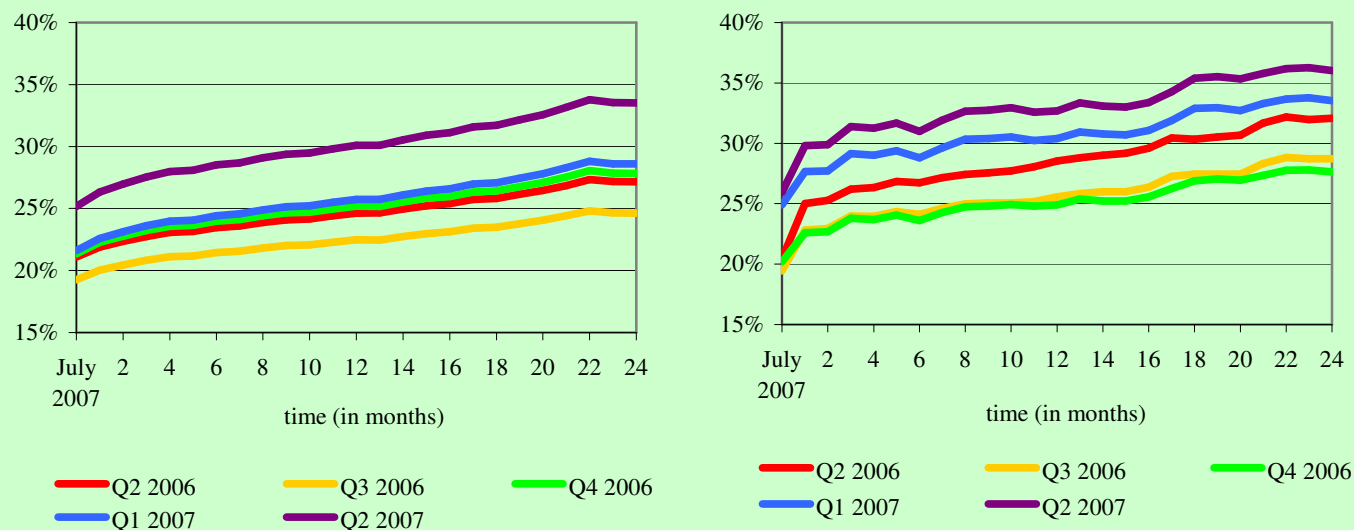
To analyse the level of risk taken by banks when extending housing loans, a stress test was carried out on the sensitivity of a typical borrower to shocks coming from financial markets. The calculation of loan instalments was made basing on survey data from banks. A typical borrower has been defined as a household with an income equal to the mean for the borrowers' population, repaying a housing loan whose parameters (maturity, principal, loan spread over the money market interest rate) are equal to mean values for new loans in a given quarter. Figure 2.1 presents households' debt servicing burden assuming that the influence of interest rates and foreign exchange rate remains in line with the shock scenario path, broken down by quarters in which a housing loan was granted. The adopted shock scenario for zloty-denominated loans assumed a rise in interest rates in Poland by 340 bps in the course of two years (200 b.p. in the first year). The scenario adopted for foreign currency loans assumed a depreciation of the zloty by 35% in the course of two years (25% in the first year) and a rise in interest rates rise in Swiss interest rates by 310 bps in the course of two years (160 bps in the first year). The probability of a change that would be identical to the one in the shock scenario, or a more pessimistic one, is around 1% (estimated on the basis of historical data for the years 2003-2007)<sup>1</sup>.

The sensitivity of households that were granted housing loans to interest rate and foreign exchange rate shocks, measured with the relation of debt service costs to net income increased significantly in the period 2006 Q2-2007 Q2. In some countries of the euro area for which such research had been carried out a total debt service burden exceeding 30% is considered high. The analysis of the shock scenario with regard to loan installments in relation to the zloty exchange rate and money market interest rates shows that there is a risk of a rise in the housing loan service burden of a typical borrower above this level (see Figure 2.1). The above results regard average burden level and may suggest that a *current* housing loan service burden may be large for borrowers with a worse-than-average financial standing. However, the values of household margin<sup>2</sup> for a typical borrower remain, despite a downward trend, high for most banks extending housing loans (both now and in the shock scenario).

In the first half of 2007, the sensitivity of "new" borrowers to shocks increased considerably. This resulted primarily from a quick rise in the average value of housing loans (slightly stronger in the case of zloty-denominated loans than foreign currency loans). The difference between the sensitivity of borrowers taking out zloty loans and those taking out currency loans decreased as a result of easing income criteria for zloty loans (especially strong in 2007 Q2). Although the current financial standing of borrowers repaying housing loans remains good, in view of stabilising property prices and increasing expectations of interest rate increases the risk of crediting the purchase of property by households has gone up.

Figure 2.1

Ratio of debt service costs to net income of a typical household for housing loans in zloty (left panel) and in Swiss franc (right panel) in individual months of the shock scenario, broken down by quarters in which the loan was granted



Note: Current burden for July 2007. The ratios presented above are average debt burden ratios in 15 banks that have been surveyed and weighted by the share of individual banks in new housing loans in a given quarter. The share of surveyed banks in outstanding housing loans of the banking sector amounted to around 80% in the analysed period. It was assumed that there was no rise in borrowers' disposable income in the simulation period.

Source: NBP calculations.

<sup>1</sup> The probability of such a change is greater, however, if it were distributed over a longer period. For example, the estimated probability, basing on historical data, of a rise in the zloty interest rates by 200 b.p. in two-year time horizon is around 7.5% (compared to 1% in one-year horizon).

<sup>2</sup> Household margin has been defined as the difference between household disposable income and the expenditure to cover basic living cost and loan service.



## 2. Financial markets

Negative news from the US credit market contributed to a change in the perception of risk among participants of financial markets. The first symptoms of market disruptions were traced in February and March. In July and August 2007, the developments in the US market led to disruptions in other markets which prompted some central banks to intervene to maintain liquidity on financial markets. Owing to this fact, the analysis of the impact of financial market developments on financial stability has been carried out for the period from 1 January to 31 August 2007.

### 2.1. Global factors

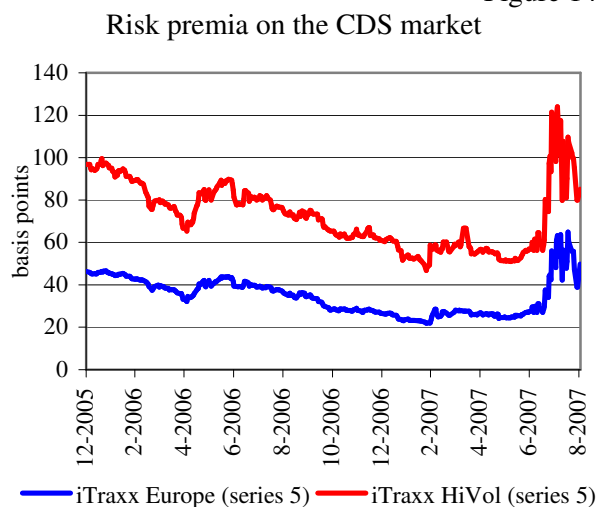
In the analysed period, the global financial market was under a strong influence of information coming from the United States. The information that was of major importance was the deterioration on the market of financial instruments tied to subprime mortgage loans.

Two periods of increased volatility can be distinguished in the analysed period – the first one in February and March, the second, triggering bigger changes in financial assets prices – in July and August. This was mainly caused by changes in the market evaluation of the scale of impact of the situation in the subprime mortgage market on the US economic growth and funding conditions in credit markets. These developments led to a rise in credit risk premium (see Figures: 14 and 15) which translated to a decline in prices of the most risky financial assets, including emerging markets' assets.

Another important phenomenon was that some central banks in highly developed countries continued to raise interest rates. The persisting risk of inflation rise resulted in further tightening of monetary policy in the euro area. Interest rate increases were in line with the expectations of market participants (see Figure 16). In the period of market disruptions in the third quarter expectations of further increases in interest rates were modified considerably.

The downward trend in risk premia on global markets, apparent until February 2007, was connected with easy access to funding (in particular, in the Japanese market) and the perceived low investment risk. In the period from February to March, market participants estimated that the problems with subprime mortgage repayment were of local character

Figure 14

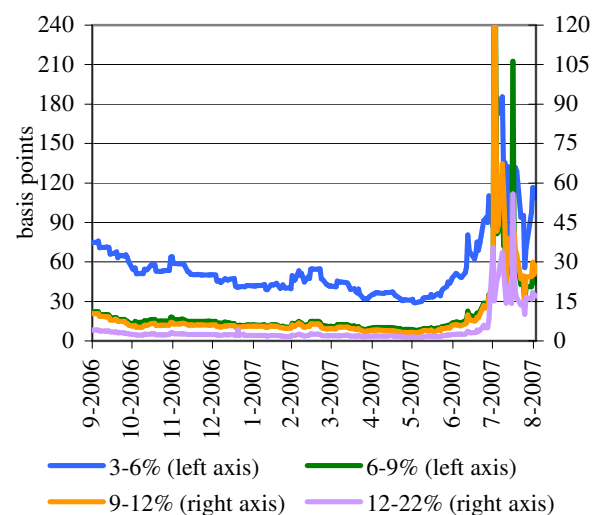


Note: The iTraxx Europe index consists of credit default swaps on debt of 125 European investment-grade companies for whose bonds there is a liquid CDS market. The iTraxx HiVol index includes 30 of these firms which bear highest credit-risk grade.

Source: Bloomberg.

Figure 15

Credit risk premia on the CDO market according to tranches of iTraxx Europe index



Note: lower bound of the range denotes the threshold of losses in the underlying portfolio, above which further losses are covered from given tranche. The chart presents Series 6 of the index, whose underlying portfolio consists of transactions completed within March-September 2006 period. Due to lack of liquidity in the CDO market on 1 August 2007, when CDO premia for presented synthetic tranches exceeded 500 bps, this day was removed from presented series.

Source: Bloomberg.



and would not have an impact on other segments of the financial market (see Figures: 14 and 15). The high risk appetite favoured strengthening of foreign exchange rates, rising stock prices and declining bond yields in emerging market (see Figure 17).

A change in sentiment in the global market in July 2007 turned out to be of a more permanent nature and was connected with a bigger number of negative reports than the corrections in spring 2006 and winter 2007. It exerted the largest influence, apart from the impact on the credit and stock market, on the money market leading to a strong decline in its liquidity. Under increased uncertainty as to the financial standing of their financial sector counterparties, banks either cut credit limits or altogether refused to lend in the interbank money market. The reason for the uncertainty was the unknown scale of individual banks exposure to illiquid structured financial instruments and the near maturity of redemption dates of large tranches of asset-backed commercial papers whose issue had been guaranteed by commercial banks. The liquidity crisis, particularly severe on the European and US markets, prompted some central banks to carry out additional non-standard open market operations providing liquidity to the banking system.

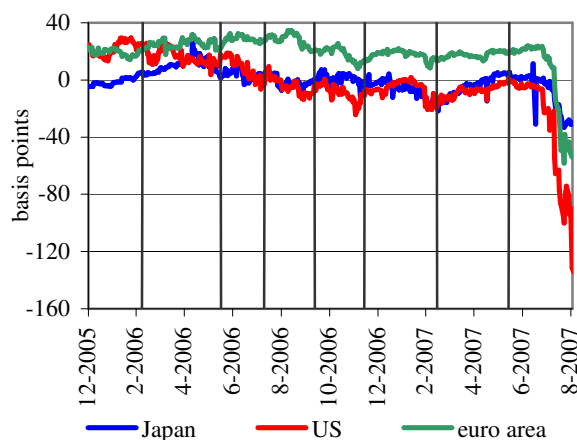
The impact of the US credit market crisis on the Polish financial system was insignificant in the analysed period, which is a consequence of the fact that Polish banks are not exposed to credit derivatives directly. The liquidity of the domestic financial market did not decrease. The strong impact of changes in global markets was only noted in the equity market where share prices dropped considerably. A slight and temporary depreciation of the zloty also took place, as well as a rise in the spread between yield on Polish government bonds and the yield on bonds in developed markets.

In the analysed period, disruptions in global markets did not have an impact on the situation of Polish financial institutions. The possibility of such an impact cannot, however, be ruled out, if disruptions in global markets persist for a longer time.

## 2.2. Interest rates

In Poland, short-term interest rates remained under a major influence of market expectations regarding future decisions of the Monetary Policy Council. The reference rate increased

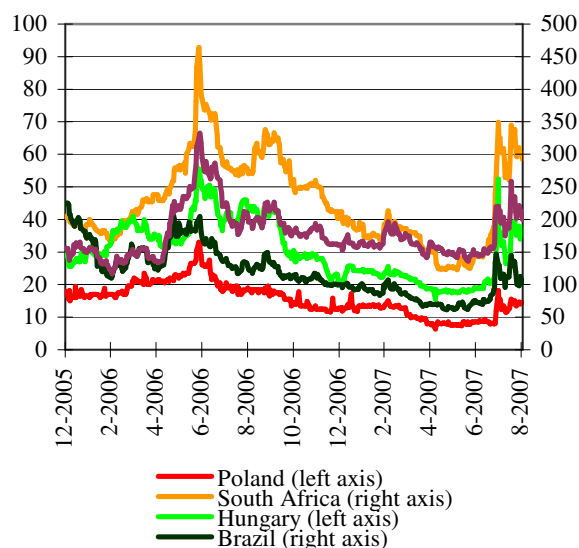
Figure 16  
Expected change of short-term interest rates in 3-month horizon



Note: the expected change of interest rates was calculated on the basis of of Overnight Index Swap contracts rates. Vertical lines denote ECB rate increases.

Source: NBP calculations based on Bloomberg data.

Figure 17  
Risk premia on selected emerging markets



Note: premia on 5-year credit default swaps on government bonds denominated in euro (Poland and Hungary) or in the US dollar (other countries).

Source: Bloomberg.

from 4% to 4.75%, i.e. in line with the expectations of market participants. In one-year horizon the participants of the financial market expected a rise of the reference interest rate to the level of 5.25%-5.50% (see Figure 18). Disruptions in the euro area and US money markets in August 2007 did not affect the situation on the domestic money market.

The downward trend in long-term interest rates that dominated in the second half of 2006 was reversed in January 2007 (see Figure 19). Two categories of factors influenced long-term rates. The the expectations regarding the future path of NBP interest rates, the rise in bond yields in the developed markets (in particular, in the US and the euro area) and declining share of non-residents in the bond market caused a rise in long-term rates.

On the other hand, the low supply of bonds that was a consequence of a much better than planned balances of the central government, combined with a growing demand for government bonds from domestic investors, has curbed the rise in long-term interest rates.

The strong demand for shares resulted from a large inflow of funds to non-bank financial institutions and the fact that the exposure of open pension funds on the equity market approached the statutory limit, due to a marked rise in share prices. Another factor that limited the rise in Polish government bond yields was the fact that Poland's credit rating had been upgraded by Fitch and Standard and Poor's. The combined factors led to the yield spread between Polish 10-year government bonds and the corresponding German bonds to a historical low of around 90 basis points in June 2007. In the period of market turmoil in July and August 2007, spread widened (by a total of around 50 bps) in line with a decline in yields in developed markets resulting from a rise in demand for safe financial instruments under increased risk aversion.

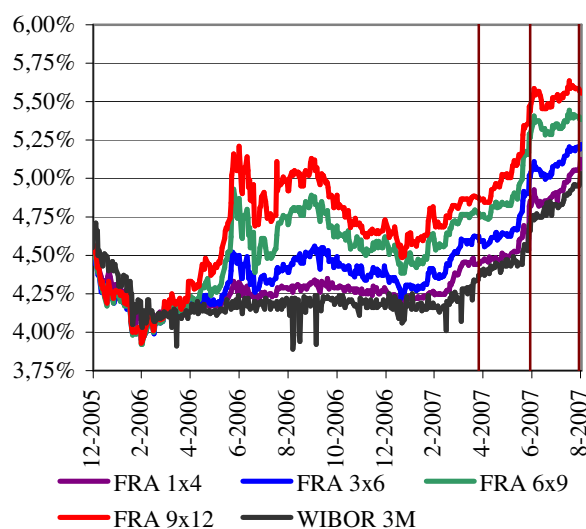
### 2.3. Foreign exchange market

In the analysed period, the zloty appreciation trend has markedly slowed down. The zloty strengthened vis-a-vis the euro by 1.7%, and by 3.8% vis-a-vis the US dollar, reaching the lowest levels in five and eleven years respectively. The strengthening of the zloty was mainly connected with the good macroeconomic situation.

Compared to the currencies of the countries of the region

Figure 18

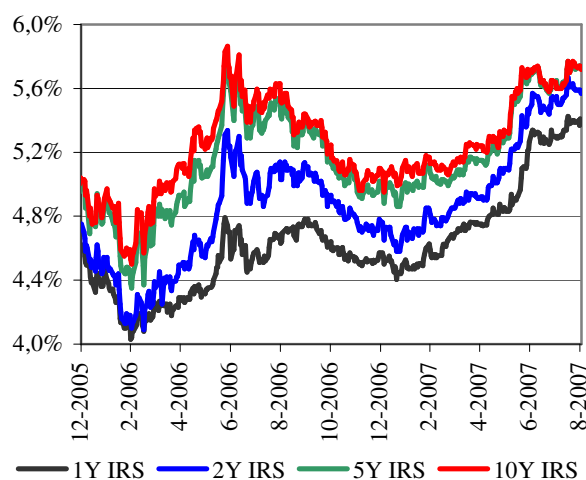
Current and expected short-term interest rates on the Polish market (FRA rates)



Note: vertical lines denote NBP rate increases.  
Source: Reuters.

Figure 19

Long-term interest rates on the Polish market (IRS rates)



Source: Reuters.

and the emerging markets the strengthening of the zloty was not significant. At the same time, the zloty exchange rate displayed smaller sensitivity to global changes in risk perception than the exchange rates of high-yield currencies (see Figure 20). The zloty declined in value only slightly (by around 2%) and temporarily in the period of market disruptions in July and August 2007.

In the first half of 2007, the implied volatility of the zloty exchange rate was at historical low (see Figure 21). The flat term structure of implied volatility shows that market participants considered volatility stabilisation to be permanent.

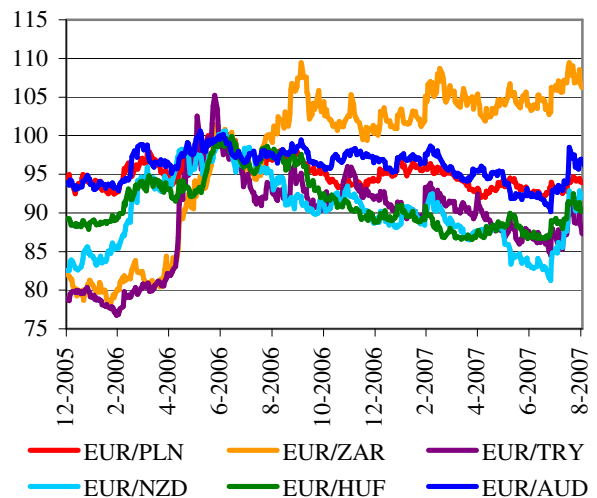
The reasons mentioned above indicate that the stability of the zloty compared to other currencies of the emerging markets arose from its low attractiveness in carry trade strategies.<sup>14</sup> The current level of expected return on Polish assets is probably too low to justify such transactions. Therefore, the vulnerability of the zloty exchange rate to changes in global market sentiment is likely to have gone down compared to 2006.

