NBP Narodowy Bank Polski

June 2018

Financial Stability Report

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Financial Stability Department
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This *Report* presents the analysis and assessment of threats to financial system stability in Poland. Financial system stability is a situation when the system performs its functions in a continuous and efficient way, even when unexpected, highly adverse and low-probability disturbances occur on a significant scale. The maintenance of financial system stability requires the monitoring of systemic risk occurring in the financial system or in its environment, as well as the implementation of measures eliminating or reducing the risk. Systemic risk is a risk of disruption in the functioning of the financial system, which – in the case of its materialisation – interferes with the functioning of the financial system and the national economy as a whole (Article 4 paragraph 15 of the Act on Macroprudential Supervision of the Financial System and Crisis Management).

The stability of the financial system is a necessary condition for ensuring sustainable economic growth in the long term. The stability of the banking system, which accounts for two thirds of assets of the Polish financial system, is of particular importance for financial system stability in Poland. Banks play a crucial role in financing the economy and settling payments. They also perform another important function by providing numerous products that allow other entities to manage their financial risk. Therefore, special emphasis is put on the analysis and assessment of threats to banking system stability.

Financial system stability is of particular interest to the NBP due to its statutory tasks to eliminate or reduce systemic risk, establish the conditions necessary for the development of the banking system, and contribute to the stability of the domestic financial system (Article 3 paragraph 2 items 6, 6a and 6b of the Act on NBP). While fulfilling these tasks, the NBP participates in macroprudential supervision of the financial system, and in the event of a direct threat to the stability of the financial system, may also participate in the implementation of crisis management measures. The aim of macroprudential supervision is, in particular, to strengthen the resilience of financial system to the materialisation of systemic risk and thus to support long-run sustainable economic growth of Poland (Article 1 paragraph 2 of the Act on Macroprudential Supervision of the Financial System and Crisis Management).

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. Financial system instability may hamper the efficient implementation of the monetary policy. The analysis of the financial system stability also constitutes a necessary element of an efficient regulatory and supervisory policy, in the development of which NBP plays an important role and which, together with the monetary policy, contributes to maintaining sustainable economic growth. Another reason for the involvement of NBP in activities supporting the stable functioning of the financial system is the fact that the central bank is entrusted with the task of organising monetary clearing (Article 3 paragraph 2 item 1 of the Act on NBP). The stable functioning of financial institutions that are integral components of payment systems is a necessary condition for the smooth operation of these systems.

The "Financial Stability Report" is addressed to financial market participants, other policymakers, as well as to other persons and institutions interested in the subject. The aim of the *Report* is to present conclusions from analytical and research work on financial system stability, including the assessment of its resilience to potential disturbances. Disseminating this knowledge should support the maintenance of financial stability through, among others, better understanding of the scale and scope of risk in the financial system. This enhances the probability of a spontaneous adjustment 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 is an important instrument for maintaining financial system stability. The *Report* is also presented to the Financial Stability Committee, which is the macroprudential supervisory body.

Identification of systemic risk requires analysing the situation in the financial system in a way comprising not only sectoral analysis, but also the processes influencing the whole financial system, including the linkages within it, as well as the interactions of the financial system with its domestic and global environment. The structure of systemic risk analysis is set by the intermediate objectives of macroprudential supervision. The Financial Stability Committee, bearing in mind the recommendations of the European Systemic Risk Board, as well as taking into account the specificity of the Polish financial system, detailed the following intermediate objectives of macroprudential supervision:

- mitigation of risk arising from excessive growth or size of debt or leverage,
- mitigation of risk arising from excessive maturity mismatch of assets and liabilities or of the risk of illiquidity of financial markets,
- mitigation of risk arising from excessive concentration of exposures to entities or risk factors, and the interconnectedness between financial system entities,
- mitigation of risk arising from misaligned incentives influencing the behaviour of financial institutions or their clients,
- ensuring the adequate resilience of the financial infrastructure.

The systemic risk assessment comprises identification of potential areas of weakness (vulnerabilities) in the financial system, factors amplifying or mitigating risks, as well as the assessment of the resilience of the analysed financial institutions to the materialisation of risks. In addition, the *Report* discusses the possible sources of shocks which may lead to the materialisation of risks.

The analysis includes areas related to the first four out of five intermediate objectives. In the area of the fifth intermediate objective, i.e. – resilience of the financial infrastructure – NBP examines the functioning of payment systems together with securities clearing and settlement systems. The results of these analyses are presented in a separate publication – "Assessment of the functioning of the Polish payment system".

The analysis conducted in this *Report* is based on data available up to 31 March 2018 (*cut-off date*). Some high-frequency data, especially relating to financial markets, and other particularly significant information, may go beyond the adopted *cut-off date*. The *Report* was approved by the Management Board of Narodowy Bank Polski at a meeting on 30 May 2018.

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Executive summary

Poland's financial system is functioning in a stable manner, supported by the domestic economic environment that exhibits no major imbalances. The level and growth rate of the debt of non-financial enterprises and households remain moderate. The rising consumption of households, along with stronger investment activity of the public sector, contributed to an improvement in the pace of economic growth in 2017.

However, the risk stemming from the external environment of the Polish economy remains at an elevated level. Despite positive current macroeconomic developments, persisting significant uncertainty in Poland's economic setting indicates that negative shocks are possible, which may slow Poland's economic growth over the longer horizon.

The prices of instruments in the global financial markets continue to show that risk is substantially underestimated by investors, which may result in a considerable correction and a rise in price volatility. In early February 2018, the long period of growth – amid low volatility – of financial asset prices came to an end. The effects of the market correction of February 2018 were visible in Poland only on the equity market. Neither capital outflows from the domestic economy nor a significant depreciation of the zloty were observed. On the other hand, the impact of subsequent market corrections, if any, is difficult to estimate and this is also true for the scale of their impact on macroeconomic trends. The high level of public and private debt in a number of major developed and emerging economies remains a risk factor for global economic growth.

The domestic residential real estate market is in an expansion phase. However, its high activity has not generated so far excessive price tensions as rising demand was satisfied by an adequate level of supply. The market remains balanced although the equilibrium seems less stable than in the past. In this context, the likelihood of an imbalance caused by supply and demand shocks is growing. The barriers that could reduce the supply of dwellings in the future may be of significance. Oversupply continues in the commercial real estate market (mainly office real estate) persists, which however does not pose a systemic risk as the extent of funding of this market by domestic banks is small.

The maintenance of banking sector stability is the key prerequisite for financial stability in Poland as banks are the main source of financing for the economy and banks' deposits are the largest component of household financial assets.

- The rate of lending growth did not create imbalances in the economy and the financial system, and it also did not impede economic growth. There are no signs of an excessive easing of lending policy by banks, and the analysis

of the credit cycle in Poland indicates that the risk of excessive lending is low. Credit growth in the period under analysis was slightly lower than that of nominal GDP growth. As a result, the countercyclical buffer remains at 0%.

- The quality of the loan portfolio of banks was stable. The portfolio of foreign currency mortgage loans remains a potential vulnerability of the banking sector. However, as borrowers have income buffers, the quality of the portfolio – despite significant foreign exchange shocks in the past – is very good. Coupled with the sufficiently high capital buffers of banks, this shows that the portfolio – from the economic point of view – does not generate systemic risk. The portfolio might become a source of systemic risk in case of entry into force of legislative solutions that provide for a forced currency conversion of the loans at an exchange rate significantly different from the current market rate. However, the implementation of the recommendation of the Financial Stability Committee on the FX loan portfolio reduced the risk.
- The high share of deposits, especially household deposits in banks' liabilities and a simultaneous decrease in wholesale funding supports stable funding of banks and mitigation of liquidity risk. The share of liquid assets in banks' balance sheets stabilised at a high level. Banks fulfil the supervisory liquidity ratios. However, the need to issue debt instruments that may help to meet the MREL requirement will pose a challenge for banks.
- Banks' profitability (measured by ROE and RORC) improved in 2017, and the total profit of the banking sector was close to the 2016 level, when the banks reported a one-off revenue from the sale of a stake in Visa Europe Limited. Retained profits are the main source of capital in Poland, and the size of capital buffers is a key parameter for the resilience of the banking sector to shocks and a prerequisite for growth of funding to the economy. Therefore, bringing the downward trend in profitability to an end should be regarded as a positive development. However, the estimated cost of capital raised on the market is higher than profitability of banking activity. This may reduce banks' potential to replenish capital via issue of shares or subordinated bonds.
- The capital position of the banking system is good, and is accompanied by low leverage. In the period under analysis, banks continued to increase their regulatory capital, maintaining its high level. The average total capital ratio remains at the level of 18%. The total capital requirement from pillar 1 rose mainly on a higher requirement for credit risk arising from the increase in risk weights related to FX housing loan originated in the past. Most banks comply with the supervisory requirements, including the requirements to maintain capital buffers.

The results of stress tests and the loss absorption capacity simulations indicate that most banks are capable of absorbing the effects of shocks in the financial system and its economic environment, assumed in the test scenarios. However, should a restrictive scenario involving an economic downturn materialise, the sector's profitability would deteriorate substantially, and the capital ratios would fall. Systemic risk would not materialise due to the high initial levels of the capital ratios at banks.

The persistence of substantial uncertainty in Poland's external environment indicates that it is necessary to preserve good resilience of the banking sector.

The cooperative banks sector is functioning in a stable manner. Cooperative banks in most cases fulfil the supervisory capital and liquidity requirements. Nevertheless, the sector's low efficiency associated with its business model and its low integration pose a challenge to the profitability of cooperative banks and to their capacity to expand in the medium term. Some cooperative banks hold significant exposures to risky assets, which in the case of insufficient risk management competence, may jeopardise their stability. A worrying development is the poor quality and relatively high concentration of the loan portfolio amid a low coverage of impaired loans by impairment provisions. The profitability and capital ratios of associating banks, which are on average lower than the average ratios in the system, also have to be regarded as unfavourable. The key role of associating banks in the IPSs and their strong deposit links with cooperative banks indicate that it is important to ensure a safe operation of associating banks via, among others, high quality risk management and adequate capital levels.

The experience gained so far from the functioning of the IPSs in cooperative banking is positive and shows that the stabilization mechanisms in the sector are proving effective. Therefore, the fact that a number of cooperative banks remain outside the IPS structures gives reason for concern, especially in view of the expiry towards the end of 2018 of existing association agreements. In this context, banks outside the IPS are faced with the necessity to promptly take action that will ensure their compliance with the legislative requirements for their operation by the end of the year.

The condition of the credit unions sector remains difficult and their restructuring continues. The number of active credit unions as well as the value of the sector's assets are gradually decreasing. A large portion of the sector still fails to fulfil the regulatory minimum capital requirements. On the other hand, the liquidity requirements are complied with, although over the longer horizon the sector's liquidity may be sensitive due to the persisting difficult capital position. The quality of the loan portfolio is poor. The high share of those items in regulatory capital which cannot be used to cover losses of previous years gives reason for concern.

Given the business models applied in Poland, the sector of non-credit financial institutions does not generate significant risks to financial stability.

- This sector is not a significant source of funding to the economy. Moreover, non-credit financial institutions use leverage only to a small extent.
- Insurance companies offer traditional insurance services and do not generate liquidity risk. Products with a guaranteed rate of return, which are a vulnerable area in the environment of low interest rates, are not widely offered by these companies. The insurance sector is characterised by high capital adequacy ratios, which ensures a continuity of the provision of financial services. The financial and technical results of insurance companies improved again in 2017.
- Investment funds are a sector with a large and growing scale of activities. At the end of 2017, their net assets reached an all-time high due to asset valuation growth and a positive balance of withdrawals and payments of funds. The key risk in the sector is liquidity risk, which is potentially significant for open-ended investment funds. The share of liquid assets in total assets of open-ended investment funds declined again, especially for debt funds, and was lower than the average for the last three years.
- Liquidity risk is, in principle, non-existent in

the open pension funds sector because fund participants cannot withdraw funds before they have become eligible for pensions and because of the steady flow of net contributions.

Interconnectedness between financial institutions, including capital, financial and credit links, may potentially create risks to financial stability. In the second half of 2017, the magnitude and nature of intra- and cross-sectoral linkages in the Polish financial system did not change. Significant cross-sectoral linkages stem from the largest capital group regarded as a financial conglomerate and controlled by the State Treasury. The assets of insurance companies comprising the group accounted for 40% of assets of the insurance sector, and banks comprising the group were responsible for 15% of assets of the domestic banking sector. Deposit and lending linkages in the banking sector were not significant, except for linkages between associating banks and associated cooperative banks.

For most entities in the sector of non-credit financial institutions, intra-sector linkages remained more significant than their ties with banks. The funding links and credit links of non-credit financial institutions with the banking sector were weak.

The system of deposit guarantees and resolution remains an important potential channel of linkages between banks and credit unions. This is significant in view of the poor condition of the credit unions sector and some cooperative banks. A likely materialisation of risk in the institutions and the resulting need to finance withdrawals of guaranteed deposits or the process of resolution could hit banks' profitability and resilience. The high level of concentration of credit unions the sector enhances the risk's significance.

Reputational risk associated with the distribution of investment products among retail clients by banks may be another indirect channel of cross-sectoral linkages.

Narodowy Bank Polski presents a number of recommendations aimed at preserving the stability of Poland's financial system. The recommendations are elaborated in the last chapter of the Report. They pertain to the following:

- the restructuring of FX housing loans by way of voluntary agreements between banks and borrowers, in line with the Financial Stability Committee recommendation of 13 January 2017,
- a closer integration of the cooperative banking sector, and the broadest possible participation of cooperative banks in the IPS,
- the need for non-IPS cooperative banks to take actions aimed at ensuring their operating compliance with the legislative requirements before the association agreements expire this year,
- a continuation of the restructuring of the credit unions sector, while minimising public costs,
- the lending policy of banks that should ensure that borrowers who take long-term loans hold adequate income buffers in the event of a possible interest rate hike,
- a prudent lending policy by banks in the area of lending for real estate,
- the need for financial institutions to comply with high standards in relations with clients when distributing investment products, to ensure that the products offered by the financial institutions are tailored to the client's profile and to provide full and transparent information on the risk associated with the investment,

- the introduction of legal solutions that would make it easier for banks to obtain MREL requirement-compliant debt financing, which could also contribute to increasing the share of long-term debt instruments in the funding of banks.

Chapter 1.

Financial institutions' economic environment

1.1. Macroeconomic developments

The world economy continued to expand in the second half of 2017. Good economic conditions in a number of countries were supported by strong consumer demand, growth in investment activity and a recovery in international trade. The short-term global economic growth outlook remained favourable as well.

The economic situation of Poland's main trading partners remained good. In the euro area, annual GDP growth in the second half of 2017 was higher than in the previous half (in the third and fourth quarter it amounted to 2.7% y/y). Net exports made the highest contribution to GDP growth in the fourth quarter of 2017. Growth in Germany's exports increased in particularand consequently the country's economic activity rose at a stable pace despite domestic demand's lower contribution to GDP. In the United States, GDP growth also increased in the second half of the year (to 2.3% and 2.5% y/y in the third and fourth quarters of 2017, respectively). Economic activity in the United States was supported by the acceleration of the pace of growth in private consumption and private investment.

On the other hand, economic growth in the largest emerging economies towards the end of 2017 was slightly lower than in the first half of the year. In Russia, the decline of the rate of economic growth was primarily related to slower investment and the fall in export growth caused by an appreciation of the rouble. Similarly, slightly lower GDP growth in China was caused by the slower growth in investment.

The March NBP projection points to slightly slower GDP growth in the Poland's economic environment in the years to come, especially in the euro area. According to this projection, the pace of economic growth in the United States will also weaken. On the other hand, the forecasts of international organisations show that good economic conditions will continue in the major emerging economies, although GDP growth is likely to decelerate in China. At the same time, inflation in Poland's economic environ-

ment will remain at a moderate level. In 2018, future economic conditions in the United States as well as uncertainty about trade relations between major world economies will remain a source of uncertainty for the Poland's economic environment.

Poland's economic growth accelerated in the second half of 2017. GDP growth rate stood at 5.2% in the third quarter and 4.9% y/y in the fourth quarter of 2017. It was mainly driven by consumer demand. The growth in individual consumption continued at a level similar to the previous half (it was 4.7% y/y in the third quarter and 5% in the fourth quarter of 2017) and was still supported by rising employment, wages and the disbursement of child benefits under the "Family 500 plus" programme. At the same time, the second half of 2017 saw a gradual recovery of investment (a rise of 3.6% y/y in the third quarter and an increase of 5.4% y/y in the fourth quarter), which mainly applied to public investment projects. The growth in domestic economic activity was also strengthened by growing exports, which was supported by continued good conditions of Poland's economic environment. At the same time – in the face of acceleration of domestic demand – import growth also increased. Consequently, net exports made a neutral contribution to GDP growth in the fourth quarter.

Good domestic economic conditions were accompanied by a balanced current account (0.3% of GDP both in the third and fourth quarters of 2017, in annualised terms). The balanced current account in the second half of 2017 – despite a significant primary income deficit – was mainly the result of a high trade surplus. A rising surplus in the trade in services helped to sustain a positive trade surplus. In contrast, an acceleration of imports in the second half of 2017 translated into a lower surplus on the balance of trade in goods.

Consumer price inflation in Poland in the second half of 2017 remained at a moderate level and in early 2018 it declined (to 1.3% y/y in March 2017). Price growth was constrained by low core inflation[1] (0.7% y/y in March 2018). On one hand, the low core inflation reflected only a gradual rise in internal demand pressure. On the other hand, it mirrored low inflation in the environment of the Polish economy and a stronger than in the last year zloty exchange rate. This was accompanied by the decline in energy price growth, mainly on the back of a fall in annual fuel price growth. Food price growth – despite a slight decrease recently – remained relatively high.

The acceleration of economic growth helped the number of employed persons in the national economy to grow further (according to BAEL by 0.5% y/y in the fourth quarter of 2017), including employment in the enterprise sector (3.7% y/y in March 2018.[2]) The rising number of employed persons translated into a fall of the unemployment rate to its historical low (4.5% seasonally adjusted at the end of the year, according to BAEL). The likelihood of finding jobs by the unemployed was still high, although the growing mismatch of skills of job seekers with the employers' needs contributed to its fall. On the other hand, the probability of losing a job remained very low. Under such conditions, the position of employees in wage bargaining strengthened, which was reflected in higher nominal wages growth in the economy (7.1% y/y in the fourth quarter of 2017) and in the enterprise sector (6.7% y/y in March 2018).

Continuing good economic conditions, including in the labour market, translated into a further improvement in household financial standing. A rapid increase in disposable income (8.4% in 2017) and

[1] Core inflation is defined as inflation excluding food and energy prices.
[2] See lewycudz Average paid employment and average gross wages and salaries in enterprise sector in March 2018prawycudz, April 2018, GUS.

very optimistic sentiment still had a positive influence on the growth in individual consumption and retail sales. At the same time, the financial assets of households continued to grow markedly (6% y/y in the fourth quarter of 2017), mainly these with a relatively low level of risk and high liquidity (cash and short-term deposits) and residential investments. Households also increased their financial liabilities (2% y/y in the fourth quarter of 2017). Despite the increase, the ratio of household debt to disposable income remained moderate (59.4%).

The condition of the non-financial corporate sector in the second half of 2017 was good and corporate sentiment remained favourable on account of continuing strong domestic and foreign demand. In the fourth quarter of 2017, overall net profit of the enterprise sector rose markedly (37.4% y/y), which was the effect of a strong rise of the financial result on other operations with a modest fall in the sales result. The net profitability turnover of the enterprise sector remained at a high level and amounted to 3.9% in the fourth quarter of 2017. In this quarter, sales revenue grew at a slower pace (8.5% y/y) than operating costs (8.9% y/y), which caused the sales result to drop slightly and the sales profitability ratio stood at 4.9%. The rate of growth of operating costs was heavily influenced by the continuing high rise in commodities and materials prices and labour costs. Following a period of a modest decline in the percentage of profit-making companies observed in the first half of 2017, the second half of the year saw an improvement on an individual level. As a result, the percentage of profit-making enterprises in 2017 was 80.9% compared with 81.5% in 2016. The rise in profitability in the fourth quarter of 2017 – both for domestic sales and export sales – was also confirmed by survey data. Expectations from the first quarter of 2018 for the next 12 months were optimistic. The indicators of demand and production forecast were at a good level, and corporate assessments of barriers to development, including assessments of uncertainty, decreased. The availability of funding was not among the set of main barriers to development.

In the fourth quarter of 2017 the non-financial corporate sector was still characterised by high liquidity and high debt servicing capacity. After a period of a modest decline, all liquidity ratios in the fourth quarter of 2017 rebounded to very high levels and the share of enterprises which did not report liquidity problems reached 77.6%, running above its long-term average. Also, the companies' capacity to service their bank loans remained high, which is also evidenced by the share of companies not affected by problems related with settlement of such liabilities (95% in the fourth quarter of 2017). The overall debt indicator expressed as the ratio of liabilities and provisions for liabilities to total assets dropped slightly again to below 50% in the fourth quarter of 2017. The capacity of companies to service loan debt due from financial surplus remained very good, which was the result of a decrease in the burden arising fromloan interest costs amid growth in net profit. At the same time, corporate debt towards financial institutions grew at a moderate pace, and its level, compared to other European countries, remained low, i.e. 41% of GDP. Bankruptcy risk in the whole sector remained low.

The favourable economic conditions were accompanied by an acceleration of growth of fixed capital formation (5.4% y/y in the fourth quarter of 2017). Investments in the public sector, local governments investments in particular, were the main source of investment growth in the economy. Although the investements by non-financial enterprises employing over 49 workers increased significantly (10.8% y/y in the fourth quarter of 2017), the growth in fixed capital formation of the whole enterprise sector was lower. A gradual recovery in investment in the construction sector (18.4% y/y in the fourth quarter of

2017) and rising capital formation on machinery and equipment (8.3% y/y in the fourth quarter of 2017) contributed to the growth in fixed capital formation of medium and large enterprises.

The outlook for investment activity in the economy in the subsequent quarters remained favourable. A further expansion in investment should be fostered by the increased use of EU funds amid high capacity utilisation and expected continued growth in demand. The acceleration in the growth of corporate investment was indicated, among others, by a rising share of companies planning new investment and the share of enterprises planning to upscale implemented investment projects. Corporate investment activity will also be supported by the good financial condition of enterprises, the more so that the prevailing portion of investors tend to finance new investments with own funds.[3]

The condition of the general government sector in 2017 was very good. The sector's deficit was substantially lower than in 2016 (1.7% of GDP vs. 2.3% of GDP in 2016, according to ESA2010), mainly owing to favourable economic conditions, in particular developments in the labour market and better VAT collection. In 2018, an assumed further increase in public investment and annual costs of the lowering of the statutory retirement age will be largely offset by a continued reduction of the rate of growth in public consumption expenditures and the fading of one-off deficit-increasing factors in 2017. Consequently, considering continued favourable economic conditions, the result of the general government sector in 2018 can be expected to reach the level close to the 2017 figure. Lower borrowing needs, an acceleration of nominal GDP growth and an appreciation of the zloty translated into a significant decline of the public debt to GDP ratio in 2017 (from 54.2% of GDP to 50.6% of GDP in ESA2010 terms). According to the Convergence Programme of April 2018, the ratio at the end of 2018 should amount to 50.4% of GDP.

In 2017, Poland was one of the most balanced economies in the European Union. Private and public sector debt in Poland was among the lowest in the EU. At the same time, the size of the decline of the unemployment rate and the rise in the labour force participation rate in Poland was markedly bigger than on average in the EU. The improvement in price competitiveness – shown in the relatively low growth of unit labour costs – helped maintain a trade surplus, thereby leading to a balanced current account.

According to the March NBP projection, the Polish economy will growth at an average pace of around 3.9% in 2018-2020, and the output gap will grow to 1.8% of potential output. Individual consumption will remain a significant component of domestic demand growth, although its growth rate in 2018-2020 should decrease steadily. Coupled with an expected fall of economic growth in the euro area over the projection horizon, this is expected to translate into a gradual decrease in domestic GDP growth. Moreover, according to the central path of the NBP projection, net exports' contribution to GDP in 2018-2020 is expected to be negative. The fall in trade surplus will be followed by a fall in the combined current and capital account balance. However, the combined balance will remain positive. Favourable developments in Poland's real economy will be accompanied by inflation running at a moderate level. The projection's central scenario offers the most probable development of the macroeconomic situation in Poland. The main uncertainty may stem from possible changes in the environment of the Polish economy and the shift in the supply of Poland's labour

[3] See lewycudzNBP Quick Monitoring Survey. Economic climate in the enterprise sectorprawycudz, April 2018, NBP. The low interest of companies in funding investment projects with bank credit results, among others, from their strong ability to finance investment from own funds, which is evidenced by the value of bank deposits of companies.

force in the future.

1.2. Developments in financial markets

1.2.1. Global markets

The analysis of trends in the global financial markets from October 2017 to March 2018 points to a significant turning point in early February 2018. Early February 2018 marked the end of the several-quarter period of low volatility and growing financial asset prices. In the subsequent weeks, the world financial markets saw a considerable increase in volatility indices and a markedly fall of stock prices.

In the period of October 2017 – January 2018, the rapid growth of the world economy in the environment of low interest rates was accompanied by low volatility and continued growth of prices of most financial assets. The upbeat forecasts of the rate of economic growth for 2018 and 2019 for both developed and emerging countries[4], in the environment of expansive monetary policy of the major central banks, helped price volatility indices of financial instruments to remain at historical lows (see Figure 1.1). For most countries, perceived credit risk reflected in CDS premia on their Treasury bonds diminished. This was chiefly because the situation of their public finances improved amid economic recovery (see Figure 1.2). Global institutional investors searching for yield were ready to accept higher investment risk. Stock prices of US companies soared, which was primarily related to the high earnings of enterprises and corporate tax cuts in the United States (see Figure 1.3). In developing countries, stock indices also rose rapidly, and their currencies strengthened, owing to, among others, capital inflows and higher prices of some commodities (such as oil). Spreads between yields on corporate and government bonds in a number of markets reached levels observed before 2007.[5]

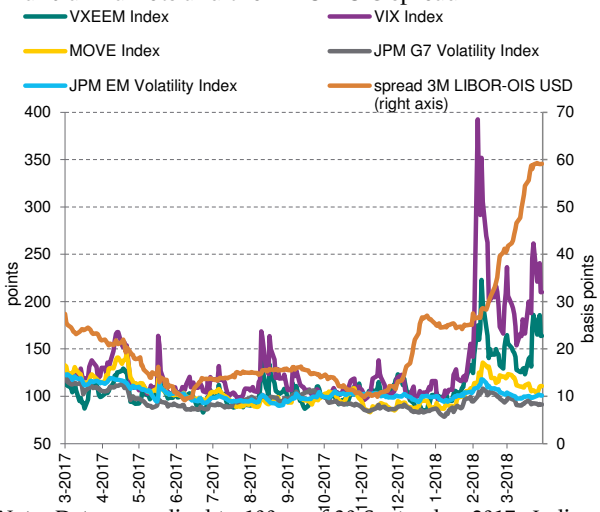
Changes in the financial instruments' prices were heavily affected by expectations of market participants regarding the monetary policy of the Fed, which was demonstrated by rapid falls of equity prices in the United States in early February 2018, as well as fiscal and trade policy of the US government. US labour market data released on 2 February 2018 beat forecasts, fuelling inflation expectations and a faster-than-expected pace of Fed interest rate hikes. These factors sparked a strong fall of the S&P index. The prices of equity instruments on emerging markets followed suit. This development was accompanied by a rapid increase in stock price volatility indices (VIX, VXEEM), following months of stabilisation. This caused the share pricing indicators on the US market and emerging markets to return to their long-term averages (see Figure 1.4). These trends neither translated into a substantial rise in credit risk premium reflected in CDS prices nor a fall in government bond prices. There was also no capital outflow from emerging markets and no significant depreciation of their currencies. The rise of interbank market rates in the United States in the period under analysis was stronger than of the federal funds rate. The spread between LIBOR and OIS USD rates widened considerably (see Figure 1.1). The spread growth (for 3M rates from less than 15 basis points at the end of September 2017 to nearly 60 basis points at the end of March 2018) was not related to a deterioration of credit risk assessment of banks active in the US dollar money market, but was

[4] In April, the IMF maintained the global growth rate forecast at 3.9% in 2018 and 2019 and raised it to 2.5% for advanced economies in 2018 (i.e. by 0.2 percentage points compared with January 2018 forecast.), "World Economic Outlook. Cyclical Upswing, Structural Change", IMF, April 2018.

[5] "Quarterly Review", BIS, March 2018, available at https://www.bis.org/publ/qtrpdf/r_qt1803.htm.

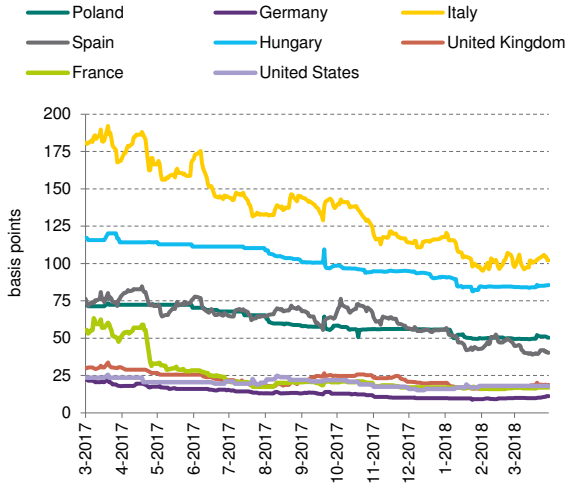
primarily related to expansionary fiscal policy of the United States, reflected in a higher supply of Treasury bills (an increase in the yields of the bills translated into a rise in LIBOR rates). Moreover, liquidity in the US dollar on foreign money markets could have been constrained by a transfer of profits of US corporations to the United States.

Figure 1.1. Volatility indices for selected segments of global financial markets and the LIBOR-OIS spread



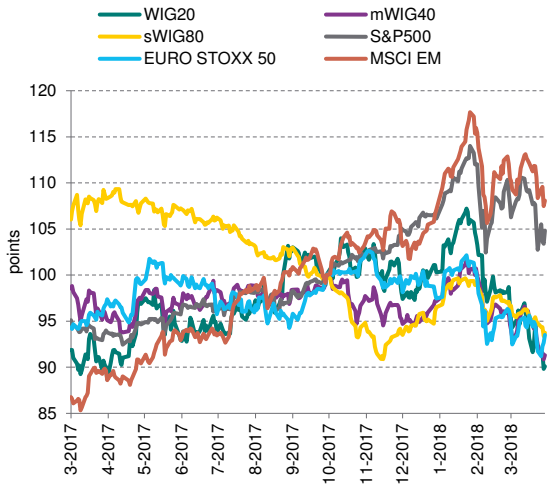
Note: Data normalised to 100 as of 30 September 2017. Indices refer to, respectively: VXEEM and VIX – equity market; JPM G7 and JPM EM – foreign exchange markets, MOVE – bond markets.
Source: Bloomberg.

Figure 1.2. CDS premia on government bonds of selected countries



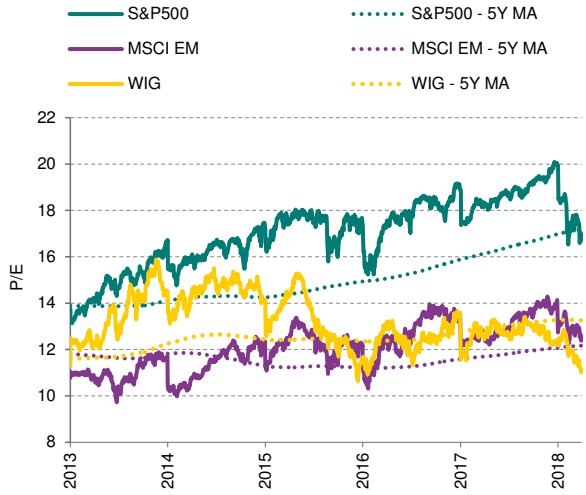
Note: Data pertain to CDS contracts denominated in the US dollar.
Source: Thomson Reuters.

Figure 1.3. Selected indices of equity markets



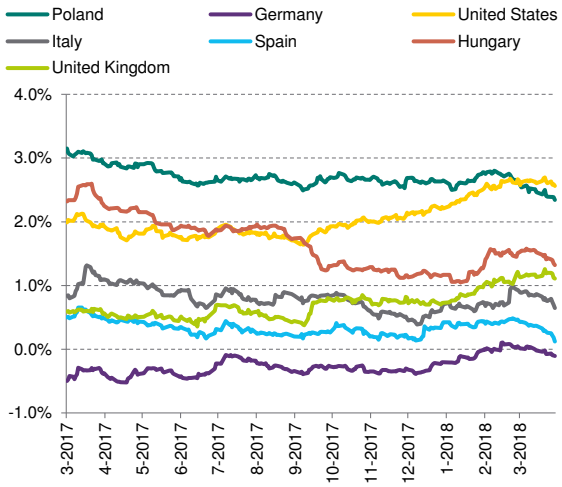
Note: Data normalised to 100 points as of 30 September 2017.
Source: Thomson Reuters.

Figure 1.4. The price to earnings ratio for selected equity market indices



Note: For the calculation of the price to earnings ratio, the earnings forecast for a given financial year was taken into account. 5Y MA stands for the 5-year moving average.
Source: Bloomberg.

Figure 1.5. Yields on 5-year government bonds of selected countries



Note: Data pertain to bonds denominated in domestic currencies.
Source: Thomson Reuters.

The Fed and the ECB continued to gradually withdraw from their expansive monetary policies, which helped reduce the risk of a rapid spike in price volatility in financial markets. In accordance with earlier statements, since October 2017 the Fed has reduced the scale of re-investment in the maturing bonds from its portfolio and raised its interest rates in December 2017 and March 2018 by a total of 50 basis points to 1.50%–1.75%. Following forecasts of accelerating inflation and continued high GDP growth as well as strong labour market conditions,[6] at the end of March 2018 market participants expected five further Fed interest rate hikes of 25 basis points each in 2018—2019 (including 3 hikes in 2019). This led to a significant rise in US Treasury bond yields from October 2017 to January 2018 (see Figure 1.5). In line with expectations, the ECB did not change its interest rates, but starting from early 2018 it reduced the value of its asset purchase programme by half (to 30 billion euro a month).[7] At the end of March 2018, market participants expected the end of that programme by the end of the year, and the start of the cycle of ECB interest rate increases in the second half of 2019. In the period under analysis, the euro strengthened against the US dollar from 1.15 to 1.23 owing to, among others, better-than-expected macroeconomic data from the euro area.

The considerable indebtedness of many private and public sector entities in a number of countries may pose a threat to global financial stability, especially in the context of an expected tightening of monetary policy in developed countries and potential implications of the materialisation of political risk. In line with the IMF data, the total global debt of the private and public sectors at the end of 2016 was around 40% higher than at the end of 2007, with particularly strong debt growth observed in China and other emerging economies.[8] Such scale of debt growth was supported by the environment of low interest rates and asset purchase programmes launched by leading central banks. In the IMF's view, a sudden tightening of financial conditions in the world capital markets could potentially prompt strong corrections of financial instruments' prices, debt sustainability concerns and capital outflow from emerging markets.[9] In addition, tax cuts in the United States will most likely result in a significant increase in the country's debt, leading to a higher supply of US Treasury securities. If such a procyclical fiscal expansion were to be accompanied by substantial acceleration of inflation and intensification of market participants' expectations for faster

[6] The summaries of economic projections from the meetings of the Fed are available at https://www.federalreserve.gov/monetarypolicy/fomccalendars.html.
[7] Press releases after the meetings of the Governing Council of the ECB are available at https://www.ecb.europa.eu/press/govcdec/mopo/2018/html/index.en.html.
[8] At the end of 2016, global private and public debt amounted to 164 trillion US dollars. China accounted for 40% of the debt growth since 2007. "Fiscal Monitor", IMF, April 2018.
[9] Speech by Christine Lagarde, IMF Managing Director, at the University of Hong Kong on 11 April 2018 is available at http://www.imf.org/en/News/Articles/2018/04/09/spring-meetings-curtain-raiser-speech.

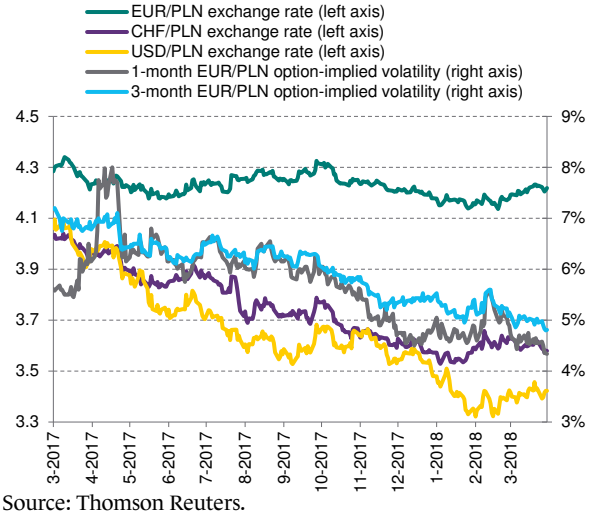
interest rate hikes by the FOMC, this might translate into a strong rise in US Treasury bond yields and a decline in assets prices on other markets.[10] Market participant concerns are also raised by a possible escalation of protectionist measures, mainly by the United States and China, which could contribute to an abrupt slowdown in global economic growth, and also by a rise in political risk related, for instance, to the ongoing war in Syria. Additional uncertainty factors may include the still high debt of a number of European countries and the potential consequences of the negotiations on the terms of Brexit.

1.2.2. Foreign exchange market

In the period under analysis, the EUR/PLN exchange rate remained in a relatively narrow range of 4.14–4.32 zloty per euro, which contributed to a gradual decline in its implied volatility (see Figure 1.6). Factors supporting the continued stabilisation of the exchange rate of the zloty against the euro included better-than-expected macroeconomic data from Poland and the euro area as well as the improved growth outlook of these economies. Insignificant and temporary growth in EUR/PLN exchange rate volatility, implied from FX option prices, was observed in early February 2018, during price falls on the US equity markets, . A substantial appreciation of the zloty against the US dollar and the Swiss franc from October 2017 to March 2018, by around 7% and 5% respectively, was triggered by changes in EUR/PLN as well as EUR/USD and EUR/CHF exchange rates, caused mainly by an appreciation of the euro against these currencies.

Domestic banks could still enter into swap transactions on favourable terms, using them to hedge open FX positions. The low costs of financing in the euro caused the implied interest rate of the euro in EUR/PLN fx swaps to be close to the EURIBOR reference rates. From October 2017 to March 2018, the EUR/PLN CIRS basis premia remained negative and fell below the levels observed in the early 2017.[11]

Figure 1.6. Zloty exchange rates and implied volatility for EUR/PLN



Source: Thomson Reuters.

1.2.3. Money market

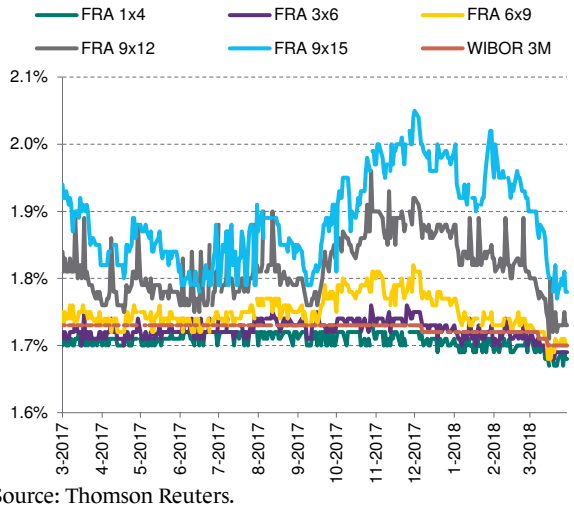
From October 2017 to March 2018, the NBP interest rates remained at an all-time low. The increase in expectations for NBP interest rate increases towards the end of 2018, reflected in FRA rates, was related to, among others, the release at the end of September 2017 of data pointing to accelerated inflation (see Figure 1.7). Starting from December 2017, these expectations were gradually waning, and after the

[10] For more information on the issue, see "Quarterly Review", BIS, March 2018, available at https://www.bis.org/publ/qtrpdf/r_qt1803.htm.