#### 2.4. Equity market

In the first half of 2007, an upward trend continued on the Warsaw Stock Exchange, which was related to the strong demand of domestic investors for shares of Polish companies. The demand mainly resulted from the inflow of funds to investment funds. Other factors contributing to the rise in share prices in this period were rises in stock exchange indices across the world and the high rate of economic growth in Poland.

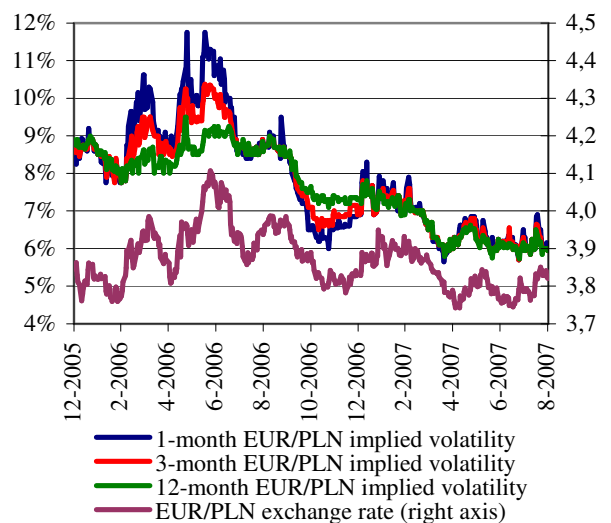
The exposure of foreign investors on the Warsaw Stock Exchange which decreased in the first half of 2007 (see Figure 22) was strongly focused in the large-cap segment.<sup>15</sup> Therefore, the strong demand from domestic investors had a greater impact on prices of small- and medium capital requirement stocks than on large-cap stocks. As a consequence, similarly to 2006, mWIG40 and sWIG80 indices rose faster than large-cap stocks WIG20 index (see Figure 23). Additional factors contributing to rapid rise in prices of small- and mid-cap stocks were their lower liquidity and a high share of funds specialised in investing in this segment in the total inflow of funds to investment funds.<sup>16</sup>

Figure 20  
Selected high-interest foreign currency and PLN exchange rates



Note: data normalized to 100 as of 30 June 2006. Index rise represents the currency depreciation.  
Source: NBP calculations based on Bloomberg data.

Figure 21  
Zloty exchange rate vs. its implied volatility



Source: Bloomberg, NBP.

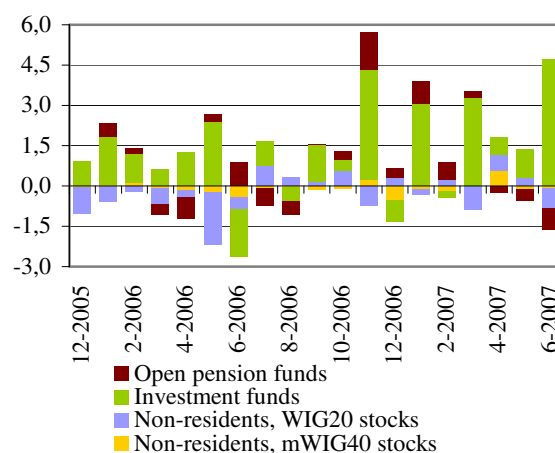
Demand-driven rationale behind rapid small- and medium-cap share price uptrend, which was also large compared with the Hungarian market<sup>17</sup> (see Figure 23), allow to conjecture that share prices may not necessarily reflect prospects of rise in earnings for a number of small- and medium-cap stocks. The distribution of the relative valuation of companies included in mWIG40 index, measured with the P/E ratio, was moving upwards since the end of the first half of 2006 (see Figure 24). At the end of the first half of 2007, its median exceeded the level of 25 and was clearly higher than that in the developed markets. Lower liquidity of mid-cap market segment as compared to the large-cap segment (see Box 3), augmented the correction of mid-cap share prices in July and August, which was more turbulent than in the case of large-caps.

Since the fourth quarter of 2005, implied volatility of WIG20 index has remained at a relatively high level. It resulted partly from the rise in historical volatility caused by the influence of a strong upward trend in share prices. However, the high level of implied volatility also indicated that considerable uncertainty with regard to the direction and scale of future index changes continued to prevail. As the high implied volatility of WIG20 index was accompanied by an increase in implied volatility in the first half of 2007 on the US and European markets (see Figure 25), and the economic forecast for Poland remains good, it may be assumed that the direction and degree of share price changes on the Warsaw Stock Exchange will mostly depend on situation in international markets.

The correction in the domestic stock market began earlier than in developed markets. Adverse developments in credit markets and turmoil in global financial markets only strengthened the downtrend of equity prices. The scale of the correction and the scale of implied volatility growth in July and August 2007 were similar to the correction in May and June 2006. This time, however, the fall in share prices of small and medium-cap stocks was stronger than that of large-caps. It may confirm the fact conjecture that small- and medium-caps were overvalued at the end of the first half of 2007.

If in the course of the correction households had decided to withdraw funds from investment funds, further declines in share prices would be possible. Such turbulence could trigger macroeconomic consequences via the wealth effect,

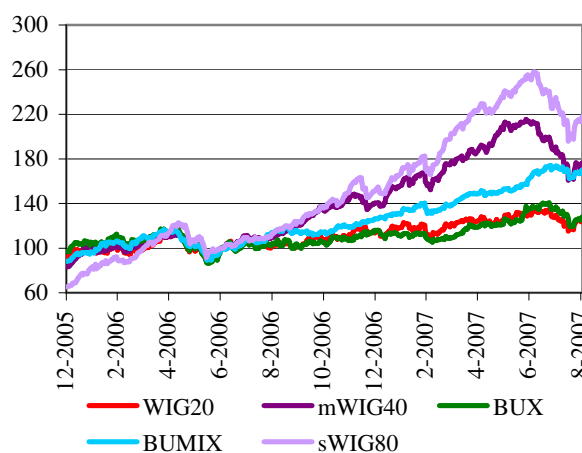
Figure 22  
Balance of transactions in shares on GPW broken down by investor category



Note: owing to the lack of data, the size of investment and pension funds' net transactions in January 2007 was estimated on the basis of changes in the value of these institutions' share portfolio.

Source: NBP calculations based on KDPW data and Anlizy Online.

Figure 23  
Selected stock exchange indices in Warsaw and Budapest



Note: WIG20 and BUX are indices of large cap stocks, mWIG40 and BUMIX – medium cap stocks, sWIG80 – small cap stocks. Data normalized to 100 as of 30 June 2006.

Source: Bloomberg.

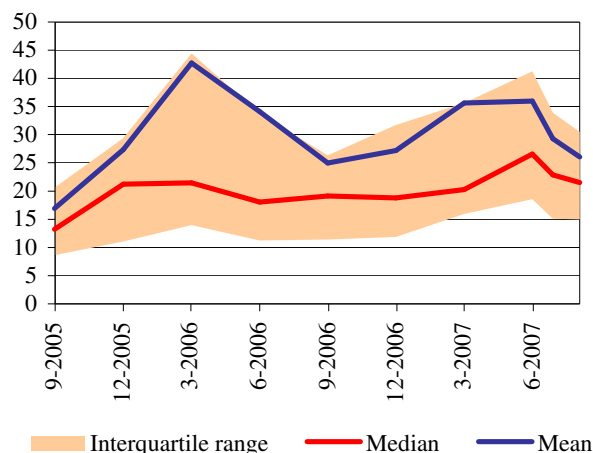
though its strength is insignificant in the Polish economy. In a longer perspective, the withdrawal of funds from investment funds and insurance companies' incomes relating to management fees. The decline in their earnings could in turn translate into a fall in dividends paid to banks which control them.

Turbulence in global financial markets contributed to the deepening of the correction in the Polish equity market. The correction was particularly marked for small- and medium-cap companies whose valuation in the period preceding the correction indicated to the possibility of their market value having been overly optimistic.

\* \* \*

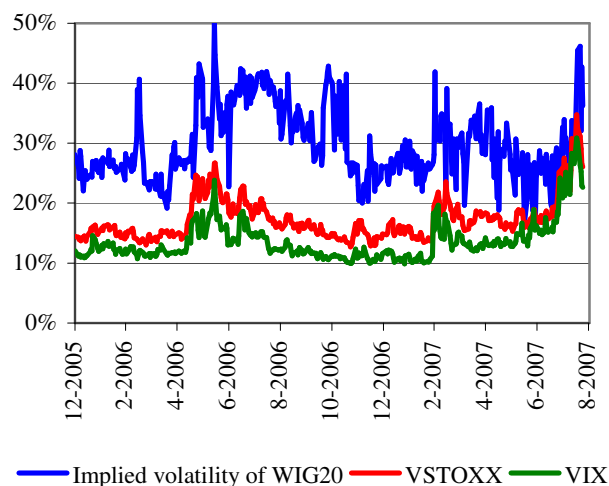
The impact of turbulence in international markets on Polish financial markets was not considerable and was mainly noted on the equity market. Movements in the zloty exchange rate were insignificant and temporary. The rise in bond yields was also relatively small.

Figure 24  
Distribution of P/E ratio for mWIG40 companies



Source: NBP calculations based on Bloomberg data.

Figure 25  
Implied volatility on GPW against other volatility indices



Source: NBP calculations, Bloomberg.

### Box 3. Liquidity of medium-cap stocks on the Warsaw Stock Exchange

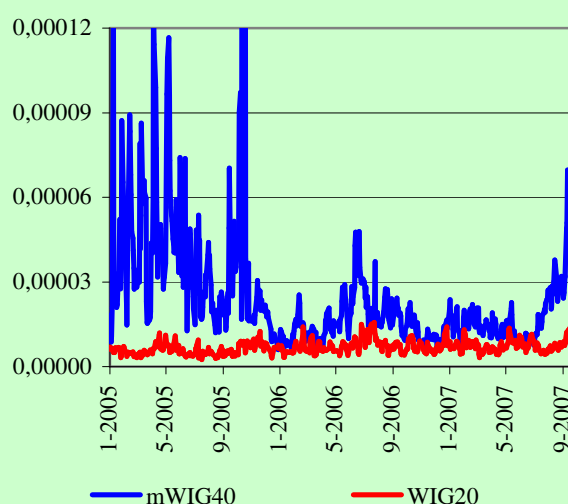
From the middle of 2006 to the end of June 2007, the turnover and stock prices of medium-cap companies (included in WIG40 index) rose dynamically. In this period, the exposure of institutional investors, mainly investment funds, increased on this market (see Tables: 14 and 15). Despite a significant rise in turnover the market remains sensitive to changes in investors' demand and supply. The sensitivity is reflected in the strong fluctuation of stock prices in response to fluctuations in trading, which testifies to a small breadth of the stock market of medium companies, which is one of the aspects of market liquidity (see "Financial Stability Report 2006", Box 2, pp. 32-34). The relatively low liquidity of medium-cap stocks, as compared to the liquidity of large-caps, may pose a greater threat, in times of a correction, to the value of portfolios of investors exposed to this market segment than those investing in the large-cap segment.

In the years 2005-2006, the liquidity of medium-caps stocks, measured with the turnover to capitalisation ratio, was 2.5 times lower on the average than the liquidity of large companies (included in WIG20 index). A significant rise in trading of shares of companies included in the mWIG40 index led to the fact that in the first half of 2007 the turnover to capitalisation ratio in both market segments was similar. However, the turnover to capitalisation ratio does not reflect all aspects of market liquidity although it is commonly used to describe the liquidity of a stock market.

The Hui-Heubel ratio (HHR) shows that in the first half of 2007 medium- cap stocks were slightly less liquid than the large-cap stocks (see Figure 3.1). This regularity dates back to the end of 2005 when an abrupt rise in the shares liquidity of medium companies was noted (market breadth), which resulted from the rise in turnover. The sensitivity of medium-cap stocks to turnover fluctuations rose clearly in the course of strong declines in share prices on the Warsaw Stock Exchange. During the spring correction (May-June 2006), as well as during a strong decline in share prices at the end of February 2007, and market turmoil in July and August 2007, the differences in price sensitivity between the analysed market segments went up significantly. This shows that portfolios with a dominating share of mid-caps are more vulnerable to the decline in value when the situation on the market is unstable than portfolios with a majority of large-capital requirement stocks.

Figure 3.1

Hui-Heubel liquidity ratio for companies included in the GPW indices of large and medium companies



Note: the method of calculating the Hui-Heubel ratio is described in the “Financial Stability Report, 2006”, pp. 32-33 . The increase in the index denotes a reduction in market breadth, i.e. liquidity fall.

Source: NBP calculations based on Bloomberg data.



### 3. Property market

#### 3.1. Residential property market

In the first half of 2007, the growth rate of residential property prices in the majority of big cities went down considerably while in medium and small cities price growth accelerated<sup>18</sup> (see Table 1 and Figures: 26 and 27). The slowdown of price growth on the largest residential property markets resulted both from the decline in the effective demand and an increase in supply on the market. A clear symptom pointing to a curb in residential property price rises was the growing difference between offer and transaction prices. In July 2007, the difference amounted to around 9-10%, while in 2006, transaction prices were close to or exceeded offer prices. The relative decline in transaction prices in the biggest cities should translate into further drop in the growth rate of bid prices with some delay. Another symptom of the slowdown in price rises was a longer time needed to sell a flat.

A decline in the effective demand on the residential property market was a consequence of the decreasing credit availability of flats (the size of a flat an average household is able to buy using a mortgage loan) and a decreased activity of foreign investors. The housing loan service burden of new borrowers went up (see Box 2) as a result of higher prices on the residential property market and interest rate increases. Owing to the decreasing credit availability of flats (see Figure 28) some households resigned from the purchase of a flat and some decided to buy a house or a land plot instead in the vicinity of big cities. As a result, in the first half of 2007, the price of land plots and houses situated on the outskirts of big cities, in particular Warsaw, continued to rise.

An important factor curbing demand was the decreasing activity of foreign investors who gradually started to realise profits in the first half of 2007 and shift their activities to the markets with a higher potential of house price rises, e.g. Romania and Bulgaria.

The growth in the supply of flats, both on the primary and secondary market, also contributed to a slowdown in house prices. In comparison to the first half of 2006, in the first half of 2007, the number of building permits increased (by around 70%) as well as the number of completed flats (by around 5%).<sup>19</sup> The growth in the number of building permits has a *de facto* impact on the rise in supply on the residential

Table 1

Half-year changes in residential property prices on selected markets (%)

	12 2005	6 2006	12 2006	6 2007
Primary market				
Wrocław	10.6	28.9	56.1	5.2
Łódź	-3.1	11.5	47.5	40.1
Kraków	18.7	14.7	42.2	16.2
Warszawa	6.4	23.0	25.5	10.5
Gdańsk	19.2	10.0	48.8	34.6
Gdynia	5.0	15.6	26.3	32.3
Poznań	0.1	9.4	8.6	92.2
Bydgoszcz	8.6	-18.8	16.5	87.7
Lublin	0.8	-4.7	11.1	52.3
Białystok	1.1	-1.4	10.6	40.2
Secondary market				
Wrocław	8.9	24.2	40.7	8.7
Łódź	5.3	11.4	56.7	39.2
Kraków	18.5	24.8	30.1	9.5
Warszawa	15.3	18.2	31.6	18.5
Gdańsk	11.6	11.6	63.6	20.9
Gdynia	17.2	6.9	66.3	14.3
Poznań	9.3	10.6	35.0	38.2
Bydgoszcz	3.0	15.9	29.2	33.0
Toruń	6.6	18.5	26.2	28.4
Lublin	-0.8	10.6	19.5	36.1
Gorzów				
Wlkp.	4.5	13.7	27.6	43.8
Zielona Góra	-3.6	13.6	36.3	25.1
Opole	7.3	20.7	30.0	11.3
Rzeszów	5.8	2.3	35.1	28.9
Białystok	4.2	11.8	16.3	40.3
Katowice	0.5	15.5	30.4	51.5
Kielce	12.8	9.3	30.2	20.8
Olsztyn	10.1	15.4	21.3	36.9
Szczecin	1.1	18.1	33.8	29.2

Note: price changes are calculated on the basis of offer prices. Data from centres outside the largest urban areas (Wrocław, Łódź, Kraków, Warszawa, Gdańsk, Gdynia and Poznań) are characterised by greater uncertainty owing to the small size of samples used to calculate prices.

Source: NBP calculations based on Pont Info data.

property market as flats are now sold at an early stage of construction.

Analysts of the residential property market do not anticipate major rises in offer prices for flats in big cities in the near two years. What is to be expected is price stabilisation or a rise slower than the rise recorded until now. It is possible that house prices in smaller cities will grow faster.

The amendment to the law on housing cooperatives enabling to change the cooperative right to a flat into full ownership at a low cost is not expected to enhance the supply of flats considerably. Such flats are mostly of low standard and their owners are usually non-affluent persons who will use the flats to satisfy their own housing needs.

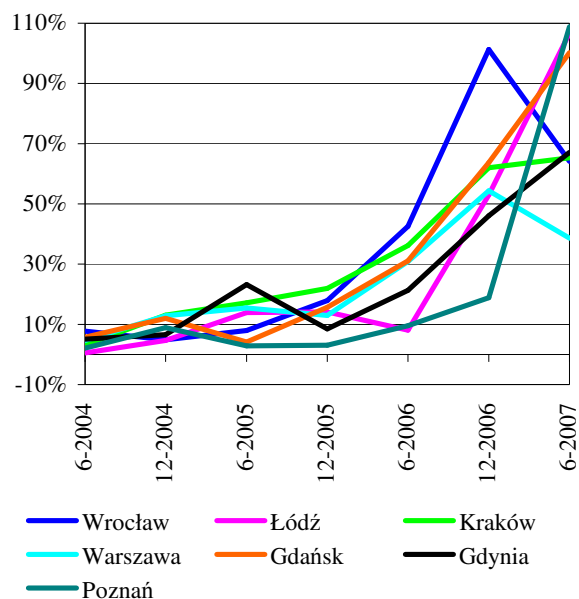
The slowdown of the growth rate of prices on the largest residential property markets reduced the likelihood of a major correction of prices on this market that could contribute to a decrease in the stability of the financial system. On the other hand, a probable price rise on minor markets may increase the risk for banks extending credit for the purchase of property on such markets. The process of carrying out construction projects relating to the organisation of European Football Championship EURO 2012 in Poland may have an impact on the rise in construction costs and thus be reflected in the increase in house prices. In the long term, the risk of disruptions on the residential property market may grow, if barriers persist on the supply side (connected mainly with the absence of updated local development plans), in particular should the GDP growth rate decline considerably.