[11] This meant that domestic banks with long on-balance-sheet FX positions which would, as part of strategies aimed at reducing market risk arising from the mismatch between on-balance-sheet assets and liabilities, conclude EUR/PLN CIRS basis transactions in this period, would receive from foreign banks payments calculated according to the WIBOR reference rate and transfer payments calculated according to EURIBOR reference rate decreased by the absolute value of the margin mentioned above. In case the reference rate for interest rates in the euro were negative, domestic banks would receive payments calculated according to this rate increased by the absolute value of the margin.

March 2018 Monetary Policy Council (MPC) meeting they faded away, which followed an unexpectedly strong decline of the inflation rate (from 1.9% in January 2018 to 1.4% in February 2018) and comments by some MPC members suggesting the stabilisation of NBP interest rates at the present level until 2019 or perhaps even 2020.

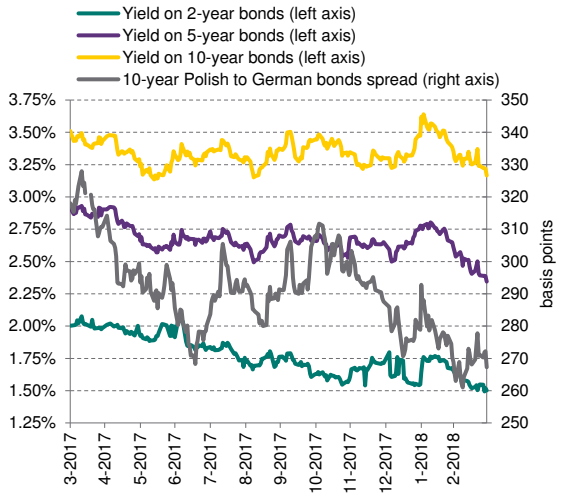
Figure 1.7. Current and expected WIBOR 3M reference rates



Source: Thomson Reuters.

Activity of domestic money market participants concentrated on operations with the shortest maturity. The daily average value of transactions in the unsecured interbank deposit market in the fourth quarter of 2017 and the first quarter of 2018 amounted to approx. 3.8 billion zlotys and was around 3% higher than in the period from April to September 2017. O/N transactions prevailed, accounting for over 90% of the market turnover. The liquidity and term structure of the domestic market of conditional transactions did not change substantially – operations with maturity of up to 7 days accounted for over 95% of the turnover. Both unsecured interbank deposits and repo-type transactions with maturities longer than one month were placed only occasionally. Domestic banks were discouraged from accepting deposits whose start and end days would fall in different months due to the design of the tax on certain financial institutions, which contributed to temporary falls in activity in the deposit market at the end of months.

Figure 1.8. Yields on domestic government bonds and the spread between the yields of Polish and German bonds



Note: Data pertain to bonds denominated in domestic currencies.
Source: Thomson Reuters.

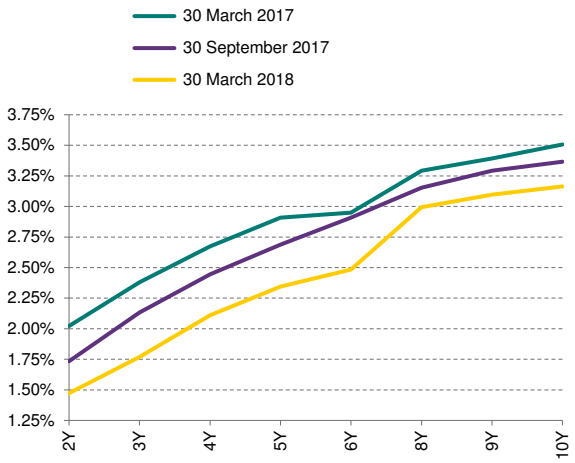
1.2.4. Bond market

The fall of yields on domestic government bonds was driven by the better-than-expected situation of public finances, the fading away of market participants' expectations for NBP interest rate hikes, and the decline in Poland's perceived credit risk. At the end of March 2018, the yields on 2-year and 5-year government bonds were 1.50% and 2.35% respectively (i.e. approx. 0.3 percentage points lower than at the end of September 2017), which was the lowest level since 2016, and the spread between yields on 10-year government bonds of Poland and Germany decreased to 270 basis points (see Figure 1.8). The reduction of the general government sector deficit in 2017 to 1.7% of GDP (from 2.3% of GDP in 2016)

[12] According to preliminary GUS data, the public sector debt fell to 50.6% of GDP in 2017 from 54.2% of GDP in 2016 owing to, among others, the high pace of GDP growth (4.6% in 2017) and an appreciation of the zloty against major currencies.

led to a lower supply of domestic government bonds and a decrease in the public debt to GDP ratio.[12] A stronger drop in yields on the shorter end of the yield curve, observed in February and March 2018, was primarily associated with the waning of market participants' expectations for NBP interest rate hikes before the end of 2019 (see Figure 1.9). Rating agencies positively evaluated Poland's short-term economic outlook[13], and CDS premia on Polish government bonds in March 2018 were at the lowest level since July 2008 (see Figure 1.2). However, at the same time some market participants claimed that a further marked increase in budget expenditures, mostly fixed expenditures, may hinder fiscal balance in the event of a deterioration of economic conditions.

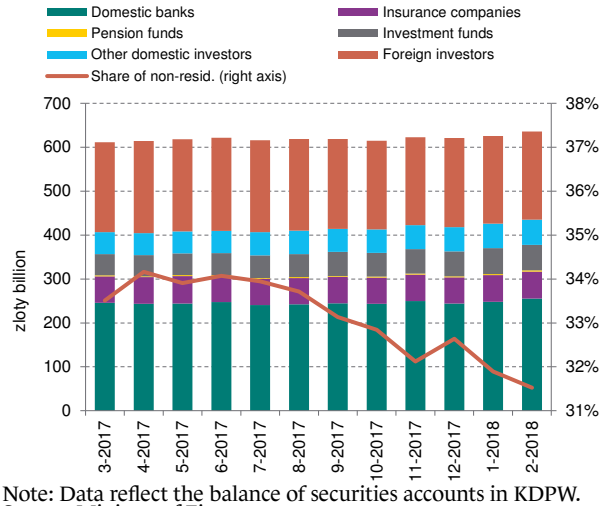
Figure 1.9. Yield curves of domestic government bonds



Source: Bloomberg.

In the period from October 2017 to February 2018, the structure of investors in the domestic market for government bonds did not change significantly. At the end of the period under analysis, domestic banks held 255.5 billion zlotys worth of government bonds, which meant an increase in their market share to 40.2% (see Figure 1.10). Banks' greater involvement in the government bond market was not accompanied by a significant increase in exposure to interest rate risk, as they invested primarily in 2-year zero-coupon bonds and floating interest rate Treasury securities. The share of non-residents in the structure of debt securities' buyers dropped from 33.1% at the end of September 2017 to 31.5% at the end of February 2018. Non-residents invested mainly in fixed rate 10-year government bonds (at the end of February 2018 they held almost 60% of these instruments). The value of domestic government bonds held by foreign long-term investors, i.e. central banks, public institutions, insurance companies and pension funds decreased in this period by less than 3.0 billion zlotys to 61.4 billion zlotys (see Figure 1.11).

Figure 1.10. Structure of investors in the domestic government bond market



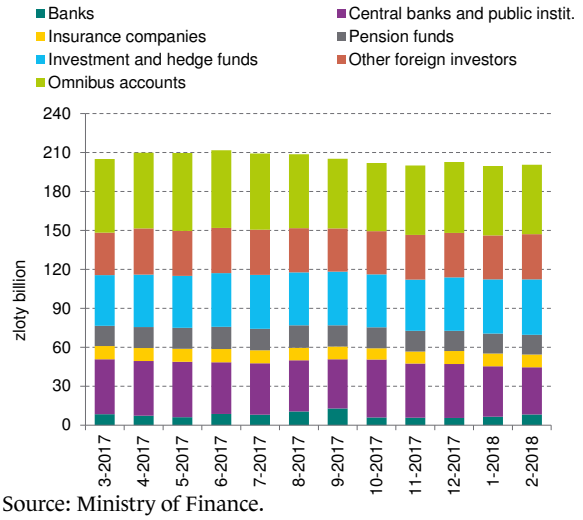
Note: Data reflect the balance of securities accounts in KDPW.
Source: Ministry of Finance.

The liquidity of the secondary market for domestic government bonds dropped slightly. The daily average value of unconditional transactions from October 2017 to February 2018 was less than 12 billion

[13] In March 2018, Fitch upgraded Poland's GDP growth forecast for 2018 to 3.9% (from its 3.6% estimate in December 2017), expecting Poland's public debt to stabilise at around 50% of GDP by 2019. Also in March 2018, Moody's upgraded Poland's GDP growth forecast for 2018 to 4.3% (from 3.5% forecast in September 2017). According to Moody's, the public sector deficit and public debt at the end of 2018 will stand at 1.8% of GDP and 51.6% of GDP respectively.

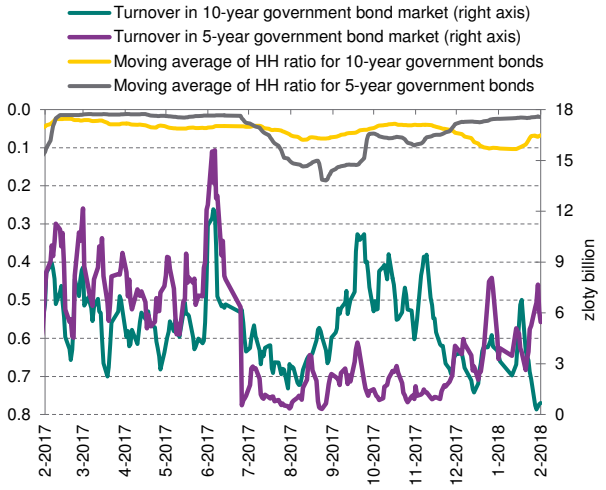
zlotys compared with 14 billion zlotys in the period of October 2016 – February 2017. A minor decline in liquidity is also indicated by the Hui-Heubel ratio for 10-year benchmark bonds (see Figure 1.12).

Figure 1.11. Structure of foreign investors in the domestic government bond market



Source: Ministry of Finance.

Figure 1.12. The Hui-Heubel liquidity ratios and the value of turnover for Polish benchmark government bonds



Note: The Hui-Heubel liquidity ratios for domestic benchmark government bonds with the residual maturity of 5 and 10 years illustrate the relationship between changes in the prices of those instruments in the indicated period (the difference between the highest and lowest prices over a 5-day period for a series of benchmark bonds specified in Thomson Reuters) and the total value of turnover in these instruments in the outright market in relation to the total outstanding value of those bonds. A higher ratio implies lower market liquidity.
Source: Based on KDPW data and Thomson Reuters.

1.2.5. Equity market

Following low price volatility on the domestic equity market in October and November, the prices of equity instruments listed on the WSE rose significantly at the turn of 2017 and 2018. In the second half of January 2018, the WIG index, in line with the key indices on the world equity markets, recorded an all-time high (the previous highest level was observed in July 2007). Such tendency was supported, among others, by favourable growth rate forecasts for Poland, improved financial results of domestic enterprises, and the search for yield phenomenon. At the end of January 2018, the share of non-residents in the capitalisation of domestic companies amounted to 40%.

A strong correction of stock prices in the United States observed in early February 2018, coupled with local factors led to a substantial fall of domestic equity market indices. The trend on the WSE continued until the end of the first quarter, which caused the WIG and WIG20 indices to fall by 9.2% and 9.9% respectively in the period from October 2017 to March 2018. The depth of the changes was influenced by, among others, a strong fall in the prices of energy and fuel companies – WIG-energia and WIG-paliwa sub-indices decreased in the period by over 25%. In the case of energy companies, such tendency was primarily associated with the expected involvement of these entities in the construction of a Polish nuclear power plant. In their decisions, market participants factored in the high likelihood of large investment expenditures of these companies and a distant prospect of the related profits. Lower rates of return of the WIG-paliwa index, in turn, were primarily driven by lower refining and petrochemical margins forecasts. The fall of the market valuation of domestic companies in February and March 2018 was accompanied by an outflow of cash from the investment funds characterised by large exposures to equity instruments listed on the WSE.

Box 1. Virtual "currencies" and the associated risks

Virtual "currencies" and blockchain technology

Virtual "currencies" are a digital representation of values, mostly in the form of electronic records of their balances assigned to anonymised accounts (digital accounts) of owners. Such "currencies" are neither issued nor guaranteed by central banks, therefore they are not legal tender. Virtual "currencies" usually do not have a single central issuer, but the value and algorithm of their issuance are determined in advance. Some virtual "currencies" may be purchased and sold for cash in specialised currency exchange bureaus and on trading platforms as well as transferred electronically between dedicated accounts. They may also be used for payments for goods and services, nevertheless, they do not fulfil the criterion of universal acceptability in commercial and service points. Such interpretation of virtual "currencies" is consistent with the definition thereof coined in 2015 by the ECB.[1]

Starting from 13 July, 2018, the definition of a virtual "currency" will be applied in Polish law. It was introduced in the Act on *Counteracting Money Laundering and Terrorist Financing*.[2] In this definition it is indicated that a virtual "currency" is an electronically stored or transferred digital image of values, other than: a legal tender issued by central banks, an international unit of account, electronic money, a financial instrument or a promissory note or a cheque. At the same time, such a "currency" is accepted as a means of exchange or is exchangeable in the course of trade to legal tender and may be subject to e-commerce.

Cryptocurrencies are the most common form of virtual "currencies". The idea of their functioning is to eliminate the central supervisor, the issuer and intermediaries participating in payments with the use of such currencies, i.e. entities typical for traditional payment systems. The aim is to ensure maximum anonymity of counterparties to a given transaction, and the possibility to perform it outside the supervision of any institution. This effect has been achieved by the use of, among others, cryptography and distributed databases. Most cryptocurrencies use blockchain, i.e. the distributed ledger technology or DLT[3]), which uses cryptography for the purpose of maintaining integrity and authenticity of data stored in data blocks. Data grouped in blocks are secured with the use of cryptography against an attempt to change them (in principle, data recorded in a block cannot be modified). In the next step, also with the use of cryptography, newly created blocks are linked with previous blocks, creating a data chain. Copies of data in the form of aforementioned blocks are distributed and updated among participants (nodes) of a particular system.

The blockchain technology has been also applied in raising funding for investment projects. By conducting an Initial Coin Offering (ICO), i.e. offering shares in a project to potential investors through the purchase of a relevant number of digital tokens, companies may acquire cash. The tokens can be traded on cryptocurrency exchange platforms. Many entities decide to carry out an ICO, since its implementation is relatively easy and fast. Due to the lack of relevant regulations and disclosure obligations, it does not require preparing detailed documentation, which is necessary in the case of a public offering of shares or bonds.

It is essential to distinguish virtual "currencies" from blockchain technology itself or, more broadly, from the DLT, implemented for the purpose of some of those currencies. Due to the guaranteed integrity of data stored in the form of a distributed ledger, many financial sector entities currently carry out advanced analyses regarding the possibility of applying such technology in their activities. In particular, the use of DLT is considered in the post-trading infrastructure, i.e. for the purpose of improving the effectiveness and security of clearing and settlement of transactions in financial instruments.

Main types of risk associated with the purchase of virtual "currencies" and their trading

Trading in virtual "currencies" in Poland is forbidden neither by national law nor by EU law. Contrary to transactions in financial instruments, the purchase of virtual "currencies" is not preceded by an investment firm's (which

is a supervised financial institution) assessment of their suitability and appropriateness for the potential investor, which would take into account the investor's knowledge and experience, investment goals, accepted level of risk and financial standing.[4] Therefore, potential users of virtual "currencies" may be unaware that for the vast majority of them such "currencies" are inadequate to their investment goals (e.g. accumulation of savings) due to various types of risk, including in particular:

- **Risk related to considerable changes in prices and limited transparency of the virtual "currencies" market.** Prices of virtual "currencies" demonstrate very high volatility. A rapid growth in prices of virtual "currencies" in a short period may indicate the use of aggressive speculative strategies on their markets. Accordingly, investors purchasing virtual "currencies" must take into account the possibility of incurring substantial losses, or even losing the entire invested capital. This risk is exacerbated by a relatively low liquidity of this market, its substantial concentration as well as the lack of oversight over trading platforms. For those reasons, even single transactions in virtual "currencies" may significantly affect their prices. The aforementioned structural factors translate into a high susceptibility of the market of virtual "currencies" to the creation of speculative bubbles, and they also increase the risk of losses which may be incurred by individual investors as a result of manipulation of prices of those "currencies". The exposure to this risk refers not only to entities directly purchasing virtual "currencies" but also to clients of internet trading platforms concluding contracts for differences (CFD) in which virtual "currencies" are underlying instruments.
- **Risk related to potential loss of funds as a result of theft, fraud or confiscation.** Virtual "currencies" can be stolen, e.g. as a result of a cyberattack on an entity dealing with the exchange of virtual "currencies" or on the user's infrastructure. Cases were also reported when offered forms of investing in virtual "currencies" were of criminal nature (e.g. financial pyramid schemes). Due to the fact that virtual "currencies" are neither bank deposits nor financial instruments, they are not covered by any system of compensation (in particular, they are not guaranteed by the Bank Guarantee Fund). It means that in case of theft, fraud or misappropriation, the investor shall be exposed to the loss of all committed funds, with no possibility to claim compensation. Moreover, virtual "currencies" stored on trading platforms or in online portfolios may be seized by enforcement agencies in the course of investigations carried out against entities managing such platforms or portfolios (e.g. in connection with suspected financing of criminal activity or money laundering by such entities).
- **Risk related to the lack of universal acceptability.** As indicated, virtual "currencies" are neither a legal tender nor exchangeable currencies. It means that they are not commonly accepted in commercial and service points and economic agents are not required to accept payments in virtual "currencies", even if they used to. In addition, the lack of common convertibility of virtual "currencies" limits the possibility of swift disinvestment.
- **Legal risk related to lack of uniform treatment of virtual "currencies" in individual jurisdictions.** The lack of adequate legal norms referring directly to virtual "currencies" and difficulties with determining the competent jurisdiction with respect to their purchase may expose investors to diverse tax interpretations by the relevant authorities in relation to trading in those "currencies" and, consequently, may result in various tax burdens.
- **Risk related to inadequate information.** Due to the lack of adequate regulations referring to virtual "currencies", no disclosure obligations have been imposed on their "creators". The lack of such requirements makes it difficult for investors or even prevents them altogether from the verification of information provided by an ICO organiser, thereby exposing them to the risk of incurring losses due to committing funds in a project which is not economically viable.

Many central banks, supervision authorities and public institutions emphasise in their reports and communication the significant risk associated with purchasing and holding virtual "currencies" and the threats to financial

institutions stemming from cooperation with entities engaged in trading in such "currencies". In July 2017, a joint statement concerning this issue was published by NBP and KNF,[5] and in February 2018, by European financial supervision authorities (ESMA, EBA and EIOPA).[6]

However, it seems that trading in virtual "currencies" at the current stage of their development does not pose threat to financial stability in Poland, mainly due to:

- **relatively low liquidity and capitalisation of the market of virtual "currencies"** – the average daily value of transactions concluded on the global market of the most popular virtual "currency" in the period from November 2017 to March (i.e. when its price hit the historic maximum) is estimated at approx. USD 1.3 billion,[7] whereas the total capitalisation of the global market of virtual "currencies" at the end of December 2017 amounted to approx. USD 600 billion;[8] for comparison, the average daily turnover on the spot market of the most liquid currency, i.e. the US dollar, in April 2016 amounted to USD 1 385 billion,[9] while the capitalisation of global markets of debt and equity securities at the end of June 2017 amounted to approx. USD 108 trillion[10] and USD 79 trillion[11] respectively;
- **limited links between the market of virtual "currencies" and domestic financial institutions** – many domestic banks due to, among others, reputational risk, have resigned in recent months from operating bank accounts for economic agents whose activity was associated with trading in virtual "currencies"; moreover, in the aforementioned statement, NBP and KNF indicated that buying, holding and selling of virtual "currencies" by entities supervised by KNF shall not ensure a stable and prudent management of the financial institution and could result in serious sanctions imposed on it;
- **legal measures limiting indirect exposure of individual investors to the risk of changes in prices of virtual "currencies"** – the product intervention undertaken by ESMA,[12] reducing the maximum financial leverage used in CFD transactions, in which virtual "currencies" are the underlying instrument, should contribute to limiting the scale of speculation on price changes on the market of those "currencies" among clients of trading platforms operating across the EU.

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[1] "Virtual currency schemes – a further analysis", ECB, February 2015, p. 25, https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemesen.pdf.
[2] See Article 2(2)(26) of the Act of 1 March 2018 *on Counteracting Money Laundering and Terrorist Financing* (Journal of Laws 2018, item 723).
[3] The DLT can be defined as a distributed database, shared and replicated by multiple nodes (participants of a given system), irrespective of their geographical position. As a result of the application of this solution, the system has no single central data administrator nor a shared server where they would be stored.
[4] The requirements regarding tests of suitability and appropriateness of offered financial instruments in relation to clients' knowledge, situation and needs, to be performed by investment firms stems from Article 25 of the Directive of the European Parliament and of the Council No. 2014/65/EU of 15 May 2014 *on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU* (OJ L173 of 2014, p. 349 as amended). The aforementioned tests should be also performed in relation to retail clients interested in speculation on changes in prices of virtual "currencies" with the use of contracts for differences which do not assume the physical delivery of the underlying instrument, i.e., in this case, such "currencies". The reason is that such contracts constitute a financial instrument under the above mentioned directive.
[5] "Statement by Narodowy Bank Polski (NBP) and the Polish Financial Supervision Authority (KNF) on virtual "currencies" of 7 July 2017, http://www.nbp.pl/homen.aspx?f=/en/aktualnosci/2017/ww-en.html.
[6] "Warning – ESMA, EBA and EIOPA warn consumers on the risks of Virtual Currencies", 12 February 2018, https://www.esma.europa.eu/press-news/esma-news/esas-warn-consumers-risks-in-buying-virtual-currencies.
[7] Data retrieved from https://blockchain.info/.
[8] Data received from the internet service https://coinmarketcap.com/.
[9] "Triennial Central Bank Survey of foreign exchange and OTC derivatives markets in 2016", Bank for International Settlements, December 2016, https://www.bis.org/publ/rpfx16.htm.
[10] "BIS Quarterly Review, March 2018", Bank for International Settlements, March 2018, https://www.bis.org/publ/qtrpdf/r_qt1803.htm.
[11] "2017 Full Year Market Highlights", World Federation of Exchanges, February 2018, https://www.world-exchanges.org/home/index.php/files/54/Market-Highlights/494/WFE-FY-2017-Market-Highlights.pdf.
[12] "Additional information on the agreed product intervention measures relating to contracts for differences

and binary options", ESMA, 27 March 2018, https://www.esma.europa.eu/sites/default/files/library/esma35-43-1000_additional_information_on_the_agreed_product_intervention_measures_relating_to_contracts_for_differences_and_binary_options.pdf.

1.3. Developments in the real estate market

The residential market remains in the expansion phase.[14] The number of homes under construction and dwellings sold reached or exceeded the peak of the previous cycle in the years 2006-08. So far the high level of activity has not generated excessive tensions. In the largest markets high demand is accompanied by equally high supply, thanks to which the prices per sqm. of dwellings are relatively stable. Compared to the previous expansion phase, lending growth is much lower (see chapter 2.1.), and the high demand is financed to a large extent with buyers' own funds.

The situation in the most important segments of the commercial real estate market (office and retail and services real estate) still points to a persistent oversupply of space. Some symptoms of stabilization can be observed; however, to a large extent they are a result of the robust economic situation and the associated increased demand for modern space. In most cases, vacancies are concentrated in worse quality stock.

Residential real estate market

The average transaction prices of dwellings in the primary and secondary markets grew. Prices determined using the hedonic index[15] also increased in Warsaw, and the six and ten largest cities[16], which means an increase in the price per sqm. of similar housing units compared to last year. However, the observed price increases are small, and the level of prices is still lower or comparable, in nominal terms, to the values observed at the end of the last recovery phase (despite a much higher level of income currently).

In the rental housing market a stable, slight increase in rents was observed.

The structural factor that affects the long-term demand for housing is the persistent deficit of housing in the largest cities in Poland. Demographic factors (i.e. growth of population, households and migration) had a stronger impact in the previous cycle, whereas currently their impact on the residential real estate market is less significant.

Observed growth in consumer demand[17] is a consequence of the favourable situation of the household sector and the low costs of credit. The period under analysis saw a further rise in the estimated availability of housing loans and loan-financed housing, mainly as a result of an increase in household income. Average housing availability in the largest cities at the end of 2017 Q4 remained at the level of 0.84 sq. m for an average monthly wage in the corporate sector and was 0.36 sq. m higher than the minimum observed in 2007 Q3.

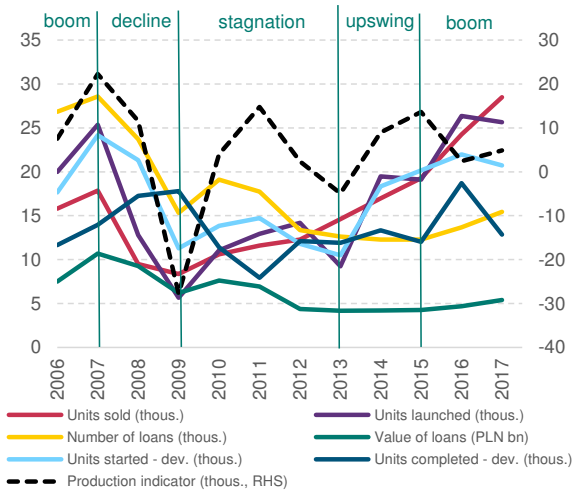
[14] A more extensive description of the cycle's phases can be found in "Report on the situation in the residential and commercial real estate market in Poland in 2016" in box 1.

[15] The hedonic home price index is discussed in the article by M. Widłak "Metody wyznaczania hedonicznych indeksów cen jako sposób kontroli zmian jakości dóbr [Methods of constructing hedonic price indices as a way to control changes in the quality of goods]", Wiadomości Statystyczne No. 9 (2010).

[16] See note to Figure 1.15

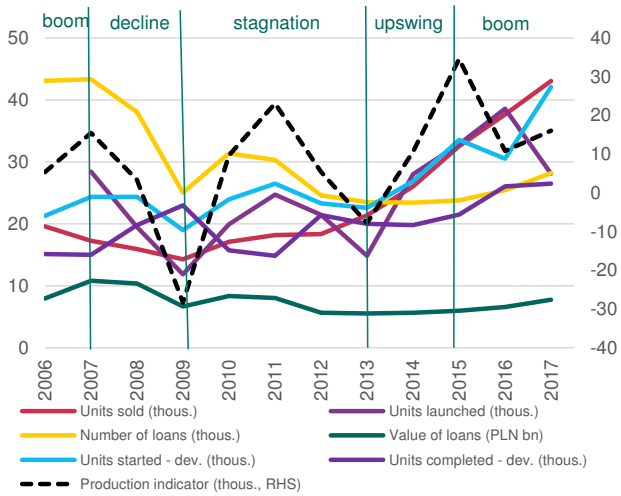
[17] We divide housing demand into consumer, investment and speculative demand. Consumer demand results from the household's desire to satisfy its housing needs; investment demand is related to the possibility of obtaining rental income, and speculative demand – to the possibility of obtaining income through the purchase and re-sale of housing at a higher price.

Figure 1.13. The cycle in the housing market in Warsaw



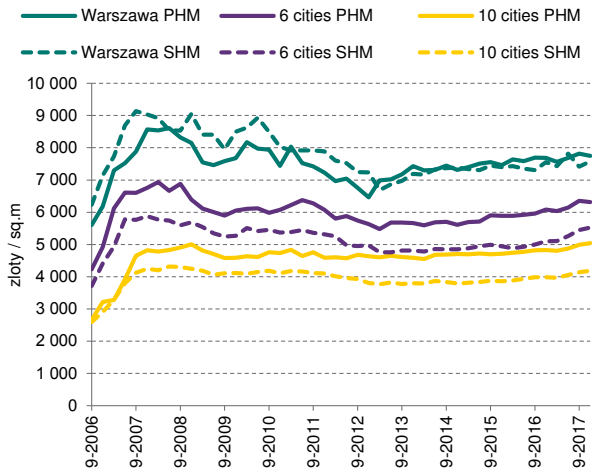
Source: NBP calculations based on REAS, BIK, GUS.

Figure 1.14. The cycle in the housing market in 6 cities



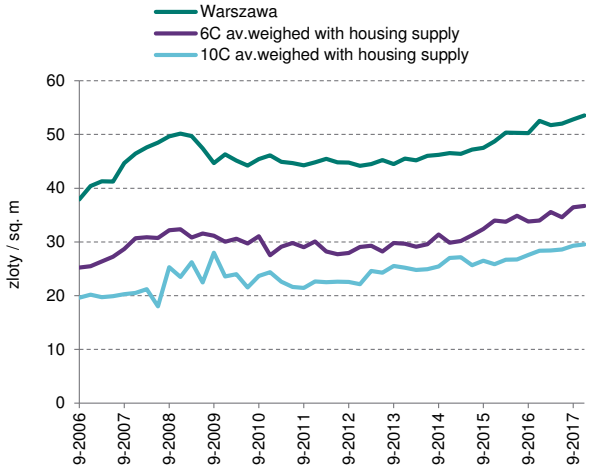
Source: NBP calculations based on REAS, BIK, GUS.

Figure 1.15. Transaction prices of dwellings in the primary (PM) and secondary (SM) markets in Poland



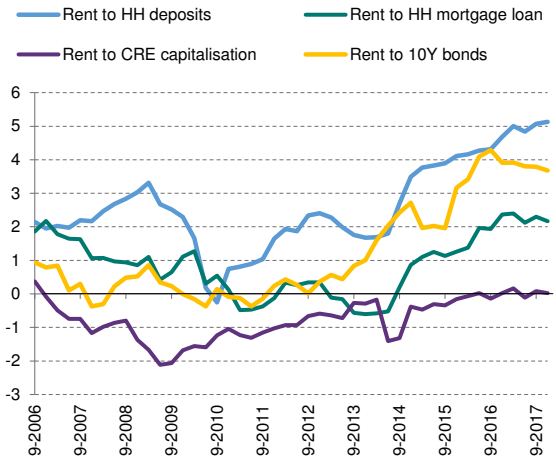
Note: Six cities include Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław and ten cities include Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin and Zielona Góra.
Source: NBP.

Figure 1.16. Average (offer and transaction) rent rates in selected cities in Poland



Source: NBP.

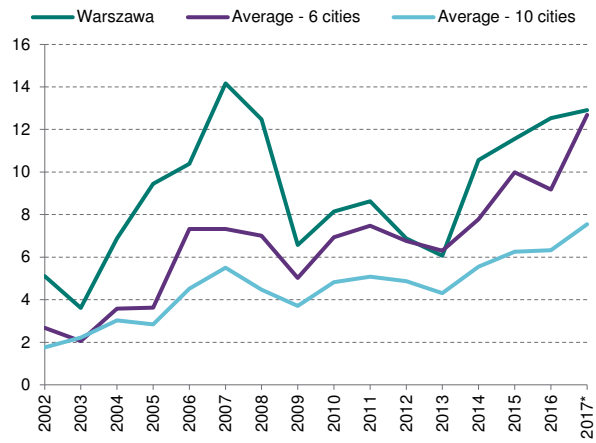
Figure 1.17. Return on home rental (average in 7 cities) as compared with household deposits, housing loans, 10-year Treasury bonds and commercial real estate capitalization rates (offices and retail space)



Note: the chart presents the difference in the rate of return of individual assets in percentage points (in the case of Treasury bonds, the current yield to maturity was taken into account). This analysis does not take into account the high transaction costs in the housing market and the potentially long exit time for such an investment.
Source: NBP.

Regulatory factors also have an impact on consumer demand. The impact of the regulatory factor in the form of the MdM (Housing for the Young) scheme is expiring. On 4 January 2018, BGK stopped accepting the last pool of applications for co-financing the purchase of housing.[18] Regulation No. 11 of the President of the Council of Ministers established on 29 January 2018 the Housing Council entrusted with the tasks of initiating and coordinating analytical, conceptual and implementation work related to conducting the housing policy of the Council of Ministers, and also monitoring the progress of this work. Work is currently in progress on modification of the concept of the second pillar of the Housing Plus Scheme regarding regulated rent housing[19]. The loan-to-value (LtV) limit (limit of the relation of the value of loan to the value of financed housing) of 80%, which is in force[20] mainly impacts consumer demand.

Figure 1.18. Newly commenced housing units per 1000 inhabitants



Source: GUS.

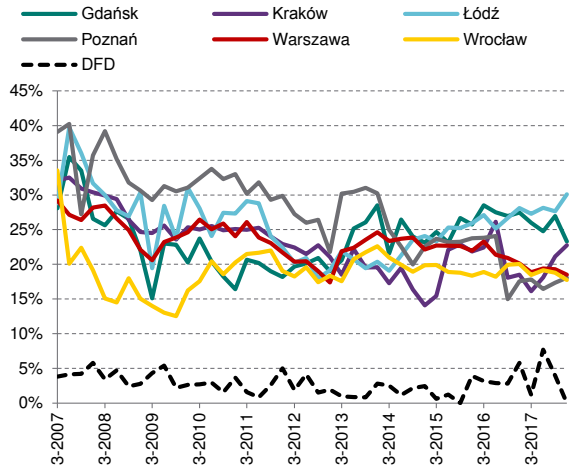
Investment demand for housing is driven by the expectations of relatively high rates of return from housing rental compared to the rate of return on other assets in which households could invest their funds. In Poland, such assets are mainly bank deposits, and to a lesser extent Treasury bonds and investment funds' units. Low interest on deposits means that investment in housing, despite the risk associated with its low liquidity and protection of tenants[21], is perceived as an attractive investment. As a result, increased use of households' own funds for the purchase of housing for rental has been ob-

[18] In the years 2014-2017 subsidies totalling PLN 2.16 billion were paid to 84,309 borrowers.
[19] For more information on regulations operating in the real estate market see "Information on home prices and the situation in the housing and commercial real estate market in Poland in 2017 Q4"
[20] Pursuant to the amendment of Recommendation S (Resolution No. 148/2013 of the Polish Financial Supervision Authority of 18 June 2013 on the issuing of Recommendation S on good practices with regard to managing mortgage-secured credit exposures (Official Journal of the PFSA of 2013, item 23))
[21] Regulations regarding the restrictive protection of tenants were partly changed by the act of 20 April 2017 amending several other legal acts, Journal of Laws, item 1529. A new mode of housing rental has been introduced to the act on protection of tenants' rights - institutional rental, in which the tenant expresses their consent to voluntarily leave the dwelling, and they do not have the right to social housing.

served.

Only slight increases in prices of dwellings and the lack of expectations of major increases in the future mean that so far the third component of housing demand - speculative demand - has not been observed in the market. Propensity to housing speculation is directly proportional to price growth (capital gains) and inversely proportional to interest rates (alternative costs and costs of credit).

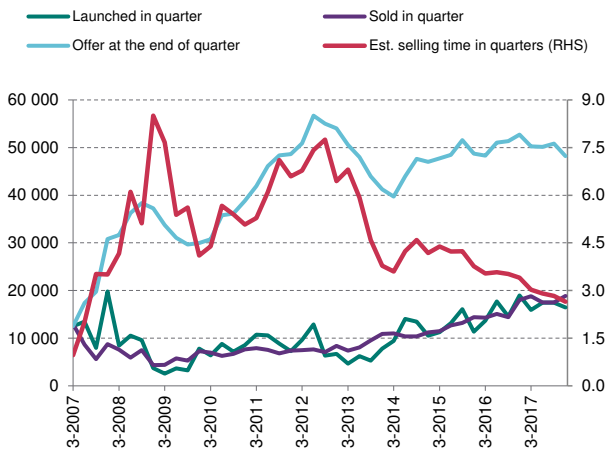
Figure 1.19. ROE from investment projects in six cities



Source: NBP estimate based on Sekocenbud data, GUS.

High demand is accompanied by equally high supply in the residential real estate market, and developers adjust the structure of housing supply to the structure of demand. Supply growth was supported by the continued high profitability of residential development projects. The estimated profitability of developer projects in housing construction at the end of 2017 Q4 remained at the level of approx. 15–30%. The time of sale of the entire housing stock available on the market at the current level of demand is less than one year (see Figure 1.20).[22] Sales in the primary market are shifting increasingly towards early production stages, which means that the buffer absorbing some of the demand shocks is reduced.

Figure 1.20. Length of time needed to sell available stock, the number of housing units put on the primary market, sold and remaining on offer in the six largest markets in Poland



Note: six largest markets include: Kraków, Łódź, Poznań, Tri-city Agglomeration of Gdańsk-Sopot-Gdynia, Warsaw, Wrocław.
Source: REAS.

The housing market remains in relative equilibrium; however, it is becoming less stable. There is more likelihood than in recent years that possible supply or demand shocks could lead to imbalances. So far the housing supply has been flexible; however, the production level currently reached could cause problems with its further growth, particularly due to the observed increases in the prices of production factors, i.e. land, building materials and labour. Should there be a significant restriction to the supply of housing in the future, amid persistently strong demand, this could lead to an increase in prices. However, in the case of a negative demand shock, the risk would manifest itself mainly on the side of real estate developers and building companies. Due

[22] Practical observation shows that with housing stock exceeding one year of sales prices stabilize; however, when the stock of housing available is smaller, prices could tend to rise. The housing stock equal to yearly sales is also a result of implementation schedules of developer investments. See Łaszek, J., Augustyniak, H., Gajewski, K., Żochowski, G., Leszczyński, R., Olszewski, K., Waszczuk, J. (2013). "Podejście modelowe do rynku nieruchomości [A model-based approach to the real estate market]." Bezpieczny Bank, (4 (53)), 204-268.

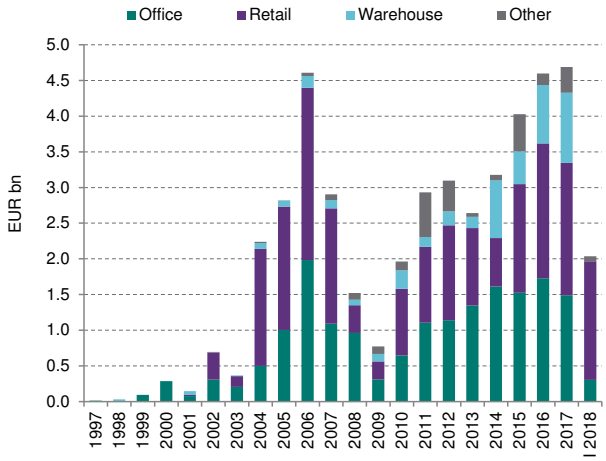
to the high level of production in progress, in this scenario developers could have problems selling large numbers of housing units whose construction they had started. However, the high level of equity and experience these firms have from the previous cycle are factors reducing this risk.

Commercial real estate market

Increased demand for office space can be observed in office real estate markets. This is due to the favourable economic situation, including the creation of new jobs, also by international companies. Due to the increase in demand, the average vacancy rate in the nine biggest office markets fell at the end of 2017 to 10.8% from 12.7% reported at the end of 2016.[23] However, it should be remembered that approx. 1.8 million sq. m of office space is under construction in the largest cities.[24] The constant, significant growth in space is a result of the very low interest rates in the euro area and the persistence of a good rate of return on investments in offices. The robust growth in supply of modern office space could be a challenge for owners of older, worse located office buildings.

The value of investments in the commercial real estate market amounted to over EUR 4.6 billion in 2017, similar to the previous year. Like in previous years, foreign investors dominated in this category of investment[25], and a significant proportion of the value of investments involved a change of the owner of existing buildings.

Figure 1.21. Value of investment transactions in the commercial real estate market



Source: Comparables.pl.

Transaction rents of class A and B office space in all the analysed markets show a slow downward trend. This is due to high demand and high competition in this segment of the market. Similarly, the retail real estate market sees a constant, significant growth of space amid a slow decline in rents. Despite the falling rents, the persistence of historically low interest rates in the euro area allow investors to achieve satisfactory rates of return on equity. Commercial projects are partly financed by debt, and low interest rates in the euro area mean low costs of finance and also low alternative costs. However, in the event of increases in interest rates in the European market, some of the projects may turn out to be unprofitable for investors or begin to generate losses. This may increase the number of commercial real estate units for sale, which could lead to a fall in their value.