### 3.2. Office space market

Warsaw remains the largest office space market in Poland with around 75% of the total supply of modern space located in this city. In the first half of 2007, the Warsaw office renting market was very active. A record level of leased space (260 thousand square metres) was noted, which represented a rise by around 30% compared to the first half of 2006. The banking sector had a large share in the demand for office space (27%).<sup>20</sup>

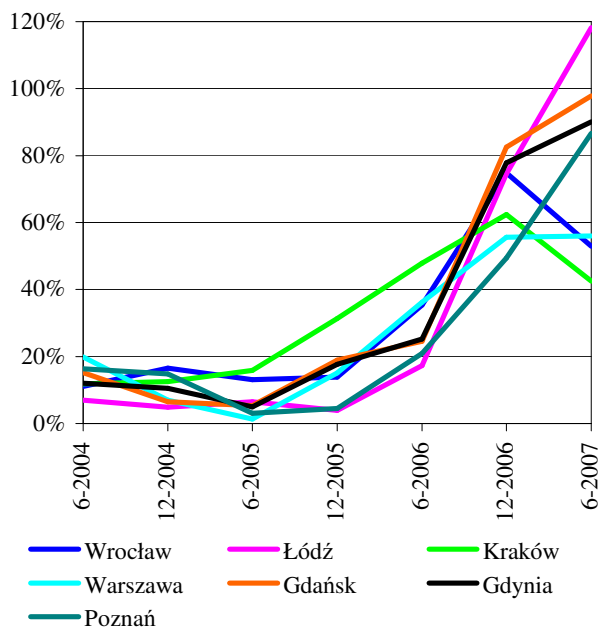
A large demand and a small supply of new office space contributed to a decline in the free space ratio (to 4%, from 4.5% in December 2006) and a major increase in rent rates, primarily in the centre of Warsaw.<sup>21</sup> Compared to previous

Figure 26  
Changes in residential property prices in the largest cities on the primary market (y/y)



Note: price changes are calculated on the basis of offer prices. Source: NBP calculations based on Pont Info data.

Figure 27  
Changes in residential property prices in the largest cities on the secondary market (y/y)



Note: price changes are calculated on the basis of offer prices. Source: NBP calculations based on Pont Info data.

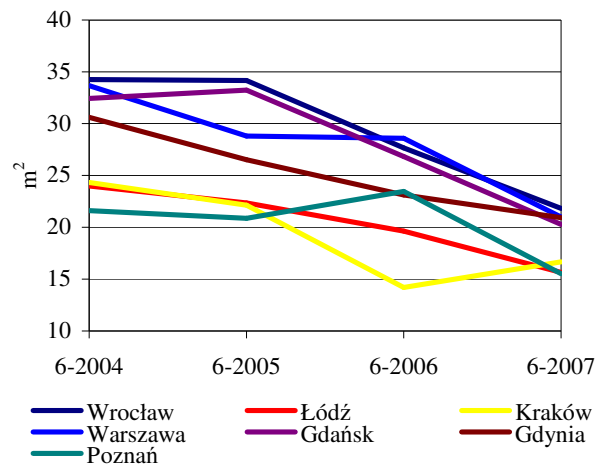


periods, the lessees who are now better able to choose tenants limit their price discounts. Discounts can only be granted to tenants looking for larger space. Market analysts expect the rent rates in the centre of Warsaw to increase in the coming months.

The developments observed on the office space market (the declining ratio of non-rented space, rising rent rates and a growth in transactions on the secondary market) makes it possible to draw a conclusion that at present, there is no threat to the financial system stability as the probability of a deterioration in the quality of loans for the construction of office space is declining.<sup>22</sup>

Figure 28

Simulation of purchasing power of the consumer on selected housing markets



Note: the simulation shows the size of a flat (in square metres) which a person with average income, in terms of the region (voivodship), funding the purchase with a loan, could afford to buy. Assumptions for the calculation: borrower's own contribution – 20%, borrower is a one-person household, borrower's income equals the average gross salary for a given region according to GUS, household margin (monthly funds left to cover expenses after loan instalment has been paid) – 1,000 zloty, loan maturity of 25 years, loan repaid in diminishing instalments (borrower is able to pay the highest instalment).

Source: NBP calculations based on Pont Info and GUS data.

#### 4. Banking sector stability

The analysis of the developments of the banking sector presented in this part of the *Review* is only confined to the first half of 2007. In Poland, market disturbances in the third quarter of the year occurred only on the equity market. As the value of shares held by banks is low, a correction on this market posed no direct threat to banks.

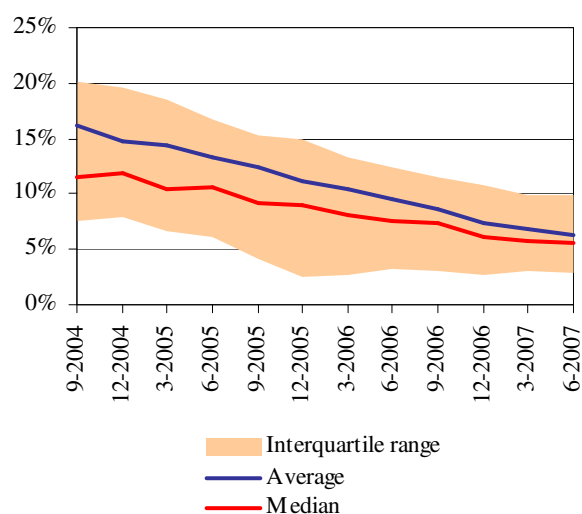
There is no credit derivatives market in Poland. Banks operating in Poland, being mostly subsidiaries of bigger banks from the European Union and the United States, did not engage in such transactions on the international financial markets. Institutions specializing in trading in these instruments are also absent on the Polish financial market. Therefore, the banking sector had neither direct nor indirect exposures to the risk related to US subprime mortgages. Furthermore, deposits of domestic non-financial customers play a dominant role in the structure of Polish banks' financing, which left Polish banks unaffected by the turbulence in the international money market.

The stability of the banking sector was supported by favourable macroeconomic developments in the first half of 2007. Banks continued to pursue strategies aiming to win new customers, among others, from the retail sector, as well as attempting to diversify income sources by intermediation in the sale of non-bank financial services. The major factor influencing the financial condition of banks was a high lending growth rate, which showed banks' greater appetite for credit risk. The rapid growth in lending led to the improvement of current earnings and the average quality of banks' loan portfolios. However, changes in the structure of assets, which increased the share of higher credit risk positions, as well as the lending growth rate exceeding the growth rate of capital, decreased the capital adequacy ratios. However, the average capitalisation of the banking sector remained high. Simulations of the paths of deterioration of the loan quality indicate that banks hold a proper capital buffer in case of financial shocks in the banking sector environment.

The sector's exposures to market risk remained low and properly managed, as reflected, among others, by the offsetting of the negative effects of the decline in the value of T-bonds valued according to market value with revenues from hedging transactions.

The growth of long-term lending was connected with

Figure 29  
Dispersion of irregular loan ratio in commercial banks



Source: NBP.

a further increase of banks' liquidity gap of up to one month, which presented bigger liquidity management challenges for some banks. However, no symptoms of liquidity disruptions on the interbank market occurred in the analysed period.

The sound financial condition of banks indicated that the risk of a systemic threat to financial stability in the first half of 2007 was insignificant. Short-term outlook is also good. In the longer term, the most important risk factor related to banks' balance sheets is the growth of loans probably extended to borrowers with increasingly lower creditworthiness. It is indicated by the high growth rate of household loans, which exceeds the growth in the sector's income, and the increase of loan service burden of new borrowers (see Box 2). Borrowers with lower creditworthiness may stop repaying their debt even in the case of a relatively insignificant fall in their incomes or a relatively small increase in loan servicing costs related to interest rate increases and/or the depreciation of the zloty.

#### 4.1. Credit risk

In the first half of 2007, the trends observed in the past three years continued. The quality of banks' loan portfolio, measured by the irregular loan ratio, improved in comparison with the end of 2006. At the end of June 2007, the irregular loan ratio amounted to 4.6%. The greatest quality improvement was recorded in the portfolio of loans to the non-financial sector which concentrates the majority of credit risk (see Tables 2 and 3 and Figure 30).

Similarly to previous quarters, the decline of irregular loan ratios should be associated with the improvement of the financial condition of borrowers and the high lending growth rate (statistical effect). The significance of the latter factor rose in 2007 due to a further acceleration of banks' lending activity. Contrary to 2006, "cleaning up" of banks' balance sheets by removal of "old" *loss* loans had little influence on the loan quality ratios. The amounts of loans posted as memo items and sold to specialized investment funds, the so-called securitisation funds, were relatively low, as compared to transactions in 2006 (see Box 4).

Table 2  
Irregular loan ratios by sector of borrower (%)

	2005	2006	6-2007
Total	7.5	5.1	4.6
Financial institutions	0.8	0.5	0.4
Non-financial customers	11.0	7.3	6.3
General government	1.1	0.5	0.4

Source: NBP.

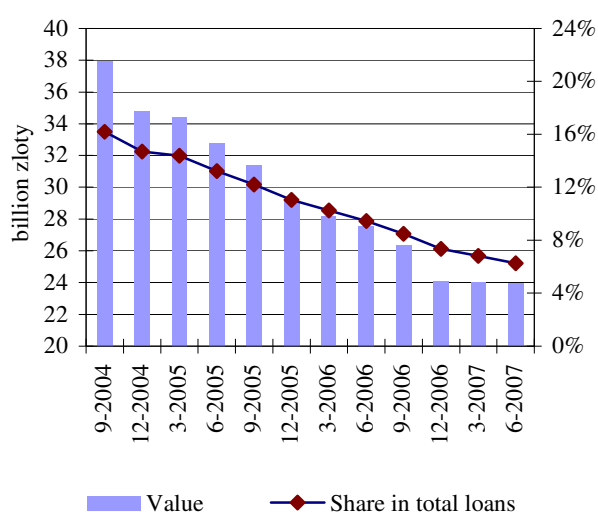
Table 3  
Composition of irregular loans (total irregular loans = 100%)

	2005	2006	6-2007
Financial institutions	3.2	2.7	2.1
Non-financial customers	96.0	96.9	97.5
General government	0.7	0.4	0.4

Note: irregular loans extended to financial institutions are largely loans extended before 2003.

Source: NBP.

Figure 30  
Irregular loans – non-financial customers



Source: NBP.

#### **Box 4: The impact of securitisation on the quality of banks' loan portfolios**

Asset securitisation, an alternative method of funding financial institution's activity, consists in turning low liquidity assets into debt securities. Two types of securitisation have been identified in Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006: 'traditional securitisation' and 'synthetic securitisation'. The former means a securitisation involving the economic transfer of a homogenous pool of exposures to a special purpose vehicle which later issues debt securities on the capital market. The latter differs from the former in that the transfer of risk is achieved by the use of credit derivatives or guarantees, and the pool of exposures is not removed from the balance sheet of the credit institution.

The amendment to the Banking Act of 1 April 2004 and the implementation of the Act on investment funds of 27 May 2004 provided legal grounds for securitisation in Poland<sup>1</sup>. The first securitisation of bank claims was carried out by Bank PKO BP with the specialized securitisation fund S-Collect in 2005 when the bank sold part of the portfolio of irregular claims with the face value of PLN 660 million.

The analysis of the securitisation of bank loans carried out in Poland in 2005-2007 indicates that banks were mostly interested in the securitisation of irregular loans<sup>2</sup>. The interest stemmed from the fact that old *loss* loans are still shown on banks' balance sheets; the loans, largely covered by provisions, inflate the irregular loan ratios of Polish banks, as compared to institutions in other countries.

According to surveys conducted by the NBP, banks are interested in using securitisation as a tool to improve the quality of balance sheets, to lower capital requirements and costs of receivables collection. Some banks are willing to securitise regular mortgage debts, which is related to the growing share of mortgage loans in the structure of banks' loan portfolios. The growth increases the mismatch of cash flows, which results from funding long-term assets with short-term liabilities. The securitisation of claims helps reduce the mismatch.

The characteristic feature of Poland's securitisation market is that the process is carried out via special investment funds<sup>3</sup>. In the case of securitisation performed by a securitisation fund, banks can include the losses from the sale of assets in the tax deductible expenses (up to the amount of provisions created to cover tradable receivables and included in the tax deductible expenses)<sup>4</sup>. Such a deduction cannot be made upon the transfer of receivables to a special purpose vehicle. This tax arrangement hampers the development of securitisation involving special purpose vehicles. Neither do banks enjoy the above mentioned tax benefits by selling receivables directly to the debt collection companies.

The performed transactions of securitisation of irregular loans contributed to the lowering of the value of the irregular loan ratio. The biggest improvement of the irregular loan ratio related to securitisation was recorded in 2006. Following such transactions, the irregular loan ratio declined by around 0.6 percentage points (see Table 4.1). The volume of securitisations performed in the first half of 2007 led to a decline of the ratio by around 0.1 percentage point.

In order to estimate the possibility of lowering the value of the irregular loan ratio via securitisation, simulations have been conducted according to two scenarios. The first scenario assumes that during the first half of 2007 banks would perform a securitisation of irregular loans with the value corresponding to the preliminary plans of securitisation of the assets presented by banks in response to the NBP survey. The second scenario assumes that banks would deduct all claims from the category of *loss* loans up to the amount of created specific provisions/impairment provisions from their balance sheets. In the first scenario, the irregular loan ratio would fall slightly to 5.9% at the end of June 2007 (see Table 4.2, Scenario I). On the other hand, the calculations made

according to the second scenario assumptions indicate that the value of the irregular loan ratio at the end of June 2007 would be much lower and would amount to around 2.5% (see Table 4.2, Scenario II). The results presented in Table 4.2 imply that securitisation provides banks with significant opportunities to lower the value of the irregular loan ratio; however, banks make only limited use of this instrument.

The Banking Act of 26 January 2007 (Journal of Laws No. 42/2007, item 272), amended in connection with the taking into effect of Directive 2006/48/EC implementing the principles of the New Capital Accord in the European Union, may contribute to the higher utilisation of securitisation in the future. One of the major amendments (amending Article 104, paragraph 2, subparagraph 6) is the exemption from banking secrecy in the case of contracts under which a bank transfers the risk related to its own receivables in whole or in part. This exemption also includes contracts that are often necessary to conclude a securitisation transaction: assigning an investment rating to securitised receivables, servicing of receivables being securitised, organisation and issuance of securities, insuring against the risk of insolvency of the debtors of securitised receivables.

Table 4.1

Securitisation vs. irregular loan ratio

	2005	2006	First half of 2007
Irregular loan ratio – non-financial customers	11.0%	7.3%	6.3%
Influence of securitisation on irregular loan ratio	0.1 p.p.	0.6 p.p.	0.1 p.p.

Source: NBP.

Table 4.2

Securitisation vs. irregular loan ratio – scenarios

	Scenario I First half of 2007	Scenario II First half of 2007
Irregular loan ratio – non-financial customers under the assumptions of each scenario	5.9%	2.5%
Difference between the value of irregular loan ratio in June 2007 and the value calculated under each scenario	0.4 p.p.	3.8 p.p.

Assumptions:

Scenario I – During the first half of 2007 banks perform securitisation of irregular loans of the value corresponding to the preliminary asset securitisation plans presented by banks in response to the NBP survey.

Scenario II – During the first half of 2007 banks use securitisation to deduct all claims from the category of *loss* loans up to the amount of created specific provisions/impairment provisions from their balance sheets

Source: NBP.

<sup>1</sup> Banking securitisation in Poland is now regulated by the provisions of the following acts: the Banking Act (Journal of Laws No. 72/2000, item 665, as amended), the Act on investment funds (Journal of Laws No. 146/2004, item 1546, as amended) and the Act on legal persons' income tax (Journal of Laws No. 54/ 2000, item 654, as amended).

<sup>2</sup> The securitisation performed by Dominet Bank is an exception. Dominet Bank was Poland's first institution to carry out a securitisation of regular loans (valued at around PLN 600 million).

<sup>3</sup> Securitisation funds operating in Poland are non-standardised closed-end funds. Such a structure of the fund makes it possible for their offer to be addressed to legal persons, organisational units without the legal personality and natural persons, provided that the issue price of one certificate is the equivalent of at least 40 thousand euros. More on securitisation funds in: Box 4.5.2 in *Financial System Development in Poland (2005)*, Warsaw, NBP, November 2006.

<sup>4</sup> Paragraph 1h of Article 15 of the Act on legal persons' income tax (Journal of Laws No. 54/ 2000, item 654, as amended).

The rapid growth in lending was accompanied by a low growth in the nominal *value* of irregular loans extended to households, in particular to individuals. The amounts of loans with short arrears, which does not classify them as irregular loans, also increased (see Figures: 31 and 32). This may signal future difficulties with loan repayment.

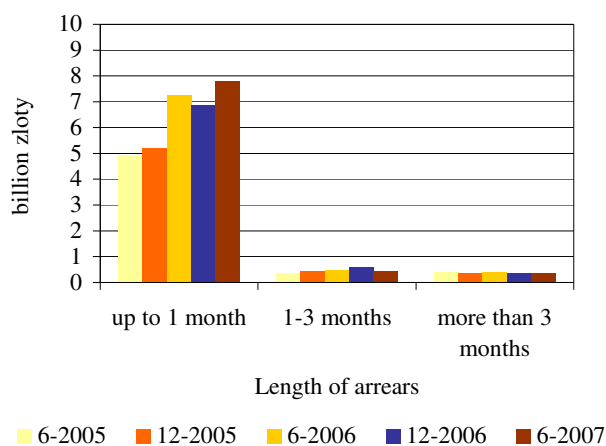
Nevertheless, in June 2007 the ratio of *IBNR* provisions to the value of the loans<sup>24</sup> did not differ significantly from the values from previous quarters. The value of these provisions is determined by banks on the basis of models based on historical data. Provided that the models properly represent economic processes, their results might suggest that the growth in claims with short arrears is primarily a natural consequence of the increase in the face value of the loan portfolio and poses no threats.

A relatively high growth in the value of irregular loans was recorded at some small banks that focus on the retail market. The scale of the phenomenon against the whole banking market is insignificant. It appears that these banks are pursuing the strategy of expanding their loan offer by targeting higher-risk customers, lower income customers in particular. These banks apply simplified procedures of verifying customers' creditworthiness, sometimes based on the borrower's statement of income uncertified by the employer. Some of these banks fund their activities via domestic interbank market or owner-banks. The first of the strategies poses a greater risk to a bank in case of a loss in confidence by its counterparties on financial markets.

In addition to housing loans, consumer loans are given the highest priority in the business growth of many banks in Poland. It may be assumed that lending growth at most of the banks consists in lending to less affluent customers. Under the current economic upturn their current financial condition is satisfactory and they are able to service their loans relatively well. In the longer term, the expansion of the higher-risk customer base may pose a challenge to banks. Banks should take account of this risk in their activities (among others in the form of a proper assessment of their customers' creditworthiness, as well as related credit spreads ensuring the coverage of potential losses and loan security requirements).

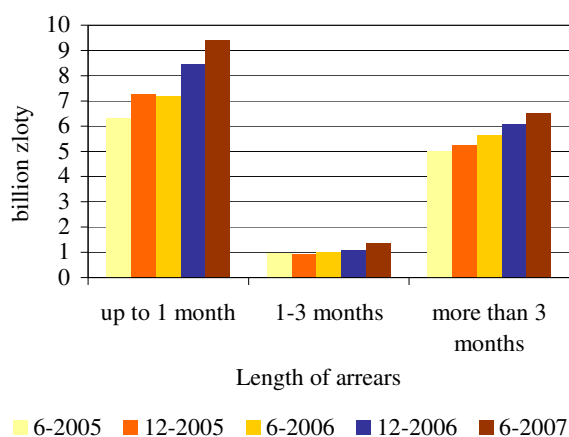
The average coverage of loan portfolio with provisions (specific provisions – at banks applying Polish Accounting Standards, and impairment provisions – at banks applying IFRS) is gradually declining, mostly at large banks (see Figure 33). This is an unfavourable phenomenon in light of the increase of interest rates as well as households' growing sensitivity to disruptions on financial markets. The behaviour of provisions, resulting largely from accounting regulations<sup>25</sup>, enhances banks' pro-cyclical

Figure 31  
Foreign currency loans to individuals,  
by length of arrears



Source: NBP.

Figure 32  
Zloty loans to individuals, by length of arrears



Source: NBP.



behaviour. On the other hand, the coverage of irregular loans with provisions is high and remains unchanged (around 68%). The several-years' presence of loans classified as *loss* at banks' balance sheets and a low recovery value of collateral taken in the past lead to a situation where loss loans are covered with provisions in around 83%, on the average.

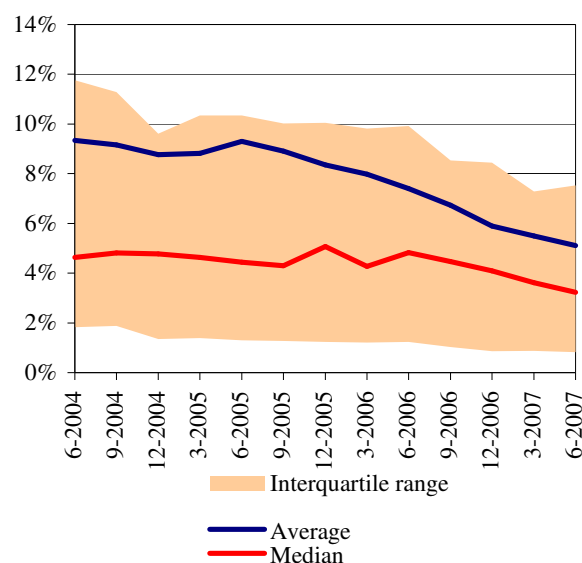
Due to the continued high interest rate differential between the zloty and currencies of the highly developed countries (Switzerland, in particular) apparent up to the middle of the present decade and the resulting popularity of foreign currency loans, the loan portfolio of the banking sector in Poland is characterized by a relatively high share of loans denominated in foreign currencies (see Table 4). Although these loans are accompanied by a FX risk, only partially hedged – in the case of enterprises and unhedged – in the case of households, the quality of the portfolio has remained better than that of the zloty portfolio. This was supported by the appreciation of the zloty since 2004.

Housing loans account for the largest share of foreign currency loans. The growth rate of these loans slowed after 1 July 2006 when the requirements of Recommendation S (see Figure 11) took effect as banks raised requirements with regard to the borrower's financial condition. Recommendation S also introduced standards for informing customers about FX risks by presenting them with the results of simulations of loan instalments, among others, in the case of a 20% depreciation of the zloty and the increase of interest to the level in force for the analogical zloty-denominated loan and the depreciation of the zloty amounting to the difference between the maximum and minimum zloty exchange rate in the past 12 months. It appears that this may have contributed to a rise in the awareness of the risks underlying fluctuations of the zloty exchange rate and interest rates among prospective borrowers and have a downward impact on demand for foreign currency loans. The raising of interest rates by the Swiss National Bank and a further narrowing of the difference between the interest rates of Swiss franc- and zloty-denominated housing loans produced the same effect.

It should be assumed that due to a tightening of income standards for foreign currency loans, loans extended in the second half of 2006 after the introduction of Recommendation S will be characterised by better repayment performance than loans extended in 2005 and the first half of 2006. At the same time, the value of collateral

Figure 33

Dispersion of provisions coverage ratio of loans to non-financial customers in commercial banks



Source: NBP.

Table 4

Shares of foreign currency and indexed loans in portfolio of loans to non-financial customers (%)

	2005	2006	6-2007
Foreign currency and indexed loans, of which:	26.8	28.0	26.0
Enterprises	11.4 (24.0)	10.4 (23.2)	8.8 (20.8)
Households	15.4 (29.4)	17.9 (31.8)	17.1 (29.9)
- of which individuals	14.6 (35.4)	17.2 (37.9)	16.6 (35.7)

Note: in brackets – share of foreign currency loans in total loans extended to a given group of borrowers.

Source: NBP.

Table 5

Irregular loan ratios by borrower groups of non-financial sector and by loan currency (%)

	2005	2006	6-2007
Enterprises:			
Total loans	14.6	9.7	8.4
Zloty loans	15.1	10.2	8.8
Foreign currency loans	13.3	7.7	6.6
Households:			
Total loans	7.8	5.6	4.8
Zloty loans	10.0	7.4	6.3
Foreign currency loans	2.6	1.7	1.3
Individuals:			
Total loans	6.1	4.6	4.0
Zloty loans	8.6	6.6	5.6
Foreign currency loans	2.0	1.3	1.1

Note: data for residents (ca. 98% of borrowers).

Source: NBP.

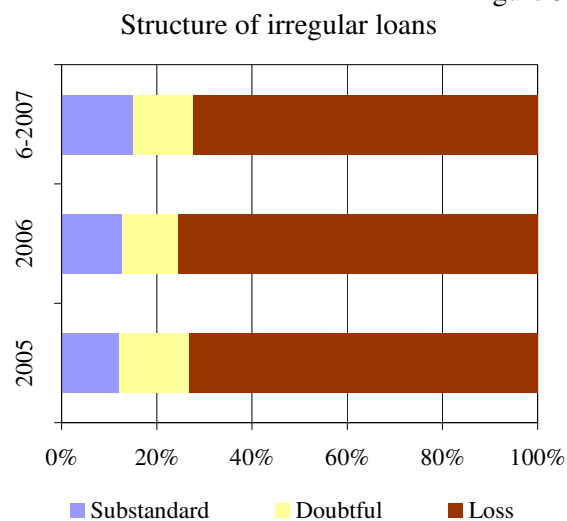
on loans extended after the implementation of Recommendation S is characterised by higher uncertainty due to the soaring prices of real estate in 2006 and the related possibility of a decline in the value of real estate below the value of a loan in case of a deeper correction on the market.

Despite a positive impact of Recommendation S on banks' foreign currency loan policy, survey data indicate that some banks eased the income criteria for foreign currency housing loans again in the first half of 2007. It seems to be particularly disturbing given the achieved high level of house prices. When extending the loans, banks accepted an increasingly higher loan repayment burden on borrowers' income (see Box 2). The importance of the phenomenon may be properly assessed in future periods if changes in the loan policy persist.

Housing loans constitute a special part of the loan portfolio of the banking sector not only because of a significant share of foreign currency loans but also because of increased competition in this market segment, which means that banks' loan policy is relatively lenient. It is reflected in the credit spreads which have not differed much from the average in the euro area for a dozen quarters, as well as easing of housing loan terms and conditions simultaneously with the increase of prices on the real estate market. Lending terms for real estate purchase enable households to take out larger loans for longer periods – up to 50 years, according to banks' offer (the longest lending terms are offered for zloty-denominated loans). The share of housing loans in the structure of total loans by type has increased by around 10 percentage points to 25% in the past three years. The annual nominal growth of housing loans have been ever higher since 2005 (see Figure 10), which reflected both the high demand for real estate as well as the effects of an easing of banks' lending policies<sup>26</sup>. For a few years now, banks have declared that housing loans to households constitute one of the major products addressed to households.

The present quality of housing loan portfolio is satisfactory and exceeds the average for other loan products (see Figure 35), both in the segment of foreign currency-denominated and zloty-denominated loans. However, caution in assessing the outlook for loan quality is supported by the fact that sound quality ratios result in part – as in the whole loan portfolio for households – from the high values of newly extended loans and the fact that the portfolio is “young”. Over

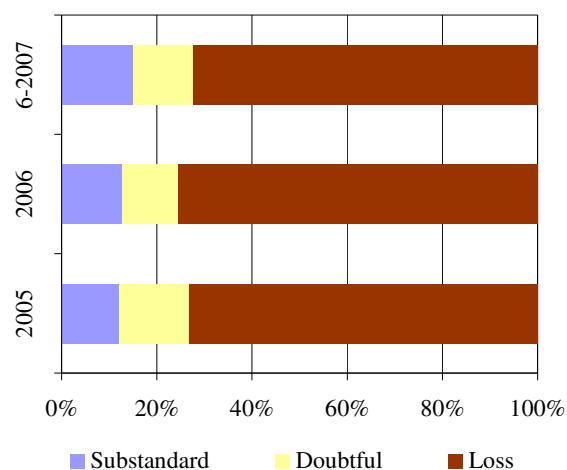
Figure 34



Source: NBP

Figure 35

Irregular loan ratio (difference in percentage points between the quality of loans in a given group and the average quality of loans to individuals)



Source: NBP.



85% of housing loans (by value) have been extended in the past six years, of which the majority in a period of falling interest rates, appreciation of the zloty and an improved economic climate. The extension of loan maturity and the increase of average loan amounts (as a result of rising real estate prices) lead to the increase of the sensitivity of loan-taking households to shocks on the financial market and of banks' exposure to related losses (see Box 2).

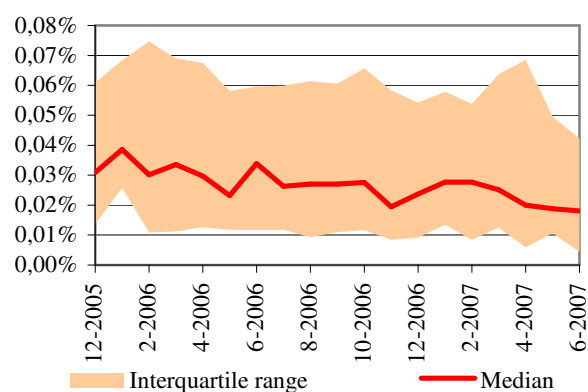
The high growth rate of household loans, considerably exceeding the growth rate of the sector's income (see Chapter 1), and easing of lending policy reflect the fact that the sector is taking higher and higher lending risk. A continuation of the trend may pose a threat to the stability of the banking sector. Should the risk materialise, this may become particularly acute if accompanied by an economic slowdown. To sum up the developments in the banking sector in terms of the undertaken credit risk, it should be stated that the favourable macroeconomic environment supported the improvement in the present quality of loan portfolios. Macroeconomic forecasts suggest that within the next 2-3 years the situation of customers from the financial sector should be sound, positively influencing the condition of banks. At the same time, however, the evolution of banks' loan offers observed for some time, the rate of new loan growth, as well as the easing of credit standards and loan terms and conditions, stemming from competition, may raise some concern about the quality of loans in the longer term, particularly during an economic slowdown or/and a correction on the real estate market. It is not clear, either, whether changes in the credit policy are sufficiently justified by the improvement in risk management, among others, regarding the methods of risk assessment of prospective customers.

#### 4.2. Market risk

Credit risk remains the major type of risk taken by banks operating in Poland. However, the volatility of financial markets means that market risk should also be monitored on a regular basis. Developments on the financial market, that are not in line with the expectations of a given institution, could result in its incurring major financial losses.

Foreign exchange risk and interest rate risk are the most important types of market risk in the Polish financial system.

Figure 36  
Dispersion of the ratio of FX risk VaR to regulatory capital of domestic commercial banks



Source: NBP.

Banks' direct and indirect exposure on the Polish equity market remains at a low level.

As in previous years, the FX risk undertaken by banks in the first half of 2007 was insignificant. Despite a large share of foreign currency assets and liabilities in the balance sheet total, banks did not maintain large open FX positions. The long FX position, largely related to foreign currency loans to households, was offset against short positions in derivatives. The analysis of the VaR for FX risk (see Figure 36) confirms that banks' risk of incurring considerable losses arising from revaluation of open FX positions was limited. It does not mean, however, that banks do not remain vulnerable to the influence of unfavourable changes in exchange rate movements. A large depreciation of the zloty might (in the long run) adversely affect banks' financial earnings due to the indirect FX risk. This type of risk stems from foreign currency loans taken out by households that do not receive incomes denominated in the currency of the loan (see Box 2).

Since banks keep almost square FX positions, the major source of market risk is the interest rate risk.<sup>27</sup>

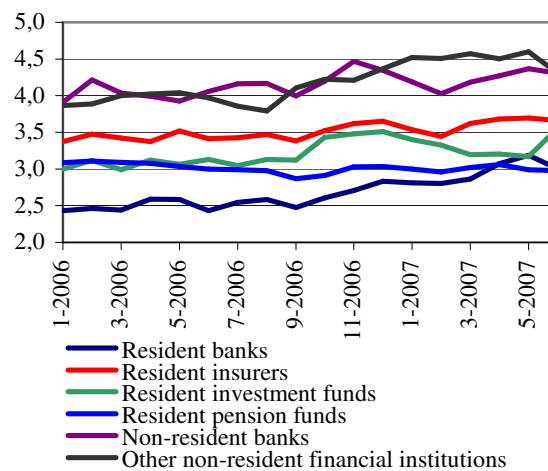
Domestic banks' gradual growth of exposures to the market risk of interest rate changes resulted in the situation where their relative duration became comparable with the exposures of domestic pension funds (see Figure 37). However, domestic banks remain relatively conservative investors on the Polish debt securities market. Their overall exposure to broad market risk remains stable (see Figure 38) and is low (see Figure 39).

While some banks maintain large portfolios of Treasury securities, further increases of long-term interest rates may adversely affect their profitability. However, due to banks' relatively low exposure to the interest rate risk, measured by VaR to regulatory capital, the impact should not be a big challenge to the banks.

#### 4.3. Liquidity risk

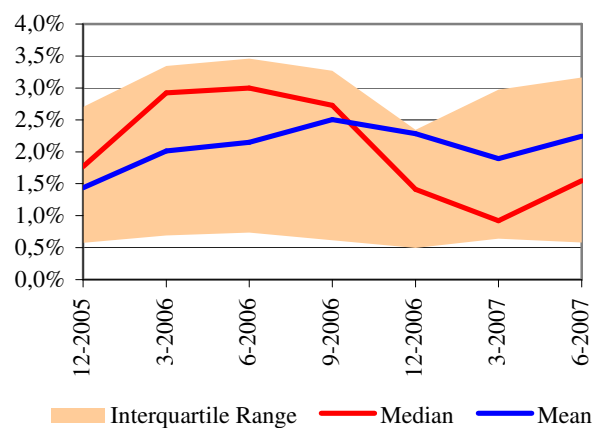
In the first half of 2007, banks' liquidity ratios measuring short-term debt repayment capacity (up to 1 month) and terms of financing banking activity in the medium-term deteriorated. The high growth rate of lending means that the observed trends are likely to continue in successive quarters. Obtaining stable sources of funding will become

Figure 37  
Duration of wholesale Treasury bond portfolios by category of investors



Source: NBP calculations based on National Depository for Securities data.

Figure 38  
Dispersion of the ratio of VaR<sup>1</sup> resulting from market risk<sup>2</sup> to regulatory capital of domestic commercial banks



<sup>1</sup>Note: VaR at the level of 99% covers changes in the fair value of the interest-rate-sensitive instruments portfolio, as well as changes in the theoretical banking book value as a result of taking into account of the change of both interest rate and FX risk— calculations in accordance with the method described in "Financial Stability Report 2005", pp. 82-84.

<sup>2</sup>FX risk and interest rate risk.

Source: NBP.

an increasingly serious challenge, given that the ratio of loans to deposits of non-financial customers rose by 12.5 percentage points in the first half of 2007 to exceed 100% in June 2007. Despite a major liquidity crisis on the global money market in August 2007, no events indicating disruptions in banks' liquidity in Poland were noted.

The downward trend of liquidity ratios resulted from a strong growth rate of long-term loans, especially housing loans. The growth in lending also translated into the increase in the ratio of loans to deposits of non-financial customers. The narrowing of the difference between the value of extended and received short-term interbank deposits, in particular foreign currency deposits, should be noted. The number of deposits placed by some banks at foreign banks was considerably lower than in mid-2006. Some banks increased debt on the market of interbank deposits, seeking funds to finance lending. This resulted in the widening of an adjusted 1-month liquidity gap (up to 3-month liquidity gap remained unchanged and up to 6-month gap decreased insignificantly) (see Figures: 40 and 41).

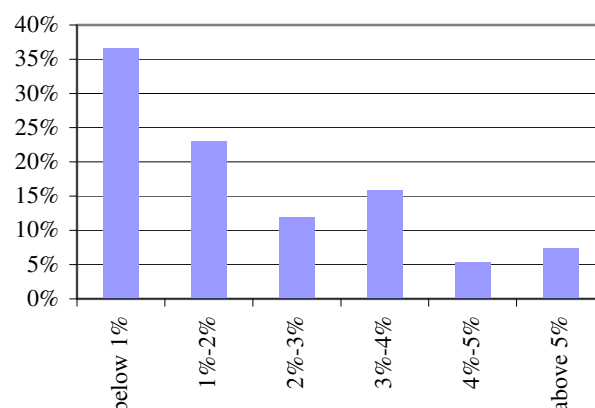
Banks hold large portfolios of Treasury securities that may be used to obtain liquidity and although some of them reduced their portfolios, the value of the instruments held by banks remains high.

Some banks can count on liquidity support from foreign owners (in the form of credit lines). According to estimates based on NBP survey data, these banks hold nearly 25% of deposits of non-financial entities. Banks holding 40% deposits of non-financial entities were provided with the promise to support liquidity in a less binding form (e.g. a promise contained in the financial reports of a capital group or submitted to the Commission for Banking Supervision). However, meeting contractual obligations may depend on the liquidity of the owners, especially in the periods when refinancing on the interbank monetary market is difficult or costly, e.g. as in early August 2007. Developments on the global markets, which led to the liquidity crisis on the European market in particular (see Chapter 2.1) and in the United States, had no impact on the liquidity of the Polish banking sector.

#### 4.4. Earnings

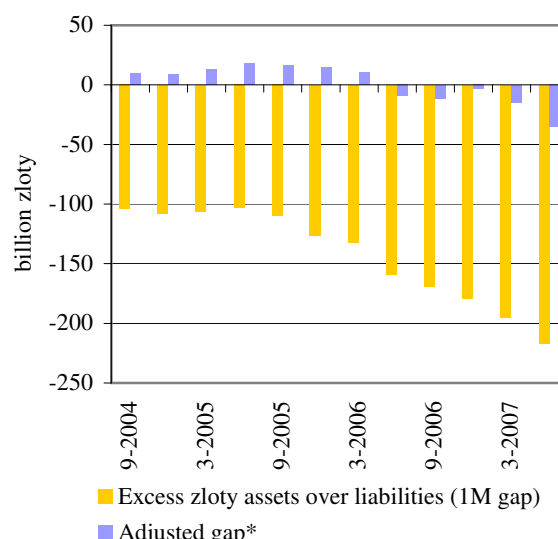
The first half of 2007 saw another improvement of banks' earnings. As compared to the corresponding period of 2006,

Figure 39  
Distribution of assets of commercial banks by VaR expressed as percentage of regulatory capital



Source: NBP.

Figure 40  
One month liquidity gap (commercial banks)



\* Adjusted gap = (assets to 1M) – (overdue assets) – (Treasury securities selected to cover fund for protection of guaranteed deposits of the Bank Guarantee Fund) – (surplus of households and enterprises deposits to 1M over core deposits) – (other liabilities up to 1M)

Note: due to changes in the reporting layout introduced in June 2005, comparability of the liquidity gap with data from the previous periods is limited. The most important change consists in liabilities and claims being recognised according to payment dates of individual instalments.

Source: NBP.

the net earnings of the banking sector rose by 21.6% (see Table 6). Banks had already earned 66.2% of the net earnings for 2006, which forebodes another successive year of historically highest earnings (the share of H1 2006 profit in profits for the whole 2006 amounts to 54.5%).