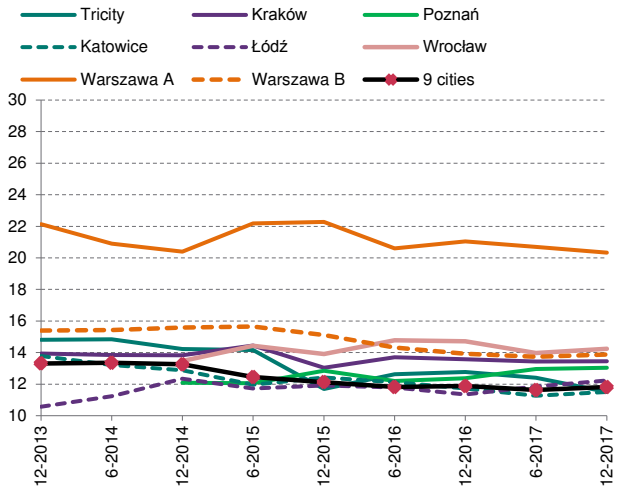
[23] See "Colliers International Report: Market Insights", Annual Report 2018, Poland.

[24] The size of office space under construction is significant compared to the existing stock — at the end of 2017 the stock of office space in Poland amounted to 9.7 million sq. m. Source: "Colliers International Report: Market Insights", Annual Report 2018, Poland.

[25] The above investments involve the sale of the whole of the operating company which rents the building and as a result earns an income. Such transactions take place between either: 1) developers who commercialize the real estate and sell it to the investor, or 2) two investors. However, it should be stressed that the data do not allow conclusions to be drawn regarding the share of foreign investors in possession of commercial real estate in Poland. There is a very large real estate stock which owners have built up for their own use, sometimes over many years. Additionally, some domestic investors create developer companies which build and then manage for them real estate for rent. The above economic events are not recorded in the statistics on commercial investments.

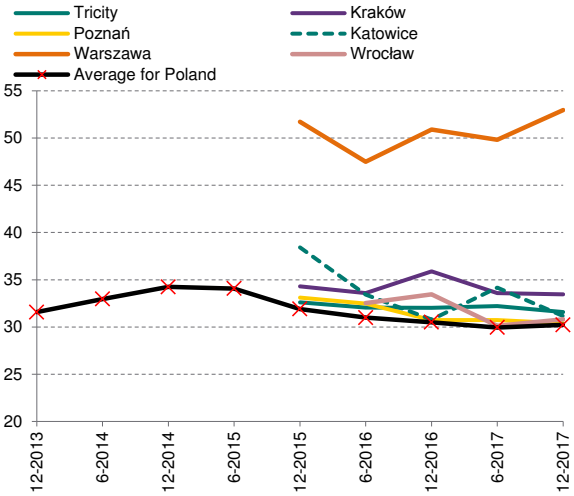
The commercial real estate market is financed to a small extent by domestic banks. Approx. 90% of investments concerning the sale of entire operating companies are carried out by foreign investors. The involvement of domestic banks in the financing of commercial real estate is small in relation to their remaining assets, in particular, housing loans. However, in the current market conditions, domestic banks operating in this market should examine very carefully the quality of collateral on loans and borrowers' ability to repay loans from the income which the real estate can generate.

Figure 1.22. Transaction rents for class A office space for large cities and class B for Warsaw (average in euro per sq. m per month)



Source: NBP.

Figure 1.23. Transaction rents for rental of space in shopping centres (shopping malls) with a size of approx. 100 sq. m (euro per sq. m per month)



Source: NBP.

Chapter 2.

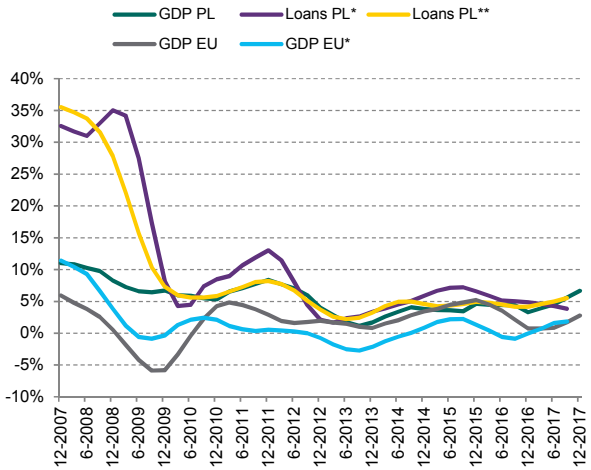
Banking sector

2.1. Lending

The growth rate of lending to the non-financial sector has neither impeded economic development nor led to the build-up of imbalances jeopardising financial stability, providing no evidence of excessive debt growth risk. Lending continued to grow at a pace close to nominal GDP growth (6.1%[26] y/y at the end of December 2017 – see Figure 2.1). Loan growth was supported by the environment of low interest rates, ample capital levels in the banking sector, stable economic growth and favourable developments in the labour market. The ratio of the non-financial sector credit to GDP has not changed substantially over the past several quarters and has remained relatively low (at the end of 2017 it amounted to 50%).

Banks kept tightening lending policy in all credit market segments, which applied to a larger extent to credit standards rather than credit terms. In the case of housing and consumer loans, the tightening of credit standards was accompanied by the easing of the terms.[27]

Figure 2.1. Growth rate of nominal GDP and of loans to the non-financial sector, y/y



Note: Loans* – annual growth rate, 3-month moving average; Loans** – annual growth rate after adjusting for foreign exchange rate changes, 3-month moving average.
Source: NBP calculations based on GUS and NBP data.

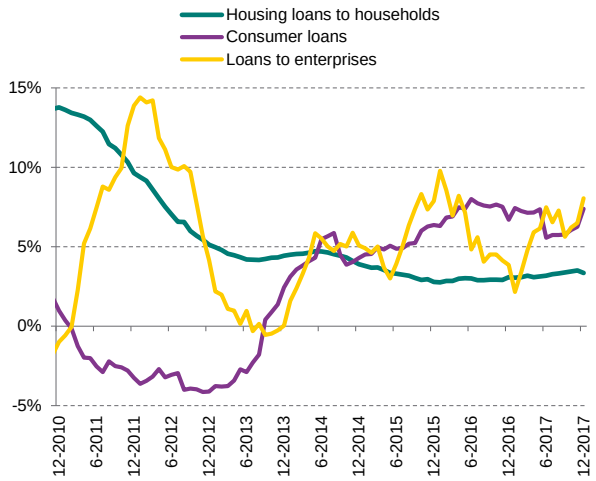
[26] Percentage changes in loan volumes referred to in Chapter 2.1. relate to data adjusted for foreign exchange rate changes. Unless otherwise indicated, the period analysed in Chapter 2., covers the period from 30 June 2017 (cut-off date of the previous issue of the *Report*) to 31 December 2017.

[27] For more information on the factors influencing changes in lending policy and its developments, see "Senior loan officer opinion survey on bank lending practices and credit conditions. 4th quarter 2017", October 2017 and "Senior loan officer opinion survey on bank lending practices and credit conditions. 1st quarter 2018", January 2018, NBP.

Loans to households

The annual growth rate of housing loans did not materially change (3.4% y/y at the end of December 2017 – see Figure 2.2). The value of zloty loans rose at a relatively fast pace, while the rate at which FX loans were decreasing slightly accelerated (see Figure 2.3). Since 2008, primarily due to regulatory actions, housing loans growth has not been accompanied by the easing of lending policy (see Box 3).

Figure 2.2. Growth rate of selected loans to the non-financial sector, y/y



Source: NBP.

The value of newly originated housing loans in the second half of the year was lower than in the first half due to, among others lower loan demand. Banks mainly pointed to real estate purchases being financed with alternative sources as the cause of lower loan demand. While government-subsidised scheme "Home for the Young" kept propping up lending, its' impact was visibly smaller than in the first half of the year.[28] Throughout 2017, the value of newly originated loans was higher than in 2016[29], however in relation to both nominal GDP and wage bill it remained close to the level observed in the previous years (see Figure 2.4).

Banks kept tightening lending standards, but eased the terms, in particular by lowering non-interest costs. Credit spreads at the end of 2017 remained at the end-of-June level. According to the banks which tightened credit standards, the prime reasons behind were the lowering of statutory retirement age and post-inspection recommendations concerning verification of household expenses assumed in creditworthiness assessment (see Figure 2.5).

The value of FX loans was decreasing at ever faster pace (-7.7% y/y at the end of December 2017). In consequence, along with a depreciation of the Swiss franc, the ratio of the value of Swiss franc-denominated housing loans to GDP was falling faster throughout 2017 than in the previous years (see Figure 2.6).

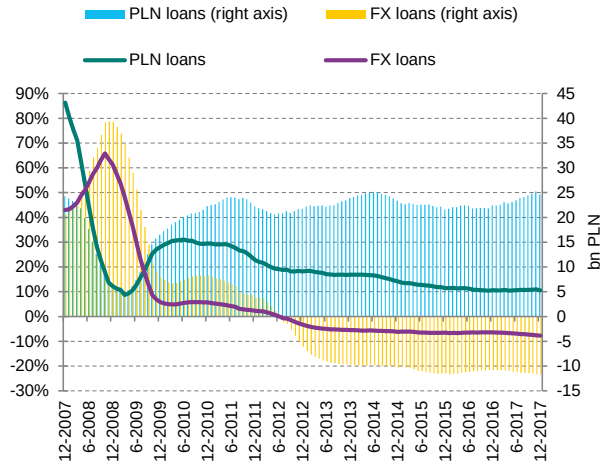
The growth rate of consumer loans was increasing (7.4% y/y at the end of December 2017). On the supply side, lending growth is fuelled by high profitability of consumer loans (see Chapter 2.5.). In the second half of the year, banks experienced elevated demand, which in their view could have been attributed to households' favourable financial condition, relaxation of certain credit terms and increased financing needs related to durable goods purchases. Data provided by the Credit Information Bureau (BIK) points to pre-Christmas purchases being financed to a larger extent with credit, in comparison to the previous years, as a substantial factor contributing to elevated consumer lending growth.[30]

[28] Financial resources under the "Home for the Young" scheme are ascribed to and paid out in a particular year. In a given year borrowers can apply for funds allocated to this given year and for a half of the funds allocated to a following year. BGK, which is the scheme's administrator, stopped accepting new applications for downpayment subsidies to be disbursed throughout 2017 already in January, while the recipence of applications relating to 2018 pool run only until April. Additionally, on 8 August 2017 BGK unlocked an amount of 67 million zlotys, previously reserved for the future commitments.

[29] See "Raport AMRON-SARFiN 4/2017. Ogólnopolski raport o kredytach mieszkaniowych i cenach transakcyjnych nieruchomości" (Nationwide report on housing loans and property transactions process), February 2018, ZBP.

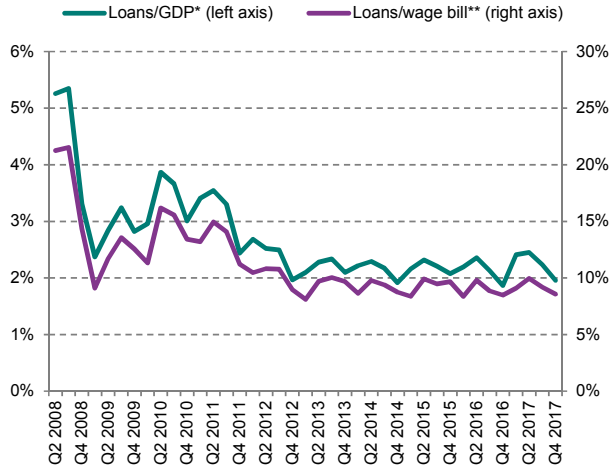
[30] See "Credit trends. Semi-annual Report", March 2018, BIK.

Figure 2.3. Changes in stock and growth rate of housing loans to households, y/y



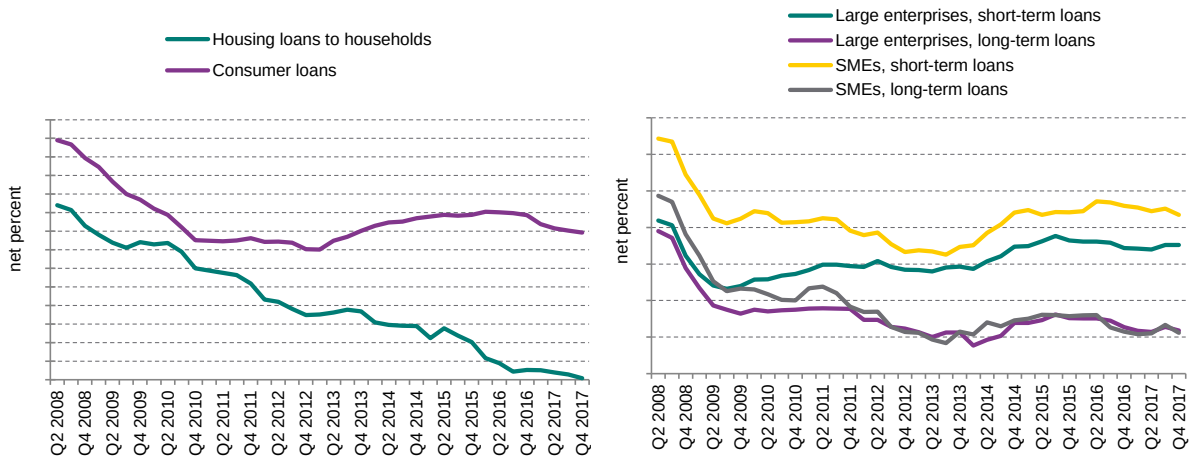
Source: NBP.

Figure 2.4. Value of new housing loans to nominal GDP and wage bill



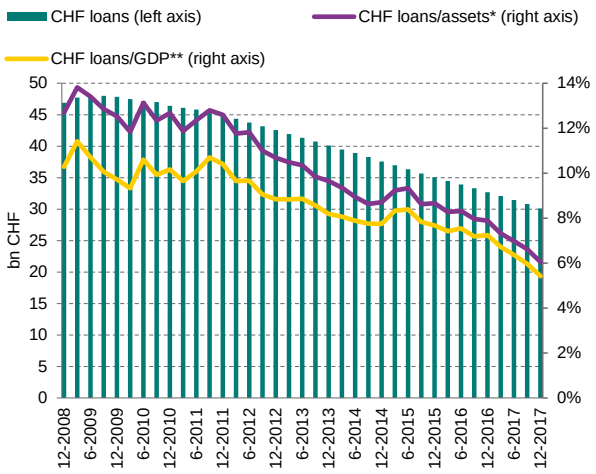
Note: Loans/GDP* – the ratio of the value of new housing loans originated in a given quarter to quarterly nominal GDP; Loans/wage bill** – the ratio of the value of new housing loans originated in a given quarter to the overall value of remuneration in the national economy in a given quarter
Source: NBP calculations based on ZBP and GUS data.

Figure 2.5. Cumulated index of changes in banks' credit standards – loans to households (left-hand panel) and loans to enterprises (right-hand panel)



Note: A positive slope of the index indicates that credit standards are eased in a given period, a negative slope indicates that they are tightened.
Source: NBP.

Figure 2.6. The value of CHF loans in relation to banking sector assets and GDP, 2008-2017



Note: CHF loans/assets* – the value of CHF housing loans in zlotys to banking sector assets; CHF loans/GDP** – the ratio of CHF housing loans in zlotys to nominal GDP.
Source: NBP.

The growth rate of consumer lending continued to be determined mainly by high-value loans growth. For several quarters, banks have been granting loans in higher amounts and with correspondingly longer maturities. As a result, although the flow of new consumer loans remained roughly unchanged in value terms, the growth rate of outstanding stock kept increasing. Loans with original maturity over 5 years were growing significantly faster than others, therefore their share in the consumer loans portfolio was gradually increasing and at the end of 2017 amounted to approximately 67%. The abovementioned trends may impact consumer loans portfolio's risk level as the share of impaired loans in the high-value bracket is higher than in the low-value one.[31]

Rolled-over loans accounted for a substantial portion of new consumer loans. BIK data indicates that in 2017 over a half of new consumer loans, in value terms, were taken for the purpose of debt's roll-over or replenishment.[32] This high percentage may come from the provision introduced by the Recommendation T allowing for simplified creditworthiness assessment in case of borrowers with whom bank has longer relationship.

Survey data on consumer loans indicates that banks continued to tighten credit standards to be met by borrowers, while easing the terms. Moderate relaxation applied to most terms. Banks extended maximum loan maturity, lowered credit spread, raised maximum loan amount and lowered non-interest costs. The main reason behind the easing of lending policy was competitive pressure (mostly from other banks).

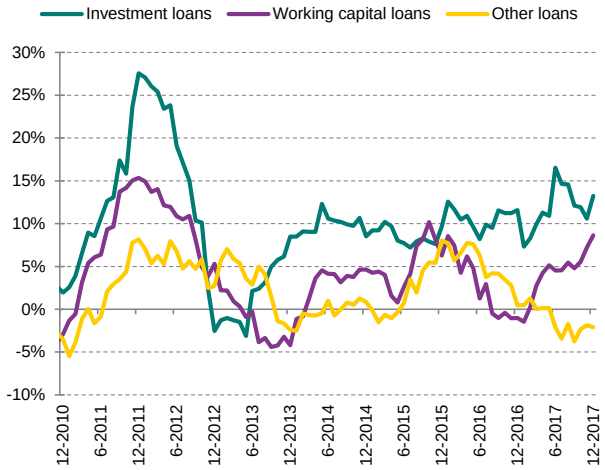
Loans to enterprises

The annual growth rate of lending to enterprises slightly increased (8% y/y at the end of December 2017). The faster pace of corporate loans growth was propelled mainly by heightened growth of working capital loans, both to large enterprises and SMEs (see Figure 2.7). Survey data indicates that in the second half of 2017 both the ratios of enterprises relying on loans and enterprises applying for loans slightly increased.[33] Banks reported an increase in loan demand from SMEs determined by elevated investment financing needs and availability of support from the EU's funds. In the case of SMEs lending continued to be underpinned by the guarantee schemes of Bank Gospodarstwa Krajowego (*de min-*

[31] NBP estimates based on KNF survey data.
[32] In BIK publications, rolling over/refinancing is classified as an operation of granting a new loan in an amount exceeding by 20% amount of the borrower's outstanding liability being repaid, while granting a new loan in an amount lower/equal to the amount of liabilities being repaid is regarded as replenishment. According to BIK data, consumer loans are repaid more often through rolling over rather than replenishment.
[33] See "Quick Monitoring Survey. Economic climate in the enterprise sector", January 2018, NBP.
[34] The framework programme aimed at competitiveness of enterprises 2014-2020 is a European Commission scheme, managed by the European Investment Fund (EIF). Bank Gospodarstwa Krajowego (BGK) signed an agreement with the EIF and, afterwards, with 12 banks, to offer guarantees for new working capital and investment loans.

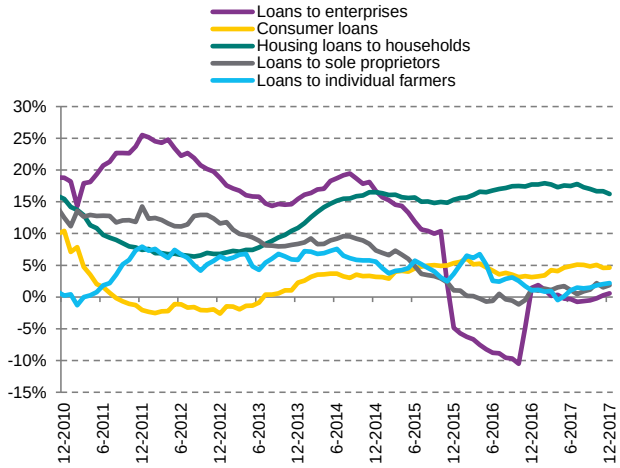
imis Portfolio Guarantee Facility and COSME[34]) – guaranteed loans accounted for an estimated 14% of loans extended to enterprises in the second half of 2017.[35]

Figure 2.7. Growth rate of loans to enterprises, y/y



Source: NBP.

Figure 2.8. Growth rate of selected loans to the non-financial sector at cooperative banks, y/y



Note: The rate of loan growth is expressed in nominal terms as FX loans account for a minor portion of the loan portfolio of cooperative banks.
Source: NBP.

Several quarters' long policy of tightening credit terms continued, which banks ascribed to the rise in risk associated with lending to entities from certain industries. Banks, among others, stepped up expectations towards required collateral, increased non-interest costs and cut maximum loan maturity. The tightening of lending policy is also reflected by an observed decline in the approval rate of loan applications and an increase of credit spreads. Negtive assessment of borrowers' creditworthiness was the main reason behind majority of loan applications' rejections in the fourth quarter of 2017.[36]

While commercial banks dominated lending developments described above, certain trends in cooperative banking differed from those observed at the aggregated banking sector level:

- Growth of housing and consumer loans dropped slightly (see Figure 2.8).
- The growth rate of corporate loans increased somewhat in the second half of 2017, nevertheless remained subdued. High corporate loan growth in the past stemmed from the activity of the largest cooperative banks. Featured banks had substantially increased their corporate credit exposures before 2016, however gave it up since then and began gradually withdrawing from this segment due to ever more apparent problems regarding effective credit risk management. Large banks continue to stand out against the backdrop of the cooperative banks sector by exhibiting a high share of corporate loans in their balance sheets.
- Growth in the loan segments vital to cooperative banking business model, i.e. sole proprietors and individual farmers, was increasing in the second half of 2017, however still stood at a lowered level. Tighter regulations on the sale of agricultural real estate coupled with new restrictions on enforcement proceed-

[35] NBP estimates based on BGK data.
[36] See "NBP Quick Monitoring Survey. Economic climate in the enterprise sector", January 2018, NBP.

ings against farmers[37] could have contributed to lower annual growth in lending to farmers. Loans to sole proprietors and individual farmers (including so-called preferential loans) account for, respectively, 15% and 28% of the cooperative banks' loan portfolio.

Against this backdrop, it can be expected that the entry into force of the Act on mortgage credit[40] and related potentially higher cost of credit (resulting from additional procedural requirements on granting loans and new rules of loan restructuring) as well as the termination of the "Home for the Young" scheme will render a limited impact on lending growth.

Outlook

Macroeconomic forecasts support expectations for further lending growth, nevertheless the outlook remains subject to uncertainty regarding the scale of banks' reactions in response to changes in the legal and regulatory framework (both implemented and planned). The GDP projection points to high economic growth keeping up and further improvement on the labour market.

Demand factors should continue to buttress lending in the housing loans segment. Loan demand should be determined by rising households' income positively impacting their creditworthiness and could be additionally strengthened by investment demand – particularly in the context of persistently low interest rate environment.[38] For a couple of quarters loan demand has demonstrated resilience to potentially constraining factors. These factor include, among others, tightening of lending policy, higher downpayment requirements, increased use of savings in the financing of real estate purchases and new, more restrictive rules on the sale of agricultural real estate.[39]

In the medium term, factors underpinning lending growth should continue to prevail in the consumer loans segment. Favourable economic setting, low interest rates and rising salaries provide for sustained demand for higher-value and longer-maturity consumer loans in order to finance durable goods purchases. In the context of efforts towards maintaining profitability and applicable tax on certain financial institutions, banks can be expected to seek to increase the share of higher margin loans in the loan structure portfolio.

Forecasted growth of capital formation in enterprises and the prospects of accelerated EU funds absorption should prop up growth in lending to enterprises. Debt growth in the medium term should be mainly driven by investment loan demand, from large enterprises in particular. Legislative changes being implemented, specifically those concerning the reduction of the tax burden related to investment, may increase the propensity to embark on investments and, possibly, to finance them with

[37] Rozporządzenie Ministra Sprawiedliwości z dnia 5 lipca 2017 r. *w sprawie określenia przedmiotów należących do rolnika prowadzącego gospodarstwo, które nie podlegają egzekucji* (Regulation of the Minister of Justice of 5 July 2017 *on determining possessions owned by farmers running farms which are not subject to enforcement*), Journal of Laws 2017, item 1385.

[38] See "Information on home prices and the situation in the residential and commercial real estate market in Poland in 2017 Q4", March 2018, NBP.

[39] The amendment to the Act *on formation of the agricultural regime* of 2016 narrowed the group of eligible buyers of agricultural land, which in consequence decreased the value of agricultural land as a loan collateral. Additionally, the amendment to the Act *on property registers and mortgage* introduced the rule that mortgage sum on agricultural real estate could not exceed the market value of the real estate set on the mortgage establishment date. In consequence, when calculating creditworthiness, banks could take into account only the current state of a real estate and not the state after the completion of construction works, e.g. after building a house (the rule was revoked by the amendment to the Act *on property registers and mortgage* of 30 July 2016).

[40] See Ustawa z dnia 23 marca 2017 r. *o kredycie hipotecznym oraz o nadzorze nad pośrednikami kredytu hipotecznego i agentami* (the Act of 23 March 2017 *on mortgage loans and supervision of mortgage loan intermediaries and agents*), Journal of Laws 2017, item 819.

loans.[41] Accelerated expenditure of local government units fuelled by EU funding may have an impact on corporates' working capital loans growth (data demonstrates that public orders account for over a half of building and assembly production). As validity of the BGK portfolio guarantee line was extended, it will continue to serve as a supporting factor to lending in the SME segment.[42] On the other hand, SME's persistently low propensity to financing via loans, resulting from their preference to finance development from own resources, will have an opposite impact. Moreover, despite a decline in the percentage of enterprises indicating uncertainty as a barrier to development (see Chapter 1.1.), enterprises continue to perceive uncertainty levels as elevated compared to assessments made in years 2014-2015. It seems that this may negatively impact their propensity to take out loans.

Lending growth may be impacted by the implementation of the Financial Stability Committee (FSC) recommendations on the portfolio of FX housing loans.[43] The measure that may render the strongest influence on lending growth could be the establishment of the Restructuring Fund as a subfund within the Borrowers' Support Fund.[44] The raising of risk weights for exposures secured by mortgages on residential immovable properties would probably have a smaller impact[45] (see Chapter 2.6.).

The bill establishing the Restructuring Fund provides for, among other things, costs arising from FX housing loans conversion to be covered from banks' contributions to the Fund, whose level is to depend on the value of their FX loan portfolios. Additional costs stemming from the obligatory contributions to the new fund will affect the profitability of banks and, as a result, their lending capacity. However, in the medium term, a gradual conversion of the FX housing loan portfolios should produce a decline in these burdens. The bill also provides for a conversion of FX loans into the zloty to be accompanied by a partial cancellation of the debt, which will temporarily reduce housing loan growth. The combined effect of the abovementioned measures will depend on the final wording of the adopted act.

As acknowledged in the previous edition of the *Report*, other bills on FX loans proceeded in the Polish Parliament may pose a risk to the lending and financial stability outlook.

The burden arising from measures undertaken with regard to FX loans will primarily affect banks with substantial FX loans portfolios. The share

[41] In August, the so-called Act on robotisation entered into force. It introduced a new investment tax allowance granting taxpayers the right to recognize in a given fiscal year a one-off depreciation write-off, up to 100 thousand zlotys, on purchased machines and equipment. In March 2018, the President of the Republic of Poland signed into law the so-called Business Constitution, which provides for, among others, a rise from 1.2 million euro to 2 million euro in the revenue threshold below which taxpayers can claim the status of a "small CIT payer". This status provides for, among others, a reduced CIT rate (15%) and a one-off depreciation, up to 200 thousand zlotys per year, of tangible assets.

[42] In March, the Regulation of the Minister of Finance of 28 March 2018 *on the de minimis aid granted by Bank Gospodarstwa Krajowego in the form of a loan repayment guarantee* was issued, which replaced the hitherto regulation and prolonged the guarantee line's validity indefinitely. Moreover, the amendment to the Act *on guarantees granted by the state treasury and certain legal persons and on certain other acts* came into force on 1 January 2018. Under this amended act, the National Guarantee Fund (KFG) was established within BGK. The KFG is to be financed, to a larger extent, from non-budget funds (including, e.g., unused EU funds) and will provide resources to finance the *de minimis* guarantees up from June 2018.

[43] Resolution No. 14/2017 of the Financial Stability Committee of 13 January 2017 on the recommendation on the restructuring of the FX housing loan portfolio.

[44] See Przedstawiony przez Prezydenta Rzeczypospolitej Polskiej projekt ustawy *o zmianie ustawy o wsparciu kredytobiorców znajdujących się w trudnej sytuacji finansowej, którzy zaciągnęli kredyt mieszkaniowy oraz ustawy o podatku dochodowym od osób prawnych* (the bill submitted by the President of the Republic of Poland *on Amending the Act on supporting borrowers in financial distress who have taken out housing loans and the Act on corporate income tax*), Sejm paper No. 1863.

[45] See Rozporządzenie Ministra Rozwoju i Finansów z dnia 25 maja 2017 r. *w sprawie wyższej wagi ryzyka dla ekspozycji zabezpieczonych hipotekami na nieruchomościach* (the Regulation of the Minister of Development and Finance of 25 May 2017 *on a higher risk weight for exposures secured by mortgages on immovable properties*), Journal of Laws 2017, item 1068.

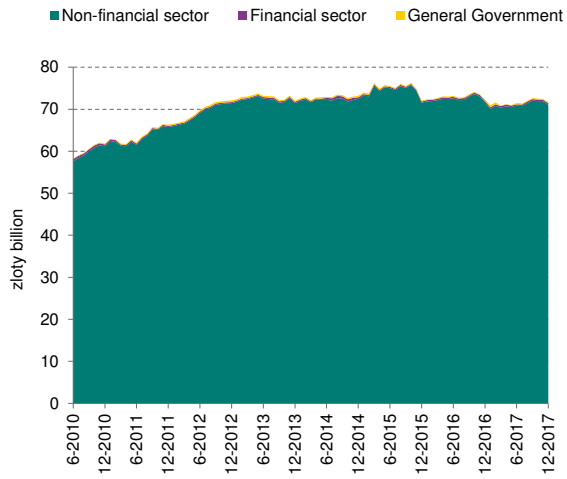
of these banks in total assets of the banking sector amounts to approximately 50%. It can be presumed that if a scenario were to materialise, in which individual banks with their regulatory capital most affected by the abovementioned measures curbed lending, the remaining banks would grasp the opportunity to increase their market share and step up lending.

2.2. Credit risk

Credit risk in Poland's banking sector is concentrated mainly in credit to the non-financial sector. Loans to the financial sector and the general government sector display very good quality, and their share in impaired loans is marginal (see Figure 2.9). At the end of 2017, the impaired loan ratio for the sectors amounted to, respectively, 0.3% and 0.2%, compared with 6.8% for the non-financial sector. On the other hand, loans to non-residents constituted an insignificant part of banks' loan portfolio (see Box 2).

The quality of loans to the non-financial sector is relatively good, and the impaired loan ratio is at its lowest level since September 2009. The impaired loan ratio in the non-financial sector is to some extent the result of the recognition of certain loans as impaired loans in the past after problems in certain industries and segments of the credit market emerged (see Chapter 2.2.2.). Some of them are still shown in banks' balance sheets as impaired loans, thus overestimating the value of the impaired loan ratio. In recent quarters, the percentage of newly deteriorating loans[46] to the non-financial sector is at relatively low levels.

Figure 2.9. The value of impaired loans to entities from individual sectors



Source: NBP.

Box 2. The exposures of domestic banks to non-residents

Domestic banks' exposures to non-resident credit risk are relatively low and generate no significant risk to the domestic banking system. The exposures result mainly from lending directly to non-residents, from a foreign debt securities portfolio held by the banks as well as activity conducted abroad in the form of a subsidiary bank, foreign branches and non-bank subsidiaries.[1]

Loans granted to non-residents directly by domestic banks do not exceed 1.5% of total receivables from the non-financial sector and 0.8% of domestic banks' assets (see Figure 1). At the end of 2017, receivables from non-residents' enterprises amounted to 11.5 billion zlotys (0.7% of domestic banks' assets), and receivables from households – 1.4 billion zlotys (0.1% of domestic banks' assets). On the other hand, debt instruments issued by

[46] For more information on the ratio of inflowing impaired loans – see Box 2 in "Financial Stability Report. December 2017", NBP.

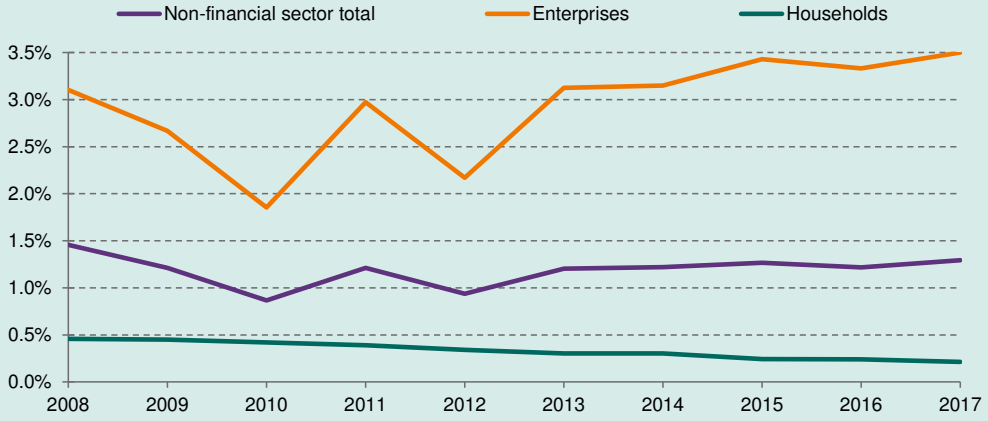
foreign governments and banks or international financial institutions (EIB, EBRD) held in the portfolios of domestic banks were 9 billion zlotys (0.6% of domestic banks' assets).

Domestic banks' activity conducted abroad also remains limited. At the end of 2017 only several domestic banks conducted their activity via a subsidiary bank, foreign branches or non-bank subsidiaries:

- Bank PKO BP owns Kredobank, the Ukrainian universal bank. The ratio of bank's assets to assets of the PKO Bank Polski Group is 0.6%. The bank provides corporate loans, car loans and housing loans, financing its activity mainly with local deposits from the non-financial sector.
- Three banks own foreign branches in other EU countries. The scale and range of their operations differ. The total value of assets of the branches to assets of their parent banks is relatively insignificant and amounts to 2%. Branches of mBank and Alior Bank have a retail profile (they extend mainly housing and consumer loans), whereas branches of PKO BP concentrate on serving corporations. The scale of activity of branches of PKO BP and Alior Bank is insignificant as they have conducted their activity for a short time.

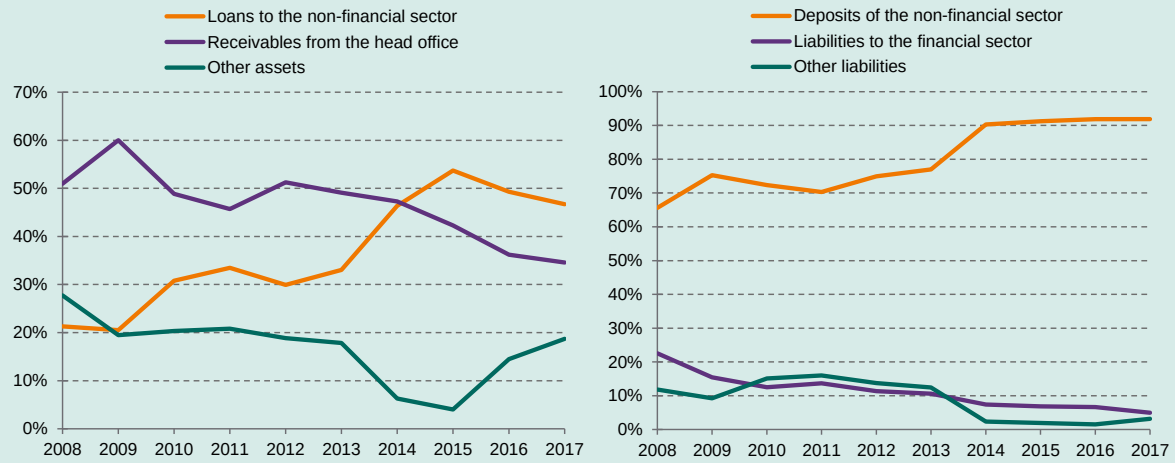
  Deposits obtained locally from the non-financial sector are the main source of financing of foreign branches (see Figure 2). The scale and business profile of the branches show that the risk arising from their exposures to non-residents is relatively low.
- Four domestic banks, i.e. PKO BP, Bank Handlowy, mBank and Bank Millennium, have other financial (non-bank) institutions abroad. The largest ones are the entities whose main job is to raise funds for their parent banks via issues of debt securities denominated, among others, in euros, Swiss francs and US dollars. The ratio of total value of assets of non-bank financial institutions to assets of their capital groups amounted to 2.6%.

Figure 1. The share of receivables from non-residents in receivables of selected borrower groups



Source: NBP.

Figure 2. The structure of assets (left-hand panel) and liabilities (right-hand panel) of foreign branches of banks



Source: NBP.

[1] Information on specific entities contained in this box is based on publicly available data released by banks. The analysis does not cover three banks members of the Getin Holding Capital Group which conduct business abroad, i.e. Idea Bank (Belarus), Idea Bank (Romania) and Idea Bank (Ukraine). Getin Holding S.A. is their majority shareholder. Domestic banks are not shareholders in these banks, which means that their activity poses no direct source of risk to the banking sector in Poland.

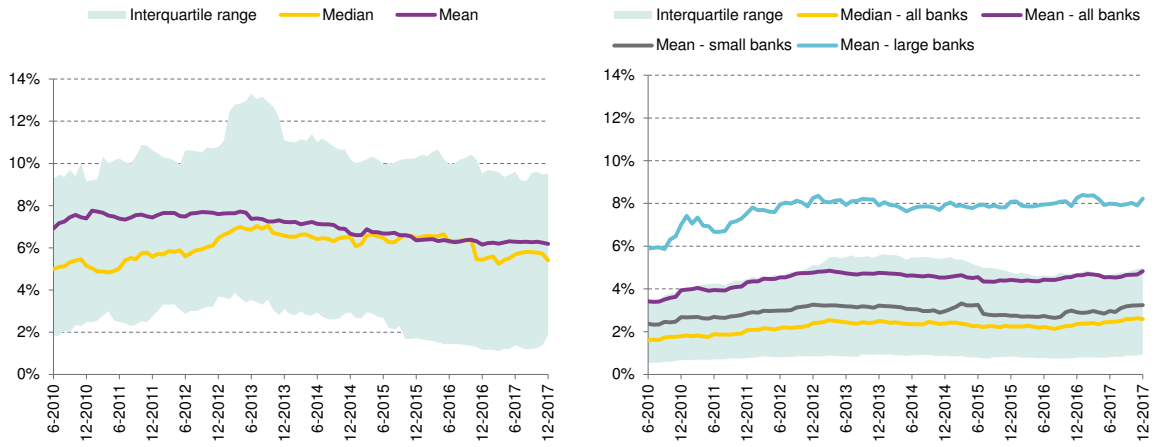
2.2.1. Credit risk of loans to households

The quality of loans to households at commercial banks did not change substantially, while it deteriorated slightly at cooperative banks, and it mainly affected loans to farmers and sole proprietors. However, the quality of loans at cooperative banks (excluding certain large banks) remained significantly better than at commercial banks (see Figure 2.10). One of the reasons why the differences in the quality of the loan portfolios of the two bank groups persisted was the different structure of their portfolios. A substantial portion (40% at the end of December 2017) of household loans in cooperative banks were loans to individual farmers; the loans exhibited high quality (the impaired loan ratio was 2.8% at the end of December 2017), especially in the case of preferential loans. One of the factors positively influencing loan quality at small and medium-sized cooperative banks could be better knowledge of the local market, which helped the banks to better assess credit risk.

The quality of housing loans – the largest portfolio in the banking sector – improved slightly, and total loan losses and the ratio of loan losses to the value of loans decreased (see Figure 2.11). The decline in loan losses was supported by the very good condition of the household sector (see Chapter 1) and more prudent lending policy in recent years (see Box 3). Given the specific nature of the loan portfolio, i.e. long average loan maturity resulting in a slow decline of loans originating in earlier periods, the impact of lending policy changes on the value of loan losses of the whole portfolio has so far been small. However, it should grow gradually over time.

FX housing loans were characterised by a slightly higher share of impaired loans than zloty loans, albeit still much lower than in the case of other types of loans to households (see Figure 2.12 and

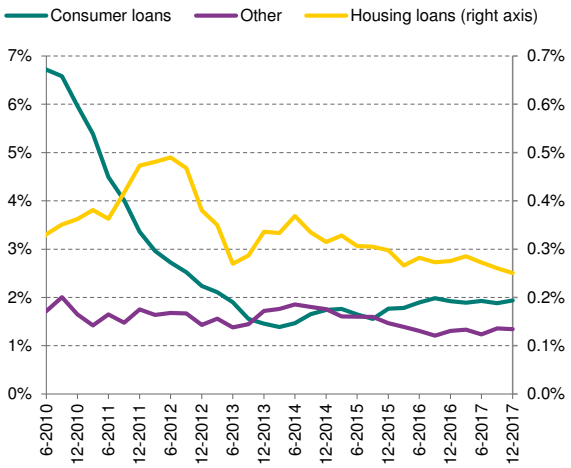
Figure 2.10. Distribution of the impaired loan ratio for households at commercial banks (left-hand panel) and cooperative banks (right-hand panel)



Note: Small cooperative banks include banks with assets below 200 million zlotys, medium-sized banks – from 200 million to 500 million zlotys, large banks – above 500 million zlotys. Data excluding SK bank.
Source: NBP.

2.13). The main reason behind the lower quality of FX housing loans than for zloty loans is the fact that the FX loan portfolio is ageing. After 2008, lending in the Swiss franc was considerably limited, and from the end of 2012 almost all new housing loans have been denominated in zlotys. As result, at the end of 2017 the average age of the portfolio of FX loans increased to approx. 10 years (from around 5 years at the end of 2012), whereas for zloty loans it was lower than 5 years. The large share of relatively new loans in the portfolio of zloty loans positively influences its average quality. Housing loans rarely deteriorate in the first years after loan origination. In the case of FX loans, loans serviced in a timely manner are gradually repaid (which leads to the decrease of the denominator of the impaired loan ratio), and loans not repaid accumulate in the portfolio, which negatively influences its average quality.[47]

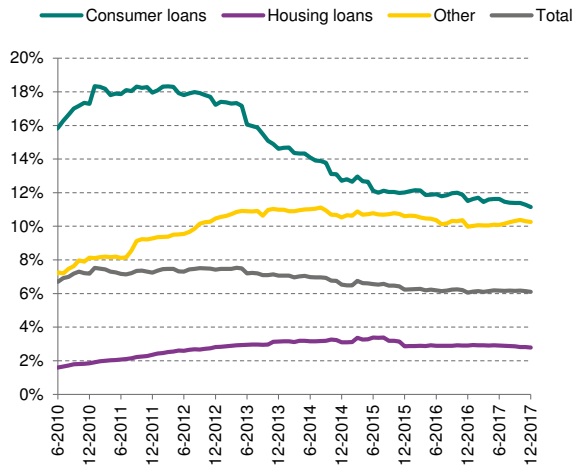
Figure 2.11. Ratio of net charges to provisions for impaired loans to households to net value of the loans



Note: Annualised data.
Source: NBP.

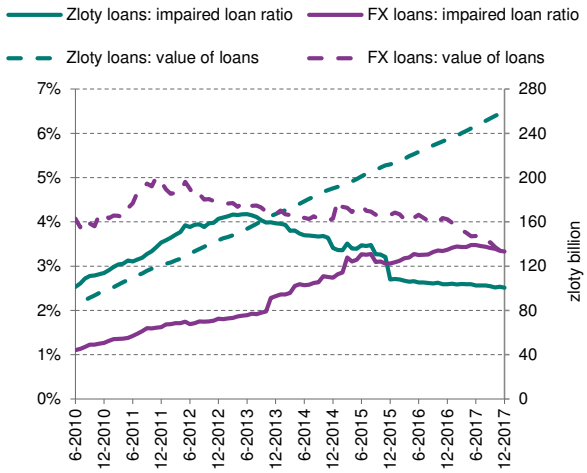
[47] For a broader description of the ageing of FX housing loans, see – Box 1 in "Financial Stability Report. December 2017",NBP.

Figure 2.12. Impaired loan ratios of main categories of loans to households



Note: The value of particular loan categories at the end of December 2017 amounted to (PLN billion): Consumer loans – 161.3 Housing loans – 390.9 Other loans – 115.4.
Source: NBP.

Figure 2.13. Impaired loans ratios and value of foreign currency and zloty housing loans



Source: NBP

Box 3. The impact of changes in banks' lending policies on statistics of newly granted housing loans

According to the results of surveys on bank lending practices and credit conditions[1] banks' lending policies in the housing loan segment have been tightened for most of the time since the start of the financial crisis of 2008 (see Figure 2.5). Both lending standards and lending terms were tightened, including the collateral, loan downpayment and maximum loan maturity requirements. Initially, the tightening arose mainly from concerns over expected economic developments, banks' capital position and forecasted developments in the housing market, as well as the gradually deteriorating loan portfolio quality. While the economic situation improved and the situation in financial markets returned to normal, other factors, including regulatory requirements, gained in importance. The survey-responding banks noted that they were prompted to tighten their creditworthiness assessment rules and increase the minimum household expenditures adopted for creditworthiness assessment by Recommendation S and other recommendations of the Polish Financial Supervision Authority (KNF). After the implementation of Recommendation S, banks practically stopped granting FX loans.

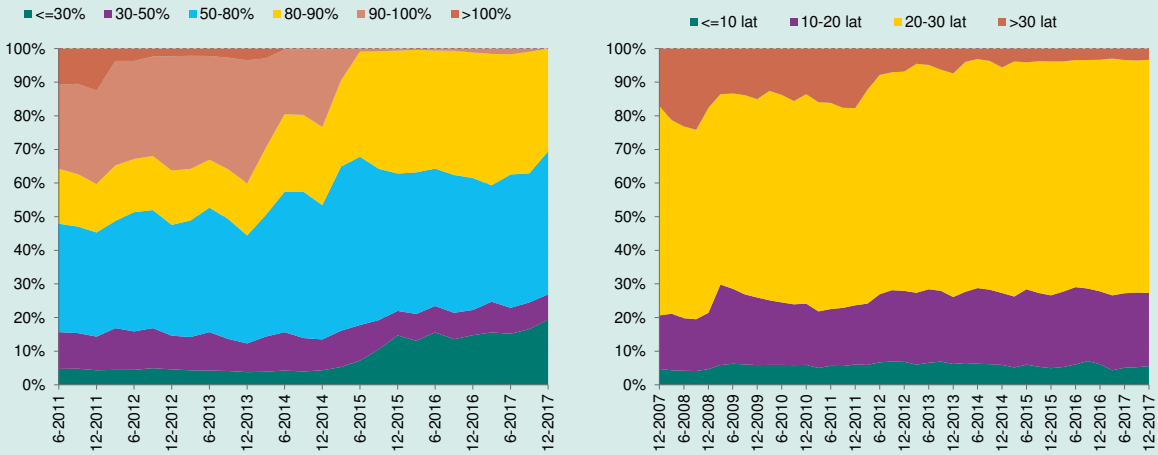
Lending policy changes were reflected in new housing loan characteristics over the past several years. From the point of view of financial stability, the standards of granting loans in an environment of historically low interest rates are of particular significance.

The share of new loans with high LtV ratios has recently decreased (see Figure 1, left-hand panel). This development is favourable from the point of view of credit risk as it leads to a decline of LGD when recovery becomes necessary. In line with Recommendation S, banks practically stopped granting loans with an LtV over 90%. However, it is worth noting that the share of loans with an LtV of 80–90%, which can be extended only when they are additionally secured or insured, is relatively high.

Granting loans with original maturities of more than 30 years was also limited (see Figure 1, right-hand panel). Recommendation S stipulates that the bank should recommend the client to take out the loan with original maturity up to 25 years, and when estimating creditworthiness for a loan with a repayment period of over 30 years, the

30-year maximum repayment period should be adopted. However, Recommendation S does not permit granting loans with repayment periods longer than 35 years.

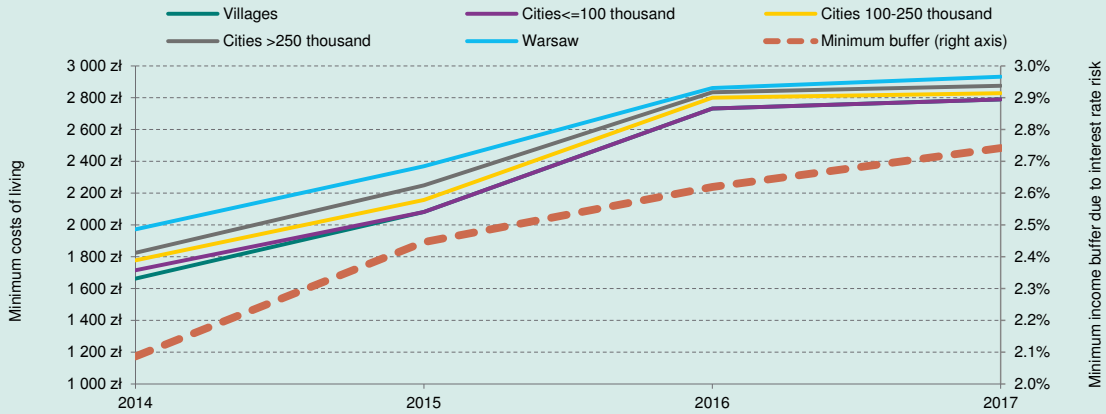
Figure 1. Distribution of the value of new housing loans by LtV ratios (left-hand panel) and original maturities (right-hand panel)



Source: NBP estimates based on UKNF survey data and ZBP.

The results of the UKNF surveys confirm that banks also tightened creditworthiness assessment rules in the previous three years. When making such an assessment, banks raised the amount of minimum expenditures and also the amount of minimum income buffer for interest rate risk (see Figure 2). The tightening of lending standards since 2015 led to the decrease in the average DSTI ratios. However, it has to be noted that the DSTI decreased from relatively high levels – in the past the value was rising despite a decline in market interest rates (see Figure 3, left-hand panel).

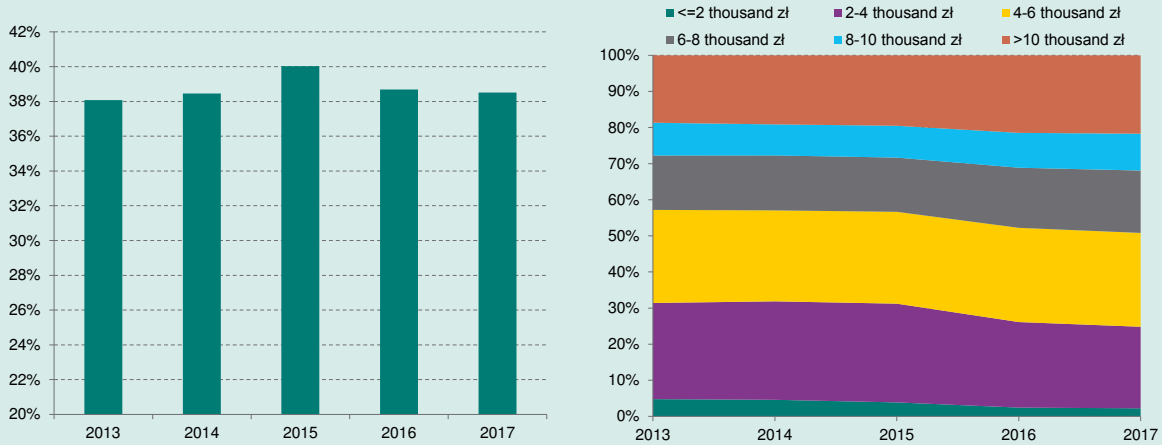
Figure 2. Selected minimum requirements assumed by banks for creditworthiness assessment of applicants for housing loans



Source: NBP estimates based on UKNF survey data. In this figure, the average for the survey-responding banks is weighted by the value of granted loans. Costs of living – for a three-person family with a child. Interpretation of the buffer's value – the applicant would be able to service the loan when the interest rate grows by this amount. Buffer data for December of the years shown in the figure.

From the point of view of credit risk, the decline in average DSTI ratios on new loans for borrowers from lowest income groups was particularly favourable. In the case of such borrowers, high DSTI ratio is particularly unfavourable. In the borrower's budgets, the share of basic (necessary) expenditures is high, which means that a smaller portion of income can be spent on loan repayment, also when interest rates and loan instalments grow.

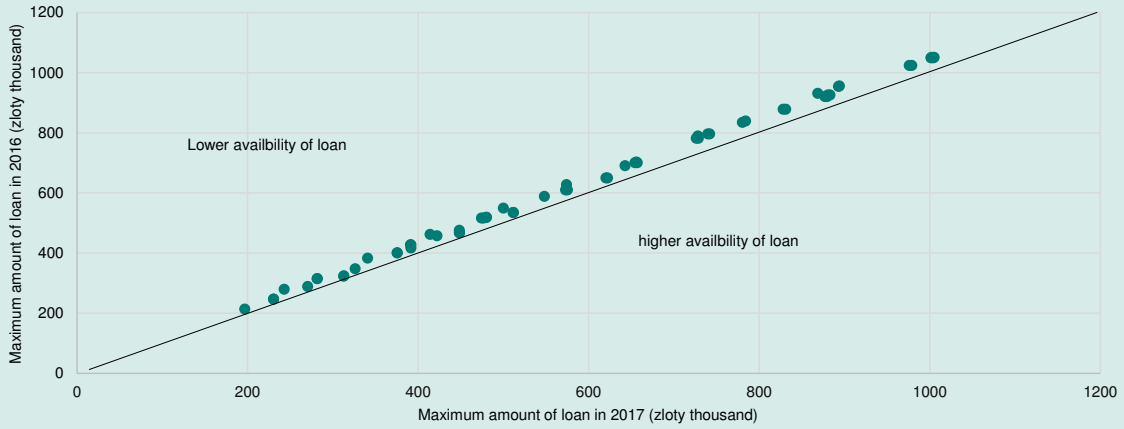
Figure 3. The average value of the DSTI ratio on new housing loans (left-hand panel) and the distribution of the value of the loans by borrowers' income (right-hand panel)



Source: NBP estimates based on UKNF survey data.

In 2017, the maximum size of the loan that banks were ready to grant decreased, but the loan size to income ratio remains high. For instance, in 2017 the maximum loan value diminished for all surveyed household types, irrespective of income and other socio-demographic features (see Figure 4). At the same time, the ratio of the maximum size of the loan that banks were ready to extend to loan applicants to their annual gross income (LTI, *Loan-to-Income*) seems relatively high and is close to relevant regulatory limits in the United Kingdom[2] and Norway, and markedly higher than the limits in Ireland.

Figure 4. Changes in availability of credit in 2017



Source: NBP estimates based on UKNF survey data. Every point in the figure denotes a household with certain features which were constant in 2016 and in 2017: age, income, marital status and number of children.

Overall, lending policy in the housing loan segment has been tightened in recent years, which should positively affect loan portfolio quality in the future. In particular, lending in the period of historically low interest rates was not accompanied by the relaxation of lending standards and terms by banks. On the other hand, it is worth noting that the share of loans with LtV from 80% to 90% is relatively high and, primarily, the maximum loan amount that banks are ready to extend is fairly high.

[1] See "Senior loan officer opinion survey on bank lending practices and credit conditions" from the years 2008-2018, NBP.
[2] According to the *Financial Policy Committee* recommendation, the number of mortgage-secured loans with LTI above or equal to 4.5 cannot exceed 15% of the number of new loans.

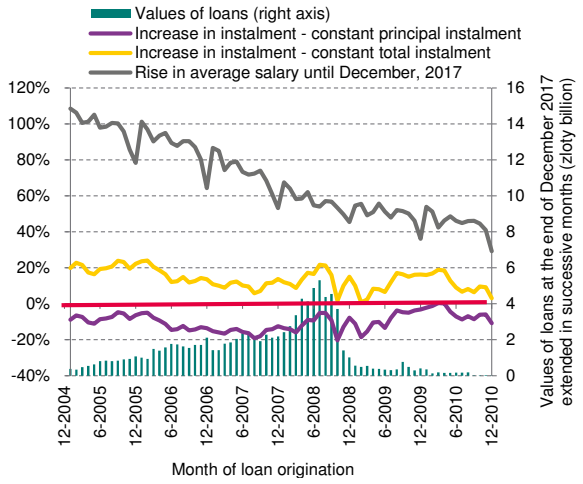
The quality of Swiss franc-denominated housing loans was favourably affected by the relatively high income buffers of households repaying them. Their income was, on average, higher than in households repaying zloty loans, also after deductions of loan instalments and much higher than in other households (see Figures 2.12 and 2.13 in the previous *Report*). The impact of Swiss franc exchange rate growth from the date of origination of most of the loans on the value of instalments of Swiss franc-denominated loans was still mitigated by low (negative) market interest rates in CHF[48] (see Figure 2.14). The situation of borrowers was also positively influenced by considerable wage increases from the time when most of the loans had been granted. The year 2017, compared with 2016, also saw a decline of household burden with repayment of FX loan instalments following an appreciation of the zloty. Loan quality was also positively influenced by the support offered by banks as the part of so called six–pack in January 2015.

A substantial portion of Swiss franc-denominated loans was characterised by a low level of collateralisation. At the end of 2017, the estimated share, in terms of value, of loans with LtV above 100% and 120% in the portfolio of Swiss franc-denominated loans shrank by around 15 percentage points from the end of 2016, to 34% and 22%, respectively.[49] For zloty loans, the shares were several times lower and amounted to 4% and 1%, respectively. As the quality of the portfolio of FX loans was good, the impact of high LtV ratios on banks' earnings was limited. However, in the case of a deterioration in quality and the need for large-scale debt collection, this factor would have a negative impact on the value of loan losses on that portfolio.

The quality of consumer loans improved slightly, and the ratio of loan losses to the portfolio's value stabilised at a relatively low level (see Figures 2.12 and 2.11). In addition to economic factors, the level of the impaired loan portfolio was heavily influenced by debt sale transactions and transfer to the off-balance-sheets, and their scale was relatively large.[50] The quality of the consumer loan portfolio was also, to a lesser extent, affected by an increase in the value of the portfolio[51] (an increase in the denominator of the impaired loan ratio).

[48] A dominant portion of Swiss franc-denominated housing loans are loans with a variable interest rate, where the interest rate equals the LIBOR CHF rate increased by a fixed spread.
[49] Source: NBP estimates based on KNF survey data.
[50] According to KNF survey data, the estimated value of debt sale transactions and transfers to the off-balance-sheets in the past three years range from 3.3 to 3.7 billion zlotys annually.
[51] The rise in the value of the consumer loan portfolio in the second half of 2017 lead to a decline in the impaired loan ratio of around 0.5 percentage points.

Figure 2.14. Increase in the value of CHF housing loan instalment compared to the instalment in the month of loan origination against the values of these loans and wage growth in the corporate sector from the month of loan origination

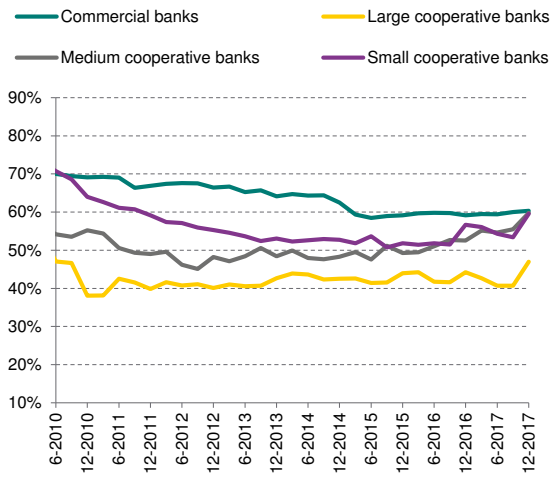


Assumptions: A Swiss franc-denominated housing loan with maturity of 25 years, repaid in constant total instalments or constant principal instalments, and instalment calculated on the basis of the Swiss franc exchange rate and the LIBOR 3M rate of 31 December 2017 and average spread on Swiss franc-denominated loans at loan origination.
Note: Points on a horizontal axis mark the month of loan origination. Bars present the zloty value (at the end of December 2017) of Swiss franc-denominated housing loans taken out in a given month marked on the horizontal axis.

Source: NBP estimated based on own data, Thomson Reuters, GUS and BIK data.

For several years, approx. 1/4 of provisions on the portfolio of loans to households are provisions for the so-called other loans to households. These loans include mainly loans to farmers and sole proprietors. Following an earlier improvement, the quality of the loans and the ratio of loan losses to the value of loans deteriorated slightly (see Figures 2.12 and 2.16). The developments applied mainly to loans at cooperative banks. This may have resulted from a more conservative approach to the creation of specific provisions. Despite the recent deterioration, the quality of loans to farmers and sole proprietors at cooperative banks was considerably better than at commercial banks and credit losses were lower.

Figure 2.15. Coverage of impaired loans to households with provisions, by type of banks



Notes: Data excluding SK Bank. At cooperative banks – coverage by September 2017 calculated on the basis of the nominal value of loans.
Source: NBP.

The average coverage of impaired loans to households by provisions in the banking sector grew in the second half of 2017. The growth applied mainly to cooperative banks (see Figure 2.15) and stemmed mainly from changes in the accounting rules.[52] However, also after excluding these changes, the increase in average coverage was noticeable at cooperative banks. The improvement in coverage was driven by IPSs, which set the minimum levels of impaired loan "coverage" and conduct audit and monitor risk taken by the IPS participating banks, and by the su-

[52] By the end of 2016, the banks which applied the Polish Accounting Standards did not create specific provisions on due but unpaid interest on impaired loans; however, they recognised them in a separate item of liabilities under, "Deferred interest income". In 2017, the rules of creating provisions for risk associated with banking activity were changed (The Regulation of the Minister of Development and Finance of 12 October 2017 *amending the regulation regarding principles for creating provisions for the risk of banking activity* – Journal of Laws 2017, No 1965). The possibility was introduced to create charges to provisions on interest due on impaired loans decreasing the balance-sheet value of the loans. To put it simply, the change led to the decrease in liabilities by the amounts recognised earlier and arising from the calculation of the interest on impaired loans, and assets were decreased by the amount of (cumulated) charges to provisions, as a result of which the ratio of coverage of loans with provisions increased. The changes were fully reflected in reports transferred to NBP in December 2017.

pervisory action by KNF towards banks with the lowest coverage levels.[53]

The level of coverage at large cooperative banks was still significantly lower than the average, despite its increase in 2017. The risk associated with a possible underestimation of specific provisions is significant, particularly in the context of relatively high impaired loan ratios in this group of banks (see Figure 2.10), and also relatively low profitability which makes increasing regulatory capital from earnings difficult.

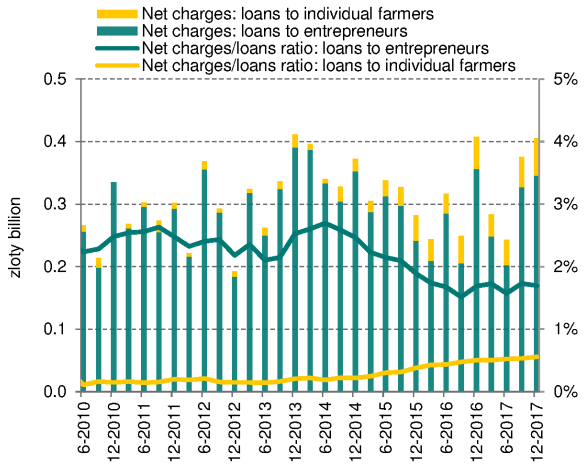
Outlook

Developments in the economic environment should contribute to a stabilisation or an insignificant fall of the ratio of loan losses to the value of loans to households. This will be supported by relatively high GDP growth and a very good situation on the labour market. In the medium term, the value of loan losses will be positively influenced by the tightening of lending policy in the housing loans segment over the past several years.

On the other hand, changes in accounting rules at banks applying the IAS/IFRS related to the entry into force from 2018 of the new financial reporting standard IFRS 9 may contribute to a rise in loan losses shown in reports (see Box 4). By the end of 2017, loan losses analysed in this Chapter included only the result on charges to provisions for impaired loans (counterpart of the so-called stage 3 in IFRS 9).[54] Changes in the creation of provisions will result in a faster recognition of charges to provisions for impaired loans by banks than currently under IAS 39, in particularly due to the creation of provisions for expected loan losses in the next 12 months on the loan origination date.

For borrowers with low income buffers an increase in interest rates, if it would take place, could generate problems with loan servicing. This could potentially apply mainly to housing loans, given the high share of interest instalment in the total loan instalment.

Figure 2.16. Quarterly net charges and their ratio to net value of loans to entrepreneurs and individual farmers



Notes: Data excluding housing loans. Ratio – annualised data.
Source: NBP.

[53] See "Informacja o sytuacji banków spółdzielczych i zrzeszających w III kwartale 2017 r." ("Information on the situation in cooperative and associating banks in the third quarter of 2017"), KNF, Warsaw, 2017, p. 13.

[54] Charges to IBNR provisions, whose value was, however, marginal compared with charges to provisions (in the last three years, the result on IBNR provisions at banks reporting in compliance with the IAS/IFRS was, on average, 50 times lower than the result on loan impairment.) were reported only in the total amount for loans from all sectors, which made it impossible to include them in analyses, broken down by sectors and type of credit. In new IFRS 9-based reporting, losses reported by banks will relate to expected losses both on impaired loans (stage 3 in IFRS 9) and on non-impaired loans (stage 1 and stage 2).

Box 4. The impact of IFRS 9 implementation on banks' financial statements

The major part of the banking sector in Poland (in terms of assets) draws up financial statements according to IAS/IFRS (hereinafter referred to as: the IFRS).[1] At the end of 2017, 50 banks (jointly controlling 91% of the sector's assets) applied the IFRS in their financial statements submitted to NBP. On the other hand, financial statements prepared according to the national accounting standards (PSR) were submitted by all cooperative banks and five commercial banks (mainly small ones) as well as by eight branches of credit institutions.

Since 2018, the principles of classification and measurement of financial instruments in accordance with the IFRS have changed. IAS 39, regulating those issues so far, was replaced in its major part by IFRS 9.[2] Among changes introduced by IFRS 9, the new classification principles of debt instruments (including extended loans) in assets and introduction of provisions for expected credit losses would probably have the largest impact on financial statements of Polish banks.[3]

Classification of debt instruments in assets

Former categories of financial assets were replaced by categories strictly linked with the instrument measurement method – at fair value through profit and loss, at fair value through other comprehensive income or at amortised cost. The first of those categories was also present in IAS 39 and it comprises, among others, financial instruments held for trading. Assets earlier classified as available for sale were probably reclassified mostly as assets measured at fair value through other comprehensive income, whereas assets held to maturity as well as loans and receivables – to the category of measured at amortised cost. However, the new categorization cannot be treated as a precise mapping of the previous one, since new principles of assigning financial instruments to respective measurement methods were introduced.

Classification of debt instruments to particular categories of assets is based on two criteria: cash flow test and business model assessment. The cash flow test consists in checking whether contractual cash flows comprise only the payment of principal and interest on the principal amount outstanding (SPPI – *solely payment of principal and interest*). Interest, on the other hand, shall only cover the cost of the time value of money, credit risk and other underlying risks and costs related to credit granting and the profit of the provider of financing. On the other hand, business models in which a group of assets is managed may comprise: collecting the contractual cash flows, both collecting contractual cash flows and sale, as well as other goals (e.g. exclusively sale).

A debt instrument (including an extended loan) may be classified to assets measured at amortised cost only if it meets the SPPI condition and if such instruments are held under the business model aiming at collecting contractual cash flows.[4] Instruments meeting the SPPI condition and held for the purpose of collecting contractual cash flows or for sale may be measured at fair value through other comprehensive income. On the other hand, fair value through profit and loss should be applied for measurement of other debt instruments as well as such instruments which, at an initial recognition or as at the day of the first application of IFRS 9, were designated for measurement at fair value.[5]

Provisions for expected credit losses

In accordance with IAS 39, provisions for impairment losses of a an asset could be created only if the objective evidence of impairment occured after its initial recognition. Such approach was defined as an incurred credit loss (ICL) model. An example of the objective condition could be, e.g. the delay in the repayment of the principal or the interest. After documenting such a condition, it was necessary to estimate the difference between contractual and expected cash flows from a given agreement discounted by means of the initial effective interest rate. For the

amount of this difference, a provision for impairment losses was created. It was also possible to create statistical provisions for credit losses due to events which have already occurred but have not been recorded yet (IBNR – incurred but not reported). The ICL model was criticised, particularly after the global financial crisis, due to delayed recognition of credit losses by banks and other financial institutions.

In IFRS 9, the ICL model was replaced by the approach based on recognising expected credit loss (ECL). In this approach, the debt instrument measured at amortised cost or at fair value through other comprehensive income (including extended loans) can be allocated to one of three so-called stages differing by the method of creating provisions for expected credit losses:

- upon initial recognition of an instrument (stage 1), the provision is created in the amount corresponding to the expected loss arising from default events possible in the timeframe of 12 months,
- in case a significant increase in the credit risk related to the instrument (compared to the date of initial recognition of the instrument) is found (stage 2), the provision for impairment loss is calculated as lifetime expected losses for such instrument[6],
- upon indication that impairment loss has occurred for the instrument (stage 3), the provision for expected credit losses is created under the assumption that a default event has occurred.[7] It can be assumed that assets in stage 3 are to a large extent identical to impaired assets according to IAS 39.

Parameters used for the calculation of provisions (such as a probability of default or loss given default) are estimated at the moment of creating the provisions (point in time approach). The additional difference between the stages will be the method of calculating interest revenue: for assets in stage 1 and stage 2 they will be calculated against the gross balance sheet value of an instrument, while for assets in stage 3 – against the balance sheet value (i.e. taking into account the deduction by provisions for expected credit losses).

Impact of IFRS 9 introduction on banks' financial statements and capital adequacy

The initial recognition of financial instruments (including extended loans) according to IFRS 9 at the day of its first application, including in particular, the creation of provisions for expected credit losses of assets with no recognised impairment (stage 1 and stage 2), does not affect financial results of banks. Differences in the value of financial instruments stemming from new reporting principles have been directly reflected in the capital. For the majority of banks, it probably means a decrease in the balance sheet capital, mainly as a result of provisions created for expected credit losses of assets in stage 1 and stage 2.

The introduction of IFRS 9 may also reduce banks' capital ratios. In the majority of cases, a decrease in the Common Equity Tier 1 capital due to the first application of IFRS 9 should more strongly affect the ratio than the decline in risk exposure due to provisions created for expected credit losses.

The EU introduced a possibility for banks to use a transitional period in recognising the impact of IFRS 9 implementation on the level of their regulatory capital. On the basis of changes introduced in the CRR[8], after notifying the competent supervision authority, banks may distribute over a period of 5 years the recognition in the regulatory capital of increase in provisions for expected credit losses as at the day of the first application of IFRS 9 and the potential subsequent increase in such provisions for instruments held upon the first application of IFRS 9 (e.g. as result of re-classification of stage 1 loans to stage 2).[9] In such a case, in the consecutive years of the transitional period, respectively, 5%, 15%, 30%, 50% and 75% of changes in provisions for expected credit losses will be recognised. In Poland, 20 banks notified the KNF of their intention to use a transitional period.

The introduction of provisions for expected credit losses for non-impaired assets should not change the total costs of credit risk incurred by banks in the timeframe of maintaining a given financial instrument. On the other

hand, across the whole bank, a periodical increase in the burden of to provisions on profits may occur, particularly in the periods of credit risk growth and reclassification of assets from stage 1 to stage 2.

In the first year of application of the new reporting principles, an increase in the burden on banks' results may be also expected, since provisions for expected losses for new loans will be probably higher than the IBNR provisions created earlier. In addition, contrary to IBNR allowances, provisions for expected credit losses of assets in stage 1 and stage 2 will not be recognised as tax deductible costs in corporate income tax. On the other hand, provisions for expected credit losses may reduce the base for calculation of the tax on certain financial institutions.

On the basis of information available to the cut-off date of the Report it can be expected that the effect of the first application of IFRS 9 has not significantly reduced banks' own funds while provisions for expected credit losses created in the period of application of IFRS 9 have not strongly decreased banks' profitability.

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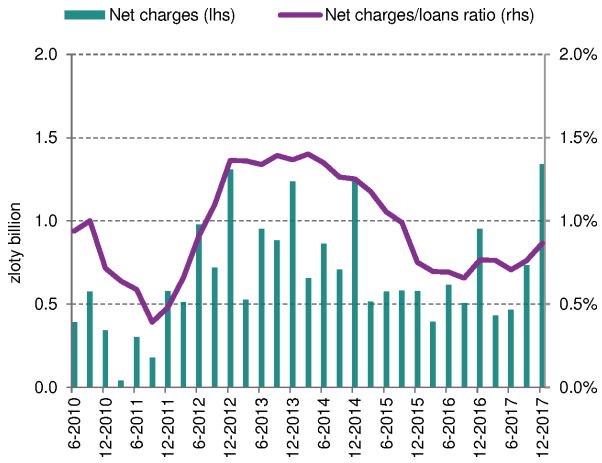
[1] In the EU, the IAS and the IFRS are applied under Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards. The applicable wording of the standards (sometimes differing from that adopted by the International Accounting Standards Board) is announced in European Commission Regulations.
In Poland, the Accounting Act of 29 September 1994 (Journal of Laws 1994 No. 121, item 591, as amended) imposes the obligation on banks and issuers of securities admitted to trading on a regulated market of the EEA countries to prepare consolidated financial statements in conformity with the IFRS (Article 55(5)). On the other hand, a possibility to prepare financial statements in accordance with the IFRS (both stand alone and consolidated) is offered to issuers applying for (or planning to apply for) admission of securities to trading on a regulated market of the EEA (Article 45(1a) and Article 55(6), as well as entities belonging to the capital group which prepares consolidated statements in conformity with the IFRS (Article 45(1b) and Article 55(7), and branches of foreign economic operators which prepare statements in accordance with the IFRS (Article 45(1e)).
[2] The European Commission introduced IFRS 9 under Regulation 2016/2067 of 22 November 2016 amending Regulation (EC) No 1126/2008 adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council as regards International Financial Reporting Standard 9.
[3] Those two areas were indicated by banks in questionnaire surveys performed by EBA and KNF as the major reasons of changes in capital arising from the initial recognition of financial instruments according to IFRS 9. See reports of EBA *Report on results from the EBA impact assessment of IFRS 9* of 10 November 2016 and *EBA report on results from the second EBA impact assessment of IFRS 9* of 13 July 2017 available in the EBA website.
[4] Holding a group of assets under such business model shall not mean the prohibition on sale of such assets or the necessity to reclassify other instruments in case of performing the sale.
[5] An entity may designate assets or liabilities to be measured at fair value through profit and loss if it leads to acquiring more useful information by the recipients of the financial statements – e.g. if such classification reduces a measurement or recognition inconsistency for groups of assets and liabilities managed jointly by the entity.
[6] If the credit risk remains at a low level despite a significant growth, the instrument can be still classified to stage 1.
[7] In the case of assets for which impairment loss was recognised upon purchase or granting, the provision is created in the amount of the growth in expected credit losses since the purchase date.
[8] Regulation (EU) 2017/2395 of the European Parliament and of the Council of 12 December 2017 amending Regulation (EU) No 575/2013 as regards transitional arrangements for mitigating the impact of the introduction of IFRS 9 on own funds and for the large exposures treatment of certain public sector exposures denominated in the domestic currency of any Member State.
[9] Such a possibility refers only to instruments existing in the balance sheet upon the first application of IFRS 9.

2.2.2. Credit risk of corporate loans

Corporate loan quality

The robust financial situation of enterprises had a favourable impact on the quality of corporate loans. The impaired loan ratio reached its lowest level since early 2010. At the same time, the share of impaired loans in forborne loans remained at a relatively high level, which may indicate that banks did not apply on a large scale forbearance practices aiming at deferring losses (see Box 5). The percentage of loans newly classified as impaired and the ratio of quarterly net charges to provisions for impaired loans to net value of loans increased slightly. This might have resulted from banks' more conservative provisioning policy, typically observed in the last quarter of a year (see Figure 2.17), and moreover – from increased risk associated with lending to some sections of the economy.

Figure 2.17. Quarterly net charges to provisions for impaired corporate loans and their ratio to net value of loans

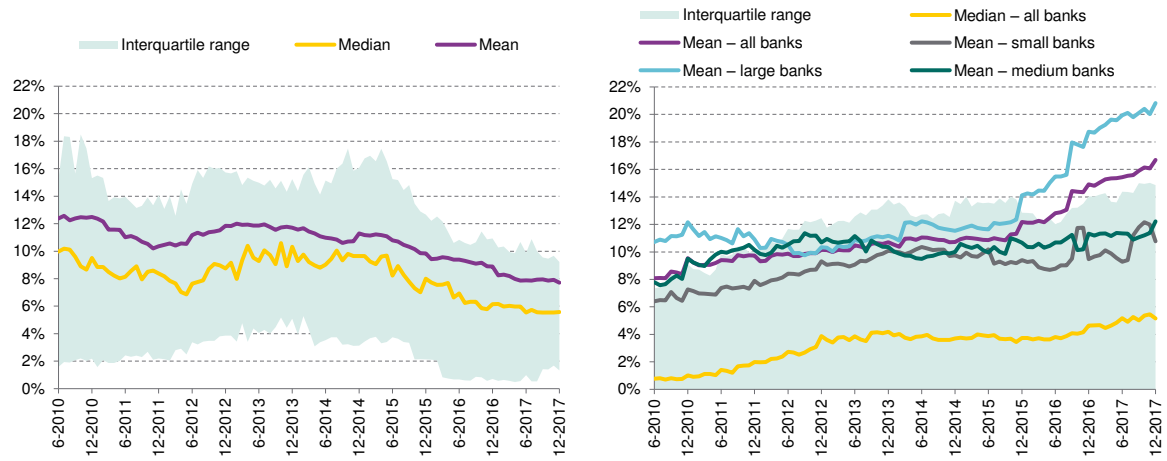


Note: Ratio – annualised data.
Source: NBP.

At large cooperative banks, the risk of the corporate loan portfolio remained at an elevated level. Both the impaired loan ratio and net charges to provisions increased (see Figure 2.18). The coverage of impaired loans by provisions grew, mostly as a result of changes in the accounting rules for cooperative banks (see Footnote 27), but also due to adjustments to requirements imposed by KNF (see Chapter 2.2.1.). However, it remained at a lower level than in other groups of banks (see Figure 2.19). The relatively low average level of coverage points to the risk of growth in provisions in the event of a potential further deterioration in loan portfolio quality. In the group of large cooperative banks, the share of loans in arrears from 31 to 90 days remained in the upward trend (see Figure 2.20), the share of impaired loans in this range also increased.

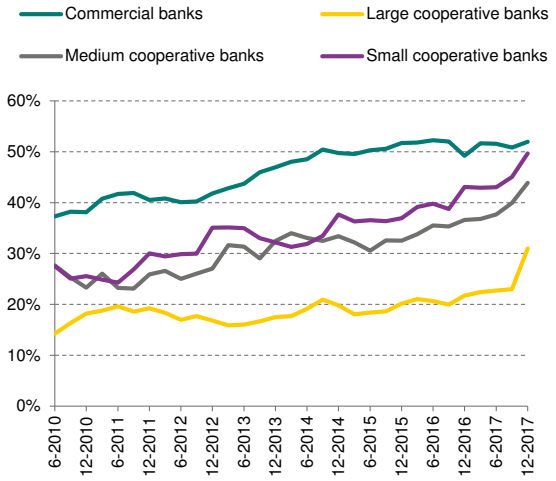
The quality of office real estate loans to enterprises did not change substantially. Both the impaired loan ratio and the ratio of loan losses to net value of loans in this segment remained lower than calculated for the entire corporate loan portfolio. Banks continued to reduce lending for this type of real estate (see Figure 2.21). At the same time, the imbalance in the office real estate market decreased slightly (see Chapter 1.3.).

Figure 2.18. Distribution of impaired corporate loan ratio at commercial banks (left-hand panel) and cooperative banks (right-hand panel)



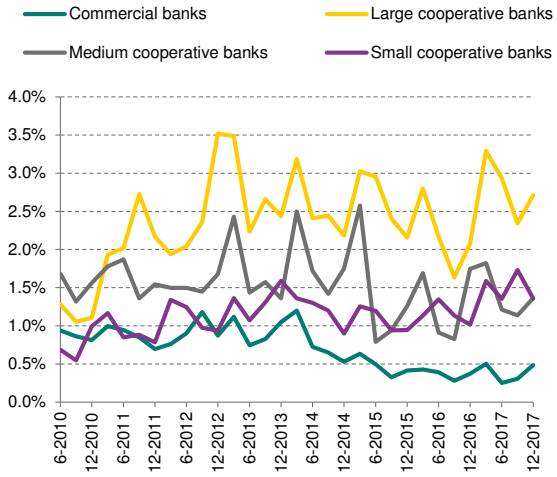
Note: Data excluding SK bank.
Source: NBP.