The growth rate of earnings exceeded the growth rates of the balance sheet total and core capital of the banking sector, owing to which ROA and ROE improved (see Table 7 and Figure 42). Fourteen commercial banks, holding 2.3% of the assets of the banking sector, posted losses. The loss-making entities were mostly branches of foreign banks (8), that were starting their activity in Poland. The trend to achieve better profitability ratios by large banks continued.

The decomposition of net ROE<sup>28</sup> for data annualised indicates that its increase was mostly driven by a 5.5% growth of return on earning assets (ROEA). The increase of the share of earning assets in assets (by 0.8%) and of the share of external financing (the growth rate of the balance sheet total exceeded the growth rate of core capital by 1.3%) were less significant.

#### *Net income from banking activity and its sources*

Net income from banking activity was higher by 17.3% as compared with the first half of 2006. No significant changes were observed in the structure of net income from banking activity (see Figure 43).

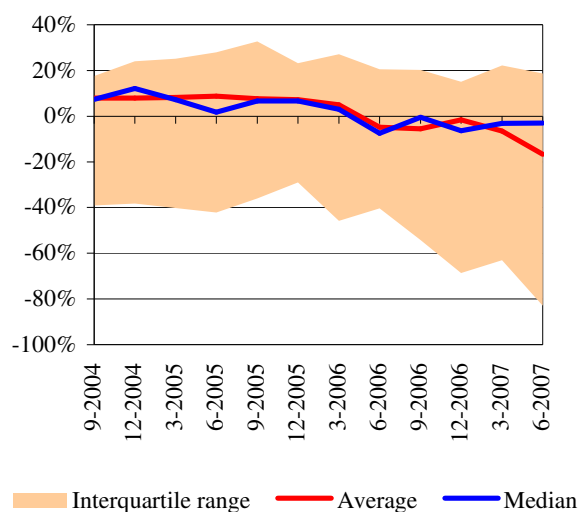
#### *Net interest income*

Net interest income remained the major source of net income from banking activity. Net interest income was rising at a lower rate than the balance sheet total as interest income rose at a slower rate than interest expense. Therefore, net interest margin decreased slightly (see Table 7).

It should be noted that the growth in deposits from non-financial customers was slower than the growth in lending for the sector. It stemmed from the fact that individuals were more willing to invest their savings in other instruments, primarily in investment funds (see subchapter 1.2). Therefore, the importance of financing banking activities with funds obtained from the financial sector was rising, which affected the level of interest expense.

Most (over half) income and expense on non-financial customers came from operations performed with individuals

Figure 41  
Dispersion of the ratio of adjusted 1M liquidity gap to assets with maturity of up to 1M



Source: NBP.

Table 6  
Profit and loss account of the banking sector  
(billion zloty)

	First half of 2006	First half of 2007	Change (%)
Interest income	16.81	19.88	18.28
Interest expense	6.85	8.47	23.55
Net interest income	9.96	11.41	14.66
Net fee income	4.34	5.29	21.86
Income on stocks and shares	1.00	0.90	-9.27
Net income on financial operations	0.27	0.84	212.64
Net FX gains/losses	1.78	1.90	6.54
Net income from banking activity	17.34	20.34	17.31
General expense	9.02	10.10	11.97
Depreciation	1.10	1.11	0.17
Net movements in provisions and valuation allowances	0.83	0.85	2.19
of which: net charges to provisions for irregular loans	0.81	0.52	-35.66
Pre-tax earnings	6.92	8.68	25.49
Net earnings	5.80	7.05	21.55

Source: NBP.

(see Figure 44). Interest income on residential property loans (rise by 70.9%) was characterised by a particularly high growth rate in this segment, which had already accounted for 18.2% of interest income on non-financial customers (13.5% a year earlier).

The share of current deposits in the structure of deposits on non-financial customers was rising rapidly – it exceeded 50% at the end of 2007, which had a positive influence on net interest income as current deposits bear lower interest rates. However, it may make liquidity management more difficult in the long term (see subchapter 4.3).

#### Net non-interest income

Net non-interest income grew faster than net interest income, which increased the former's share in the total income from banking activity (see Figure 43). It largely resulted from the growth of net fee income – the largest component of non-interest income. Fee income came mainly from non-financial customers (68.7%), fee income from the financial sector was growing at a high rate (48.3% y/y vs. 17.9% y/y of fees from non-financial customers). It was the result of, among others, rising sales by banking offices of investment fund participation units and insurance products (both linked with banking products as well as sold independently).

The growth of net gains/losses on financial operations was generated mainly on operations in derivatives. Similarly to the previous year, the banking sector made a loss on operations in debt securities. One can hypothesize that at least part of the high earnings on operations in derivatives resulted from banks' hedging against a fall in value of Treasury debt securities (e.g. as a result of interest rate increases).

#### Allocation of income from banking activity

The general expense of banks rose by 12% in comparison with the first half of 2006. This was primarily related to the increase of the average wages in the banking sector, and also to a further expansion of branch network (especially for retail customers as services for these customers are the most labour consuming)<sup>29</sup>. Changes in the structure of the general expense of banks were insignificant.

Despite the rise of general expense (general expense and depreciation) the operating efficiency ratios, i.e. operating costs to assets (see Table 7) and operating costs to net income improved (C/I, see Figure 45). The dispersion of commercial

Table 7  
Selected items from profit and loss account as percentage of average assets (data annualised in brackets)

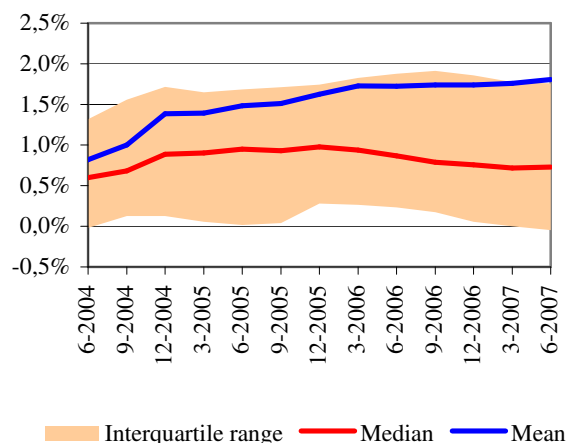
	First half of 2006	First half of 2007
Net interest margin	1.64 (3.27)	1.62 (3.28)
Net non-interest margin	1.22 (2.24)	1.27 (2.36)
General expense	1.67 (3.39)	1.59 (3.29)
Net charges to provisions	0.14 (0.26)	0.12 (0.25)
Net charges to provisions for irregular loans	0.13 (0.24)	0.07 (0.17)
ROA (pre-tax earnings)	1.14 (2.05)	1.23 (2.18)
ROA (net earnings)	0.95 (1.72)	1.00 (1.76)
ROE (pre-tax earnings) <sup>1</sup>	14.56 (26.69)	16.34 (28.00)
ROE (net earnings) <sup>1</sup>	12.20 (22.41)	13.27 (22.57)

<sup>1</sup> as percentage of core capital.

Source: NBP.

Figure 42

#### Dispersion of ROA in commercial banks

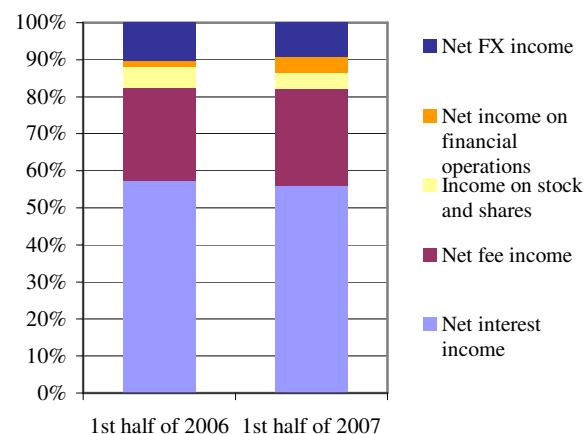


Note: data annualised.

Source: NBP.

Figure 43

#### Structure of net income from banking activity



Source: NBP.

banks by C/I ratio slightly decreased. Large banks continue to be considered as more efficient, on the average.

Net charges to provisions and to revaluation allowances grew slightly – new provisions and releases of provisions were increasing at a similar rate. It means that merely 4.2% of earnings were utilised for the creation of provisions (4.8% in the first half of 2006). The ratio of net charges to provisions to assets remained at a historically low level (see Figure 46). The number of banks creating lower-than-average provisions as well as the number of banks with negative net charges to provisions increased slightly. It should be noted that net charges to provisions for irregular loans decreased by 35.7%.

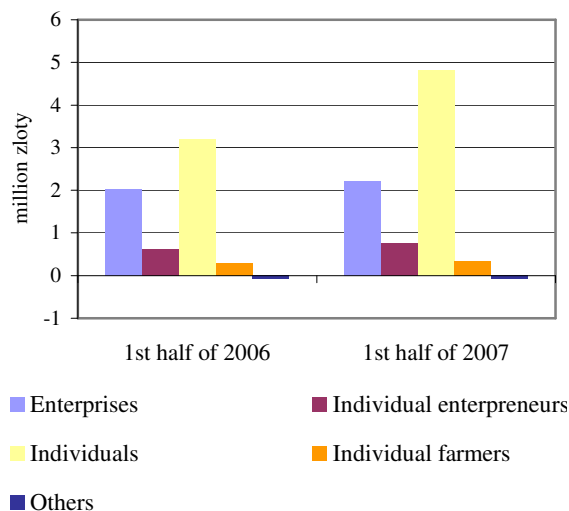
The rise of the operating efficiency ratios and low net charges to provisions also contributed to the increase of the share of net earnings in net income from banking activity (see Figure 47).

### Outlook

The upward trend of the profitability of the banking sector should be sustained in the second half of 2007, mainly as a result of retail customers' continuous interest in loans. This growth may be potentially capped by a lower interest in banking deposits by households, which may induce some banks to finance loans with more expensive sources (e.g. liabilities towards the financial sector). Intensification of wage pressure at banks may also lead to the weakening of the growth in profitability. However, it appears that banks are well hedged against the influence of possible interest rate increases (see Box 5). Since the favourable macroeconomic environment is forecasted to be sustained, no significant rise of net charges for irregular loans should be expected in the near future. It should be borne in mind, however, that the continuation of easing the loan granting criteria may bring about problems with loan repayment in the long run, especially in a period of an economic slowdown.

Figure 44

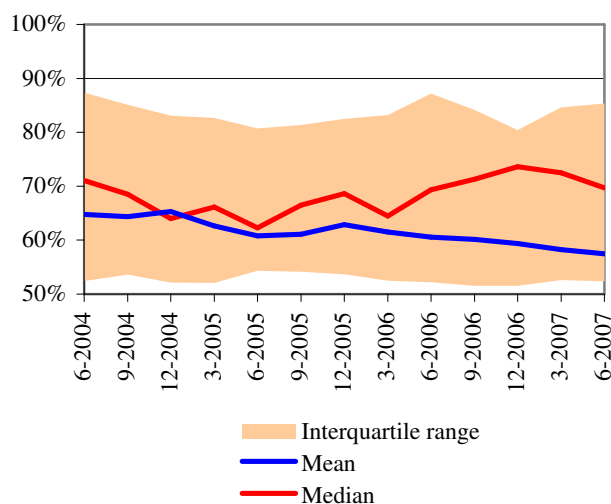
Components of net interest income from non-financial customers



Source: NBP.

Figure 45

Dispersion of C/I ratio in commercial banks



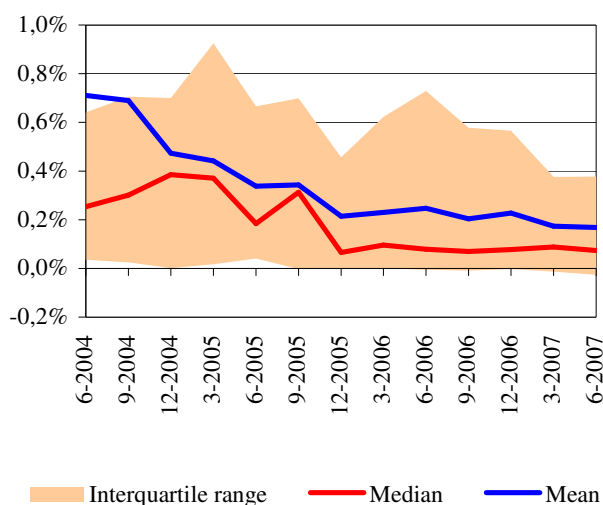
Note: data annualised.

Source: NBP.



Figure 46

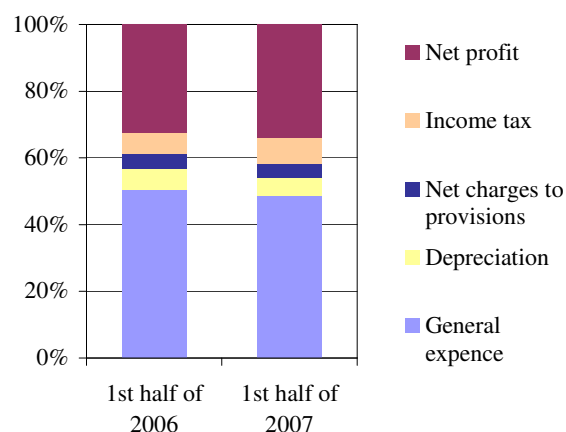
Dispersion of the ratio of net charges to provisions for irregular loans to assets in commercial banks



Note: data annualised.  
Source: NBP.

Figure 47

Allocation of income from banking activity<sup>1</sup>



<sup>1</sup>Income from banking activity adjusted with the balance of other income and operating expense.  
Source: NBP.

### Box 5. Changes in market interest rates vs. net interest income of commercial banks

To determine the impact of market interest rate movements on the net interest income of commercial banks a simulation was made of changes in revenues on interest-bearing assets and long off-balance sheet positions, as well as costs of interest-bearing liabilities and short off-balance sheet positions in particular banks. Data from banks' reports to the NBP on the value of assets, liabilities and off-balance sheet positions by the length of the repricing period and the currency of the item have been used to calculate the impact of the interest rate risk on banks' earnings. The following assumptions have been adopted for the simulation:

- the simulation horizon covers 1 year (net interest income on positions with the revaluation period not longer than 1 year does not change<sup>1</sup>),
- the yield curve moves in a parallel manner by a determined value and the change is maintained throughout the whole period of the simulation,
- maturing positions are rolled over with the new market interest rate,
- bank's interest spread, defined as the difference between the interest on long and short positions, remains constant in the period of the simulation,
- the value of the positions remains constant in the period of the simulation,
- the interest on the bank-managed rate position is adjusted to changes in market rates with a 3-month delay.

The simulation has been conducted under two types of scenarios. The baseline scenarios assume that market interest rates will change in line with expectations implied by the FRA 9x12 rates on 16 August 2007. Less optimistic scenarios have also been analysed; under these scenarios, changes in market interest rates for each currency will be two times stronger than it would follow from forecasts of FRA market participants.

The results of the simulation indicate that commercial banks are, to a large extent, hedged against the interest

rate risk (see Table 5.1). Changes in interest rates expected by the market would result in (*ceteris paribus*) a slight increase in the net interest income of the banking sector, mainly due to the banking sector being net long in instruments sensitive to zloty interest rate movements<sup>2</sup> (a large part of loans bears a variable interest rate). Small banks and banks keeping large net long positions in USD-denominated instruments prevail among banks that would post a fall in their net income from banking activity.

Table 5.1

The results of simulation of the impact of changes in interest rates on net interest income of commercial banks

Currency of item		Zloty	US dollar	Euro	Other currencies
Baseline scenarios	Changes in interest rates (basis points)	62	-99	-35	-10
	Parametres of distribution of change in net interest income				
	Average	1.09%	-0.24%	0.06%	-0.02%
	First quartile	-1.25%	-0.02%	-0.06%	-0.01%
	Median	0.55%	0.00%	0.00%	0.00%
Alternative scenarios	Changes in interest rates (basis points)	124	-198	-70	-20
	Parametres of distribution of change in interest net income				
	Average	2.20%	-0.48%	0.13%	-0.05%
	First quartile	-2.51%	-0.03%	-0.11%	-0.01%
	Median	1.10%	0.00%	0.00%	0.00%
	Third quartil	5.06%	0.40%	0.07%	0.00%

Note: The change in net income from banking activity expressed as percentage of net interest income in the period 1 July 2006-30 June 2007.

Source: NBP.

<sup>1</sup> The assumption results from the inability to isolate (in the analysed data) financial instruments valued according to fair value, in the case of which changes in market interest rates lead to a change in net gains/losses on financial operations, and of financial instruments valued according to amortised cost. It has been assumed that a possible change in the values of positions in the revaluation period longer than 1 year will affect net gains/losses on financial operations.

<sup>2</sup> The growth of interest rates could lead to the increased loan repayment burden on borrowers, and as a consequence, to the deterioration of loan quality (see Box 2). This could negatively affect banks' earnings.

#### 4.5. Banks' capital positions and loss absorption capacity

The regulatory capital of banks<sup>30</sup> rose by slightly over 8% in the first half of 2007. It largely comprised core capital, i.e. the most stable element, which is favourable in terms of the possible loss absorption capacity (see Table 8). The increase in the sector's core capital rose mainly owing to the allocation of the profit generated in the previous year to the supplementary capital and the reserve capital<sup>31</sup> and, to a lesser extent, as a result of raising new equity by 12 banks. The insignificant declines in the value of regulatory capital, recorded by 13 banks, resulted mainly from the depreciation of the market value of *available for sale*

Table 8

Regulatory capital and the capital adequacy ratio of domestic commercial banks

	2005	2006	6-2007
Regulatory capital <sup>1</sup> (PLN billion)	46,1	51,6	55,7
- of which: core capital	45,6	50,3	55,9
Capital adequacy ratio (%)	14,6	13,2	12,45
Capital adequacy ratio taking into account core capital (%)	14,4	12,9	12,50

<sup>1</sup> Regulatory capital: core capital and supplementary capital, less any shortfall of specific provisions and other so-called regulatory deductions, plus trading book ancillary capital.

Source: NBP.



portfolio and deducting that change from the revaluation fund, classified as supplementary funds.

The growth in the assets of the banking sector in the first half of 2007, like in the second half of 2006, resulted almost exclusively from the rise in claims on non-financial customers (see Table 9), which suggests banks' growing appetite for credit risk. The high growth in the value of risk-weighted assets and capital requirements – over two times faster than capital growth – caused the capital adequacy ratio to decrease. Although the capital adequacy ratio had been decreasing for a third successive year, it remained high and exceeded the regulatory minimum (8%) considerably.

The increase in capital requirements of particular banks, due to growing credit exposures, is also visible in changes in the distribution of banks' assets by the capital adequacy ratio.<sup>32</sup> A gradual decline in the share of banks with the highest capital adequacy ratio, i.e. above 12%, has been observed since 2004 (see Figure 48). However, assets of the banking sector were concentrated in banks with high capitalisation, which implies that systemic stability was not at risk.

In order to maintain the hitherto growth rate of lending in the longer term, banks will have to increase their capital. Should the growth rate of lending observed at the turn of 2006 and 2007 sustain, and should banks refrain from increasing their capital, the capital adequacy ratios of 11 small and medium commercial banks would be below the regulatory minimum<sup>33</sup>.