Figure 2.19. Coverage of impaired corporate loans by provisions, according to type of banks



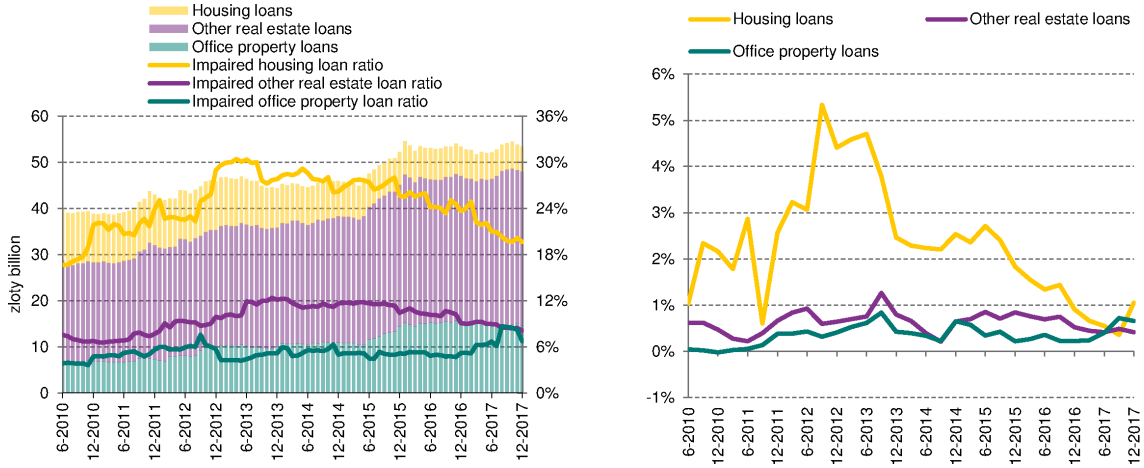
Note: see Notes below the Figure 2.15.
Source: NBP.

Figure 2.20. Share of corporate loans in arrears of 31-90 days in total corporate loans, according to type of banks



Notes: The part of the portfolio of corporate loans in arrears of 31-90 days that was classified as impaired in the groups of banks shown in the Figure at the end of December 2017: commercial banks – 48%, large, medium-sized and small cooperative banks, respectively 42%, 51% and 46%. Data excluding SK bank.
Source: NBP.

Figure 2.21. Loan amounts and impaired loan ratios for real estate loans to enterprises (left-hand panel) and the ratio of net charges to provisions to net value of loans (right-hand panel)



Notes: Data excluding BGK. The ratio of net provisions to net value of loans – annualised data.
Source: NBP.

The quality of housing loans to enterprises has remained low for several years. It has been caused by the fact that banks keep in their balance sheets loans for development projects granted in previous years and no longer serviced. Approximately 90% of non-serviced loans in this segment were loans in arrears of more than 1 year. In the second half of 2017, the amounts and levels of impaired loan ratios slightly decreased. On the other hand, the ratio of loan losses to the value of loans increased (see Figure 2.21), which was mainly caused by a rise in net charges to provisions at one of the commercial banks.

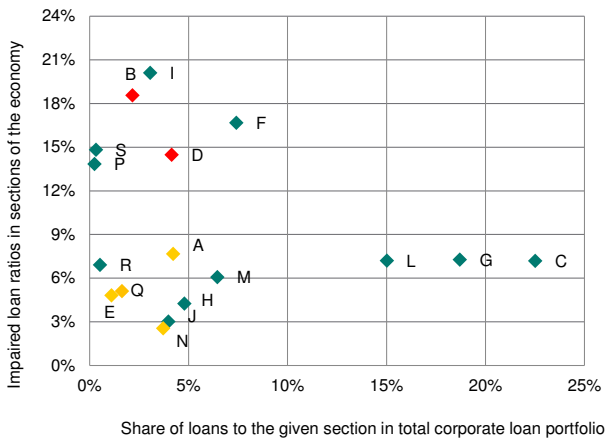
Corporate loan quality by sections of the national economy[55]

The quality of loans to enterprises from the majority of sections of the national economy, including three sections with the largest share in the corporate loan portfolio (*Manufacturing*, *Trade and repairs* and *Real estate activities*) improved (see Figure 2.22).

Very good economic condition in the construction sector supported a further decline in the impaired loan ratio for building enterprises.[56] However, the quality of loans to enterprises from the *Construction* section remains significantly worse than the quality of loans to the entire non-financial corporate sector. It is a consequence of the difficult situation of building companies, primarily in years 2011-2013.

The financial situation of companies operating in the renewable energy producing sector, mostly wind powered plants, was still difficult, primarily as a result of a fall in the prices of the so-called green certificates observed in previous periods. The ratio of impaired loans for investments in renewable energy sources remained high. The value of provisions for impaired loans rose, which negatively impacted earnings of several banks providing credit to the industry. However, the coverage ratio remained relatively low. The situation in the renewable energy producing sector was behind the high impaired loans inflow ratio calculated for the entire *Electricity, gas and heating supply* section. Its level was however lower than at the turn of 2016 and 2017, which were the toughest period for the industry.

Figure 2.22. Impaired loan ratio in particular sections of the national economy and their shares in the loan portfolio



Notes: Data are based on the so-called large exposure reporting. Changes in June 2016-June 2017: Green colour – a decline in the impaired loan ratio, red colour – a rise of more than 1 percentage point, yellow colour – a rise of less than 1 percentage point.
Sections: A – Agriculture, B – Mining, C – Manufacturing, D – Electricity, gas and heating supply, E – Water supply, sewerage and waste management, F – Construction, G – Trade and repairs, H – Transportation and storage, I – Hotels and restaurants, J – Information and communication, L – Real estate activities, M – Professional, scientific and technical activities, N – Administrative activities, P – Education, Q – Health care, R – Arts, entertainment and recreation, S – Other services.
Source: NBP.

Outlook

Economic factors should boost stabilisation of the ratio of loan losses to net value of loans in the com-

[55] The analysis is based on so-called large exposures.
[56] In contrast to real estate loans to enterprises, where the distinguishing criterion is the purpose of credit (see Figure 2.21), in loans to specific sections discussed in this part of the text, including to Section F – Construction, the distinguishing criterion is the section of the economy that the enterprise reports as dominant in its business (irrespective of the type and purpose of credit).

ing quarters, while a possible rise of the ratio may be associated with the entry into force of IFRS 9 as of 1 January 2018. Within the NBP projection horizon, a further stable economic growth is forecasted, although not as high as in 2017. Enterprises expectations regarding their situation till the end of 2018 are upbeat.[57]

Risk factors to the currently favourable economic climate in trade and in construction, whose aggregate share in credit to the enterprise sector is relatively significant[58], are growing difficulties with finding employees and rising labour costs. Prices of materials and commodities which have been rising for several quarters as well as payment backlogs may turn out to be additional problem for construction industry. Elevated risk associated with this section was also the reason for tightening lending policy towards enterprises in the fourth quarter of 2017 at some banks.[59] In trade, additional risk factors include: fierce competition and the still unknown financial implications of the act that puts some restrictions on trading on Sundays, which entered into force in early 2018.[60]

Box 5. Forbearance

Definitions

In accordance with the European Commission Regulation[1], forbearance consists in the change of the terms of the credit agreement in favour of the borrower. The condition for granting the concession are the debtor's financial difficulties which prevent it from meeting the current terms and conditions of the agreement. Forbearance may involve the modification of the terms and conditions of the agreement or refinancing (total or partial) which would not take place if the debtor had no financial difficulties. Forbearance practices in banks may include for example: change of the repayment schedule, periodical suspension of repayments, cancellation of an outstanding amount, redemption of the principal amount, interest or commission, granting a new loan for the repayment of the existing debt.

Receivables[2] subject to forbearance are divided into performing and non-performing. In non-performing exposures (past due more than 90 days and/or unlikely to pay) impaired receivables are distinguished (in accordance with IAS 39/IFRS 9). It is possible to re-classify forborne exposure from the status of "non-performing" to "performing", if all the following conditions are met: the exposure is not past-due and there are no concerns regarding full repayment of the exposure under modified terms; the exposure is not impaired or defaulted (Article 178 of the CRR); one year has passed since granting concession or classifying the exposure as non-performing (depending on which event happened later). Reverse reclassification is also possible under the circumstances when the current performing forborne receivable becomes non-performing.[3]

The main objective of forbearance is to enable the borrower to repay the debt (fully or partially) and, consequently, to recover the highest possible amount by the bank. However, an inappropriate use of forbearance may be unfavourable for the stability of the financial system. The application of forbearance measures may contribute to the occurrence of the so-called *zombie lending*, consisting in granting loans to entities which are ineffective and should disappear from the market, however, owing to rolling over liabilities they avoid bankruptcy

[57] See "Szybki Monitoring NBP. Analiza sytuacji sektora przedsiębiorstw", ("NBP Quick Monitoring Survey. Economic climate in the enterprise sector", April 2018, NBP.)

[58] The shares of the sections in credit to the non-financial enterprise sector amount to 14.5% (excluding trade and repair of motor vehicles) and 7.4%, respectively.

[59] See "Senior loan officer opinion survey on bank lending practices and credit conditions. 1st quarter of 2018", January 2018, NBP.

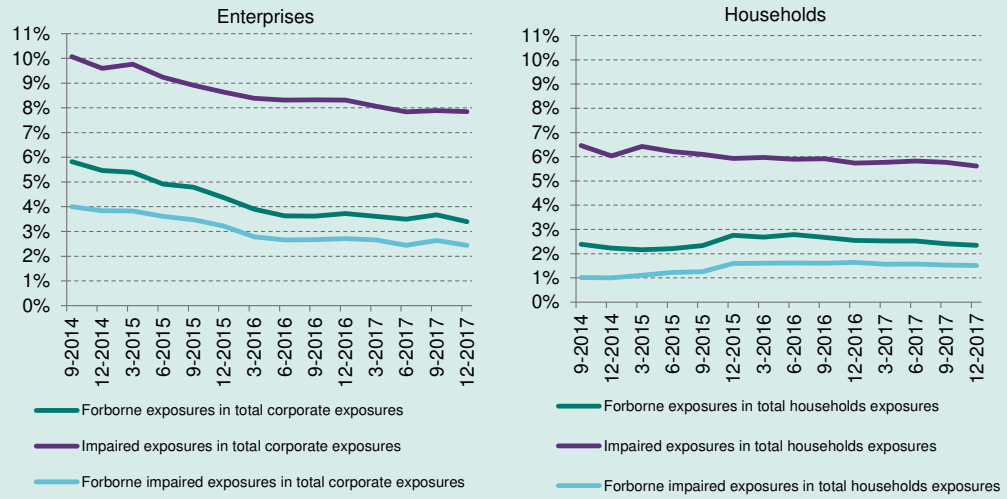
[60] See ustawa z dnia 10 stycznia 2018 r. *o ograniczeniu handlu w niedziele i święta oraz niektóre inne dni* (the Act of 10 January 2018 *on shopping restrictions on Sundays, holidays and certain other days* (Journal of Laws 2018, item 305)).

over a long period of time.[4] It may lead to an inefficient allocation of banks' financial resources and limiting of financing availability for entities characterised by good creditworthiness. Banks may award facilities to entities in financial distress to prevent classification of loans granted to them as impaired and, at the same time, to avoid the necessity of creating provisions for impaired loans (the so-called *evergreening*[5]). Such activity may underestimate the image of the real risk taken by banks, distort their financial results and lead to reporting of overestimated profitability and solvency indicators.[6]

Forbearance in Poland

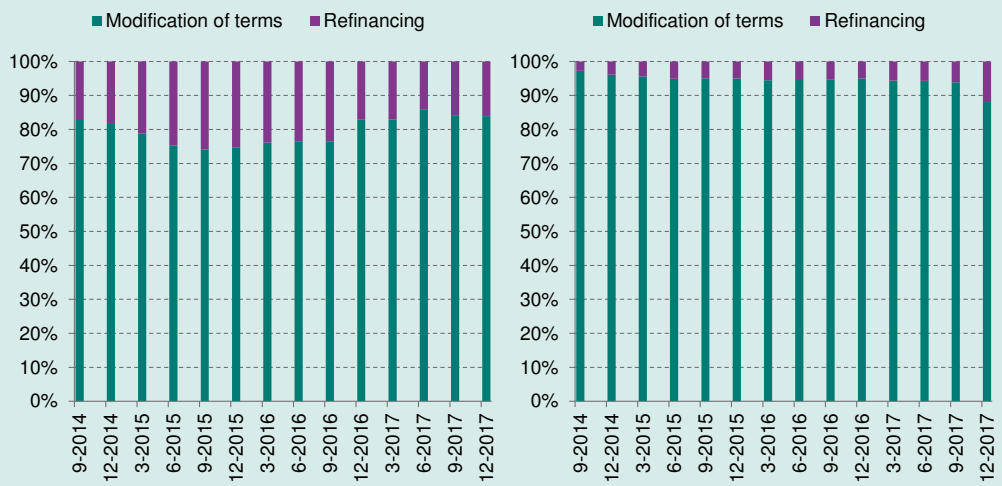
The structure of forborne exposures at banks operating in Poland[7,8] may indicate that the risk described above, associated with granting concessions to entities in financial distress is limited.

Figure 1. Forborne exposures in Poland



Source: NBP.

Figure 2. Forborne exposures towards enterprises (left-hand panel) and households (right-hand panel) according to the type of granted concession

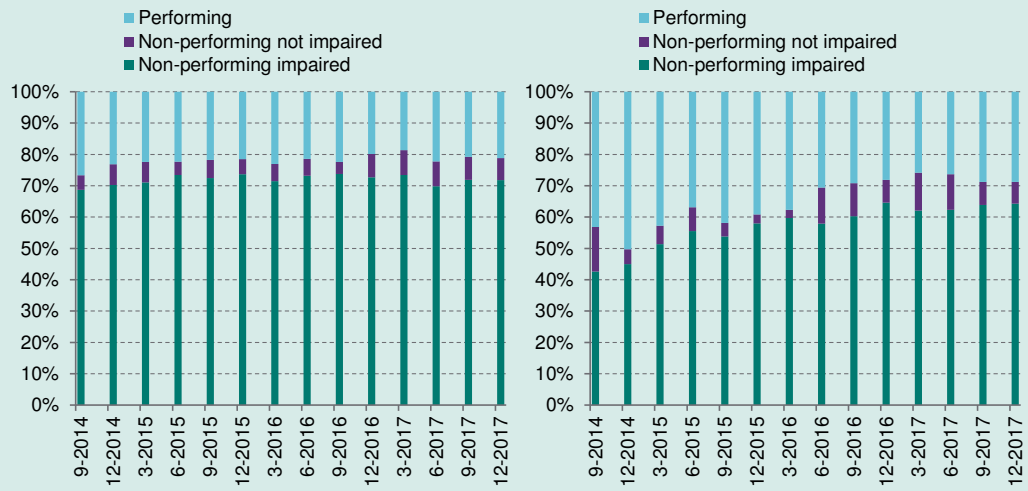


Source: NBP.

- Forborne receivables account for only small part of both the total exposure towards non-financial sector entities as well as the impaired exposures towards those entities (see Figure 1). In forborne household loans, facilities secured by residential real estate prevail.
- Forbearance of receivables from non-financial sector entities has usually a form of modification of the terms and conditions of the agreement rather than of refinancing (see Figure 2). Refinancing seems to contribute to a greater extent to the development of *zombie lending*.
- The vast majority of forborne receivables, both from enterprises and from households, comprises impaired exposures, i.e. those due to which the bank should recognise losses (see Figure 3). Banks also use an opportunity to re-classify forborne receivables, with the share of forborne exposures re-classified from the performing group (for which no provisions for impaired loans are created) to the non-performing group being higher than in the opposite case.

  Therefore, it seems that forbearance is usually not used by banks in order to avoid the necessity to create provisions for impaired loans. Thus, the occurrence of *evergreening* is unlikely, even if the fact is taken into account that the coverage of impaired forborne exposures by provisions is lower than the coverage of impaired exposures whose terms and conditions have not been changed (at the end of the fourth quarter of 2017, it amounted to, respectively, 46% against 60% for receivables from households and, respectively, 46% against 53% for receivables from enterprises).

Figure 3. Status of forborne exposures towards enterprises (left-hand panel) and households (right-hand panel)



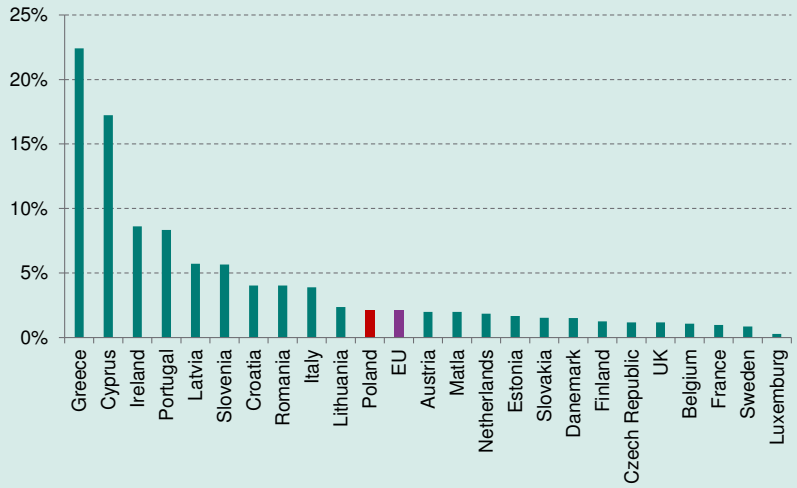
Source: NBP.

International comparisons

The analysis of available international data on forbearance allows for concluding that the associated risk of *evergreening* and *zombie lending* in Poland may be lower than in many European countries. The discrepancies in the scope of forbearance between the countries may stem from various legal conditions, including diverse regulatory requirements for banks, differences in bankruptcy and restructuring law as well as in the efficiency of courts. In Poland, the share of forborne receivables in exposures to all sectors amounts to approx. 2% and it is close to

the EU average (see Figure 4). However, forborne exposures account for a relatively insignificant share of non-performing receivables of banks (see Figure 5, left-hand panel). Moreover, Poland is in a group of countries with a relatively high share of non-performing exposures in forborne receivables[9] (see Figure 5, right-hand panel).

Figure 4. Share of forborne receivables in total exposures[1] in EU countries[2]



Notes: [1]Exposures comprise debt securities and loans to entities from all sectors. Data at the end of the third quarter of 2017 for domestic banking groups and stand alone banks, foreign controlled subsidiaries and foreign controlled branches.
[2]Data needed for calculation of the indicator are available for 24 EU countries.
Source: NBP calculations based on ECB data.

Figure 5. Share of forborne receivables in non-performing exposures (left-hand panel) and share of non-performing receivables in forborne exposures (right-hand panel) in EU countries

Notes: See Note 1 to Figure 4.
Source: NBP calculations based on ECB data.

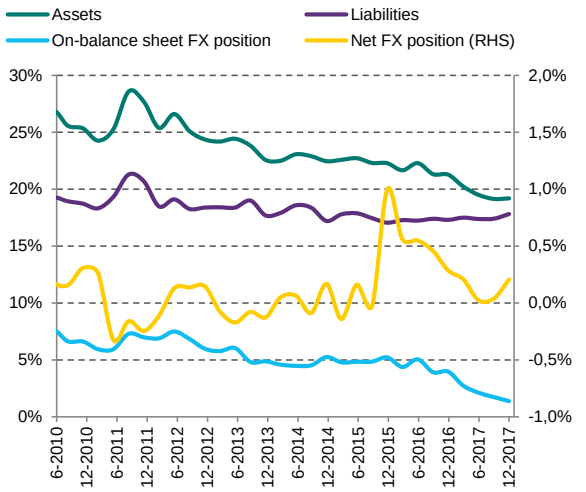
[1] See Commission Implementing Regulation (EU) 2017/1443 of 29 June 2017 amending Implementing Regulation (EU) No 680/2014 laying down implementing technical standards with regards to supervisory reporting of institutions according to Regulation (EU) No 575/2013 of the European Parliament and of the Council

[2] In the box, the terms "exposures" and "receivables" are used interchangeably.
[3] The bank may also cease classifying the specific exposure as forborne if at least two years have lapsed since the moment of its recognition as performed exposure (the so-called trial period), if none of the borrower's exposures is overdue by more than 30 days at the end of the trial period and if regular repayments of significant amounts of interest or the principal amount took place during at least half of the trial period.
[4] See, e.g. R.J. Caballero, T. Hoshi, A.K. Kashyap, "Zombie lending and depressed restructuring in Japan", American Economic Review, 98(5), 2008, pp. 1943-1977.
[5] See e.g. W. Watanabe, "Does a large loss of bank capital cause Evergreening? Evidence from Japan", Journal of the Japanese and International Economies, 24(1), 2010, pp. 116-136.
[6] See e.g. T. Homar, H. Kick, C. Salleo, "What drives forbearance – evidence from the ECB. Comprehensive assessment", Working Paper no. 1860, 2015, ECB.
[7] The analysed exposures consist of debt instruments measured at amortised cost: loans and advances and debt securities.
[8] From March 2014 to the end of 2017, banks reported forborne exposures in the form prepared on the basis of consolidated data. Cooperative banks did not draw up consolidated statements. Assets of banks included in the analysis at the end of 2017 comprised approx. 70% of the assets held by the banking sector in Poland.
[9] There is lack of generally available data concerning the share of impaired receivables in non-performing forborne exposures in EU countries.

2.3. Market risk

The market risk to which domestic banks are exposed stems from the mismatch of the currency structure and repricing dates of the interest rate on assets and liabilities as well as the valuation of the debt instruments' portfolio. The scale of trading activity (and, consequently, the risk associated with it) remained negligible and was steadily diminishing.

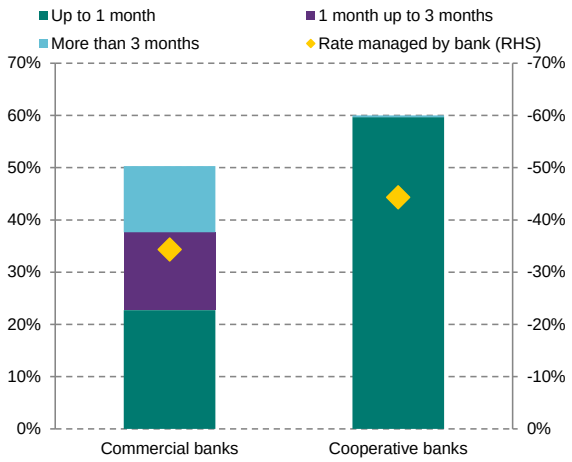
Figure 2.23. FX position in relation to total assets



Notes: Net FX position in relation to own funds. Domestic banks excluding BGK.
Source: NBP.

The risk of losses arising from foreign exchange rate fluctuations was limited, as banks maintained a practically closed FX position. The decrease of an open on-balance position, observed since mid-2016, resulted from the gradual repayment of FX housing loans and a simultaneous insignificant increase in the issue of own debt instruments denominated in foreign currency at certain banks (see Figure 2.23). The open long on-balance FX position was offset by derivatives (*fx swap* and CIRS), which, however, was associated with the risk of their rollover and a rise in the banks' funding cost in the event of financial market turmoil.

Figure 2.24. Interest rate gap



Notes: Interest rate gap in reference to interest-bearing assets. For definition of interest rate gap, see *Glossary*.
Domestic commercial banks excluding BGK.
Source: NBP's own calculations.

Banks' net interest income is sensitive to interest rate falls due to the mismatch of the repricing dates

Table 2.1. Balance-sheet value of debt securities by issuer and accounting classification (PLN billion)

	Held for trading	Fair value through P&L	Available for sale	Held to maturity	Loans and receivables	Total
Central banks	0.3	5.8	73.0	12.1	0.0	91.2
Central government	10.4	2.1	224.7	31.8	3.6	272.1
Municipalities	0.0	0.2	7.5	0.5	10.8	19.0
Financial sector	1.0	0.0	9.9	4.5	3.4	15.5
Non-financial sector	0.3	0.0	7.5	0.2	17.8	25.8
Total	11.6	8.2	322.6	49.1	35.5	427.0

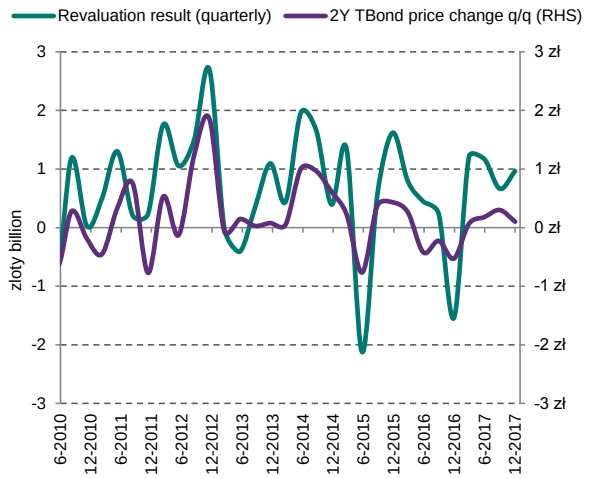
Notes: Balance as at the end of 2017.
Source: NBP.

of the interest rate on assets and liabilities (a positive interest rate gap). However, as there are no market expectations for an interest rate decrease in the coming quarters (see Chapter 1.2.), it can be said that the risk will remain limited. The high share of bank-managed interest rate liabilities [61] (see Figure 2.24), allows banks to set the interest margin partially independently of market interest rate changes. However, the fact that interest rates are staying low might limit the space for further rate decreases due to competition for deposits.

Cooperative banks are more sensitive to interest rate changes because the share of short-term deposits in the associating banks is high and the share of their net interest income from banking activity is bigger. The positive interest rate gap of cooperative banks is higher than for commercial banks, and it is additionally concentrated in the shorter repricing dates. This causes the transmission of an interest rate change into the interest margin of cooperative banks to be faster.

Treasury securities are a significant part of banks' assets exposed to the risk of market price changes. Since the majority of government bonds is classified as available for sale (see Table 2.1), the changes in market valuation of the bonds are reflected directly through capital from revaluation and not through profit and loss account. In the period under analysis, the structure of the debt instruments' portfolio did not change and the average duration of government bonds remained relatively short (around 2 years), owing to which net income from valuation of the debt instruments' portfolio[62] was strongly correlated with changes in 2-year government bond prices (see Figure 2.25).

Figure 2.25. Net profits/losses on valuation of debt instruments



Notes: Changes in 2-benchmark bond prices based on Thomson Reuters data.
Source: NBP.

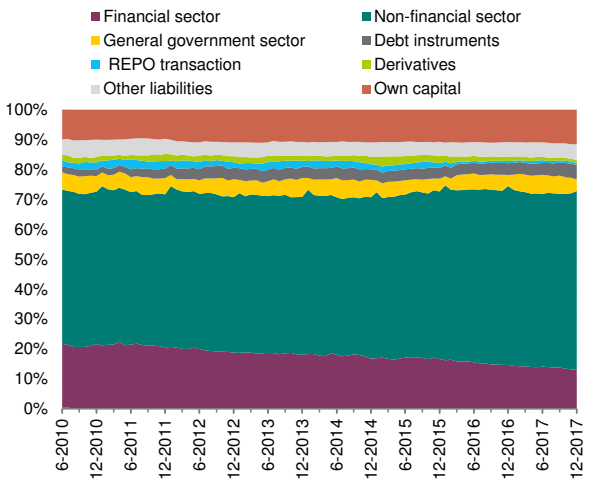
[61] Bank-managed rate refers to those categories of assets and liabilities whose interest rate is variable, dependent on the bank's decision (there is no direct contractual relationship to the level of market interest rates) and no nearest repricing date has been set.

[62] Gains/losses on debt instruments valuation, apart from the quarterly change in capital from revaluation of financial assets available for sale, also includes realised gains/losses on the portfolio of debt instruments available for sale and gains/losses on the portfolio designated at fair value through the profit and loss account, as well as realised gains/losses on the portfolio held for trading.

2.4. Funding structure and liquidity risk

The risk of banking sector funding was primarily associated with the stability of deposits of the non-financial sector. Deposits of the non-financial sector (approx. 60% of the balance-sheet total) and – to a lesser extent – liabilities towards entities from the financial sector (approx. 13% of the balance sheet total) remained the dominant sources of funding of banks in Poland (see Figure 2.26). At cooperative banks, the share of funding by the non-financial sector deposits was higher than at commercial banks (approx. 80%). The role of other funding sources was still limited, although a rise in the share of own debt instruments has been observed (approx. 5%).

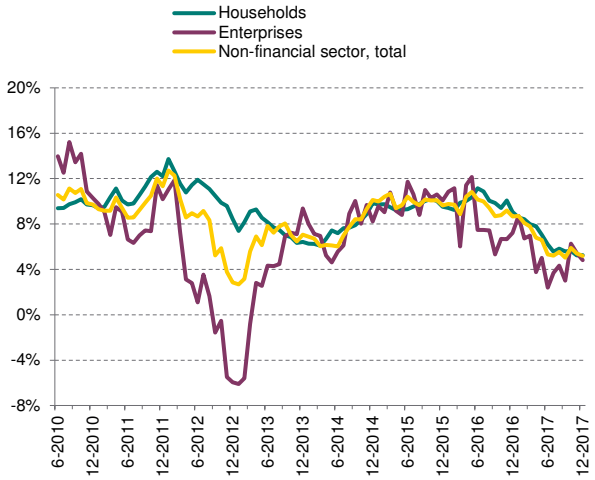
Figure 2.26. The structure of the banking sector liabilities



Source: NBP.

Since mid-2016, the growth rate of deposits from the non-financial sector, including retail deposits, has decreased gradually (see Figure 2.27). The low interest rate on the deposits made households seek alternative forms of savings and investments (among others, on the real estate market and capital market[63]) However, the funding gap of the entire banking sector at the end of 2017 was closed. Cooperative banks were characterised by a traditionally big negative funding gap (see Figure 2.28).

Figure 2.27. Annual growth rate of deposits of the non-financial sector



Note: Data for residents after excluding the impact of foreign exchange rate changes.
Source: NBP.

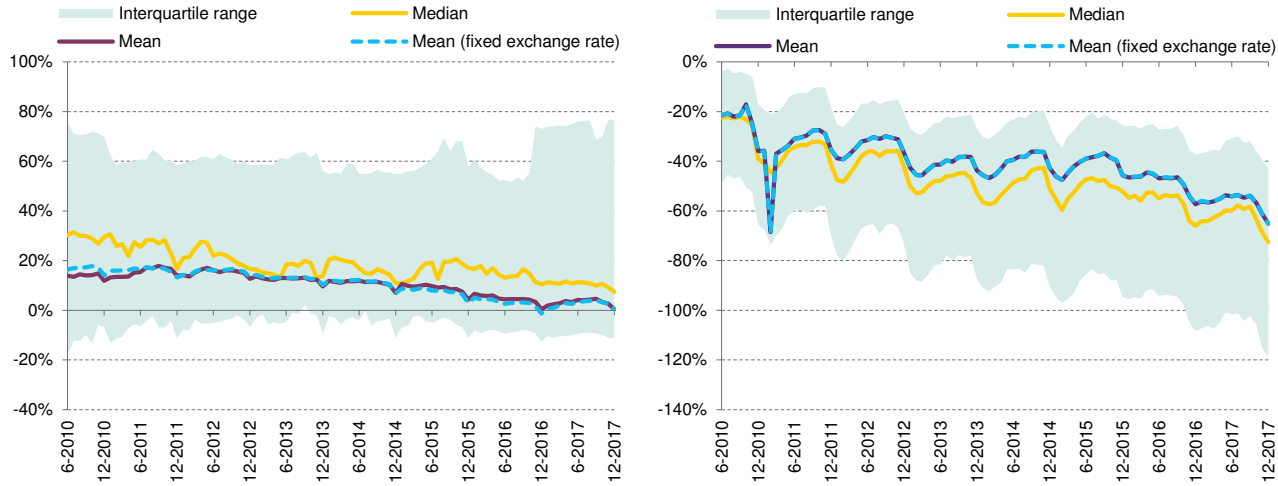
The continuing low interest rates supported the growth in the share of current deposits[64] in liabilities, which contributed to the growth in the maturity mismatch of assets and liabilities. It seems that part of the shift of funds to current deposits may have resulted from replacing short-term deposits with higher liquidity saving accounts bearing a similar interest rate, while at the same time giving the possibility to withdraw funds without losing interest.

The increasing share of current deposits in the funding structure did not have a significant impact

[63] Demand on the residential real estate market remained high in 2017 (with a high share of own funds, see the NBP publication "Information on home prices and the situation in the residential and commercial real estate market in Poland" of 2017) and on the capital market, among others, on saving bonds (the value of bonds sold amounted to approx. 6.9 billion zlotys – the highest level since 2007) and investment funds' shares (net inflows to investment funds from households amounted to over 13 billion zlotys – the highest level for over 9 years).

[64] The category of "current deposits" includes all funds payable on demand, accumulated both on saving and settlement accounts, and saving accounts.

Figure 2.28. Funding gap at commercial banks (left-hand panel) and cooperative banks (right-hand panel)



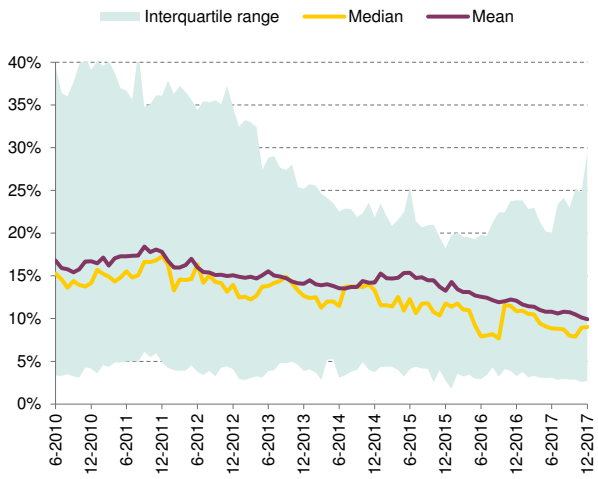
Note: In order to eliminate the impact of foreign exchange rate differences on the value of the funding gap, for the variable "mean (fixed rate) the values of foreign currency claims and liabilities were translated into the zloty according to a fixed exchange rate as at the end of March 2010.
Source: NBP.

on risk liquidity in the sector. The risk of term deposits outflow is similar to that of current deposits. The majority of term deposits can be withdrawn on demand, and the only cost is a loss of interest, which is currently low. At the same time, the risk of withdrawing funds is limited by the deposit guarantee mechanism (see Box 6). Due to these factors and their high fragmented nature, the so-called core deposits (the stable part of the deposit base) continues at a high level.

The share of liabilities from financial institutions, including in particular from foreign institutions, in liabilities of commercial banks has continued to fall (see Figure 2.29). The fall was caused mainly by lower financing needs in foreign currency following the gradual reduction of the portfolio of FX housing loans together with closing funding gap.

At the same time, the share of funds raised from foreign related financial institutions in liabilities towards foreign financial institutions was falling gradually (see Figure 2.30). On the one hand, such changes can be regarded as unfavourable given the lower rollover risk and costs related with this form of funding. On the other hand, the decline in the share of intra-group funding was partially due to ownership changes.[65] Liabilities with maturity over 1 year prevailed in its maturity structure.

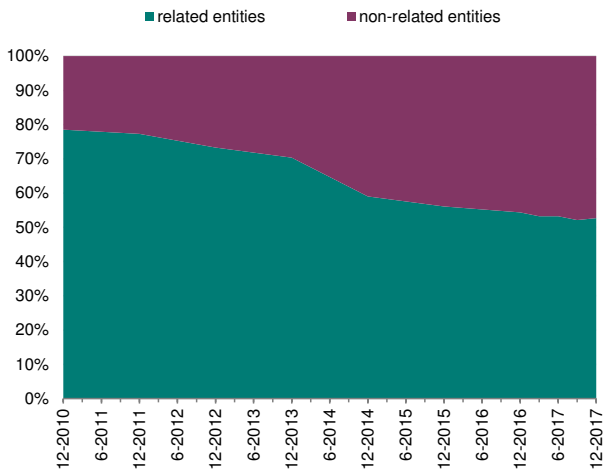
Figure 2.29. The ratio of liabilities towards foreign financial institutions to the balance-sheet total at domestic commercial banks



Source: NBP.

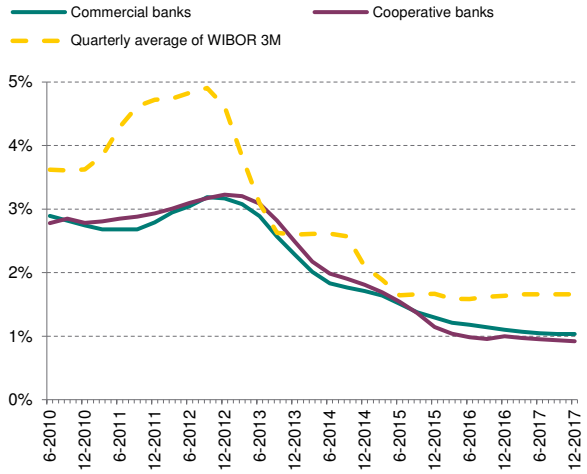
[65] After the sale of a bank, funding from a former owner is no longer shown as intra-group funding.

Figure 2.30. The structure of banks' liabilities towards foreign financial institutions



Source: NBP calculation based on data collected for the purposes of balance of payments.

Figure 2.31. Effective interest on liabilities



Notes: Effective interest – the ratio of annualised interest expenses to the annual average balance-sheet value of liabilities. Calculations include zloty and foreign currency liabilities.
Source: NBP.

The still available deposit funding and stabilisation of market interest rates at a low level allowed banks to continue to reduce the cost of financing (see Figure 2.31). The interest on new term deposits of households and enterprises was below interbank market rates. The resulting gap was widening for over 2 years, albeit at a lower pace than in the years 2015 – 2016, which had a positive impact on the level of net interest margin.

The sound liquidity position of the banking sector was confirmed by regulatory liquidity ratio levels:

- The M2 and M4 liquidity ratios[66] markedly exceeded the regulatory minimum of 1.0, both at commercial and cooperative banks. The level of the supervisory liquidity measurement was positively influenced by the rising share of liquid assets in banks' balance-sheet totals. The rise in liquid assets, especially at the turn of 2015 and 2016, applied mainly to the portfolio of government bonds, excluded from the tax base of the tax on certain financial institutions. Liquid assets remained highly concentrated and banks differed in this respect (see Figure 2.32).

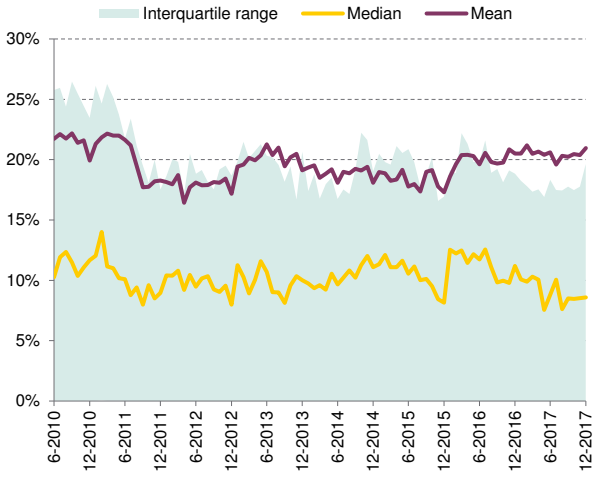
- At the end of December 2017, all commercial banks complied with the LCR minimum level of 80% binding in 2017 (see Figure 2.33). The aggregated ratio of LCR for commercial banks amounted to 221% in the period. Banks with an LCR above the required minimum accounted for approx. 99% of the banking sector's assets. For cooperative banks, some of them did not comply with the standard on an individual basis. However, the majority of these banks were exempted from applying the LCR.[67]

[66] Resolution No. 386/2008 of KNF on defining liquidity standards binding for banks. Although in connection with the entry into force of the CRR regulation national liquidity standards will be ultimately replaced by the LCR, Member States may maintain them on the basis of transitional provisions (Article 412(5)) until the standard of 100% is fully introduced (1 January 2018). Also, in the case of stable funding requirements, national provisions may be maintained in the transition period until the binding minimum standard for NFSR (Article 413(3) of CRR) is fully introduced.

[67] Cooperative banks participating in the Institutional Protection Scheme may, upon KNF's consent, be exempted from the obligation to comply with the standard on an individual basis. Then, they apply the consolidated ratio for the whole group.

- Despite the maturity mismatch of assets and liabilities, the average NSFR for commercial banks at the end of December 2017 amounted to approx. 120%. This is because Polish banks finance their operations with retail deposits, to which the regulations assign – irrespective of their maturity – high (so-called) stable funding weights. Certain specialist banks exhibited the lowest NSFR levels.[68]

Figure 2.32. Share of domestic Treasury securities and NBP bills in commercial banks' assets

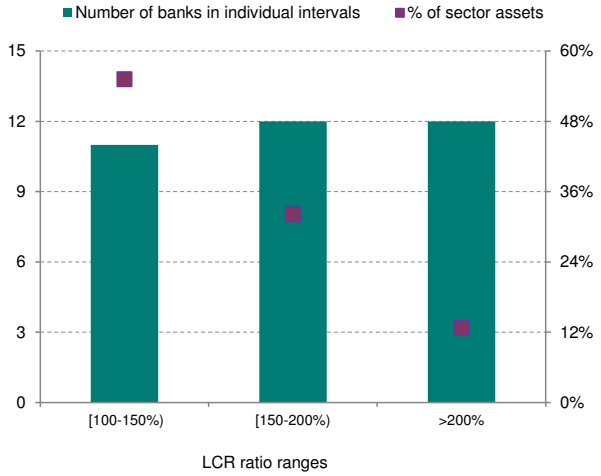


Source: NBP.

Outlook

Deposits of the non-financial sector remain the main source of funding for the banking sector. If the slowing pace of growth of deposits in the environment of low interest rates continues, competition for client funds may involve a higher cost of obtaining them.

Figure 2.33. Distribution of commercial banks in particular LCR ranges – as of 31 December 2017



Source: NBP.

The coming years should bring an increase in the role of issues of covered bonds, which may contribute to a reduction in the maturity mismatch of assets and liabilities at mortgage banks and their parent banks. The amendment to the Act on Covered Bonds and Mortgage Banks from early 2016 removed some barriers to the development of the market. There are currently three active mortgage banks; however, it can be expected that there will be more (in January 2018, consent to set up a mortgage banks was given to ING Bank Śląski, and several other banks announced they would establish a mortgage bank in the near future). At the same time, universal banks with a mortgage bank in their structure are gradually transferring own housing loan portfolios to their subordinate entities, thus reducing the maturity mismatch on their own balance sheets.[69]

Implementation of the MREL requirements will be an essential factor influencing the structure of funding of the banking sector. The introduction

[68] This was related to the specific operating activity of the banks targeting mainly homogenous segments of products (mortgage credit, car loans) characterized by higher weights for items requiring stable funding. At these banks, the value of lowest weight assets for items requiring stable funding is low. At the same time, the banks practically do not used retail funding, characterised by high stable funding weights, which makes that the NSFR standard is not fully adequate to the assessment of liquidity risk in these banks.

[69] More information on the development of the covered bonds market can be found in the report "Financial System in Poland in 2016", November 2017, NBP.

of the MREL requirements for the banks whose resolution strategies provide for recapitalisation after a possible application of the bail-in tool will imply the necessity to raise regulatory capital or issue debt instruments that meet conditions for classifying them as eligible liabilities. In the fourth quarter of 2017, BFG, which is the competent authority for resolution, set the level of MREL individually for each bank. Banks have until 2023 to comply. It can be expected that the MREL will be partially met by the issue of long-term securities, especially given the high estimated cost of raising capital (see Chapter 2.6.).

The fact that banks will meet the requirements arising from MREL will mitigate risk in the financial system and ensure better performance of resolution plans. At the same time, meeting MREL will pose a big challenge given the scale of capital or eligible liabilities needs. Banks in Poland have so far financed their operations with debt securities issued to a small extent. In contrast to Western European institutions, which will convert existing debt using the new tools that comply with the BRR directive to a considerable extent, the Polish banks will have to find buyers for the new financial instrument. This may translate into higher funding costs compared with the current model based on deposits of the non-financial sector. The insufficiently developed domestic market for debt securities and limited demand for long-term non-treasury debt instruments from domestic investors will also be a challenge. In the context of costs associated with meeting the MREL requirements by issuing debt instrument, it will be essential to introduce into the legal system a new class of debt, the so-called *senior non-preferred debt*, that is bonds classified in the hierarchy of claims in the bankruptcy proceedings between ordinary senior debt and subordinated bonds. Work is underway on amending the Act – Bankruptcy Law whose aim is to introduce a new category in the creditor hierarchy.[70]

Box 6. Concentration of financed entities

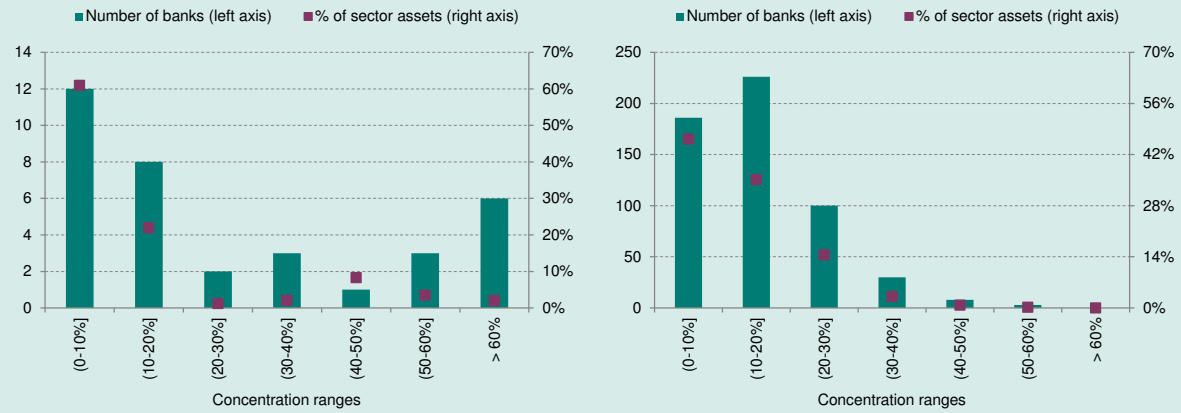
The concentration of financed entities is a key element affecting the profile of banks' liquidity risk. Withdrawing, or even a significant limiting of resources even by few, albeit largest counterparties, may result in banks' liquidity problems. Excessive funding concentration may generate risk even in the case of banks with a high portfolio of liquid assets.

New liquidity reporting, which entered into force in March 2016[1], allows to obtain a more complete picture of individual financial institutions' standing in terms of funding and liquidity risk. It offers, among others, a possibility to identify banks which demonstrate a high concentration of funding. The reporting data refer to 10 largest counterparties or a group of related clients in the case of which funding acquired from each of them exceeds the threshold of 1% of bank's total liabilities.

Due to detailed data regarding funding broken down by counterparty it is possible to conclude that the majority of banks in Poland demonstrate a moderate funding concentration. Assets of banks which show a relatively high funding concentration according to counterparty (i.e. for which funds deposited by 10 largest counterparties exceeded half of the bank's liabilities) at the end of December 2017 accounted for approx. 5% of assets of the entire banking sector. At the same time, commercial banks have a relatively higher concentration compared to cooperative banks (see Figure 1).

[70] See projekt z dnia 12 lutego 2018 roku o zmianie ustawy o Bankowym Funduszu Gwarancyjnym, systemie gwarantowania depozytów oraz przymusowej restrukturyzacji oraz niektórych innych ustaw (the bill *on amending the Act on the Bank Guarantee Fund, the Deposit Guarantee Scheme and Resolution and Certain Other Acts*, https://legislacja.rcl.gov.pl/projekt/12308153

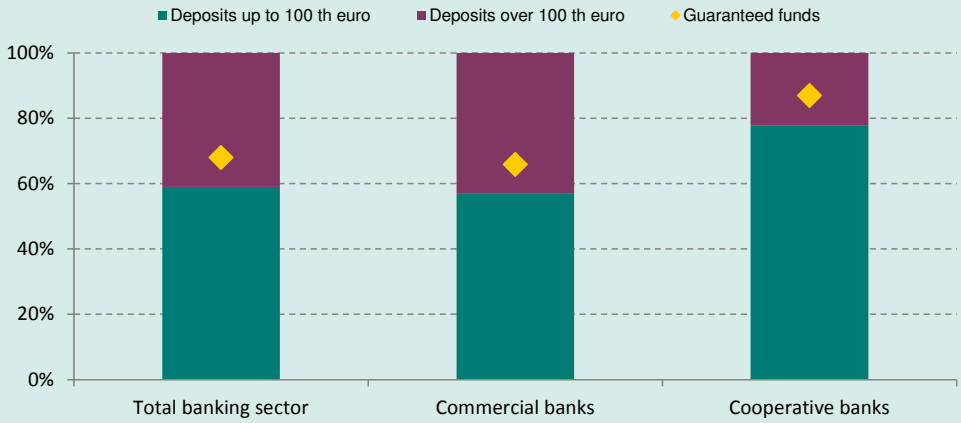
Figure 1. Number and assets of banks in individual ranges of funding concentration by counterparty – commercial banks (left-hand panel) and cooperative banks (right-hand panel)



Notes: Concentration ranges relate to the share of funds from 10 largest counterparties (i.e. those whose funds exceed the threshold of 1% of the bank's liabilities) in the total bank's liabilities. Data at the end of December 2017
Source: NBP.

- For commercial banks, high concentration relates to several smaller specialised institutions (mainly car banks, mortgage banks and some small banks providing corporate services). The largest counterparties comprise mainly wholesale customers (including enterprises classified into this category). At the same time, affiliated entities constitute their significant part, which limits the risk of their withdrawal of funds but increases a domestic bank's sensitivity to the financial standing of the foreign parent entity.
- In the case of cooperative banks, concentration relates predominantly to counterparties from the sector of local government units and – to a lower extent – local entrepreneurs and households. Deposits of local government units show a relatively high volatility, which indicates that the liquidity risk in the cooperative banks with high funding concentration is significant. Nevertheless, due to a low significance of such banks in the sector (approx. 0.2% of cooperative banks' assets) this issue is not systemically important.

Figure 2. Structure of the non-financial sector deposits subject to the guarantee cover



Note: Data at the end of December 2017.
Source: NBP estimates based on BFG and ITS AMM data.

In the context of the concentration risk of deposits from the non-financial sector, a high share of guaranteed funds is a significant factor affecting positively their stability. In cooperative banks, guarantees cover approx. 87% of deposits submitted (i.e. 78% of liabilities), whereas in domestic commercial banks – about 66% (i.e. approx. 46% of liabilities). In cooperative banks, low value deposits and accounts clearly dominate, which do not exceed the equivalent of 100 thousand euros, i.e. the value to which the deposits are fully guaranteed (see Figure 2). In commercial banks, there are more deposits and accounts exceeding this amount, nevertheless, also there deposits and accounts up to 100 thousand euros prevail.

[1] See Rozporządzenie wykonawcze Komisji (UE) 2016/313 z dnia 1 marca 2016 r. określające wymogi sprawozdawcze dotyczące dodatkowych wskaźników monitorowania płynności (Commission Implementing Regulation (EU) 2016/313 of 1 March 2016 defining reporting requirements concerning additional monitoring metrics for liquidity reporting (hereinafter referred to as: ITS AMM). Banks have submitted the data since June 2016.

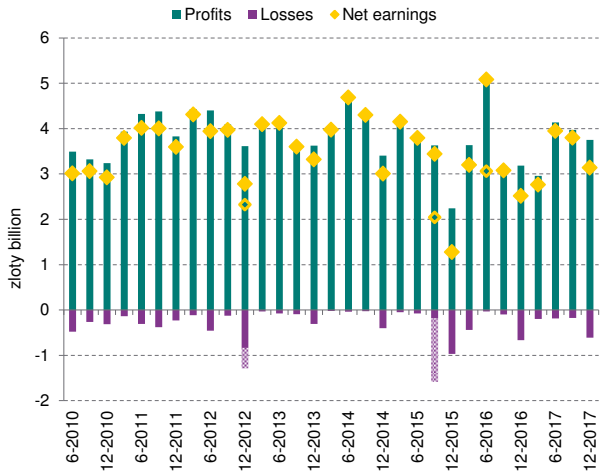
2.5. Earnings

The profit of the banking sector in 2017 was only slightly lower than in 2016 (see Figure 2.34) despite a lack of substantial one-off revenues from asset sales.[71] When compared with the earnings from 2011-2014, the profit of the banking sector in the subsequent years was considerably lower, primarily due to the additional burden arising from the tax on certain financial institutions. The situation of individual banks in terms of reported earnings is discrepant and a substantial part of the sector's earnings is generated by several largest entities.[72]

Compared to the period encompassed by the previous issue of the *Report*, the profitability of the banking sector (measured by ROA and RORC) improved (see Table 2.2). Profitability grew among both commercial and cooperative banks (see Figure 2.35). Large cooperative banks, after a period of lower ROA (especially in 2016), reported profitability levels close to average values for cooperative banks.

The number of banks with negative profitability and their share in the banking sector's assets decreased substantially compared with June 2017. This group consisted of 18 banks with a combined share in the sector's assets of 4.1% (of which the majority was the assets of one commercial bank), compared with 37 with a combined share of 11.2% at the end of June 2017. For the majority of such lenders (particularly domestic banks with negative profitability), their losses were small in comparison with the scale of business.

Figure 2.34. Quarterly net earnings of the banking sector

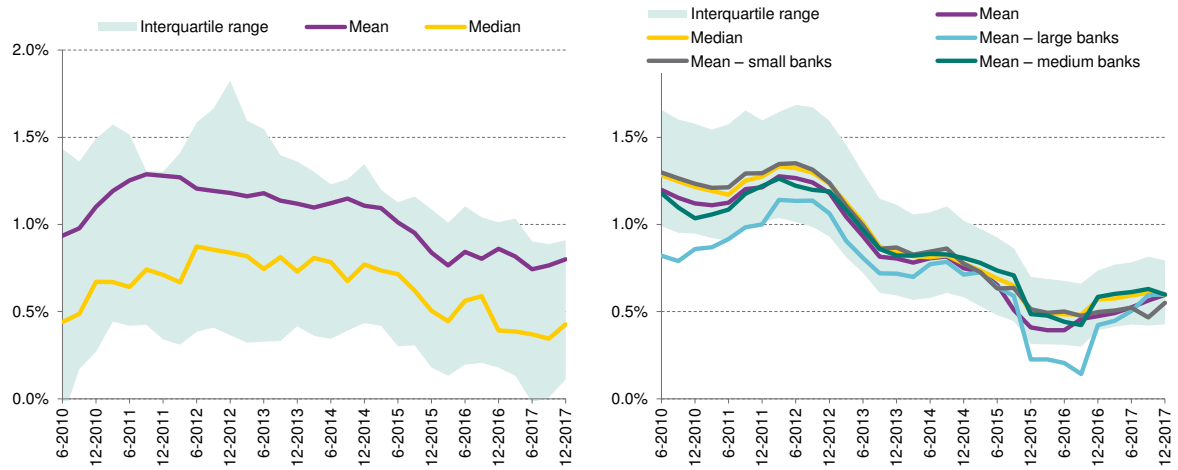


Note: An empty marker is used to mark banks' net earnings adjusted for the impact of one-off large-scale events – in the second quarter of 2016, the banking sector's net earnings excluding the impact of the sale of stakes in VISA Europe Limited.
Source: NBP.

The importance of net interest margin as the main source of net income from banking activity – amid stable non-interest margin – increased (see Figure

[71] In June 2016, banks booked around 2.5 billion zlotys in revenue from the sale of stakes in Visa Europe Limited.
[72] In 2017, the six largest banks, controlling 55% of assets of the banking sector, were responsible for 71% of its profits.

Figure 2.35. ROA at domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel)

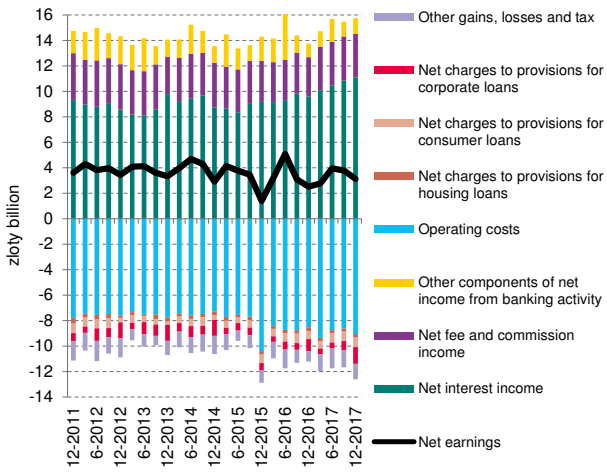


Note: Annualised data.
Source: NBP.

2.36). In contrast to periods analysed in the previous issues of the *Report*, the NIM change was mainly related to a rise in the effective interest rate on loans (see Figures 2.37–2.40). In addition, the share of Swiss franc-denominated housing loans, characterised by low margin (see Figure 2.41), in banks' assets diminished steadily in favour of more profitable products. The effective interest rate on liabilities continued to decrease, albeit at a much slower pace than in previous periods.

The burden of credit risk materialisation costs on earnings grew slightly, and the burden of operating costs – decreased. The increase in charges to impairment provisions mainly concerned corporate loans (see Chapter 2.2.), which was reflected in a fall of their estimated profitability (see Figure 2.39). On the other hand, the improvement in cost efficiency was partially a statistical effect associated with the exaggeration of ratios for June 2017 arising from a cumulation of contribution payments to BFG.[73] The cost efficiency of cooperative banks remained lower that the average for commercial banks, but it improved at a faster pace (mainly in the area of general administrative expense).

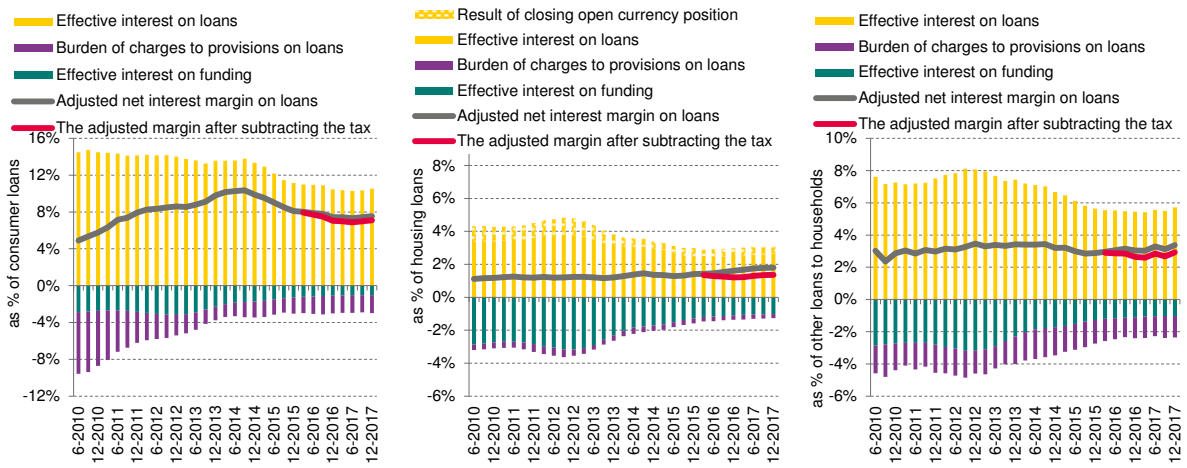
Figure 2.36. Sources and allocation of net income from banking activity



Note: Quarterly data.
Source: NBP.

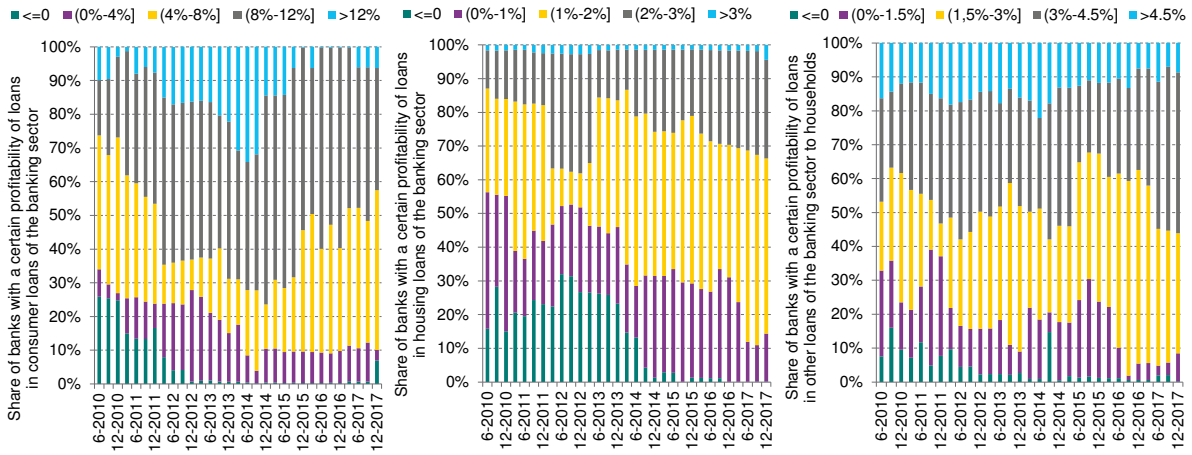
[73] The timetable of contribution payments to BFG for 2017 was modified – a full annual contribution for the restructuring fund had to be paid by 20 July, whereas in the preceeding year contributions to BFG were set quarterly. The majority of large banks recognised contribution costs already in the first quarter of 2017, which resulted in a substantial temporary rise in operating costs.

Figure 2.37. Estimated profitability of consumer loans (left-hand panel), housing loans (middle panel) and other loans to households (right-hand panel)



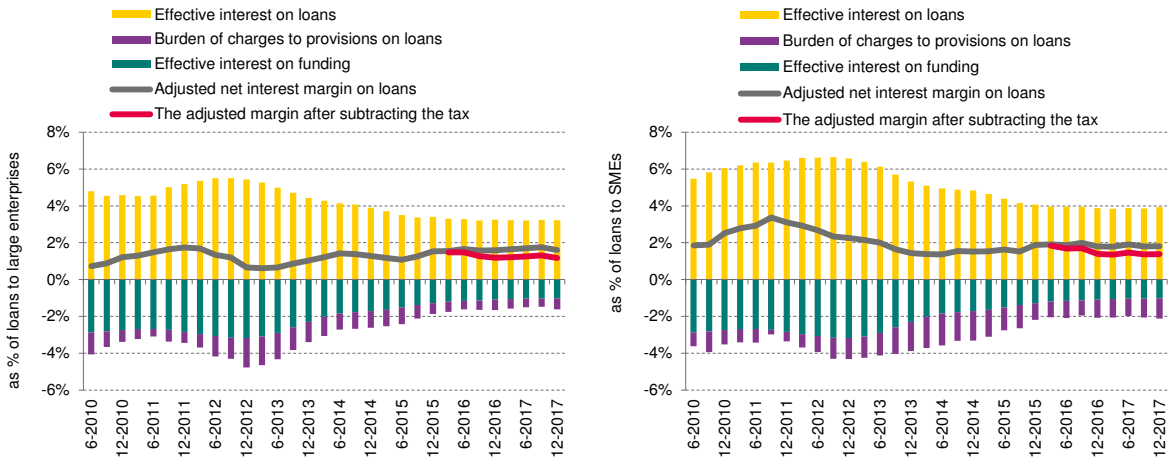
Notes: Annualised data.
The values of the adjusted net interest margin shown in this figure should be regarded only as an approximation of the actual profitability of particular credit products. Identical funding costs (effective interest on funding) were assumed for each credit category. This calculation takes no account of operating costs, the cost of capital to cover the capital requirements, fee and commission income (including income related to cross-selling) and profits earned on foreign currency loans due to the difference between the bid and offer prices of currencies (FX spread).
The " result of closing open currency position" for housing loans is the estimated net gains/losses on closing an open on-balance FX position (related to granting Swiss franc-denominated housing loans), assuming that rolled-over 3-month CHF/USD and USD/PLN swaps are used.
"The adjusted margin after tax" takes into account the effect of the introduction of the tax on certain financial institutions and was calculated by subtracting the nominal rate of 0.44% (re-scaled to factor in the term of the tax) from the adjusted net interest margin.
Source: NBP.

Figure 2.38. The share of banks with a specified estimated profitability of loans in the sum of consumer loans (left-hand panel), housing loans (middle panel) and other loans to households (right-hand panel)



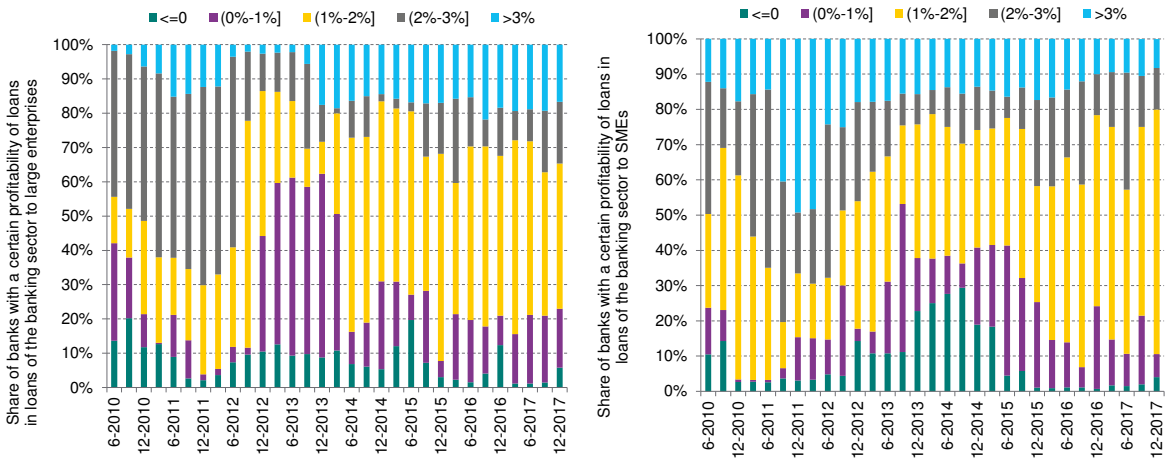
Note: For a description of estimated profitability measurement, see Notes to Figure 2.37.
The share of banks with a specified profitability without subtracting the tax on certain financial institutions.
Source: NBP.

Figure 2.39. Estimated profitability of loans to large enterprises (left-hand panel) and SMEs (right-hand panel)



Notes: For a description of estimated profitability measurement, see Notes to Figure 2.37.
Source: NBP.

Figure 2.40. The share of banks with a specified estimated profitability of loans in the sum of loans to large enterprises (left-hand panel) and SMEs (right-hand panel)



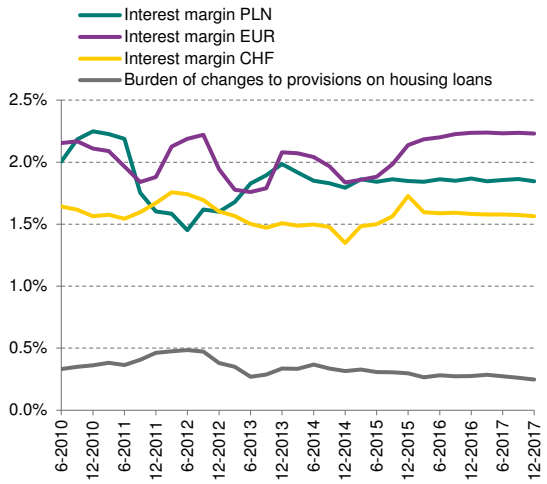
Note: For a description of estimated profitability measurement, see Notes to Figure 2.37.
The share of banks with a specified estimated profitability without subtracting the tax on certain financial institutions.
Source: NBP.

Table 2.2. Selected operating indicators of the banking sector

	2016		2017			
	Q3	Q4	Q1	Q2	Q3	Q4
	As % of average assets[1]					
Net interest income (NIM)	2.30	2.32	2.34	2.38	2.41	2.44
Net non-interest income	1.36	1.30	1.26	1.11	1.10	1.10
Net income from banking activity	3.66	3.62	3.60	3.49	3.51	3.54
Operating costs (CTA)[2]	2.22	2.12	2.15	2.12	2.09	2.06
Net charges to provisions for impaired loans	0.43	0.46	0.46	0.45	0.46	0.47
Pre-tax earnings	1.01	1.10	1.06	0.97	1.01	1.06
Net earnings (ROA)	0.78	0.84	0.80	0.72	0.76	0.78
	As % of net income from banking activity[1]					
Net interest income	62.8	64.0	65.0	68.1	68.6	69.0
Net non-interest income	37.2	36.0	35.0	31.9	31.4	31.0
Net income from banking activity	100.0	100.0	100.0	100.0	100.0	100.0
Operating costs (CTI)[2]	60.8	58.6	59.6	60.8	59.5	58.1
Net charges to provisions for impaired loans	11.7	12.7	12.8	12.8	13.1	13.3
Pre-tax earnings	27.6	30.2	29.4	27.7	28.8	29.9
Net earnings	21.4	23.2	22.2	20.7	21.6	22.1
	As % of Tier 1 capital[1]					
Pre-tax earnings[3]	11.0	12.0	11.6	10.4	10.9	11.2
Net earnings (RORC)[3]	8.5	9.2	8.7	7.8	8.1	8.2

[1] Annualised data.
[2] Operating costs = general expense (including the tax on certain financial institutions) and depreciation.
[3] Excluding branches of credit institutions and BGK.
Note: Data in Chapter 2. apply to active banks (do not include the banks that were declared bankrupt). Additionally, data from the profit and loss account contain estimates of the results of discontinued operation of active banks. This may generate differences when compared with KNF-released data.
Source: NBP.

Figure 2.41. Estimated interest margin on housing loans, by currency



Notes: Annualised data.
Here,"interest margin" means the difference between effective interest on housing loans in a given currency and the average 3-month interest rate in a given currency – WIBOR, EURIBOR or LIBOR, respectively.
Source: NBP.

Outlook

Expected economic developments should boost banks' profitability in the coming quarters. However, the trend in the sector's profitability will be largely dependent on the possible adoption of debated bill proposals. The following can be expected in particular:

- **Stabilisation or a further rise in net interest margin.** Financial market participants expect interest rates to rise slightly only towards the end of 2019 (see Chapter 1.2.). In such circumstances, banks' net interest income may be improved by the further replacement of repaid FX loans (in Swiss franc, in particular) with more profitable products or by a continuation of the trend of transferring funds from term deposits to current accounts by clients. On the other hand, possible mounting competi-

tion for funds of the non-financial sector could make it impossible for banks to continue offering deposits with a negative real rate of return and force raising their interest rates.

- **Improvement of banks' cost efficiency**, which will be driven by, among others, a lower burden of BFG contribution on banks' earnings.[74]
- **Stabilisation or a small decline of the burden of charges to loan impairment provisions on earnings**, which should be supported by the favourable economic situation of real sector entities.
- **Creation, under the IFRS 9, provisions for expected losses on non-impaired loans** (so-called stage 1 and stage 2), which may push up banks' costs compared with the hitherto rules of creating provision under the IAS 39 (more on the subject in Box 4). Additionally, provisions for expected loan losses will not be recognised as tax deductible expenses for income tax purposes, unlike IBNR provisions created under the IAS 39, which were recognized tax deductible expenses to a limited extent.

Banks' profitability may be also influenced by other future events, whose probability of materialisation and/or extent of potential impact cannot be yet accurately estimated:

- The effects of a possible adoption by Parliament of the act that modifies the operating rules of the Borrower Support Fund may pose a big financial challenge for banks with large portfolios of FX housing loans. Under a bill submitted to the Sejm in August 2017[75], a rise in the burden of operating costs on earnings can be expected, especially due to contributions to the newly created Restructuring Fund. According to the bill, the amounts of contributions to both funds are to be set quarterly by the Fund Board (within the limits determined in the bill).
- The need may arise to create additional provisions for disputes relating to litigations on FX housing loans and as a result of a substantial rise in the number of such litigations. It has to be noted, however, that the rulings of common courts and the Supreme Court in matters related to such loans do not indicate that there is uniform jurisprudence on the assessment of abusive practices of contractual clauses and the effects of the rulings on abusive clauses for the duration of the credit agreement in the future.
- In case the bills on foreign currency housing loans, including a bill *on the rules for the refund of amounts due resulting from credit and loan agreements*[76] were to enter into force, it would be necessary to reduce the value of loans by the so-called refund of FX spreads or by other write-downs, and consequently earnings would decrease.

Over the approx. 5-year horizon, the funding costs of banks may grow, if it is necessary to issue finan-

[74] In accordance with the resolutions 8/2018 and 10/2018 of the BFG Council, the total amount of banks' contributions in 2018 is to be higher by less than 5% than a year earlier – assets and net income from banking activity of the sector can be expected to grow at a faster pace.

[75] Przedstawiony przez Prezydenta Rzeczypospolitej Polskiej projekt ustawy o zmianie ustawy o wsparciu kredytobiorców znajdujących się w trudnej sytuacji finansowej, którzy zaciągnęli kredyt mieszkaniowy oraz ustawy o podatku dochodowym od osób prawnych (the bill of 1 August 2017 of the Act *on Amending the Act on Supporting Borrowers in Financial Distress Who Have Taken out Housing Loans and the Act on Corporate Income Tax*), Sejm paper No. 1863.

[76] Przedstawiony przez Prezydenta Rzeczypospolitej Polskiej projekt ustawy o zasadach zwrotu niektórych należności wynikających z umów kredytu i pożyczki (the bill *on the rules for the refund of amounts due resulting from credit and loan agreements*, Sejm paper No. 811) submitted by the President of the Republic of Poland.

cial instruments to meet the MREL requirement (see Chapter 2.4.).

2.6. Banks' capital position

Banks continued to raise their own funds[77] (see Figure 2.42). The increase in Common Equity Tier 1 capital (by 5.1%) resulted from the retention of profits of the current period and earned in previous years (approx. 3.9 billion zlotys), from an increase in the valuation of financial assets available for sale (approx. 0.95 billion zlotys) and from issues of shares and membership capital (approx. 0.88 billion zlotys).

Membership capital is the specific form of capital at cooperative banks. In the second half of 2017, banks continued to replenish[78] their Common Equity Tier 1 capital with membership capital (an increase of approx. 110 million zlotys), however a large portion of such instruments is still not classified as Common Equity Tier 1 capital (125 million zlotys). Additionally, part of membership capital is classified as regulatory capital only as grandfathered instruments (113 million zlotys). These instruments are subject to gradual amortisation and they will vanish from regulatory capital by 2022, unless banks amended their statutes appropriately.

A relatively big increase in Tier 2 capital at commercial banks was a new development in the second half of 2017 (by 25.4%, i.e. around 3.7 billion zlotys). This development was related to the shift in the funding strategy. Additionally, subordinated liabilities classified as Tier 2 capital were replaced by subordinated liabilities with a longer maturity. Domestic financial institutions, mainly investment funds, prevailed among buyers of new issues of subordinated debt.

The total capital requirement from pillar 1 rose (by around 4.8%, i.e. 3.6 billion zlotys), mainly due to the credit risk requirement (see Figure 2.43), **following the introduction of a higher credit risk weight for credit exposures associated with FX housing loans**[79] (see Figure 2.44 and 2.46). The entry into force of the Regulation of the Minister of Development and Finance *on a higher risk weight for exposures secured by mortgages on immovable property* (hereinafter: regulation on a higher risk weight) led to an increase in the capital requirement at banks using the Standardised Approach for determining capital requirement for FX housing loans portfolio.[80]

The impact of increase of risk weight was partially mitigated by an appreciation of the zloty against the euro and the Swiss franc. On the other hand, the capital requirements were limited by the high use of guarantees as credit protection instruments in the calculation of the capital requirement.

[77] The analysis includes commercial banks with their foreign branches and cooperative banks (assets of foreign branches account for approx. 0.3% of the banking sector's assets and less than 1% of the three banks with foreign branches). The analysis excludes branches of credit institutions (their total share in the sector's assets is below 2.5%) and BGK, as it is not subject to the CRDIV/CRR regulatory package to the same extent as other banks.

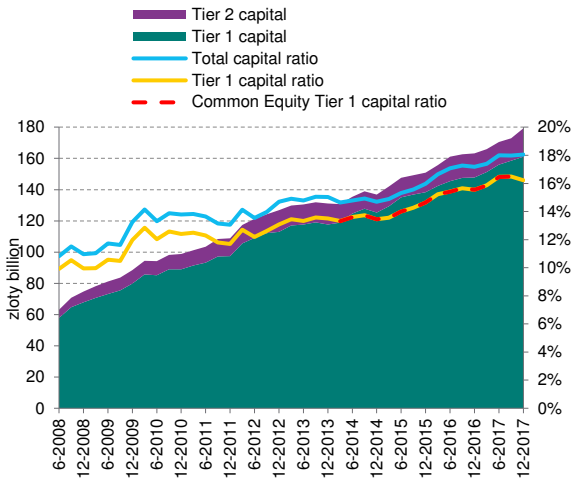
[78] The process of replenishing the Common Equity Tier 1 capital is mainly due to changes in banks' statutes that make membership capital regulatory compliant and hence allow to classify it as regulatory capital.

[79] See Rozporządzenie Ministra Rozwoju i Finansów z dnia 25 maja 2017 r. *w sprawie wyższej wagi ryzyka dla ekspozycji zabezpieczonych hipotekami na nieruchomościach* (The Regulation of the Minister of Development and Finance on 25 May 2017 *on a higher risk weight for exposures secured by mortgages on immovable property*)Journal of Laws 2017, item 1068. The Regulation has been in force since 1 December 2017

[80] This regulation modifies the basic risk weight of 35% for exposures secured on residential property only for credits for whom the value of principal or interest instalments depends on changes in the exchange rates of a currency or currencies other than the currencies of the debtor's income. A similar solution was included in national regulations until the entry into force of the CRR Regulation, where exposures resulting from such credit were given the risk weight of 100% both in the part of exposure included in the class of exposures secured on immovable property as well as in the part classified as retail exposures (see Annex No. 4 to Resolution No. 76/2010 of the Polish Financial Supervision Authority of 10 March 2010 *on the scope and detailed procedures for determining capital requirements for particular risks*). Since the entry into force of the CRR Regulation, banks were encouraged by the Office of the Polish Financial Supervision Authority to keep higher risk weights for such exposures.

De minimis instruments provided by BGK were the dominant guarantees in this respect. Intragroup guarantees also played a role. Additionally, following the entry into force of the regulation on a higher risk weight, some banks assigned the risk weight of 35%[81] to a larger part of exposures secured by mortgages on residential property arising from zloty-denominated credit (see Figure 2.46).

Figure 2.42. Main components of regulatory capital and capital ratios from pillar 1

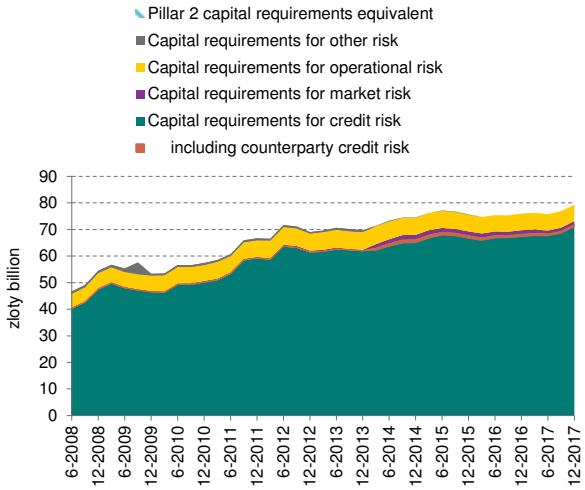


Note: Tier 2 capital by the end of 2013 calculated as the difference between capital for the purpose of the capital adequacy ratio and core capital.
Source: NBP.

Increasing risk weights for FX housing loan exposures led to a marked increase in average risk weights for exposures to the non-financial sector in the group of commercial banks (see Figure 2.44). The ratio of total risk exposure amount to assets in Poland is one of the highest in the EU (see Figure 2.45). Its existing levels did not result from the higher risk of bank assets in Poland, but from the conservative approach to determining capital requirements, including the use of the Standardised Approach to setting the capital requirements for credit risk by most banks.