#### Simulations of loan loss absorption capacity

Two simulations have been conducted at the NBP in order to determine whether banks' capital is sufficient to absorb potential credit risk losses.

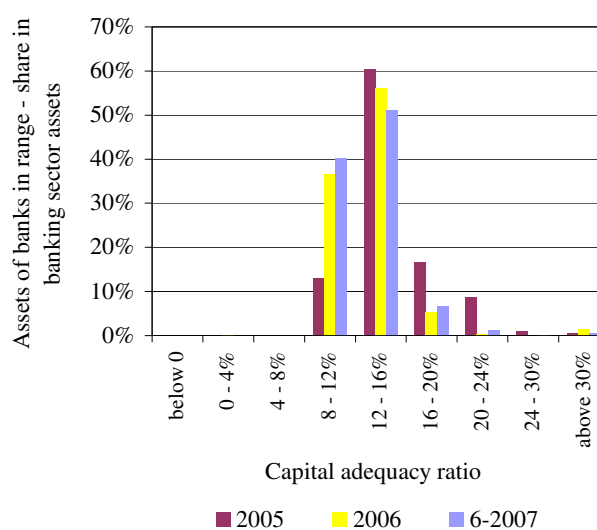
The results of the first simulation provide an answer to the question about the proportion of loans (classified under Polish regulations as *satisfactory* and *special mention*) that would have to be downgraded to the loans whose assessed impairment is 50% (classified under national standards as *doubtful*), for the capital adequacy ratios of particular banks to fall to 8%. The simulation conducted on data as at June 2007 indicates the continuation of the slightly downward trend in the banks' capacity to absorb the so-defined losses, as compared to end of 2006. The fall in loss

Table 9  
Changes in risk-weighted assets, regulatory capital and selected asset items of domestic banks (y/y)

	2005	2006	6-2007
billion zloty			
Assets, of which:	46.0	79.4	80.6
- non-financial customers	21.2	59.9	83.7
- financial sector	15.3	6.3	-7.7
- securities	17.6	6.1	-3.5
Risk-weighted assets	37.7	71.2	91.7
Regulatory capital	3.0	5.5	6.3
%			
Assets, of which:	8.6	13.7	13.0
- non-financial customers	9.4	24.3	30.6
- financial sector	14.5	5.2	-6.2
- securities	15.3	4.6	-2.5
Risk-weighted assets	14.5	23.9	27.7
Regulatory capital	7.0	11.9	12.8

Source: NBP.

Figure 48  
Distribution of assets of domestic commercial banks by capital adequacy ratio



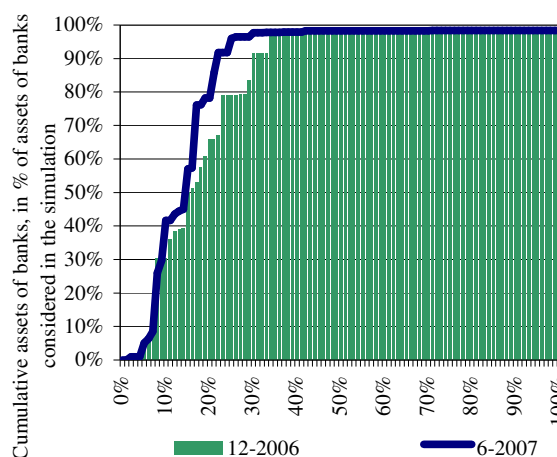
Source: NBP.

absorption capacity related primarily to banks which previously had significant capital buffers (in Figure 49 a shift in the distribution of banks is primarily visible in the area of the capital buffer of 10-30%). The change can be traced on the example of deterioration in quality (impairment by 50%) of 10% of the loan portfolio. Such a change of loans' quality would cause a fall of the capital adequacy ratio to 8% (or below) at banks with total assets accounting for 42% of the assets of the banking sector. According to data at the end of 2006, the same decrease would reduce the capital adequacy ratios of banks with assets accounting for 30% of the assets of the banking sector to the regulatory minimum. At the same time, banks with the smallest capital resources in the sector's assets (where deterioration in the quality of 5% of claims would be sufficient for their capital adequacy ratio to fall to 8%) has a stable share of approximately 6% in the assets of domestic commercial banks.

The other simulation was aimed at determining the capital adequacy ratio in the case of an abrupt deterioration of the quality of irregular claims and a decrease in the value of loan collateral. The first scenario assumed that all claims on non-financial customers from the *substandard* and *doubtful* categories were downgraded to the category of *loss* loans (in the banks reporting under IFRS, it means that the assessed impairment of these claims is equal to the value of the unsecured portion of claims). In the second and third scenario, a decrease in the value of collateral by 25% and 50%, respectively, was additionally assumed. The simulation was conducted on domestic commercial banks.

The results of the simulation indicate that in the first half of 2007 banks' resilience to losses originating from the portfolio of irregular loans, slightly improved, as compared to 2006<sup>34</sup> (see Figure 50). The capital adequacy ratios of only one small bank in the first scenario and two small banks (of the combined share of 0.4% in the assets of the banking sector) in the second and third scenario dropped below 8%. To compare, in the analogical simulation conducted on data as at December 2006 the capital adequacy ratios of three banks (with the share in the assets of the sector amounting to 2.8%) in the third scenario would fall below 8%. The relatively low impact of the irregular loans portfolio on banks' capital adequacy is caused by both a declining share of these loans in the total portfolio, and the high ratio of irregular loans coverage with specific provisions

Figure 49  
Assets of domestic commercial banks with the capital adequacy ratio of 8% or lower under the assumed scenario of migration of *satisfactory* and *special mention* loans to *doubtful* loans



Assumptions for the simulations:

1. Calculations refer to the portfolio of loans that were not impaired (*satisfactory* and *special mention*) to non-financial customers, as at end of June 2007 (line) and December 2006 (bars).
2. Numerator and denominator of the capital adequacy ratio adjusted by the full amount of specific provisions against downgraded loans (it is assumed that the loans are unsecured and that downgraded classifications attract a 100% risk weight). The adjustment to the denominator has been divided by 12.5, in accordance with the methodology for calculating the capital adequacy ratio.
3. No releases of specific provisions envisaged (it is thereby assumed that there is no improvement in the quality of loans classified irregular at the end of June 2007 and 2006).

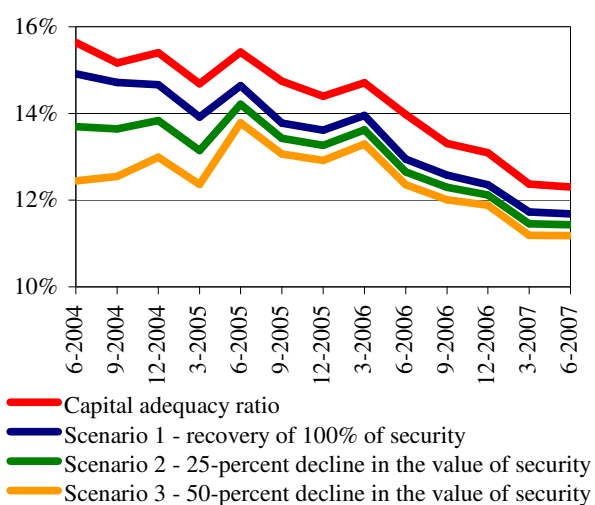
Source: NBP.

(around 67%).

The assessment of banks' capacity to absorb possible loan losses that could arise from the deteriorating economic situation has also been conducted using macroeconomic stress tests. Box 6 presents details of the analysed scenarios and the manner in which the simulations have been conducted. The results of the simulations indicate that in the case of the realisation of stress scenarios, net charges to provisions for irregular loans grow in relation to banks' regulatory capital by 0.6-0.9 percentage points per annum, as compared to the baseline scenario. For comparison, in the period June 2006-June 2007, net charges to provisions for loans classified as substandard were the equivalent of 2.9% of banks' regulatory capital (see Table 10). Net charges to provisions for substandard loans are low in comparison to regulatory capital. In the simulation, no bank makes losses resulting in the exhaustion of regulatory capital. In the case of the majority of banks, the increase of net charges to provisions for loans could be absorbed by their revenues. The results of the simulation confirm banks' good resilience to a potential deterioration of macroeconomic situation.

Figure 50

Average capital adequacy ratio of commercial banks upon reclassification of total irregular claims on non-financial customers to *loss* loans



Note: The resilience of banks against losses arising from the hypothetical deterioration in the quality of irregular loans is reflected by the difference between the initial capital adequacy ratio and the value of the capital adequacy ratio under stress scenarios. The smaller a decline of the capital adequacy ratio under stress scenarios, the greater the resilience of banks.

Assumptions for the simulations: 1. All irregular claims on non-financial customers are re-classified as *loss*. 2. The *satisfactory* and *special mention* loan portfolio remains unchanged. 3. The numerator and denominator of the capital adequacy ratio are reduced by the shortfall in specific provisions and – under Scenarios 2 and 3 – also by the decline in the value of security (25% of eligible security under Scenario 2 and 50% under Scenario 3).

Source: NBP.

### Box 6. Macro stress tests as a tool of financial system stability assessment

Macro stress tests are one of the elements of the analysis of the banking sector stability conducted at the NBP. The analyses are designed to determine the vulnerability of the domestic banking sector to unfavourable changes of external conditions which would result in banks' incurring losses. The analyses are aimed at considering scenarios with low occurrence probability but potentially significant impact on the functioning of the sector.

The simulation referred to in this Box relates to banks' credit risk and provides an answer to the question how banks' loan-related losses (defined as the balance of charges to provisions and releases of provisions for impaired loans, expressed as a percentage of the bank's loan portfolio) would change, should unfavourable macroeconomic scenarios occur. The way of assessing the banking sector stability takes account of past relationships between the economic condition and the repayment performance of loans extended by banks.

The stress test has been conducted as a three-stage analysis. Firstly, "stress" scenarios have been defined, and their impact on macroeconomic process according to the Polish economy model ECMOD<sup>1</sup> has been examined. Two stress scenarios have been analysed in the simulation:

- The geopolitical risk increase scenario resulting in a sustained growth of oil prices to USD 120 per barrel,

- The scenario of turbulence on international financial markets resulting in:
  - a fall of investors' propensity to take risk, leading to the increase of the risk premium, of long-term interest rates in Poland and the depreciation of the zloty,
  - a slower rate of economic growth in euro area countries,
  - the fall in consumer confidence, slowing the growth of private consumption in Poland.

The GDP projection prepared for the *Inflation Report* is the point of reference in the simulation (baseline scenario).

Secondly, conditional (taking account of the impact of the analysed shocks) forecasts of the impact of the macroeconomic condition on banks' loan-related losses have been made, using the NBP-developed panel model explaining loan losses at the level of individual commercial banks. In the model, the losses are accounted for by both macroeconomic variables (changes in the real rate WIBOR 3M, changes in unemployment in the economy or the GDP growth rate and changes in the unemployment rate) as well as the characteristics of particular banks<sup>2</sup>.

The form of the estimated loan loss model does not allow to include the risk of deterioration of the quality of foreign currency loans extended to households as a result of the depreciation of the foreign exchange rate (impact of variables describing the development of the foreign exchange rate is not statistically significant). Thus, an additional simulation based on data from GUS Household Budget Surveys has been conducted. The simulation has estimated the growth of the share of foreign currency housing loans repaid by households with negative margin, stemming from a 10% depreciation of the zloty rate, in line with the scenario of turbulence on financial markets. The growth of the share has been estimated at 3.5 p.p. It has been assumed that the share of irregular loans in the foreign currency housing loans will increase by the same amount. The resulting change in the amount of irregular loans, coupled with historical data on the average loan provision coverage, has helped determine the loan losses arising from the deterioration of the quality of foreign currency housing loans.

In the last stage of the simulation, the value of hypothetical loan losses has been compared to banks' earnings and capital in order to assess the possibility of banks' absorption of the consequences of macroeconomic shocks.

<sup>1</sup> The multi-equation macroeconomic model of the Polish economy ECMOD has been developed for the purposes of monetary policy in Poland. The specification of the model has been published in the following papers: T. Fic, M. Kolasa, A. Kot, K. Murawski, M. Rubaszek, M. Tarnicka, "ECMOD Model of the Polish Economy", *Materiały i Studia Paper No. 36*, NBP, October 2005 and "ECMOD Model of the Polish Economy, April 2007 version.", [www.nbp.pl](http://www.nbp.pl), April 2007.

<sup>2</sup> The detailed description of the model is included in the paper of A. Głogowski "Macroeconomic determinants of Polish banks' loan losses – results of a panel data study", forthcoming as a NBP Working Paper.

Table 10

## Results of stress tests

	Average loan losses <sup>1</sup> to earnings prior to taking account of net charges to provisions for irregular loans <sup>2</sup> in period June 2006-June 2007	Average loan losses <sup>1</sup> to regulatory capital at end of June 2007	Share of banks with negative pre-tax earnings in assets
As of period June 2006-June 2007	9.9%	2.9%	0.8%
Baseline scenario	29.5%	8.7%	6.5%
Oil prices' growth scenario	34.2%	10.0%	6.9%
Scenario of turbulence on international financial markets	33.5%	9.9%	6.9%
Scenario of turbulence on international financial markets after taking account of impact on foreign currency housing loans	36.1%	10.6%	6.9%

<sup>1</sup> Net charges to provisions for irregular loans per annum average for a given scenario.

<sup>2</sup> Net income from banking activity, less general expense and depreciation.

Source: NBP.

The simulations conducted on end-of-June 2007 data indicate that the hypothetical losses originating from the impaired loans portfolio could be absorbed by most banks without impairing their capital adequacy. At the same time, however, banks' sensitivity to the deterioration of the quality of loans currently serviced in a timely manner is rising.

Banks' sensitivity to losses originating from this portfolio has been on the rise since 2006, which is due to a high loan growth rate exceeding the rate at which banks' capital grows. A rapid growth of lending at a time when the credit standards are being eased, particularly in the segment of mortgage loans, results in the fact that the future quality of the loans is burdened with great uncertainty. Thus, in order to preserve financial stability in the long run, it is desirable that banks maintain their capital at a level that would ensure that they can operate safely even in the case of a significant deterioration of loan quality. The present sound earnings of the majority of banks enable them to build capital buffers by allocating part of profits to the increase in their capital.

#### 4.6. Market assessment of banks

An independent assessment of banks' financial position is conducted and published by rating agencies. Moody's publishes ratings of 13 Polish banks (see Table 11). In the first half of 2007, rating changes (upgrading 5 banks and downgrading 1) stemmed exclusively from changes in the rating methodology of Moody's.

Rating outlook for all the banks was either stable

Table 11  
Ratings of Polish banks by Moody's (as at end of June 2007, ratings at end of December 2006 in brackets)

Bank's name	Deposit rating	Financial strength rating	Outlook
PKO BP	A2 (A2)	C (C)	Stable
Bank Pekao	A2 (A2)	C (C)	Stable
Bank BPH	A3 (A3)	C- (C-)	Developing
ING Bank Śląski	A2 (A2)	D+ (D+)	Stable
BZ WBK	A2 (A2)	C- (C-)	Stable
Citibank Handlowy Bank Millennium	A2 (A2)	C- (D+)	Stable
Bank Millennium	A2 (A3)	D (D)	Positive
Kredyt Bank	A2 (A2)	D (D-)	Stable
BGŻ	A2 (A2)	D (D-)	Stable
BRE Bank	A3 (A2)	D (D-)	Stable
Lukas Bank	A2 (A2)	C- (C-)	Stable
Getin Bank	Ba3 (Ba3)	D (D)	Stable

For definitions of ratings, see the glossary.

Source: www.moody's.com.

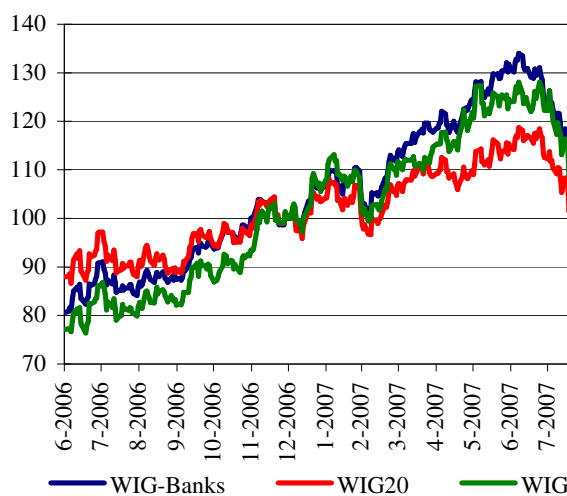
or positive. As A2 is the highest rating that can be assigned to a Polish financial institution owing to Poland's sovereign ceiling, the prevalence of this deposit rating reflects a good financial position of the Polish banking sector.

The assessment of Polish banks shown in the deposit ratings is positively influenced by their capital links with foreign strategic investors. On the other hand, capital links within international finance groups may also mean the possibility of spreading the possible deterioration of the financial position of strategic investors across their subsidiaries operating in Poland (e.g. via financing caps or increased dividend pay-out). However, available data does not indicate that turbulence observed on the global markets (related to, among others, a crisis on the subprime mortgage market in the United States) contributed to the deterioration of the financial positions of the strategic investors of Polish banks to the extent threatening financial system stability.

Banks' financial strength ratings ranged from D- to C, with the median at the level of D+. According to Moody's definition, the level of financial strength ratings suggests that the environment in which Polish banks operate is relatively difficult to predict and unstable in comparison with the most developed countries which are assigned the highest rating by rating agencies. In the cases of weaker banks, it may lead to the need of seeking external support in the long run. The opinions are confirmed by analyses of rating agencies, where attention is paid to the fact that there are few data allowing to assess the performance of some asset groups of Polish banks throughout a full business cycle.

Market assessment of 12 banks listed at the GPW is pictured by the WIG-Banks sectoral index (see Figure 51). In the first half of 2007, changes in this index and the WIG index were similar, which means that investors' assessment of the evolution of banks' financial position and outlook is similar to that of the whole market.

Figure 51  
WIG-Banki sectoral index against equity market



Notes: data as at session close. Values of indices standardised to 100 as at 29 December 2006. WIG-Banki is a total return index and WIG20 is a price index.

Source: Reuters.



## 5. Non-bank financial institutions

Due to their character, non-bank financial institutions (NFI) exert a smaller direct impact on financial sector stability than banks. The stability of the financial sector is indirectly influenced by the operations and financial position of non-bank financial institutions, chiefly via their impact on banks and the situation of households.

In the first half of 2007, the assets of non-bank financial institutions rose chiefly as a result of the boom on the equity market and an inflow of new funds. The increase in assets was also supported by rapid economic growth, which resulted in, among others, an improvement of the financial condition of households.

The growth in assets of non-bank financial institutions increased their influence on financial markets, especially on the equity market, due to, among others, an increase of their share in the capitalisation of the GPW and *free float*. It seems that increased investments of investment funds (IF) and insurance investment funds (UFK) in shares may strengthen market trends due to relatively large fluctuations of funds inflowing to funds investing in shares, depending on current situation on the market.

The growth in assets of non-bank financial institutions positively influenced the profitability of NFI managing these institutions, and contributed to the increase of banks' profits via the ownership channel and owing to fee income on the sale of investment fund units and insurance policies.

### 5.1. Assets

The high growth of assets of non-bank financial institutions continued in the first half of 2007 (see Table 12).