The improvement in economic situation contributed to a decline in the average risk weight (by 2.7 p.p.) at commercial banks using the IRB approach for determining capital requirements (see Figure 2.44). The financial condition of borrowers, including wage growth and a rise in value of property on which credit is secured, do have influence on the levels of parameters modelled in this approach.

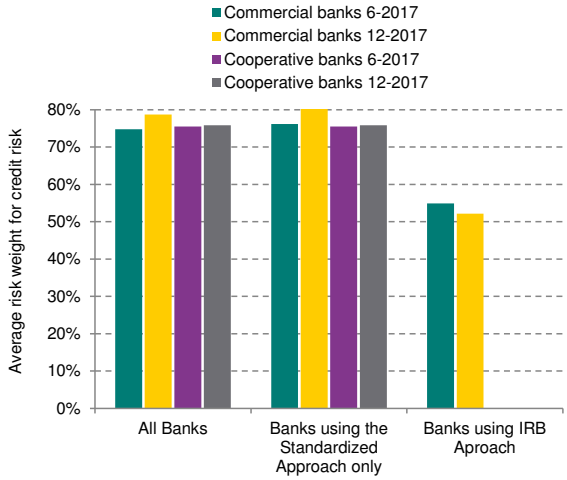
Figure 2.43. Capital requirements



Notes: The value of the capital requirement for counterparty credit risk by the end of 2013 shown jointly with the capital requirement for credit risk.
The decrease in the "capital requirements for other risk" categories since 2014 results from changes in the composition of capital requirements as of entry into force of CRDIV/CRR.
The equivalent of the pillar 2 capital requirement corresponds to the obligation to maintain elevated capital ratios arising from the regulatory decisions of 2015-2016 on banks substantially engaged in foreign currency loans to unhedged households (where there is a mismatch between the currency of the loan and currency of income or assets to be used to repay the loan). This equivalent does not constitute part of the denominator of capital ratios.
Source: NBP.

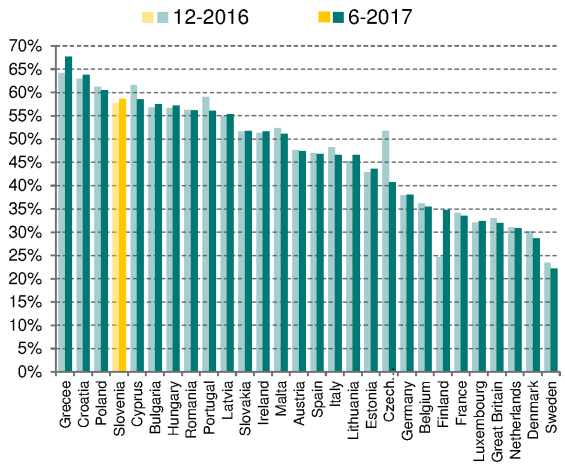
[81] In accordance with Article 125 of the CRR, the risk weight of 35% can be, in principle, assigned to credit exposures or any part of a credit exposure, which is fully and completely secured by mortgages on residential property which is or shall be occupied or let by the owner, or the beneficial owner in the case of personal investment companies. Exposure or any part of an exposure can be considered as fully and completely secured, only if its value does not exceed 80% of the market value of the property or 80% of the mortgage lending value of the property in question. National regulations in force before the entry into force of the CRR set this level at 50% (see Annex No. 4 to Resolution No. 76/2010 of the Polish Financial Supervision Authority of 10 March 2010 *on the scope and detailed procedures for determining capital requirements for particular risks*)

Figure 2.44. Average credit risk weights for exposures to the non-financial sector



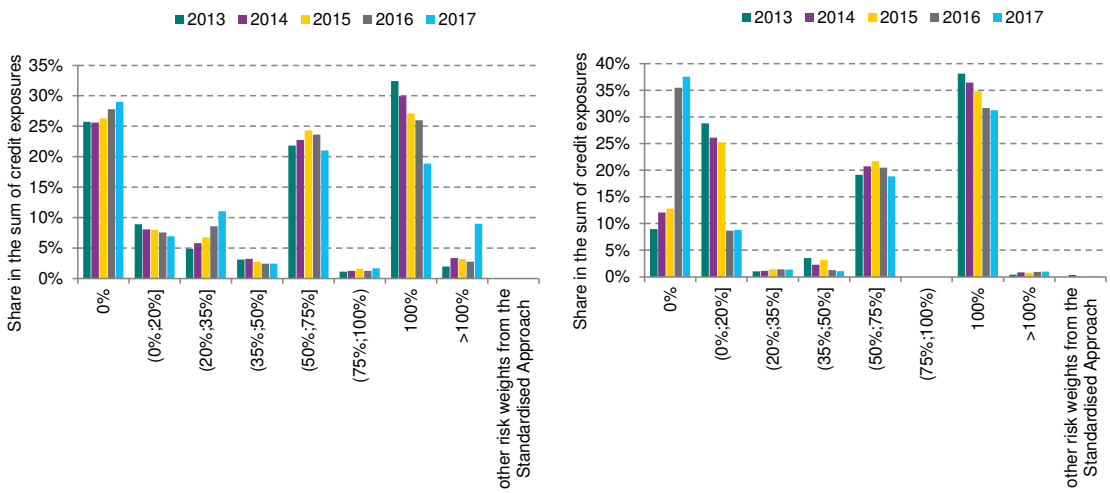
Note: The calculations take into account the impact of the use of the SME supporting factor.
Source: NBP.

Figure 2.45. Ratio of total risk exposure amount to assets (RWA density)



Note: Total risk exposure includes all types of risk referred to in Article 92 of the CRR, not only credit risk on loans to the non-financial sector (as shown in Figure 2.44).
Source: NBP calculations based on ECB data.

Figure 2.46. Distribution of credit exposures by credit risk weight in the group of domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel)

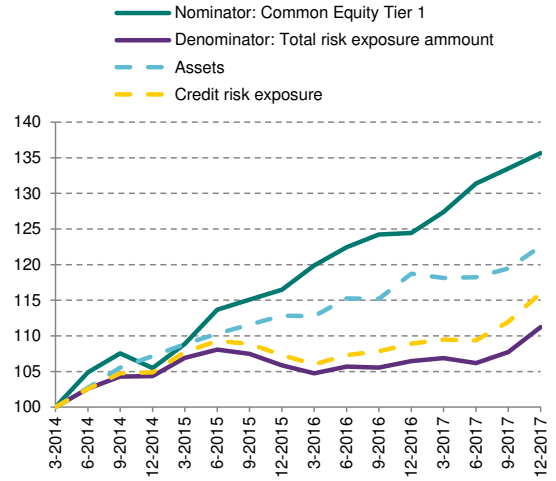


Note: Values of exposures after risk mitigation techniques and credit conversion factors were used, before risk weighting and the use of the SME supporting factor.
Source: NBP.

A substantial increase in total capital requirements and a relatively smaller increase in capital brought the upward trend of capital ratios to a halt (see Figure 2.47). At the end of December 2017, the average total capital ratio (TCR) amounted to 18.1%, and Common Equity Tier 1 and Tier 1 capital ratios – 16.2%. The regulatory pillar 1 capital adequacy standards were more than met by the majority

of banks. Two cooperative banks with a total share in the banking sector's assets of less than 0.05% were an exception.

Figure 2.47. Changes in the components of Common Equity Tier 1 capital ratio (2014 Q1 = 100)

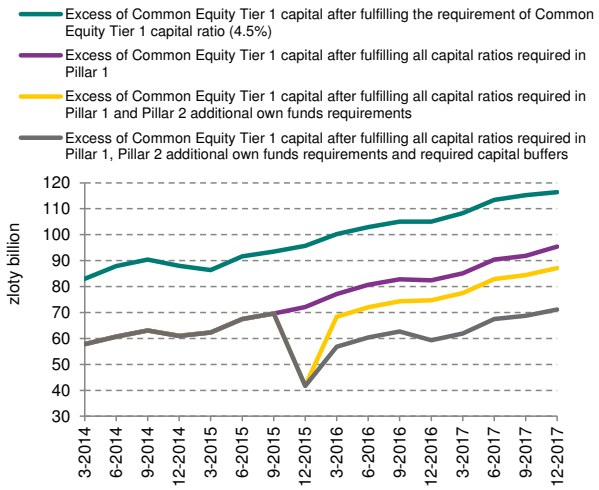


Source: NBP.

All banks with significant portfolios of mortgage loans in foreign currency to households met the additional capital requirement imposed under pillar 2. Surcharges in force at the end of December 2017 were higher than in June 2017, mainly because the KNF had changed the methodology used for determining them to include in more extent operational risk (primarily legal risk). At the end of December 2017 TCR surcharges for particular banks ranged from 0.53 percentage points to 5.81 percentage points, which, taking into account the risk-weighted exposure amount at the end of December, resulted in higher capital needs by approx. 0.7 billion zlotys. Surcharges for Tier 1 capital and Common Equity Tier 1 capital ratios were 75% and 56% of the TCR surcharges, respectively.

The majority of banks complied with the combined buffer requirement binding at the end of December 2017. They applied to three types of capital buffers: the conservation buffer (1.25%), the institution-specific countercyclical capital buffer[82] and the other systemically important institutions buffer.

Figure 2.48. Excess of Common Equity Tier I capital



Notes: The figure takes into account all banks with a surplus of Common Equity Tier 1 capital.
Source: NBP.

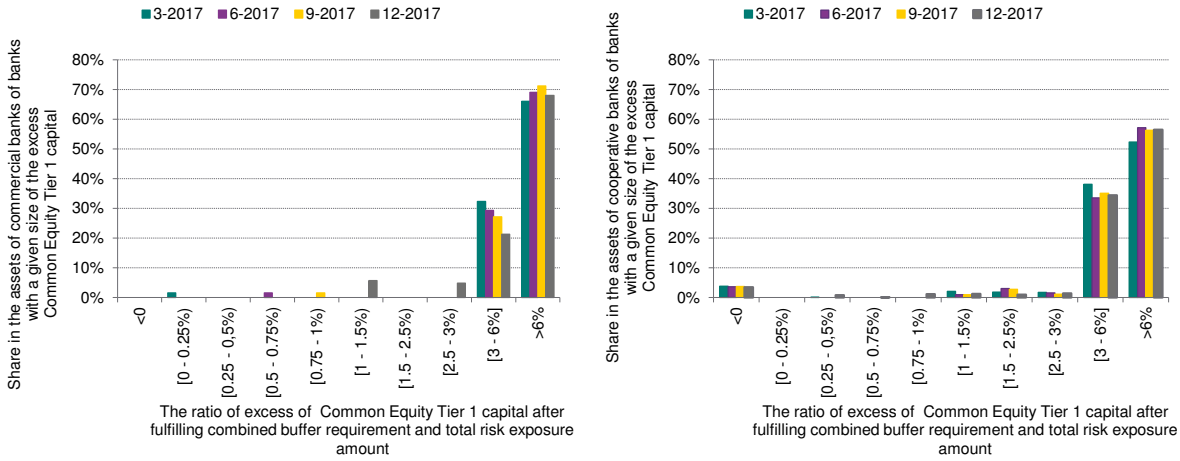
The total excess of Common Equity Tier 1 capital, after taking into account pillar 1 and pillar 2 requirements and the obligation to maintain capital buffers, amounted to 71.1 billion zlotys (see Figure 2.48). A shortfall of Common Equity Tier 1 capital was reported only by the cooperative banking sector. The total shortfall of Common Equity Tier 1 at four banks was relatively small and was below 32.9 million zlotys.

The majority of the banking sector has adequate excess of Common Equity Tier 1 capital for new capital buffers, which have been in force since 2018. (see Figure 2.49), **i.e. the conservation buffer at 1.875%[83] and the systemic risk buffer of 3% of do-**

[82] Some banks have credit exposures in the countries whose national authorities set a countercyclical capital buffer rate above 0% and for such exposures the banks have to maintain the countercyclical buffer on a reciprocal basis. At the end of December 2017, the buffer was slightly more than 20 million zlotys.

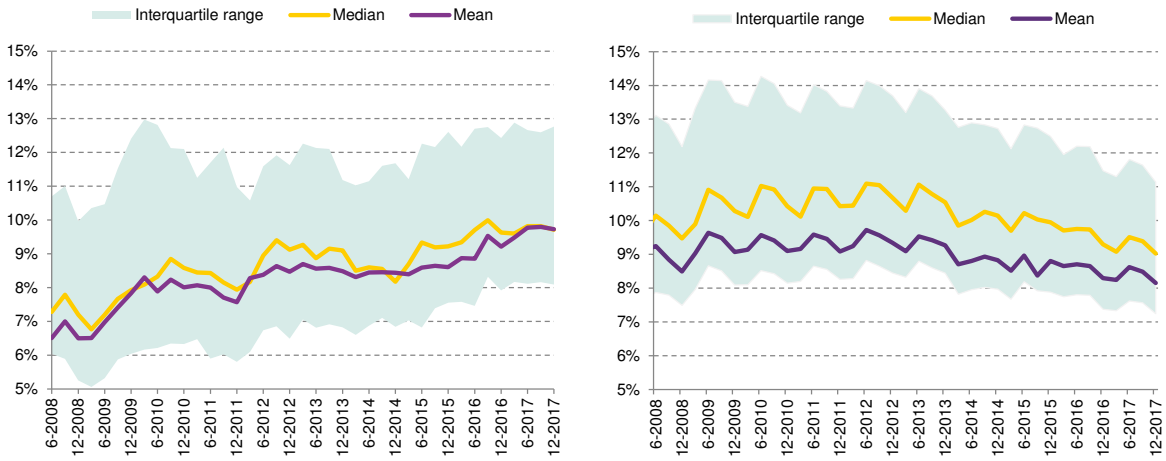
[83] The buffer introduction path is defined in Article 19 and Article 84 of the ustawa z dnia 5 sierpnia 2015 r. *o nadzorze makroostrożnościowym nad systemem finansowym i zarządzaniu kryzysowym w systemie finansowym* (Act of 5 August 2015 *on Macroprudential Supervision of the Financial System and Crisis Management*)Journalof Laws of 2017, item 1934.

Figure 2.49. Distribution of assets of domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel) by the ratio of excess of Common Equity Tier 1 after fulfilling the combined buffer requirement to total risk exposure ammount



Source: NBP.

Figure 2.50. Leverage ratio at commercial banks (left-hand panel) and cooperative banks (right-hand panel)



Notes: The leverage ratio prior to 2014 is based on estimates. The leverage ratio since early 2014 has been calculated in accordance with binding reporting requirements.
The leverage ratio at cooperative banks is characterised by cyclical changes as an effect of one-off retention during the year of all profits earned in the previous financial year.
Source: NBP.

mestic part of total risk exposure ammount[84].

Poland's banking sector was characterised by low leverage. At the end of December 2017, the leverage ratio calculated according to definitions included in the CRDIV/CRR regulatory package[85] amounted to 9.6% and was only slightly lower than in June 2017 (see Figure 2.50). It was substantially higher than the leverage ratio minimum (3%), to be introduced as a capital standard in pillar 1 of capital adequacy in the future.[86] At the end of December, two banks had leverage ratios below that level. The combined share of the banks in the banking sector's assets was not higher than 1.5%.

Outlook

In the medium term, banks will have to raise capital to carry on expansion and in order to meet the regulatory challenges.

The introduction of the systemic risk buffer for all banks in Poland will substantially reduce the excess of Capital Equity Tier 1. The entry into force of the provisions of the regulation introducing the buffer will *ceteris paribus* lower the excess of Common Equity Tier 1 by almost 60%. A deficit of Common Equity Tier 1 totalling 1.9 billion zlotys may occur in 26 banks, including 4 commercial ones.[87] Their share in the sector's assets total approx. 10%.

Banks' capital position may be affected by the MREL requirements (see Chapter 2.4.). Banks can satisfy the requirement by regulatory capital or debt instruments that meet conditions for classifying them as eligible liabilities[88] as BFG – which is the competent authority for resolution for the majority of banks in Poland – and domestic regulations, do not impose specific proportions.

The entry into force of the IFRS 9 in early 2018 may also have a negative, albeit relatively insignificant, impact on the level of regulatory capital of banks using the IAS. The new standard will initially increase the amounts of expected credit losses and, in the case of most banks, it will translate into a decrease in regulatory capital. An abrupt change in the capital ratios upon the entry into force of the standard is to be averted by the recent amendment to the CRDIV/CRR regulatory package[89] which will introduce a gradual recognition in regulatory capital of the cost of creating new provisions (see Box 4).

It can be expected that advanced approaches will be used to a larger extent for calculating capital requirements. In the case of credit risk, it is also

[84] See the Rozporządzenie Ministra Rozwoju i Finansów z dnia 1 września 2017 r. *w sprawie bufora ryzyka systemowego* (The Regulation of the Minister of Development and Finance of 1 September 2017 *on the systemic risk buffer.*)

[85] The leverage ratio according to CRDIV/CRR is calculated as the quotient (expressed in percentage) of Tier 1 capital to the exposure measure that includes both on-balance and off-balance sheet exposures.

[86] The process of amending the CRDIV/CRR package with regard to the leverage ratio standard has dragged on. Originally, it was supposed to be finished by the end of 2017. More information on the issue can be found in the proposal dated of 11 November 2016 for the Regulation of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements and amending Regulation (EU) No 648/2012.

[87] Non-compliance with the combined buffer requirement would mainly result in the obligation to prepare capital conservation plans that present how to replenish capital shortfalls for capital buffers, and reductions of dividend payments, interest payments on subordinated bonds classified into additional Tier 1 capital and restrictions on payments of variable remuneration components (e.g. bonuses) or discretionary pension benefits for the bank's managerial staff who have influence on the bank's risk profile. Banks whose capital conservation plans have been approved by the supervision authorities continue to retain a relatively high autonomy in their operations, including lending. For more information on the consequences of non-compliance with the capital ratios and the combined buffer requirements, see Box 4 in "Financial Stability Report. June 2017", NBP.

[88] See https://www.bfg.pl/2017/07/21/metodologia-wyznaczania-poziomu-mrel-dla-bankow-komercyjnych/

[89] Regulation (EU) 2017/2395 of the European Parliament and of the Council of 12 December 2017 amending Regulation (EU) No 575/2013 as regards transitional arrangements for mitigating the impact of the introduction of IFRS 9 on own funds and for the large exposures treatment of certain public sector exposures denominated in the domestic currency of any Member State

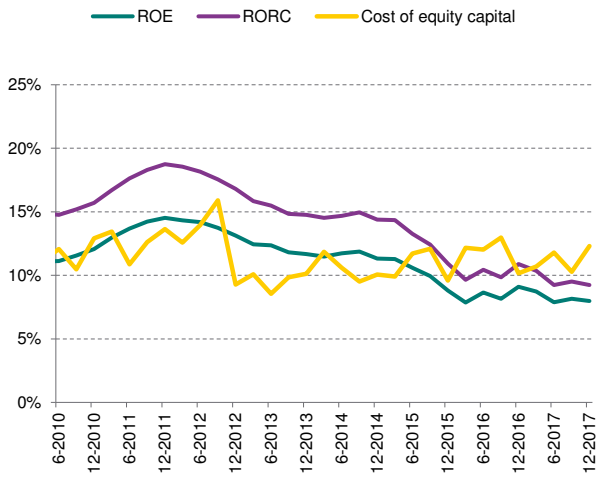
possible to reduce average risk weights and change the distribution of credit exposures by risk weights. A group of large commercial banks announced that it would seek KNF's consent to use the IRB approach for credit risk.[90] One bank has received KNF's authorisation to use the AMA for operational risk and it will start using it soon.[91] This will coincide with the end of so-called transition period, and all banks, those already using the IRB approach or AMA and those expecting KNF authorisation, will be fully able to make use of the decrease in the capital requirement through the use of the advanced approaches.[92]

The introduction of the minimum leverage ratio as the measure in the pillar 1 of capital adequacy – of 3% – will be neutral from the point of view of the capital position of the majority of banks, including excess of Common Equity Tier 1 capital available for capital buffers. The leverage ratio for the majority of banks in the sector at the end of December 2017 amounted to over 5%.

It can be expected that, similarly to previous years, regulatory capital will be increased via profit retention. In this context, it is favourable to bring the downward trend of the banking sector's nominal profits to a halt.

At the same time, the level of profitability of some institutions and low levels of their current capital surpluses indicate that they may have potential problems with complying with the combined buffer requirement in the near future. Due to the systemic role of associating banks, their low profitability is noteworthy in this context.[93]

Figure 2.51. Cost of capital compared to return on equity



Note: Eleven large banks listed on the GPW were taken into account; at the same time they form part of the WIG.Banki index. The assets of selected banks at the end of December 2017 accounted for approx. 77.6% of the banking sector under analysis. Return of Regulatory Capital (RORC) based on Tier 1 capital and ROE after eliminating one-off events. Values of the indices shown in this figure are weighted average values.
Source: NBP calculations based on Bloomberg data.

It may not be easy to increase capital via share issues on the stock exchange market. The average implied cost of own capital[94] calculated for a group of listed banks exceeded the values of ROE and RORC (see Figure 2.51). The recent changes in the so-called dividend policy of the KNF, which formulates super-

[90] This approach is currently used by 4 banks with around 21% share in the banking sector's assets, and only for certain types of credit exposures – approx. 37-53% of credit exposures in these banks are covered by advanced approaches – and the banks apply the Standardised Approach to the remaining exposures.

[91] Two banks with a total share of around 29% in the sector's assets has so far applied the approach.

[92] During the regulatory transition phase by the end of 2017, the banks cannot lower their capital requirements below the reference level arising from the application of the Standardised Approach or Basel I methodology. In the longer term, it is possible that the possibility of reducing the capital requirement via the advanced approaches will once again be limited, because the Basel Committee on Banking Supervision recommends, starting from 2022, that banks should have permanent floors (initially at the level of 50% and rising gradually to reach the target level of 72.5% in 2027) and seeks to eliminate the possibility of applying the Advanced Approach for operational risk. For more information, see "Basel III: Finalising post–crisis reforms", Basel Committee on Banking Supervision, December 2017.

[93] See Informacja o sytuacji banków spółdzielczych i zrzeszających w III kwartale 2017 r (Information on the situation in cooperative and associating banks in the third quarter of 2017), UKNF, December 2017.

[94] The concept of the cost of capital is ambiguous as the price of own capital is not directly observable on the market and has to be estimated on the basis of market prices and expected future cash flows. One of the ways to estimate the cost of capital used in this analysis is the approach combining two share pricing models: the Dividend Discount Model (DDM) and the capital Asset Pricing Model (CAPM).

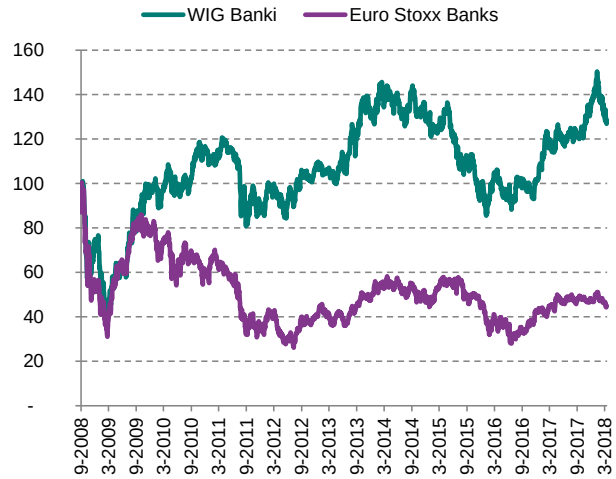
visory expectations on the criteria defining the maximum levels of dividend payments to be made by banks from profits earned in 2017 and subsequent years in the medium-term perspective[95], will contribute to reducing uncertainty related to dividend payment and may reduce the cost of capital.

2.7. Market assessment of Polish banks

Investors' assessment of Polish banks was good, however the collapse of stock prices in the global markets led to a substantial decline in banks' valuation.[96] By the end of January 2018, the WIG-Banki index continued the upward trend which started in the second half of 2016 (see Figure 2.52). The deterioration in investor sentiment led to a substantial decline in the share prices of all banks listed on the Warsaw Stock Exchange in subsequent months. After exceeding its long-term average in January, the price-to-book value ratio fell to levels prior to October 2017 (see Figure 2.53). However, the higher values of this ratio for Polish banks than for European banks show that investors continue to believe that banks operating in Poland have a greater potential for generating profits.

In addition to global factors, a rise in the market valuation of banks was driven by the good economic situation of Poland. Better economic activity and consumer confidence indicators increased the likelihood of higher lending to the non-financial sector and the growth in bank profits. However, in the first quarter of 2018 investor sentiment worsened on concerns that banks' earnings will be hit by a possible delay of interest rate hikes by NBP. The decline in valuation of some banks was also significantly impacted by the release of unsatisfactory earnings or consolidation plans that make it necessary to incur additional costs in the future.

Figure 2.52. Index prices of Polish and European banks



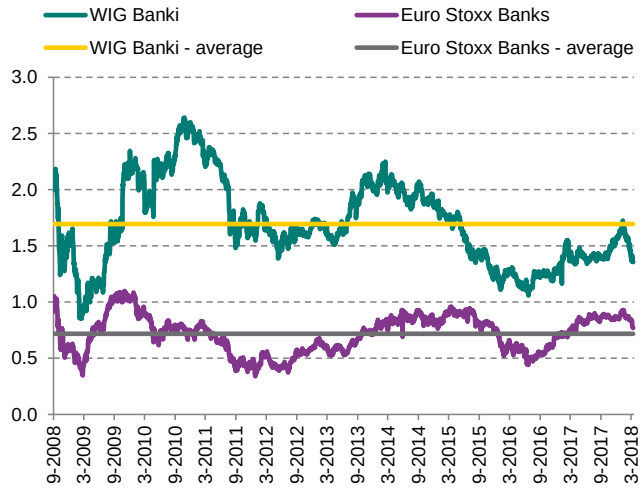
Note: Index prices re-scaled to 100 at the start of the financial crisis of 15 September 2008.
Source: NBP calculations based on Thomson Reuters.

The good condition of the Polish banking sector was confirmed by positive assessments of rating agencies. One of the main reasons behind the confirmation of Poland's good creditworthiness by rating agencies was the stable situation of the banking sector. The agencies expect that robust consumption and rising corporate investments will support bank lending, improvement of loan quality and bank capitalisation.

[95] The KNF, among others, made dividend policy criteria more coherent with regulatory requirements from the CRDIV/CRR package and adjusted them for the purposes of accumulation of capital for future regulatory requirements, such as new capital buffers. For more information, see "Stanowisko KNF w sprawie minimalnych poziomów współczynników kapitałowych "(The KNF position on minimum capital ratios), UKNF, November 2017, "Stanowisko KNF w sprawie polityki dywidendowej banków komercyjnych "(The KNF position on the dividend policy of commercial banks), UKNF, November 2017 and "Komunikat KNF dotyczący stanowiska organu nadzoru odnośnie założeń polityki dywidendowej banków komercyjnych w perspektywie średnioterminowej "(The KNF release on the position of the supervisory authority with regard to the assumption of the dividend policy of commercial banks in the medium-term perspective), UKNF, March 2018

[96] The market assessment is formulated at a low share turnover. The average value of the free float index for bank shares amounted to approximately 40%.

Figure 2.53. The price-to-book value ratios of Polish and European banks



Note: An average value calculated out of index values from the years 2009-2018.
Source: NBP calculations based on Thomson Reuters.

The rating agencies upgraded the ratings of several banks. The rating and outlook upgrades (see Table 2.3) resulted, among others, from an improving macroeconomic environment, stable and cheap funding with domestic deposits of the non-financial sector, and satisfactory profitability and capital levels. The ratings of banks remained traditionally affected by changes in the ratings of foreign parent banks. The improvement of the rating outlook of Bank Millennium was directly influenced by the upgraded rating outlook of the bank's parent bank. On the other hand, the assessments of some banks were negatively influenced by the fact that they could bear the costs of FX loan portfolio restructuring and maintaining substantial regulatory burdens associated with these portfolios. The downgrade of Getin Noble Bank's rating was caused by the considerable deterioration of its earnings and capitalization and the fact that it holds a substantial portfolio of FX loans.

Table 2.3. Ratings of Polish banks by Moody's, Fitch and S&P

Moody's	Baseline credit assessment	Long-term deposit rating	Short-term deposit rating	Outlook
PKO BP	baa2 (baa2)	A2 (A2)	P-1 (P-1)	STA (STA)
Bank Pekao	baa1 (baa1)	A2 (A2)	P-1 (P-1)	STA (STA)
Bank Zachodni WBK	baa3 (baa3)	A3 (A3)	P-2 (P-2)	POS (STA)
mBank	ba1 (ba2)	Baa1 (Baa2)	P-2 (P-2)	POS (STA)
ING Bank Śląski	baa2 (baa3)	A2 (A3)	P-1 (P-2)	STA (STA)
BGŻ BNP Paribas	ba2 (ba2)	Baa1 (Baa2)	P-2 (P-2)	STA (STA)
Bank Millennium	ba2 (ba3)	Baa3 (Ba1)	P-3 (NP)	POS (STA)
Getin Noble Bank	b2 (b1)	Ba3 (Ba2)	NP (NP)	NEG (NEG)
Credit Agricole	ba2 (ba2)	Baa1 (Baa1)	P-2 (P-2)	STA (STA)
Fitch	**Viability rating**	**Long-term rating**	**Short-term rating**	**Outlook**
Bank Pekao	a- (a-)	A- (A-)	F2 (F2)	NEG (STA)
Bank Zachodni WBK	bbb+ (bbb+)	BBB+ (BBB+)	F2 (F2)	STA (STA)
mBank	bbb- (bbb-)	BBB (BBB)	F2 (F2)	STA (STA)
ING Bank Śląski	bbb+ (bbb+)	A (A)	F1 (F1)	STA (STA)
Bank Millennium	bbb- (bbb-)	BBB- (BBB-)	F3 (F3)	STA (STA)
Getin Noble Bank	b+ (bb-)	B+ (BB-)	B (B)	STA (STA)
Alior Bank	bb (bb)	BB (BB)	B (B)	POS (STA)
Bank Handlowy	a- (a-)	A- (A-)	F1 (F1)	STA (STA)
BOŚ	b+ (b+)	B+ (B+)	B (B)	STA (STA)
mBank Hipoteczny	brak (brak)	BBB (BBB)	F2 (F2)	STA (STA)
Pekao Bank Hipoteczny	brak (brak)	A- (A-)	F2 (F2)	NEG (STA)
S&P	**Stand-alone credit profile (SACP)**	**Long-term rating**	**Short-term rating**	**Outlook**
Bank Pekao	bbb+ (bbb+)	BBB+ (BBB+)	A-2 (A-2)	STA (STA)
mBank	bbb- (bbb-)	BBB+ (BBB+)	A-2 (A-2)	NEG (NEG)

Notes: In brackets – as of the end of September 2017. For definitions of the ratings, see *Glossary*.
Source: www.moodys.com, www.fitchratings.com., www.standardandpoors.com.

2.8. Selected indicators of banking sector's condition

in %	2016		2017			
	Q3	Q4	Q1	Q2	Q3	Q4
Return on assets (ROA)[1]	0.78	0.84	0.80	0.72	0.76	0.78
Return on Tier 1 capital (RORC)[1,2]	8.5	9.2	8.7	7.8	8.1	8.2
Net interest margin (NIM)[1,3]	2.30	2.32	2.34	2.38	2.41	2.44
Operating cost[3] to net income from banking activity[3] (CTI)[1]	60.8	58.6	59.6	60.8	59.5	58.1
Burden of charges to provisions for impaired loans[3] on net income from banking activity[1]	11.7	12.7	12.8	12.8	13.1	13.3
Loan growth rates (y/y)[4]						
nonfinancial sector	4.2	3.9	4.4	5.5	5.0	6.1
households	4.1	3.9	4.2	4.5	4.6	5.1
consumer loans	7.5	6.7	7.1	5.6	5.8	7.4
housing loans	2.9	3.1	3.2	3.2	3.4	3.4
enterprises	4.5	3.9	4.8	7.5	5.6	8.0
Impaired loan ratios[3]						
nonfinancial sector	7.3	7.1	6.9	6.9	6.9	6.8
households	6.2	6.1	6.1	6.2	6.2	6.1
consumer loans	12.0	11.5	11.4	11.6	11.4	11.1
housing loans	2.9	2.9	2.9	2.9	2.9	2.8
enterprises	9.4	9.2	8.6	8.3	8.4	8.2
Charges to provisions for impaired loans[3] to net value of loans[1]						
nonfinancial sector	0.7	0.8	0.8	0.76	0.79	0.83
households	0.8	0.8	0.8	0.80	0.80	0.81
consumer loans	2.0	1.9	1.9	1.93	1.88	1.97
housing loans	0.3	0.3	0.3	0.27	0.26	0.25
enterprises	0.7	0.8	0.8	0.71	0.76	0.87
Funding gap[3]	2.5	-2.0	0.3	1.7	2.0	-2.5
Short-term liquidity standard M2[3,5]	1.4	1.6	1.5	1.5	1.4	1.6
Long-term liquidity standard M4[3,5]	1.2	1.2	1.2	1.2	1.2	1.2
Total capital ratio[2]	17.3	17.2	17.4	18.0	18.0	18.1
Tier 1 capital ratio[2]	15.7	15.6	15.9	16.5	16.5	16.2
Common Equity Tier 1 capital ratio[2]	15.7	15.5	15.9	16.5	16.5	16.2
Financial leverage (multiple)[2,3]	10.2	10.5	10.2	9.9	9.9	10.0

[1] Annualised data.
[2] Domestic banking sector.
[3] For definition, see *Glossary*.
[4] Loans to residents, data after excluding the impact of foreign exchange rate changes.
[5] Domestic commercial banks.
Source: NBP.

2.9. Selected indicators of the condition of domestic commercial banks

in %	2016		2017			
	Q3	Q4	Q1	Q2	Q3	Q4
Return on assets (ROA)[1]	0.80	0.86	0.82	0.73	0.76	0.80
Return on Tier 1 capital (RORC)[1]	9.3	9.7	9.1	8.1	8.4	8.7
Net interest margin (NIM)[1,2]	2.29	2.28	2.30	2.34	2.38	2.45
Operating cost[2] to net income from banking activity[2] (CTI)[1]	57.8	55.0	56.0	57.3	55.9	54.6
Burden of charges to provisions for impaired loans[2] on net income from banking activity[1]	12.2	13.0	13.1	13.1	13.4	13.6
Loan growth rates (y/y)[3]						
nonfinancial sector	4.4	3.8	4.3	5.3	4.9	6.0
households	4.1	3.8	4.2	4.5	4.6	5.2
consumer loans	7.6	6.8	7.2	6.2	6.3	8.0
housing loans	2.8	2.8	2.9	2.9	3.1	3.1
enterprises	5.0	3.8	4.7	6.8	5.3	7.8
Impaired loan ratios[2]						
nonfinancial sector	7.4	7.2	7.0	7.0	7.0	6.8
households	6.4	6.2	6.2	6.3	6.3	6.2
consumer loans	12.3	11.8	11.7	11.9	11.7	11.4
housing loans	2.9	2.9	2.9	2.9	2.9	2.8
enterprises	9.5	9.3	8.6	8.3	8.4	8.1
Charges to provisions for impaired loans[2] to net value of loans[1]						
nonfinancial sector	0.78	0.81	0.81	0.78	0.80	0.84
households	0.83	0.83	0.83	0.82	0.83	0.83
consumer loans	2.07	2.00	1.96	2.00	1.94	2.01
housing loans	0.28	0.28	0.29	0.28	0.26	0.25
enterprises	0.68	0.76	0.76	0.69	0.76	0.86
Funding gap[2]	4.5	0.5	2.8	4.1	4.6	0.4
Short-term liquidity standard M2[2]	1.4	1.6	1.5	1.4	1.4	1.5
Long-term liquidity standard M4[2]	1.2	1.2	1.2	1.2	1.2	1.2
Total capital ratio	17.3	17.2	17.4	18.0	18.0	18.1
Tier 1 capital ratio	15.6	15.5	15.9	16.5	16.5	16.2
Common Equity Tier 1 capital ratio	15.6	15.5	15.9	16.5	16.5	16.2
Financial leverage (multiple)[2]	11.0	11.3	11.1	10.9	10.7	10.7

[1] Annualised data.
[2] For definition, see *Glossary*.
[3] Loans to residents, data after excluding foreign exchange rate changes.
Source: NBP.

2.10. Selected indicators of cooperative banks

w %	2016		2017			
	Q3	Q4	Q1	Q2	Q3	Q4
Return on assets (ROA)[1]	0.46	0.51	0.52	0.56	0.56	0.60
Return on Tier 1 capital (RORC)[1]	5.1	5.8	6.0	6.4	6.6	6.9
Net interest margin (NIM)[1,2]	2.82	2.84	2.82	2.83	2.84	2.88
Operating cost[2] to net income from banking activity[2] (CTI)[1]	76.9	72.2	71.3	70.1	69.3	68.0
Burden of charges to provisions for impaired loans[2] on net income from banking activity[1]	6.9	10.1	10.4	10.7	11.5	13.2
Loan growth rates (y/y)[3]						
nonfinancial sector	-0.2	3.5	3.2	3.2	3.3	3.9
households	4.8	4.4	4.6	4.7	4.9	5.3
consumer loans	3.5	3.1	4.2	4.9	4.8	4.6
housing loans	17.5	17.7	17.7	17.5	17.0	16.2
enterprises[4]	3.0	1.5	0.2	-0.3	-0.5	0.6
Impaired loan ratios[2]						
nonfinancial sector	7.5	7.8	7.9	7.8	8.0	8.3
households	4.5	4.6	4.7	4.6	4.7	4.8
consumer loans	5.8	5.7	5.7	5.6	5.5	5.7
housing loans	1.9	1.8	1.8	1.7	1.7	1.7
enterprises	14.4	14.9	15.3	15.4	15.9	16.7
Charges to provisions for impaired loans[2] to net value of loans[1]						
nonfinancial sector	0.48	0.74	0.76	0.78	0.84	0.95
households	0.35	0.43	0.44	0.42	0.48	0.54
consumer loans	0.34	0.35	0.42	0.48	0.62	0.90
housing loans	0.11	0.15	0.16	0.17	0.16	0.15
enterprises	0.74	1.41	1.48	1.60	1.68	1.91
Funding gap[2]	-46.5	-57.3	-56.2	-54.1	-53.9	-65.1
Short-term liquidity standard M2[2,5]	2.0	2.0	2.0	2.1	2.1	2.1
Long-term liquidity standard M4[2,5]	1.3	1.3	1.4	1.4	1.4	1.4
Total capital ratio	17.1	17.1	17.0	17.5	17.2	17.2
Tier 1 capital ratio	16.0	16.0	15.9	16.5	16.3	16.3
Common Equity Tier 1 capital ratio	15.9	15.9	15.9	16.4	16.2	16.2
Financial leverage (multiple)[2]	11.4	11.9	11.9	11.4	11.5	12.0

[1] Annualised data.
[2] For definition, see *Glossary*.
[3] Loans to residents, data based on Finrep's reports.
[4] The negative growth rate of loans to enterprises in 2016 was caused by the declaration of bankruptcy of SK bank on 30 December 2015 and its exclusion from the group of reporting banks – it held a large portfolio of loans to enterprises. The 2016 annual growth rate of loans adjusted for the effects of the event would amount to 5.7% in the first quarter, 3.4% in the second quarter, 2.4% in the third quarter and 1.5% in the fourth quarter.
[5] Cooperative banks with assets over 200 million zlotys.
Source: NBP.

Chapter 3.

Credit unions sector

Restructuring and recovery processes continued in the credit unions sector in the second half of 2017. In this period, the number of active credit unions decreased to 34 after the operations of one of the unions were suspended[97] and two were taken over by banks[98]. At the end of 2017, 24 credit unions (the majority of the sector in terms of assets) were subject to recovery proceedings[99], however only 4 of them put in place the KNF-approved programmes.

The value of assets of the credit unions sector has decreased gradually.[100] At the end of 2017, the sector's assets amounted to 10.2 billion zlotys (see Figure 3.1) and in the second half of the year their value diminished by 0.6 billion zlotys (i.e. 5.5%). Taking into account credit unions active on 31 December 2017[101], their assets at the end of June shrank by 0.4 billion zlotys (i.e. 4.2%).

The sector maintains a high level of concentration. At the end of 2017, the share of the three largest credit unions in the sector's assets exceeded 80%, and its concentration index, HHI, was 0.46. At the same time, half of active credit unions are entities with assets below 50 million zlotys (see Table 3.1), and their share in the sector's assets totalled 3.9% (9 of them are small credit unions.[102])

[97] The Polish Financial Supervision Authority (KNF) suspended the operations of SKOK Wybrzeże as of 15 September 2017.