In the case of investment funds the growth was the highest, which mainly resulted from a large cash inflow to the funds and, to a lesser extent, from an increase in the valuation of the investment portfolio related to the boom on the equity market (see Figure 53). New cash invested in investment funds in the first half of 2007 accounted for around 60% of their net asset growth. The past high rates of return on investment in investment fund participation units in the past four years, amid relatively low returns offered by alternative investments (bank deposits and T-bonds), were

Table 12

Assets of insurance companies, open pension funds and investment funds (billion zloty)

	Insurance	OFE <sup>2</sup>	IF <sup>2</sup>
6-2006	100	98	77
12-2006	108	117	99
6-2007	116 <sup>1</sup>	138	139

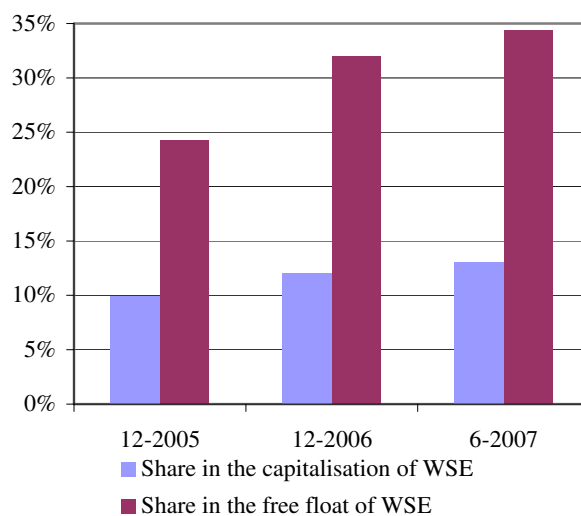
<sup>1</sup> 31 March 2007

<sup>2</sup> Net assets

Source: NBP, KNF, Analizy Online.

Figure 52

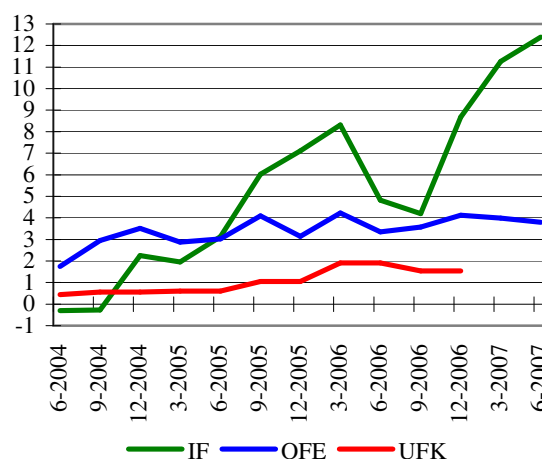
Shares of open pension funds, investment funds in capitalisation and free float of companies listed on WSE



Source: GPW, Analizy Online.

Figure 53

Quarterly net inflow of funds to investment funds, open pension funds and insurance companies (UFK)



Note: As data on the balance of inflows and outflows for insurance investment funds in a given quarter are not available, it has been assumed that in each quarter they amount to half of the value of the balance for a given half of a year.

Source: Analizy Online.



behind the increase in flow of new cash to the funds.

Rising share prices and the inflow of mandatory contributions contributed to the growth of assets of open pension funds. The growth of assets of insurance companies stemmed mainly from the growth of assets of insurance investment funds; the reasons behind the growth were similar to those observed in investment funds. An additional factor influencing the growth of assets of insurance companies was a high growth rate of housing loans. The standard condition under which housing loans are extended is taking out a house insurance policy, and in some cases other insurance policies: the so-called bridge insurance policy (loan repayment insurance) until the borrower's entry in the Mortgage Register becomes valid, missing part of borrower's contribution insurance policy and simple life insurance policy.

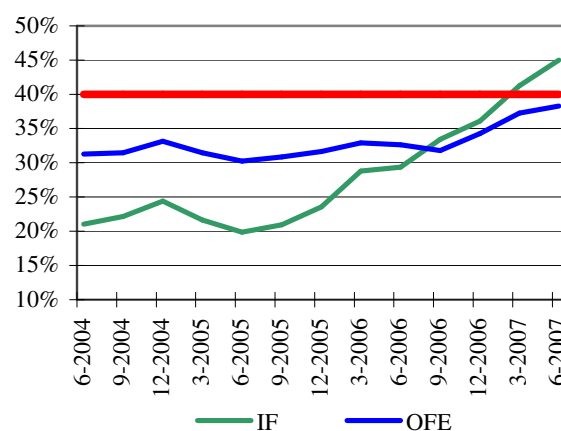
## 5.2. Influence of non-bank financial institutions on financial markets

The impact of non-bank financial institutions on financial markets has recently risen considerably, especially in case of the equity market. The share of pension funds and investment funds in the capitalisation of companies listed at the GPW has grown, too (see Figure 52). The main reasons were the increase in value of the assets of the funds and increase in their investments in shares (see Figure 54). Customers' investments concentrated, to a larger extent, on equity funds and balanced funds with a high share of equities in assets (see Table 13), which led to the increase in their share in the sector's assets. The last two years saw an increase in the share of equities of small and medium-sized companies in portfolios of non-bank financial institutions, particularly in the case of open pension funds (see Tables: 14 and 15).

In the case of equity funds, competition pressure to achieve high rates of return, coupled with statutory minimum thresholds of investment in shares, led to a situation where a large inflow of cash made the funds invest part of the cash on the equity market, even when share prices were high. The increase in demand on the equity market, due to the high positive balance of cash flowing from the funds to the market (see Figure 22), contributed to the strengthening of the growth trend on the equity market. Increased demand on the equity market on part of investment funds and open pension funds could only be partially absorbed by new public offerings. The total value of public offerings in 2006 and

Figure 54

Share of equities in net assets of investment funds and open pension funds



Note: the horizontal line stands for the maximum permitted share of equities in the assets of open pension funds.  
Source: Analizy Online.

Table 13

Net inflow of funds by type of investment funds (billion zloty)

Type of funds	First half of 2006	Second half of 2006	First half of 2007
Polish equity	3.2	5.6	11.8
Foreign equity	0.7	0.3	3.5
Balanced	5.8	4.8	6.8
Stable growth	4.6	3.3	1.0
Bonds and money market	-1.9	-3.3	-1.7
Other	0.8	2.3	2.6
Total	13.1	12.9	24.0

Source: Analizy Online.

Table 14

Structure of equity portfolio of open pension funds (%)

	2004	2005	2006
Large cap stocks	60	59	49
Medium cap stocks	29	28	35
Small cap stocks	11	13	16

Note: broken down according to capitalisation criterion.  
Source: Analizy Online.

Table 15

Structure of equity portfolio of investment funds (%)

	2004	2005	2006
Large cap stocks	52	53	50
Medium cap stocks	26	31	32
Small cap stocks	22	16	18

Note: broken down according to capitalisation criterion.  
Source: Analizy Online.

the first half of 2007 was considerably lower than the net inflow of cash on the equity market on part of investment funds and open pension funds.

Should share prices drop, the fall of current rates of return on participation units of funds that invest on the equity market may result in the withdrawal of part of savings from the equity funds. It could lead to further declines on the equity market due to sale of part of the equity portfolio to raise funds for outflows.

Open pension funds investing some of inflowing contributions on the equity market should exert a stabilizing influence on the market. During the boom, open pension funds also stabilize the market because the mechanism of statutory maximum investment thresholds induces the limitation of investment in shares in case their prices rise too rapidly. The importance of this factor will increase in the future along with the growth in assets of open pension funds as the possibility of reducing the share of equities with contributions will be smaller. The stabilizing influence of open pension funds was visible in the second quarter of 2007. Despite an inflow of new cash, the funds were net sellers in each month of the quarter<sup>35</sup>. The reason behind it was that as a result of a rise in share prices, open pension funds' investment in shares approached the statutory investment limit.

### 5.3. Influence of non-bank financial institutions on banks

The growth of assets of non-bank financial institutions was responsible for a rapid growth of their profits<sup>36</sup> (see Table 17). This had a positive influence on the performance of banks via the ownership channel. However, the scale of the influence was not considerable as the ownership share of banks in insurance companies, the most profitable sector of non-bank financial institutions, is insignificant. Banks' brokerage offices and houses had the biggest impact on banks' earnings, which stemmed from banks' significant share in the sector and its high profitability. Another source of revenues for banks was the sale of investment fund participation units and insurance policies. This contributed to the high growth of banks' fee income from the financial sector in the first half of 2007. The share of fees from the financial sector in the sector's total fee income increased to 29.5% in the first half of 2007 from 25.7% in 2006.

Banks' risk on loans to non-bank financial institutions

Table 16  
Shares of individual types of investment funds in the sector's assets (%)

Type of fund	6.2006	12.2006	6.2007	Change in assets in first half of 2007 (%)
Equity	15.8	21.4	31.7	107.6
Balanced	25.3	27.4	27.7	41.6
Stable growth	25.3	25.0	20.3	13.7
Bonds and money market	27.0	18.0	11.7	-8.6
Other	6.7	8.3	8.7	46.9

Source: Anality Online.

Table 17  
Pre-tax earnings of insurance companies, pension companies, investment fund management companies, brokerage offices and houses (million zloty)

	2004	2005	2006	Change in 2006 (%)
Insurance companies	3,546	6,265	7,979	27.4
Pension companies	462	556	712	28.2
Brokerage offices and houses	519	712	1,192	67.3
Investment fund management companies	172	279	655	134.4
Total	4,699	7,813	10,538	34.9

Source: KNF, GUS.

remains marginal. At the end of the first half of 2007, the value of loans to insurance companies and pension funds amounted to 0.01% of banks' assets. Banks' liabilities towards these institutions also constituted an insignificant part of the liabilities of the banking sector (1.2% at the end of the first half 2007).

The shift of households' savings towards non-bank financial institutions, provided it is a sustained phenomenon, will limit the possibility of using households' deposits for cheap financing of banks' activities. In the second quarter of 2007, the flow of savings to non-bank financial institutions led to a nominal drop of households' bank deposits despite the improvement in their financial condition.

Non-bank financial institutions also exert an indirect impact on the banking sector – via influencing the valuation of financial instruments held on banks' balance sheets.

#### 5.4. Investment fund management companies and investment funds

In the case of investment funds (as well as in insurance investment funds and open pension funds) almost all investment risk related to changes in prices of financial instruments comprised in their investment portfolios is incurred by buyers of investment fund participation units. The impact of this risk on the earnings of pension companies, investment fund management companies and insurance companies is mainly indirect – through changes in the value of the managed funds resulting from changes in the prices of financial instruments, and an inflow or outflow of cash. One of the major sources of revenue for the institutions are management fees; they are proportional to the value of assets. The shift of investments towards debt and stable growth funds, usually taking place during falls on the equity market, brings about an additional drop of the revenue of investment fund management companies as the institutions charge lower fees for managing these funds than in the case of equity funds and balanced funds. However, given the present level of investment funds' assets, it is very unlikely that the fall of their value poses a threat to the financial position of investment fund management companies. Investment fund management companies reported positive earnings in each of the past five years even when the value of the assets of the managed funds was many times lower.

The growth of assets of investment funds contributed

Table 18  
Financial results of investment fund management companies (PLN million)

	2004	2005	2006	Change in 2006 (%)
Revenues on operational activities, of which:	964	1,319	2,509	90
Management fees	769	1,055	2,091	98
Handling charges	186	235	395	68
Other revenues from statutory activities	9	29	23	-21
Costs of operational activities	787	1,072	1,890	76
Gross profit	172	279	655	134
Net profit	141	227	528	133

Source: GUS.

to a rapid rise of operating revenues and earnings of investment fund management companies in 2006 (see Table 18). In addition, due to the increase in the share of equity funds and balanced funds (see Table 16) the rise of investment fund management companies' revenues (by 90%) that was higher than the average annual growth of assets of investment funds (a 70% rise). The considerable growth of the revenues and earnings of investment fund companies may also have taken place in the first half of 2007 owing to the sustained high growth rate of funds' assets and a further increase in the share of equity and balanced funds in the assets of investment fund management companies in the period (see Table 16).

Management fees, which are proportional to the value of assets, were the major source of operating revenues of investment fund management companies (83% in 2006). Only 16% of operating revenues were handling charges, among others, for sale of new units. The structure of investment fund management companies' revenues reduces the volatility of their earnings as the value of assets is subject to smaller fluctuations, when the trends on financial markets change, than the sales of new units.

### 5.5. Pension companies and open pension funds

Owing to the mandatory character of contributions and the resulting stable growth of pension funds' assets, the sector of pension companies appears to be the most stable sector among non-bank financial institutions. Contribution fees are the main source of pension companies' revenues. Open pension funds' management fees, the other main source of revenue for pension companies, are contingent on the value of open pension funds' assets.

The inflow of new contributions and the growth of open pension funds' assets had an influence on further increase of revenues and profits of pension companies in the first half of 2007 (see Table 19). This growth was particularly high (20.6%) in the case of revenues from management fees that are proportional to the value of open pension funds' assets.

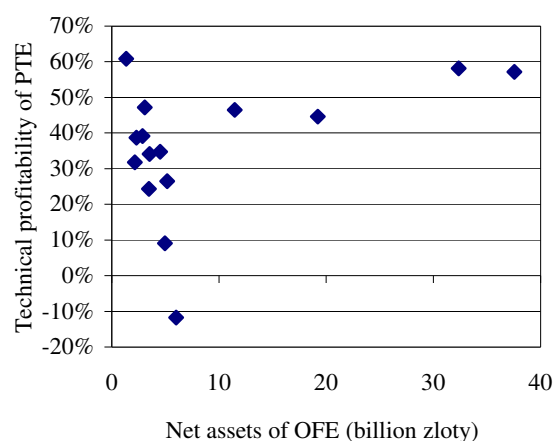
The growth in earnings led to a further improvement in the profitability of companies. Pension companies managing the largest funds are, among others, characterized by high profitability (see Figure 55). As in the previous year, all but one pension companies posted a technical profit and net profit. The pursuit of a strategy targeting a rapid growth

Table 19  
Financial results of pension companies (million zloty) and technical profitability on open pension funds management (%)

	First half of 2006	First half of 2007	Change (%)
Revenues on open pension funds management, of which:	739	823	11.3
- contribution fees	476	496	4.6
- management fees	236	285	20.6
Costs of open pension funds management	415	454	9.4
Technical profit/loss on open pension funds management	324	369	13.7
Net profit	294	331	12.8
Technical profitability on open pension funds management	44%	45%	-

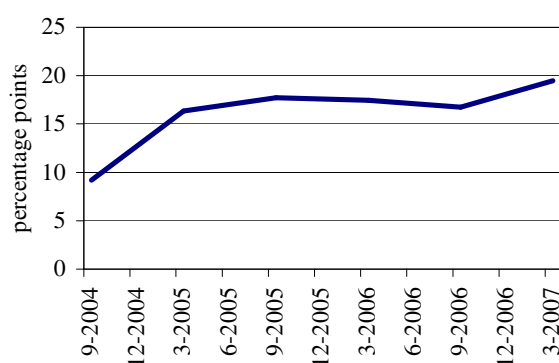
Source: KNF.

Figure 55  
Technical profitability of pension companies vs. value of open pension fund assets



Source: NBP calculations based on KNF data.

Figure 56  
Difference between the lowest rate of return achieved by open pension fund and MRRR



Source: KNF.

of market share may have been the reason for negative earnings of one pension company. This is confirmed by very high (relative to the value of revenues and assets) expenses on direct sales, marketing and promotion.

The difference between the lowest rate of return achieved by open pension fund and the MRRR rose to its historically highest level (see Figure 56). It means that the present risk of making supplementary payments by pension companies, required in the case of a failure to obtain the MRRR, is very low. The risk could grow in the future in case of a considerable decline of rates of return of open pension funds (e.g. in the situation of a long-term fall on the equity market). Then, the difference between the average and minimum required rates of return would fall. However, the risk of making supplementary payments is constrained by similarities of the investment portfolios of open pension funds.

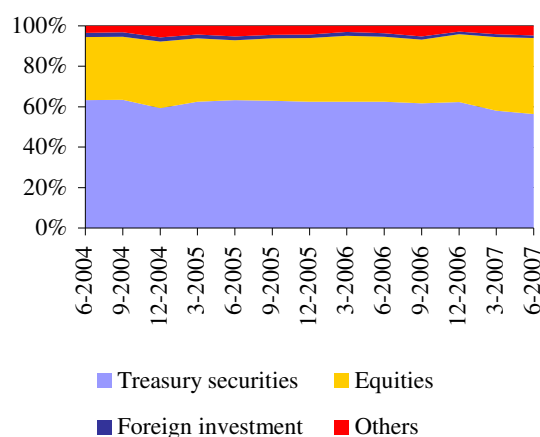
#### 5.6. Insurance companies

The technical results of the insurance sector in the first quarter of 2007<sup>37</sup> worsened, as compared to the corresponding period of 2006 (see Table 20).

In the case of non-life insurance sector, realisation of insurance risk related to the damages caused by natural forces (e.g. gales in early 2007) contributed to the deterioration. The technical result of the remaining part of the non-life insurance sector (after excluding the impact of the group of insurances against natural forces) grew. For the group of insurance comprising damages caused by natural forces, the technical result was negative and the loss ratio grew over twofold. As a result, the loss ratio for the whole non-life insurance sector also rose (see Figure 58). Despite the lower technical result, the net profit of the non-life insurance sector was close to last year's net profit levels (see Table 20). This was the result of profit taking on investments.

Despite the decline in the technical result, positive phenomena were also observed in the non-life insurance sector – among others, overcoming the hitherto downward trend of premiums on voluntary comprehensive automobile insurance policies (AC) and a fairly high rise of premiums on third party liability insurance policies (OC). These developments were behind a significant rise of the premium growth rate of the whole non-life insurance

Figure 57  
Structure of investment portfolios of open pension funds



Note: shares and Treasury debt securities – excluding foreign ones.

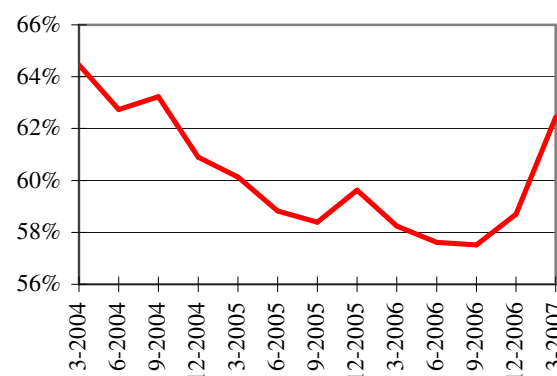
Source: NBP calculations based on KNF data.

Table 20  
Earnings of the insurance sector (PLN million)

	First quarter of 2006	First quarter of 2007	Change in first quarter of 2007 (%)
<b>Non-life insurance sector:</b>			
Technical result	417	352	-15.7
Net investment income	452	512	13.3
Net profit	645	647	0.4
<b>Life insurance sector:</b>			
Net investment income	1,584	2,478	56.4
Technical result	1,235	992	-19.7
Net profit	1,028	853	-17.0

Source: KNF.

Figure 58  
Gross loss ratio in the non-life insurance sector



Source: KNF.

sector (see Figure 59). The gross loss ratio further dropped in the two largest non-life insurance groups (voluntary comprehensive automobile insurance and third party liability insurance).

The increase in households' incomes and a growing trend on the equity market contributed to the continuation of the high premium growth rate in life insurance sector. However, the rate was lower than in the record year of 2006 (see Figure 59).

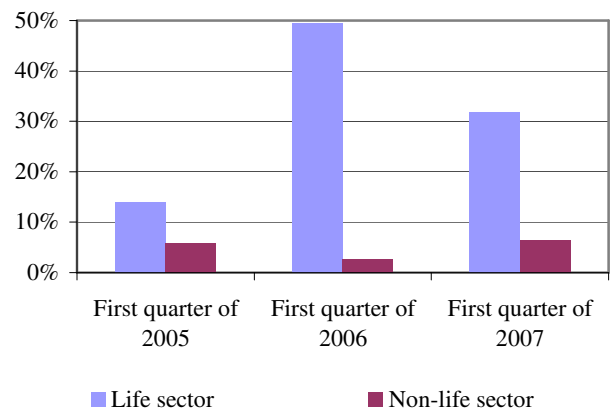
The drop in the profits of the life insurance sector in the first quarter of 2007 stemmed mainly from a lower profit of the sector's largest company (technical result and net result of the remaining part of the sector went up). The fall was mainly caused by a one-off event – a rise in the value of provisions related to a drop of the guaranteed rate (in 2007, unlike in 2006, it was lowered in the first and not in the second quarter of a year). As the profit fall was mainly related to the effect of base, it should be temporary. In the case of the sector's largest company, special mention must be given to a fairly low premium growth rate, as compared to the average for the sector.

The financial results of the life insurance sector, and the premium growth rate in particular, would be negatively affected by a possible worsening of the situation on the GPW, which would diminish demand for unit-linked life insurance policies. However, the impact of the scenario on the earnings of the whole life insurance sector would be constrained owing to the fact that a considerable part of the sector's technical profits (87%) still come from other life insurance groups.

Accumulation of profits results in the upward trend of the fundamental soundness indicator, i.e. the activity monitoring ratio (the equivalent of the capital adequacy ratio in banks) of the non-life insurance sector. This ratio exceeds the required minimum several times (see Figure 60). The reason is mainly the rise of the ratio in the sector's largest company. Only two small non-life insurance companies, with a combined market share of 0.2%, fail to meet the capital requirement.<sup>38</sup>

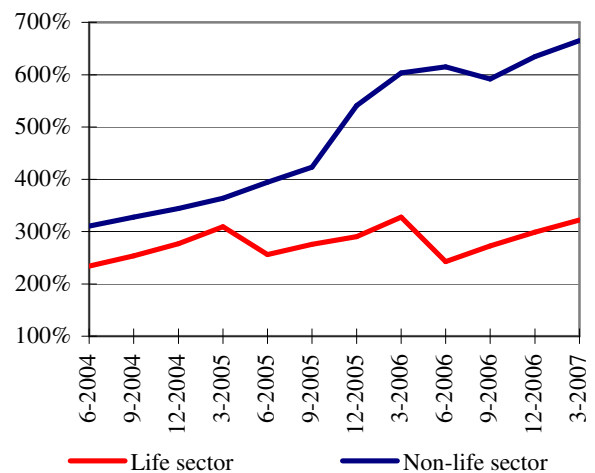
In the first quarter of 2007, the activity monitoring ratio in the life insurance sector dropped in comparison to the corresponding period of 2006 (see Figure 60). The ratio fell mainly in small and medium-sized life insurance companies (the ratio of the sector's largest company rose).

Figure 59  
Growth rate of gross written premium in the insurance sector (y/y)



Source: KNF.

Figure 60  
Activity monitoring ratio in the insurance sector



Source: KNF.

The fall stems from the life insurance sector's high growth rate, resulting in the rise of the capital requirement. Despite the fall, the ratio remains high. However, unfavourable developments occurred in the distribution of the activity monitoring ratio. At present, three insurance companies with a total market share of 1.7% fail to meet the capital requirement of 100%, and in the case of insurance companies with a market share of 21.9%, the ratio is within the range of 100%-150%.

The structure of investments of the insurance companies has not changed significantly since 2006. The share of higher-risk investments, such as equities or real estate, remains low (6.1% in the case of life insurance sector and 8.3% in the case of non-life insurance sector). Insurers are mostly exposed to the interest rate risk arising from T-bonds that have the biggest share in their investments. The realisation of the risk occurred in the first half of 2007 when bond prices fell. However, the impact of this factor on the insurers's earnings is limited since changes in prices of part of the T-bond portfolio (among others, classified as bonds held to maturity) are not included in profit and loss account. Life insurance companies have liabilities with long duration, such as those stemming from traditional life insurance policies, which also has an influence on limiting the interest rate risk (see *Financial Stability Report 2006*, pp. 92-94).



## Footnotes

- <sup>1</sup> See: *Informacja o kondycji sektora przedsiębiorstw ze szczególnym uwzględnieniem stanu koniunktury w III kw. 2007 (The condition of the non-financial enterprises in Q3 2007)*, NBP, Warszawa.
- <sup>2</sup> Op. cit.
- <sup>3</sup> See: *Inflation Report, July 2007* and *Informacja o kondycji sektora przedsiębiorstw ze szczególnym uwzględnieniem stanu koniunktury w III kw. 2007 (The condition of the non-financial enterprises in Q3 2007)*, NBP, July 2007.
- <sup>4</sup> See: *Informacja o kondycji sektora przedsiębiorstw ze szczególnym uwzględnieniem stanu koniunktury w III kw. 2007. (The condition of the non-financial enterprises in Q3 2007)*, NBP, July 2007.
- <sup>5</sup> In 2006, the value of leased assets was 33% higher than in 2005. The value of assets leased in the first half of 2007 totalled PLN 15.5 billion and was lower than the value of assets leased in the whole 2005 only by a little less than PLN 1 billion.
- <sup>6</sup> See: *Balance of Payments of the Republic of Poland for Q 1 2007*, NBP, Warsaw, July 2007
- <sup>7</sup> In 2006, the value of leased assets was 33% higher than in 2005. The value of assets leased in the first half of 2007 totalled PLN 15.5 billion and was lower than the value of assets leased in the whole 2005 only by a little less than PLN 1 billion.
- <sup>8</sup> See: *Sytuacja na rynku kredytowym – wyniki ankiety do przewodniczących komitetów kredytowych III kwartał 2007. (Senior loan officer opinion survey—on bank lending practices and credit conditions, 3<sup>rd</sup> quarter 2007)*, NBP, Warszawa, July 2007.
- <sup>9</sup> See: *Informacja o kondycji sektora przedsiębiorstw ze szczególnym uwzględnieniem stanu koniunktury w III kw. 2007 (The condition of the non-financial enterprises in Q3 2007)* NBP, Warszawa, p. 52.
- <sup>10</sup> The statement refers to banks operating in Poland and non-residents.
- <sup>11</sup> Recommendation S on good practices with regard to mortgage-secured credit exposures, KNB, Warszawa, 2006.
- <sup>12</sup> In June 2007, loans denominated in Swiss francs represented more than 93% of foreign currency-denominated housing loans to households.
- <sup>13</sup> See: *Koniunktura konsumencka w I i II kwartale 2007 r. (Consumer confidence in Q1 and Q2 2007)*, GUS, Warszawa, 2007.
- <sup>14</sup> See: *Sytuacja na rynku kredytowym, wyniki ankiety do przewodniczących komitetów kredytowych”, edycje II i III kwartał 2007 (Senior loan officer opinion survey—on bank lending practices and credit conditions, for Q2 and Q3 2007)*, NBP, Warszawa, 2007.
- <sup>15</sup> The description of carry trade transactions can be found in *Financial Stability Report 2006*, p. 21.
- <sup>16</sup> Approximately 85% of the liquid portfolio of shares of domestic companies held by foreign investors were the shares of companies included in the WIG20 index. As of the end of May 2007, these companies' capitalisation accounted for 61.5% of the total capitalisation of domestic companies quoted on the GPW.
- <sup>17</sup> Market capitalisation of the segment of mid-cap companies is lower than the capitalisation of the large-cap segment. Consequently, even if the nominal net inflows of money into investment funds specialising in each segment of the market were even, prices of mid-cap stocks would rise more than those of large-cap stocks.
- <sup>18</sup> Among stock exchanges in Central and Eastern Europe, the Hungarian stock exchange is one of the most liquid markets. An official index of SME shares is available for this market, which makes a comparative analysis possible.
- <sup>19</sup> See: *Inflation Report, July 2007*, NBP, Warszawa July 2007.
- <sup>20</sup> Source: GUS.
- <sup>21</sup> Source: *Office Space Market – H1 2007*, Colliers International Poland.
- <sup>22</sup> Source: Jones Lang LaSalle.
- <sup>23</sup> In June 2007, the value of non-residential property loans to corporates (office space loans account for a large part thereof) amounted to PLN 15.6 billion, which represented 12.3% of property loans and 4.6% of total loans to the non-financial sector.
- <sup>24</sup> IBNR provisions for incurred but unidentified loan losses are created for claims that are not ascertained as impaired on an individual basis. The provisions are calculated on the basis of statistical models for homogenous groups of assets, i.e. portfolios with common credit risk features. More on the subject, see IAS 39.
- <sup>25</sup> IFRS require the occurrence of objective evidence that loans are impaired upon establishment of provisions, therefore the possibility of creating provisions for expected losses is limited.
- <sup>26</sup> See: *Senior loan officer opinion survey on bank lending practices and credit conditions* available on [www.nbp.pl](http://www.nbp.pl), 2007.
- <sup>27</sup> In this case, the interest rate risk has a broad meaning – of not only the risk of changes in the fair value of the portfolio of debt securities and derivatives sensitive to interest rate movements but also of the risk of changes in the theoretical valuation of the banking book – more on the subject, see Box 3 in *Financial Stability Report 2005*, pp. 82-84..
- <sup>28</sup>  $\text{Net ROE} = \text{pre-tax ROE} * (1 - \text{CIT rate}) = \text{pre-tax ROA} * (\text{assets/core capital}) * (1 - \text{CIT rate}) = \text{pre-tax ROEA} * (\text{earning assets/assets}) * (\text{assets/core capital}) * (1 - \text{CIT rate})$
- <sup>29</sup> The average number of employees and average wages in the banking sector increased by 2.9% and 7.7%, respectively. Total personnel expenses (wages plus social insurance and other benefits) rose more rapidly. Calculations for annualised data.

<sup>30</sup> The analysis in this subchapter is confined to domestic banks, i.e. domestically controlled banks and subsidiaries of foreign banks operating in the territory of Poland. Branches of foreign banks are not considered. At the end of June 2007, the assets of domestic banks accounted for around 96% of assets of the banking sector.

<sup>31</sup> Commercial banks that increased these items of their capital retained around 43% of the net profit generated in 2006 to increase these positions of the core capital

<sup>32</sup> Cooperative banks are not included in the analysis. Their share in total regulatory capital of the banking sector amounts to around 7.6%.

<sup>33</sup> The share of the banks whose capital adequacy ratios would fall to below 8% in the assets of commercial banks amounts to 11%. The simulation has assumed that the capital requirement for credit risk increases in the period June 2007-June 2008 at the same pace as in the period June 2006-June 2007 and the value of capital requirements for other types of risk and overall regulatory capital remains unchanged.

<sup>34</sup> The resilience of the banking sector to losses is measured by the distance between the actual level of the capital adequacy ratio and levels obtained in successive simulations.

<sup>35</sup> I.e. the difference between the value of buy and sell transactions was negative.

<sup>36</sup> Due to the GUS schedule of publication of aggregated data on the sector of investment fund management companies and the sector of brokerage offices and houses, the analyses presented in this fragment are based on 2006 data.

<sup>37</sup> Due to the KNF schedule of publication of aggregated data on the insurance sector in the first half of 2007, the analyses presented in this fragment are based on 2007 Q1 data.

<sup>38</sup> The share is measured by the value of the premiums earned.

## Glossary

**Activity monitoring ratio** – the ratio of insurer's capital to the statutory capital requirement, which is the value of solvency margin or the guarantee capital (whichever is higher).

**Adjusted one-month liquidity gap** – the difference between the book value of assets of up to 1 month (adjusted for the value of overdue claims and for the value of Treasury securities earmarked to cover the fund for protection of guaranteed deposits of the Bank Guarantee Fund) and the surplus of deposits from non-financial customers of up to 1 month over the core deposits and other liabilities of up to 1 month.

**Balance of the value of provisions and revaluation** – the difference between charges to provisions and revaluation and releases of provisions and revaluation.

**Borrowing burden ratio (enterprise sector)** – the ratio of bank loans and advances (to residents and non-residents, total) to the balance sheet total. Both at the level of the whole sector and that of particular enterprises, the ratio is calculated with the use of data from GUS F-01 reports.

**Borrowing burden ratio (household sector)** – the ratio of loans to households (residents) to their yearly gross disposable income. Data on loans come from the NBP monetary statistics, data on gross disposable income come from GUS national accounts.

**Cash liquidity ratio** – the ratio of short-term investments (short-term assets purchased for the purpose of achieving economic profits resulting from the increase in value of the assets) to short-term liabilities (liabilities arising from purchase of goods and services, and other liabilities that become due within 12 months).

**Collateralised Debt Obligation (CDO)** – a structured credit derivative in which the homogenous credit risk of a underlying portfolio is divided into tranches of varying credit rating; loan losses in the underlying portfolio are covered in the first place from a tranche with the lowest credit rating.

**Credit Default Swap (CDS)** – a credit derivative whose seller undertakes to pay the buyer the face value of a third party's contractually specified defaulted obligation (usually a bond) in exchange for a premium.

**Credit spread** – the difference between the loan interest rate and the interbank market interest rate.

**Debt burden ratio (enterprise sector)** – the ratio of liabilities (towards residents and non-residents, total) to the balance sheet total. Both at the level of the whole sector and that of particular enterprises, the ratio is calculated with the use of data from GUS F-01 reports.

**Deposit rating (long-term)** – a measure of the capacity of a financial institution to repay its liabilities with the maturity of 1 year or longer. It reflects the risk of default and the scale of possible losses in the case of default of a financial institution.

**Earning assets** – the sum of claims on financial institutions, non-financial customers and general government sector, plus securities and claims due to sell-buy back and repo transactions on securities.

**Financial strength rating** – a measure of the long-term capacity of a financial institution to conduct its business independently, without support of third parties, calculated by Moody's on the basis of fundamental data, franchise value and the scale of activity diversification as well as the level of development of the financial system in which the institution operates, the quality of supervision, and the strength of the economy.

**Funding gap** – the difference between the amount of loans to non-financial customers, and the general government sector and the amount of deposits accepted from those sectors, expressed as percentage of the value of loans.

**Gross loss ratio** – the ratio of gross claims and benefits paid (i.e. before taking account of the share of reinsurers) with the change in the balance of provisions for claims and benefits outstanding to gross premiums earned.

**Gross written premiums** – value of gross premium (before taking into account the share of reinsurers): in the case of life insurance sector – payable under the contract within the reporting period, whether or not the premium has been paid; in the case of non-life insurance sector, where the duration of coverage is determined — amounts payable for the whole period of liability, notwithstanding its duration, arising from the agreements concluded during a particular reporting period, whether or not the premium has been paid; in the case of non-life insurance, where the duration of the period of liability is not determined — amounts payable during a particular reporting period, whether or not the premium has been paid.

**Guaranteed rate** – the interest rate used for the calculation of technical and insurance provisions in life insurance sector and provisions for discounted value of annuities.

**Irregular loans** – at banks applying the Polish accounting standards: loans classified as *substandard, doubtful, loss loans*; at banks applying IFRS: impaired loans, as recognized by the bank on the basis of objective circumstances.

**Irregular loan ratio**– the ratio of irregular loans to total loans.

**Loan service burden ratio (household sector)** – the ratio of the sum of principal and interest instalments paid by households to their disposable income. For the sector's aggregated ratios, the sum of principal and interest instalments is estimated based on banking statistics on the value of loans, the average interest rate on consumer, housing and other loans, and the average maturity loans. Data on gross disposable income come from GUS national accounts. Ratios on the level of particular households are calculated on the basis of data from GUS Household Budget Surveys.

**Net income from banking activity** – the sum of net interest income and net non-interest income (net income on fees and commissions, income on stocks or shares, other securities and financial instruments of a variable rate of return, net/gains losses on financial operations net FX gains/losses).

**One-month liquidity gap** – the difference between the book value of assets with the maturity of up to 1 month and the book value of liabilities with the maturity of up to 1 month.

**Premiums earned** – part of the gross written premiums payable to the insurance company for the risk incurred within a particular reporting period (determined as a written premiums in the reporting period decreased by the balance of provisions for unearned premiums as at the end of the reporting period and increased by the balance of provisions for unearned premiums as at the beginning of the reporting period).

**Quick liquidity ratio**– the ratio of the sum of short-term investments (short-term assets purchased for the purpose of achieving economic profits resulting from the increase in value of the assets) and short-term claims (claims arising from sales of goods and services, and all or part of other claims that are not classified as financial assets and become due within 12 months) to short-term liabilities (liabilities arising from purchase of goods and services and other liabilities that become due within 12 months).

## List of abbreviations

<b>AC</b>	Comprehensive insurance of land vehicles, excluding rail vehicles – subsector III of non-life insurance
<b>BAEL</b>	Labour Force Survey
<b>BFG</b>	Bank Guarantee Fund
<b>CRD</b>	Capital Requirements Directive (Directive relating to the taking up and pursuit of the business of credit institutions)
<b>FRA</b>	Forward Rate Agreement. A transaction where counterparties undertake to pay interest on a pre-established nominal amount for a defined period of time to start in the future. Interest is calculated according to the interest rate determined on the date when the contract is concluded.
<b>GPW</b>	Warsaw Stock Exchange
<b>GUS</b>	Central Statistical Office
<b>IBNR</b>	Provisions for incurred but not reported losses. Impairment provisions for loans assessed on a portfolio basis under IAS 39.
<b>IC</b>	Insurance companies
<b>IF</b>	Investment Funds
<b>IFRS/IAS</b>	International Financial Reporting Standards/International Accounting Standards
<b>IRS</b>	Single currency Interest Rate Swap. An Interest Rate Swap is a contractual arrangement between two counterparties who agree to exchange interest payments on a defined nominal amount for a fixed period of time. The payments are expressed in the same currency and calculated according to a pre-determined interest rate for each of the parties. The rates of IRSs presented in the <i>Review</i> are ones where counterparty pays a fixed rate in exchange for receiving an interest rate calculated according to a floating WIBOR.
<b>KDPW</b>	National Depository for Securities
<b>KNB</b>	Commission for Banking Supervision
<b>KNF</b>	Polish Financial Supervision Authority
<b>MRRR</b>	Minimum required rate of return
<b>NBP</b>	National Bank of Poland
<b>NFI</b>	Non-bank financial institutions
<b>OC</b>	Third-party liability insurance
<b>OFE</b>	Open pension funds
<b>PTE</b>	Pension fund management companies (pension companies)
<b>ROA</b>	Return on assets – profit of an entity expressed as percentage of the average value of its assets
<b>ROE</b>	Return on equity – profit of an entity expressed as percentage of the average value of its equity (in the case of banks, defined as regulatory capital)
<b>ROEA</b>	Return on earning assets – profit of a bank expressed as percentage of the average value of its earning assets
<b>TFI</b>	Investment fund management company
<b>UFK</b>	Insurance investment fund
<b>VaR</b>	Value at Risk