[98] On the basis of the consent of the Polish Financial Supervision Authority, Bieszczadzka SKOK was taken over by ING BŚ on 1 September 2017, and Lubuska SKOK was taken over by Bank Spółdzielczy we Wschowie on 2 October 2017.

[99] Towards the end of 2017, SKOK Kozienice, subject to recovery proceedings, successfully completed the program's assumptions and in February 2018 obtained the consent of KNF to take over SKOK Bogdanka as at 1 June 2018.

[100] The analysis of the situation of the credit unions sector was based on reporting data provided from KNF and released quarterly by it *Informacje o sytuacji spółdzielczych kas oszczędnościowo–kredytowych* The reporting data may not fully take account of all the reservations reported by KNF under its supervision mandate. The differences between data presented in the previous editions of the Report result from the adjustments gradually implemented by specific credit unions and from the change in the number of credit unions in the group under analysis.

[101] For the purposes of the Report, the group of credit unions that continued to operate, i.e. credit unions that carried on operations at the end of 2017, was separated to eliminate the statistical impact of the credit unions that discontinued their operation (i.e. credit unions taken over by banks and credit unions which were suspended)

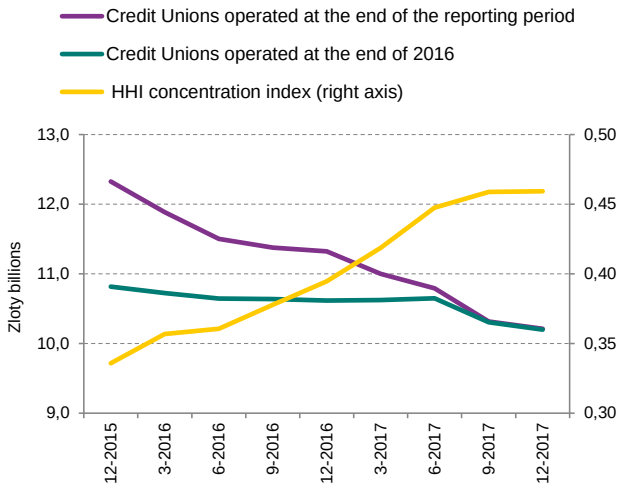
[102] The definition of a small credit union was introduced to the Credit Unions Act following the implementation of the judgement of the Constitutional Tribunal of 31 July 2015 on the exercise of oversight by the Polish Financial Supervision Authority over the credit unions sector, taking into consideration the scale of operations and size of specific credit unions. The amended law entered into force on 14 February 2017 (Journal of Laws 2017, item 245).

Table 3.1. The credit unions sector by groups according to asset value* – as of 31 December 2017 (credit unions continuing operation)

	Number of credit unions in the group	Share in sector's assets	Regulatory capital (zloty million)	Number of credit unions with CAR over 5 %	Net income (zloty million)	Number of credit unions with current profit
Group I	17	3,9%	29,4	15	0,2	12
of which small credit unions	9	0,8%	6,5	8	0,1	6
Group II	12	10,9%	92,0	12	-15,9	10
Group III	5	85,2%	91,6	1	55,5	3
Credit unions' sector	34	-	213,0	28	39,8	25

* Classification of credit unions:
Group I – credit unions with assets of up to 50 million zlotys, including small credit unions with assets below 20 mln zlotys and with up to 10 thousand members,
Group II – credit unions with assets from at least 50 million zlotys to 200 mln zlotys,
Group III – credit unions with assets from at least 200 million zlotys.
Source: Reporting data of credit unions.

Figure 3.1. Assets of credit unions and the sector's concentration index(HHI)

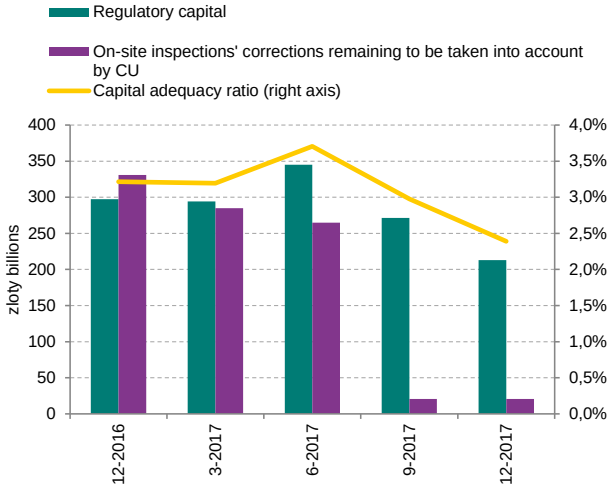


* HHI concentration index calculated for credit unions active at the end of the given reporting period.
Source: Reporting data of credit unions.

The capital position of credit unions

Capital shortages grow in the sector of credit unions. At the end of 2017, their regulatory capital was 213 million zlotys (see Figure 3.2). In the second half of 2017, its value decreased by 132 million zlotys, i.e. by almost40%, which had a significant impact on the decline of the sector's capital adequacy ratio (by 1.3 p.p. to 2.4%).

Figure 3.2. Regulatory capital and the capital adequacy ratio (credit unions continuing operation)



Source: Reporting data of credit unions.

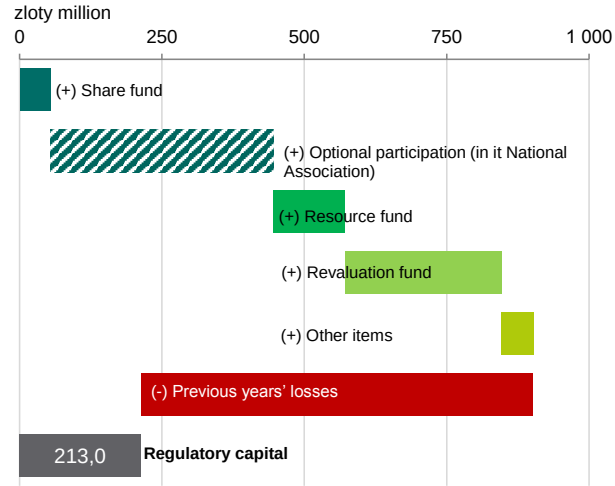
The sector's regulatory capital decline was caused by a significant decrease in the value of the revaluation fund.[103] In the second half of 2017, the fund's value diminished by almost half (by approx. 200 million zlotys) to 275 million zlotys due to the change in value of shares and stocks of credit unions' sub-

[103]The revaluation fund comprises the revaluation fund of fixed tangible assets and unrealized gains/losses on debt and capital instruments classified as available for sale.
[104]The change in the revaluation of shares and stocks resulted, among others, from the implementation of supervisory recommendations. According to information of KNF at the end of 2017, credit unions mostly implemented the recommendations arising from analytical and inspection oversight.

sidiaries, held by the sector's largest unions.[104] At the same time, the share fund of credit unions grew by almost 83 million zlotys and at the end of 2017 it amounted to 446 million zlotys. The fund grew after the National Association of Credit Unions had taken up optional participations in several unions as part of stabilization support.

The structure of regulatory capital makes full loss absorption impossible. Credit unions can use funds from the share fund and resource fund to cover losses.[105] As at the end of 2017, the share fund(including optional participations) and resource fund total represented 83% of the losses reported by credit unions. The revaluation fund, which is the second largest item of regulatory capital, cannot be used to cover losses (see Figure 3.3).

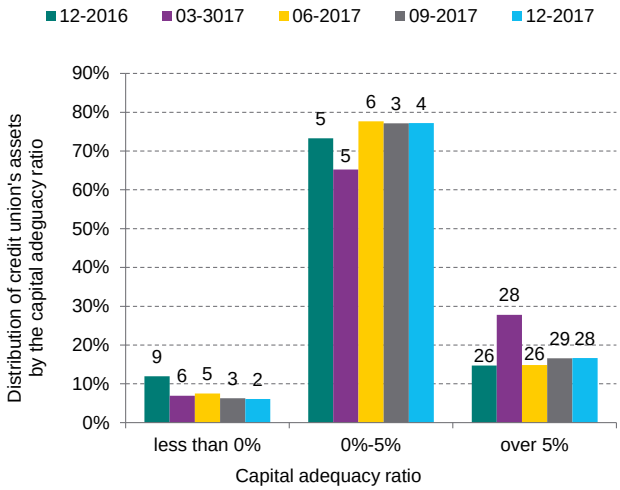
Figure 3.3. Structure of regulatory capital of credit unions at the end of 2017



Source: Reporting data of credit unions.

The capital position of credit unions is diverse, and the largest entities have a dominant impact on trends in the sector's capital adequacy ratio. 32 out of 34 credit unions active at the end of 2017 had positive regulatory capital, and 28 of them reported their capital adequacy ratio at the level above 5% (see Figure 3.4). However, these credit unions' assets accounted for merely 16.7% of the sector's assets. On the other hand, among 6 credit unions that did not meet the capital requirements, 4 are in the group of the largest unions with assets over 200 million zlotys (of which two, managed by administrators, reported negative regulatory capital).

Figure 3.4. Distribution of the capital adequacy ratio (credit unions operating in the given period)



Source: Reporting data of credit unions.

The earnings of credit unions

The earnings of the sector of credit unions are highly volatile as some unions conclude one-off transactions. In 2017, the sector reported net earnings of less than 40 million zlotys. The sector's positive result was mainly driven by operations not related to the statutory goal of credit unions' business activity.[106]

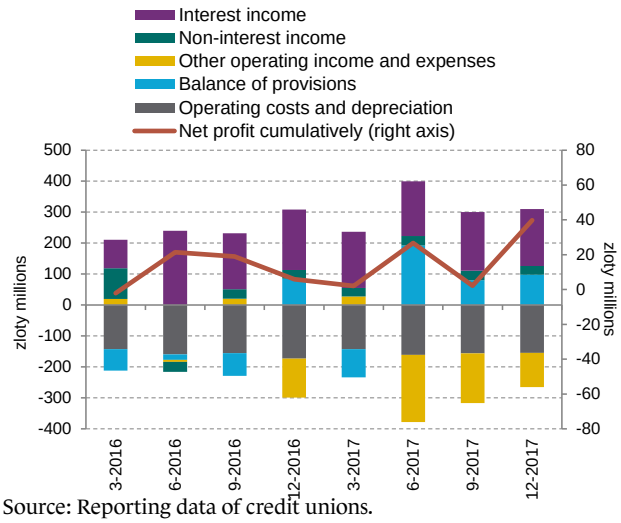
The quarterly changes in the sector's earnings observed during the course of the year were affected

[105] The Credit Unions Acts indicates that credit unions' balance sheet losses are covered from the resource fund, and the amount exceeding this – from the share fund. In the articles of Association of a credit union, members' responsibility for the losses arising at the credit union may be raised to double the amount of paid-in shares (Journal of Laws 2016.1910 consolidated text, as amended). In accordance with the Act on Cooperative Law, the general meeting of members of a cooperative is the only organ responsible for adopting resolutions on how to cover losses (Journal of Laws 2017.1560 consolidated text, as amended.).

[106] The main goal of credit unions' activity is to accumulate funds exclusively for their members, grant advances and loans to them and conduct financial settlements on their behalf.

by major swings of operating costs borne during the sale of impaired debts and the periodical release of the debt-related provisions.[107] Although in the second half of 2017, credit unions created provisions for overdue loans, the transactions they performed helped them report a positive balance of provisions (see Figure 3.5).

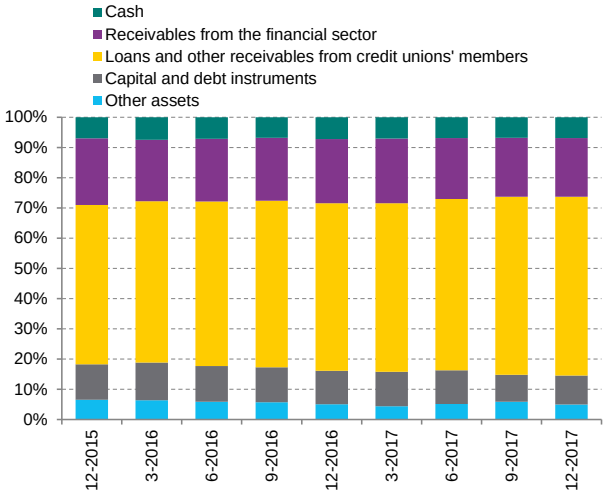
Figure 3.5. Structure of the quarterly earnings and net earnings of the credit unions sector (active credit unions)



Source: Reporting data of credit unions.

Continuing high general expenses had a negative influence on credit unions' earnings. At the end of 2017, general expenses accounted for the equivalent of around 73% of the result on core operations. Outsourced services charges remain the largest burden on credit unions, as they account for almost 60% of their general expenses. The result on core operations (i.e. net interest income and net non-interest income) in the successive quarters of 2017 remained stable, which, however, provides no possibility of increasing credit unions' profitability. The low level of the loan to deposit ratio, continuing below 60%, substantially reduces the potential for an improvement in credit unions' efficiency

Figure 3.6. The asset structure of the credit unions sector (credit unions continuing operation)



Source: Reporting data of credit unions.

Asset structure and credit risk at credit unions

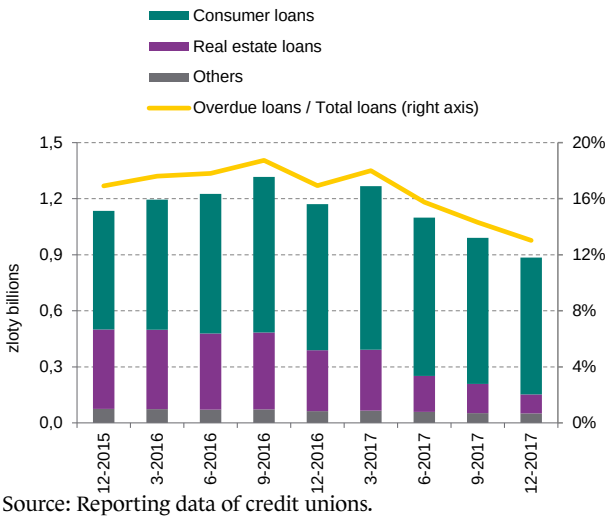
Asset structure changed amid the decline in the value of credit unions' assets, but loans and other receivables from credit union members remained a dominant item. In the second half of 2017, the net value of the loans portfolio of credit unions was subject to small fluctuations and at the end of the year it amounted to 6 billion zlotys (see Figure 3.6). On the other hand, the value of the remaining items of the balance-sheet, including mainly securities and receivables from the financial sector, decreased. The value of the portfolio of debt and capital instruments fell by more than 0.2 billion zlotys (i.e. by 18%) following the change in value of shares and stock of credit unions in their subsidiaries. At the end of the year, the portfolio's value amounted to 1 billion zlotys, which accounted for 9.6% of credit unions' assets. In the second half of 2017, the value of receivables from the financial sector also dropped (by 8% to less than 2 billion zlotys) due to the decrease of the amount of deposits kept by credit unions at the National Association (by 0.17 billion zlotys). At the end

[107] The transactions of selling the debt (in 99% of the cases, the debt is overdue for more than 12 months) are made on a regular basis by large credit unions with assets in excess of 100 million zlotys.

of 2017, the value of the deposits stood at 1.7 billion zlotys, which represented 16.8% of credit unions' assets.

The ratio of loan portfolio quality improved on the back of the sale of overdue debt made by some credit unions (especially large). In the second half of 2017, the ratio of the share of loans in arrears in repayment of more than 3 months in the credit unions sector's loan portfolio decreased by 3 p.p. and amounted to 13% at the end of the year (see Figure 3.7). Had credit unions not performed the transactions of selling debt in 2017, the loan portfolio quality ratio at the end of the year would have been at the level of almost 21%.[108]

Figure 3.7. Loans overdue of more than 3 months and their share in total loans (credit unions continuing operation)



Source: Reporting data of credit unions.

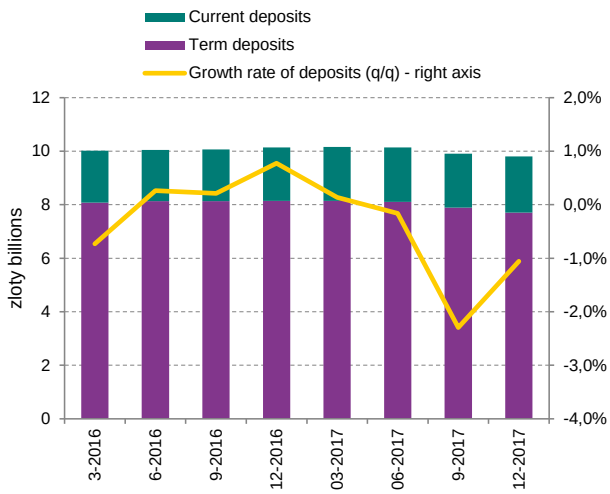
Credit unions exhibit a high level of coverage of overdue loans with provisions. At the end of 2017, the overdue loan coverage ratio was over 87% and remained generally unchanged from the end of the first half of 2017. The high level of coverage results from the structure of credit unions' portfolio, where consumer loans (especially cash loans) with low collateral prevail – less than 8% of the portfolio is collateralized.

Funding and liquidity risk

Deposits of members of credit unions remain the main source of their funding. At the end of 2017, the value of deposits at credit unions was 9.8 billion zlotys, of which 7.7 billion zlotys were term deposits (see Figure 3.8). In the second half of 2017, the value of deposits decreased by 0.3 billion zlotys (i.e. by 3.3%), mainly as a result of an outflow observed in the third quarter of 2017. The decline in deposit value applied to most credit unions, irrespective of their size.

As liquid assets were at a proper level, the outflow of deposits from clients' accounts did not result in a deterioration of the liquidity position of specific credit unions and of the whole sector.

Figure 3.8. The structure of credit unions' deposits and quarterly rate of change in the balance of deposits (credit unions continuing operation)



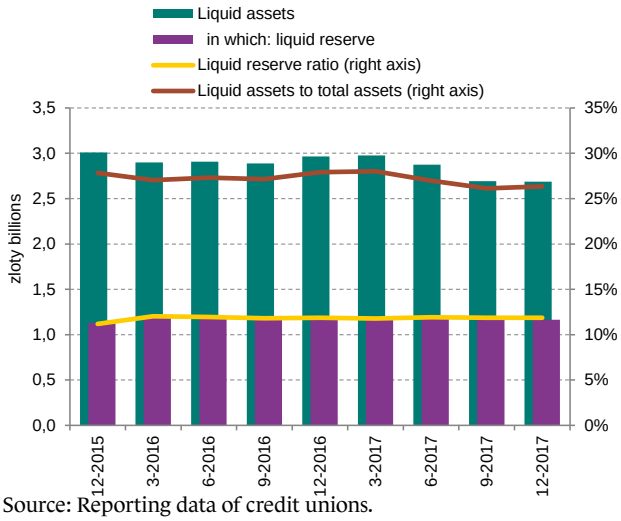
Source: Reporting data of credit unions.

The liquidity position of the credit unions sector remained stable. In the second half of 2017, all credit unions maintained the liquid reserve ratio above the required minimum of 10%. In connection with the outflow of deposits observed in the third quarter of

[108] The gross value of overdue debt sold by credit unions in 2017 was almost 0.7 billion zlotys.

the year, the value of the liquid reserve[109] declined by 3.5% to 1.16 billion zlotys, however the reserve ratio did not change considerably and amounted to 11.9% at the end of 2017 (see Figure 3.9).

Figure 3.9. Liquid assets and liquid reserve (credit unions continuing operation)



Source: Reporting data of credit unions.

At the end of 2017, liquid assets of the value of 2.7 billion zlotys accounted for over 26% of credit unions' total assets and covered 27.5% of deposits accumulated in the sector. The structure of liquid assets remains stable – credit unions still maintain around 60% of their liquid funds (i.e. 1.6 billion zlotys) on deposits with the National Association, and over 15% (i.e. 0.4 billion zlotys) in cash and funds on bank current accounts. Credit unions kept the remaining part of liquid assets on term deposit accounts in banks, and invested in equity instruments, i.e. money market funds' units and treasury bonds.

National Association

The National Association of Credit Unions (National Association) is the central organ of the credit unions sector. It fulfils control functions regarding credit unions' observance of the statutory regulations and fulfilment of the KNF supervisory recommendations. It also acts to ensure the financial stability of credit unions and safety of the funds they keep. Moreover, the National Association conducts settlements in favour of its members and represents their interests towards other entities. The National Association is a cooperative of legal persons, and credit unions are its only shareholders, which are at the same time required to keep some of their free funds (i.a. liquid reserves) and deposits due to regulatory capital with it.[110]

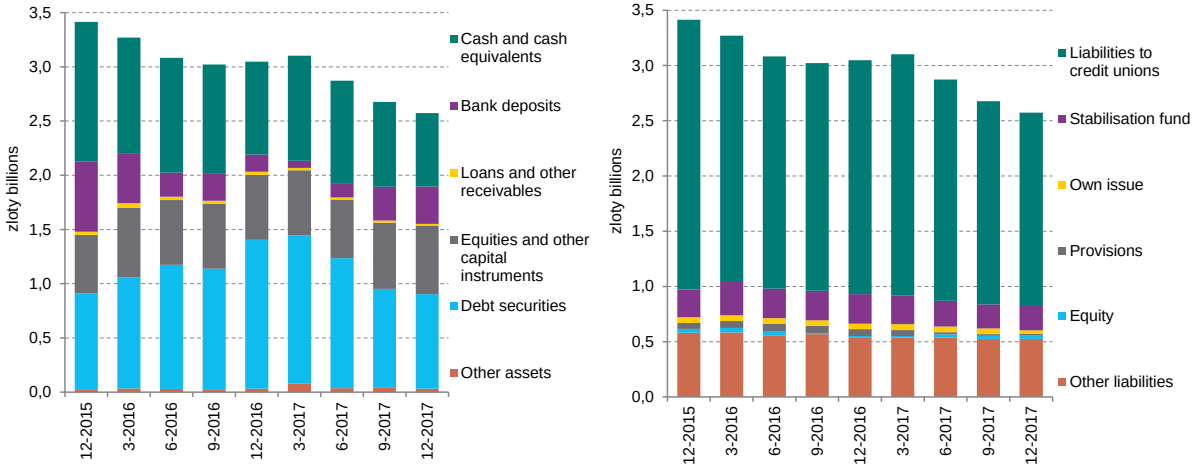
Balance sheet of the National Association of Credit Unions and changes in its composition

The value of assets of the National Association depends on the number of active credit unions and the scale of their operations. At the end of 2017, the balance-sheet total of the National Association of Credit Unions amounted to 2.6 billion zlotys (see Figure 3.10). In the second half of the year, it fell by almost 0.3 billion zlotys (i.e. by over 10%). In the same period, the assets of credit unions decreased by around 0.6 billion zlotys (including 0.1 billion zlotys after 3 credit unions discontinued operation).

[109] The liquid reserve constitutes a portion of credit unions' liquid assets. Credit unions are required to maintain the liquid reserve amounting to no less than 10% of the saving-loan fund (which comprises contribution of members and their savings). The liquid reserve may be kept in the form of: cash, funds on separate accounts with the National Association (minimum of 5% of the reserve value) and money market funds' units.

[110] In accordance with the articles of association of the National Association, credit unions are required to keep mandatory deposits on account of regulatory capital in the amount of not less than 4% of their assets.

Figure 3.10. Composition of the balance sheet of the National Association: assets – left-hand panel, liabilities – right-hand panel



Source: Reporting data of the National Association of Credit Unions.

Liquid assets remain the main item of assets of the National Association of Credit Unions. At the end of 2017, they accounted for around 75% of the Association's assets, i.e. 3.8 percentage points less than at the end of the second quarter of 2017. Out of almost 2 billion zlotys of liquid assets over 44% were held as treasury bonds and 35% were kept at current accounts at banks and with Narodowy Bank Polski. The National Association also held term deposits with commercial banks and money market funds' units (respectively, 18% and 3.3% of liquid assets). The remaining items of the Association's assets, were mainly equity instruments (participations in credit unions and in other companies).

The value of the National Association's capital investment in credit unions is on the rise. After the Association purchased more optional participations, taken up as part of its stabilisation support function, its investment in credit unions grew and at the end of 2017 it amounted to around 0.3 billion zlotys.

Funds of credit unions in the form of mandatory deposits and non-mandatory deposits remain the main source of funding of the National Association. At the end of 2017, their value was 1.6 billion zlotys and, compared with the end of June, it was almost 0.3 billion zlotys lower (i.e. 12.5%). Other liabilities, which also include credit unions' mandatory reserves were an essential item (16%) of the National Association's liabilities.

The earnings of National Association

The result on core operations of the National Association of Credit Unions in 2017 was insufficient to cover its general expenses. The main source of interest revenue of the National Association is revenue from investment of funds deposited by credit unions in debt and equity instruments and interest on bank deposits. Interest costs comprise the costs of interest of credit unions' deposits and interest on loans drawn by the National Association. High general expenses, especially outsourced services expenses and costs of wages, are a significant burden on earnings. The balance sheet surplus of the National Association of Credit Unions of 16.7 million zlotys came from dividends paid in by its subsidiaries.

Stabilisation support for credit unions

One of the key goals of the National Association of Credit Unions is to provide stabilisation support to credit unions; the main source of the support is from the stabilisation fund. In the second half of 2017, it shrank by 6% and at the end of the year it was 0.2 billion zlotys. Decreases by the value of the National Association's optional participations in the credit unions which were declared bankrupt had a negative impact on the level of the fund. The decrease was partially offset by an injection from the Association's balance sheet surplus.

By the end of 2017, stabilisation support in the total amount of almost 390 million zlotys was received by 21 out of 34 active credit unions. Around 83% of that amount was optional participations purchased by the National Association in credit unions, and the remaining funds were paid out in the form of donations and stabilization loans.

Chapter 4.

Non-credit financial institutions

In 2017, the non-credit financial institutions sector[111] (NIFs) grew at a rate faster than the banking sector (see Table 4.1). Assets of all types of financial institutions increased. For investment funds and pension funds, the increase was related to the growth in prices of portfolio components held. Assets of insurance companies also rose, including in particular, of the non-life insurance sector. Consequently, the ratio of NIF assets to banking sector assets increased by over 2 percentage points.

The situation of the non-credit financial institution sector is analysed mainly in six dimensions:

- the extent of the NIF sector's resilience to risks to maintaining the continuity of sector-specific financial services to the real economy,
- the possible impact of the investment behaviour of NIFs on asset prices which is, among others, the materialisation of liquidity risk,
- concentration of products and entities,
- the extent of financing of the entities of the real economy by the NIF sector,
- cross-sector linkages,
- the extent and type of linkages with the domestic banking sector (including ownership linkages, liabilities incurred in banks and financing granted to banks).

Additionally, risk areas specific to each of these NIF segments are analysed.

Table 4.1. Assets of insurance companies (ZU), investment funds (FI), open pension funds (OFE) and banks (PLN billion)

	NIF			NIF	Banks	NIF / Banks
	ZU	FI	OFE			
2015	183,4	272,5	140,5	596,4	1 595,0	37,4%
2016	185,0	275,4	153,4	613,8	1 706,4	36,0%
2017	198,6	303,0	179,5	681,1	1 777,0	38,3%

Note: Data for OFE and FI relate to net assets, and for ZU – to assets in accordance with the Solvency II methodology. Due to the adjustments, the data may differ from those presented in the previous editions of the *Report*.
Source: UKNF, NBP.

[111] This chapter is devoted to domestic insurance companies, investment funds, investment fund management companies, open pension funds and pension fund management companies.

4.1. Insurance companies

Insurance companies play a significant role in the economy. They offer a possibility to obtain a financial coverage against consequences of unfavourable random perils.

In Poland, compared to other EU Member States, the role of insurance and the scope of insurance coverage is smaller. The share of insurance premium and the sector's assets in relation to GDP were much lower than the average in Europe.[112] Assets of insurance companies in Poland were 10–times lower than those of the banking sector, and their share in assets of households did not exceed 5%. Assets accounted for 9.9% of GDP and the gross written premium – to 3.1% of GDP.

In the life insurance sector, the activity was based on investment products where the investment risk is borne by policyholders. The economic function of unit-linked insurance products (UFK) corresponded to that performed by investment funds. Entities of the non-life insurance sector concentrated their activity on motor insurance and offered financial insurance only to a limited extent.

The insurance sector was characterised by much weaker intra-sector financial linkages than the banking sector. Except for the largest national capital group, reinsurance was the main source of linkages in the insurance sector. The reinsurance cover mainly applied to contracts with high sums insured. Cedents concluded reinsurance contracts mainly with foreign entities from the same group as the insurance company.

Technical provisions

Technical provisions constitute the biggest part of the insurance companies' liabilities. They correspond to the expected value of benefits and expected expenses which are reduced by future premiums and other revenues[113]. Assets to cover technical provisions are allocated for the execution of future liabilities to beneficiaries. In the life insurance sector, provisions accounted for 90%, and in the property insurance – 73% of liabilities.

In the life insurance sector, provisions of unit-linked insurance prevailed. Other provisions stemmed from life insurance contracts with profit participations, other life insurance and health and sickness insurance. Only provisions other than related to the unit-linked insurance could be a significant source of risk and increase companies' exposure to market risk, including interest rate risk. However, the provisions constituted a minor part of liabilities (see Figure 4.1).

Most insurance products offered by insurance companies did not include a guarantee of the rate of return, which could be a source of risk in the environment of low interest rates. Less than 5% of technical provisions contained a guarantee of the rate of return. Moreover, insurance companies offered insurance contracts with profit participation, however, in the majority of cases, the profit was due only if the rate of return from investments was higher than the technical interest rate applied by the insurance company. Those products constituted only a minor part of liabilities towards policyholders. Insurance companies offered life annuity only to a limited extent, whereas pension liabilities stemmed mainly

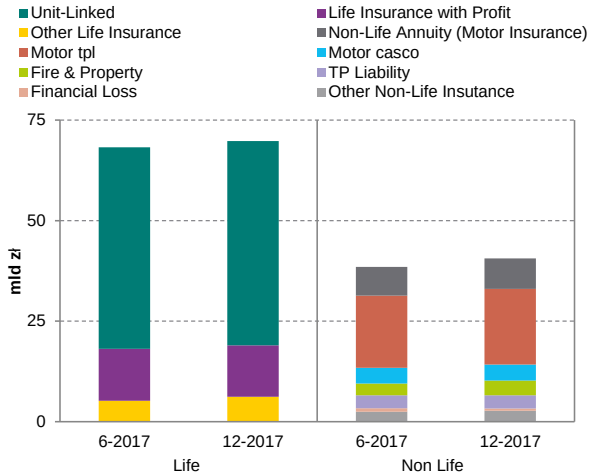
[112] In countries with highly developed insurance markets, the relation of the premium to GDP reached several per cent, whereas the value of the sector's assets was comparable to the GDP.

[113] In the *Report*, balance sheet data are presented in accordance with Directive of the European Parliament and of the Council 2009/138/EC of 25 November 2009 *on the taking-up and pursuit of the business of Insurance and Reinsurance* (Solvency II) (OJ L L335 of 17.12.2009, p. 1, as amended.

from the old insurance portfolio.

Provisions of non-life insurance companies were much lower than in life insurance. It resulted from the nature of their activity. The reason is that unit-linked insurance where savings are collected is not offered in the non-life insurance sector. The only exception are payments of benefits in the form of annuity due to third party liability insurance (OC) of mechanical vehicles which represented a significant category of liabilities, both in terms of value and the social function (see Figure 4.1).

Figure 4.1. Technical provisions of insurance companies

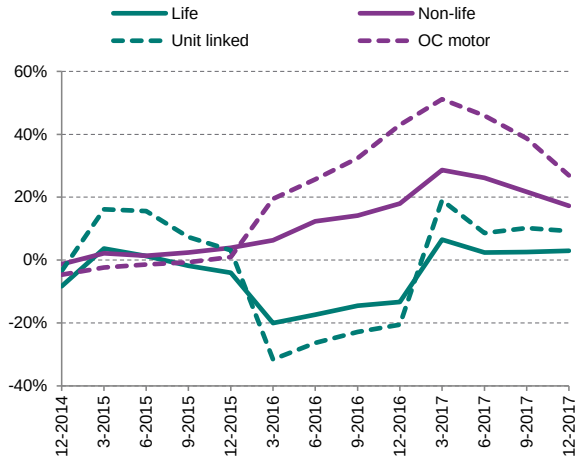


Note: For life insurance companies, the most important business lines are presented. Other business lines are negligibly small.
Source: UKNF.

Insurance premiums and claims

Premiums are the primary source of funding for insurance companies. Their amount is most frequently determined based on probability of insured peril materialisation. Revenues from premiums are allocated for payment of current claims and future claims and benefits stemming from insurance contracts and coverage of insurance business costs. [114] Insurance business is characterised by the so-called inverted production cycle. The premiums are paid in advance, therefore the liquidity risk is much lower than in the case of other financial institutions.

Figure 4.2. Growth rate of gross written premium



Source: UKNF.

In 2017, the inflow of funds to life insurance companies increased (see Figure 4.2). It was associated with the rise of premiums in unit-linked insurance. However, the value of the premium did not compensate the value of payments in this group of products. For the first time for several years, the annual balance of payments and disbursements of funds to the unit-linked insurance was negative. The share of a single premium in this group of insurance increased to 57.2%. In life insurance, which was not related to the unit-linked insurance (subsector no. 3), a slight decline of the premium was noted. The slowdown of the marked downward trend continuing for several years means that insurance companies ceased offering of short-term life insurance and endowment contracts which substituted tax-advantaged investments. The share of a single premium in this group of products fell to 20.7%. Insurance concluded in the group form constituted almost a half of the premium. It was mainly employee insurance.

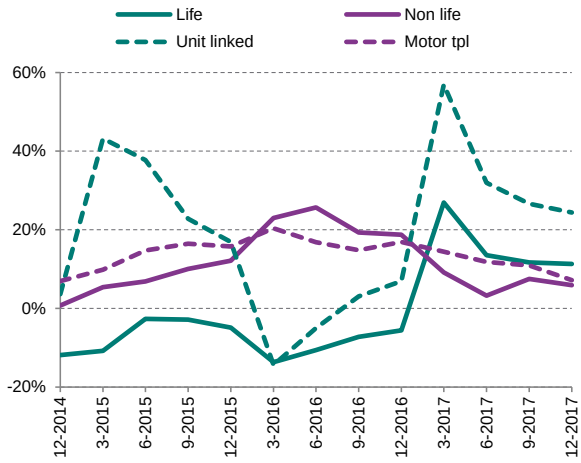
Revenues in non-life insurance sector from premi-

[114] In *the Report,* gross written premium, claims paid, financial results, loss ratio (LR), COR and share of reinsurers are presented in accordance with the statutory financial statements.

ums increased. It was the result of an increase in prices of motor insurance, caused by the growing value of claims paid. Higher revenues from premiums contributed to the improvement in profitability of AC (motor insurance) and OC (third-party liability insurance).

Payments of claims in insurance reached a high level. However, they did not pose a threat to the stability of the sector. In 2017, claims paid from the UFK increased by 24.4% compared to 2016. A decline in the level of liquidation fees could have contributed to it.[115] The growth of payments in the entire sector was set off by the inflow of premiums which were 4.2 billion zlotys higher than claims.

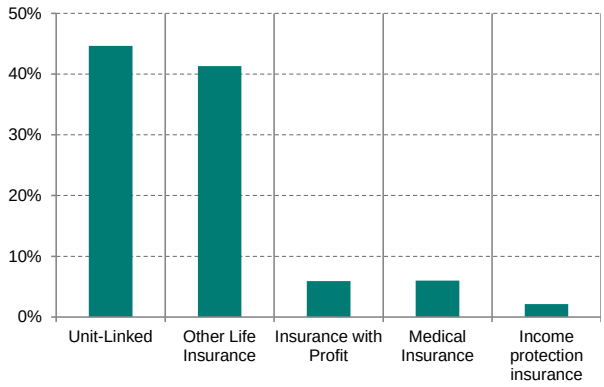
Figure 4.3. Rate of changes in gross claims paid



Source: UKNF.

Payments of claims in the non-life insurance stabilised, however, a risk of their growth still exists. Compared to 2016, claims arising from motor insurance contracts increased by 7.2%, as a result of the growth in the payments of claims due to personal injuries with third-party liability insurance of mechanical vehicles (see Figure 4.3), including compensations paid to relatives of deceased persons. In other insurance sector, the growth of payments was lower by over a half. Moreover, in March 2018 the Supreme Court adopted the decision [116] concerning a possibility for common courts to award compensation for the harm to relatives of a victim who has suffered a severe and permanent health impairment. Therefore, a new catalogue of claims was opened in which relatives of the victims of traffic accidents will be able to apply to the insurer of the perpetrator of the accident for payment of the compensation which would make a redress for broken family ties. So far, only relatives of deceased persons were able to apply for such a benefit. The position of the Supreme Court also refers to compensations stemming from medical errors.

Figure 4.4. The product structure of life insurance companies



Note: Shares according to premium collected.
Source: UKNF.

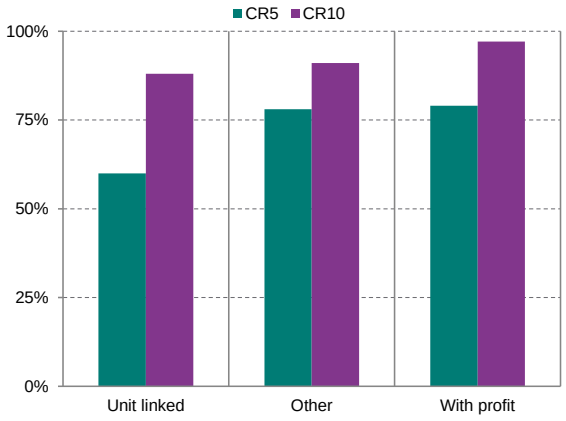
[115] Seventeen insurance companies concluded the agreement with the UOKiK Chairman under which fees were reduced for contracts active as at 1 December 2016 and which were concluded before 1 January 2016 (i.e. the day on which regulations determining the maximum level of liquidation fees at a level of 4% entered into force). The reduction was mainly related to policies which were not covered under earlier agreements. Moreover, insurance companies undertook to refund liquidation fees to persons who concluded contracts after 2008 and terminated them after having turned 65.

[116] The operative part of the resolution of the Supreme Court issued on request of the Financial Ombudsman (file reference no. III CZP 36/17).

Insurance company and product concentration

The insurance sector shows a high concentration of insurance companies. Five largest life insurance companies collected almost two-thirds of the premium, whereas in the case of non-life insurance companies, it was over 70% of premium of the whole sector. The share of entities of the largest insurance capital group in 2017 reached over 30% of premium of the whole sector.

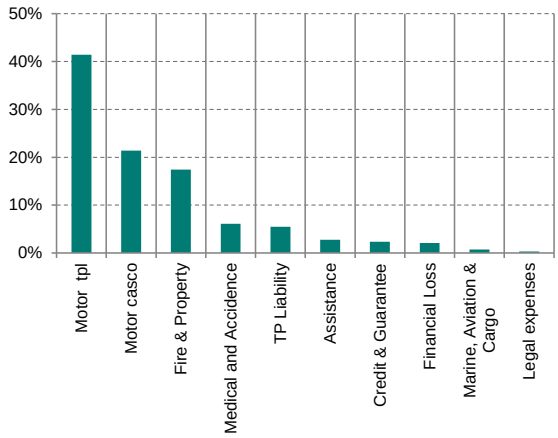
Figure 4.5. Concentration of life insurance companies in selected business lines



Note: The figure shows the share in gross written premiums of five and ten largest life insurance companies of selected business lines.
Source: UKNF.

Within the particular sectors – insurance companies – had a similar product offer. In the life insurance sector, besides life insurance and endowment contracts, the majority of entities also offered unit-linked insurance (see Figure 4.4). So-called additional insurance was also available – accident insurance, personal accident insurance and health and sickness insurance, however, their share in the premium did not exceed 25%. Among the most important categories of insurance, a high level of concentration was characteristic, in particular, for the business line – other life insurance, which comprised group employee insurance and individually continued life insurance (see Figure 4.5). In the case of such insurance, the market was dominated by one entity. Although unit-linked insurance was offered by only a half of insurance companies, concentration in this business line was lower than in other life insurance.

Figure 4.6. The product structure of non-life insurance companies



Note: Shares according to premium collected.
Source: UKNF.

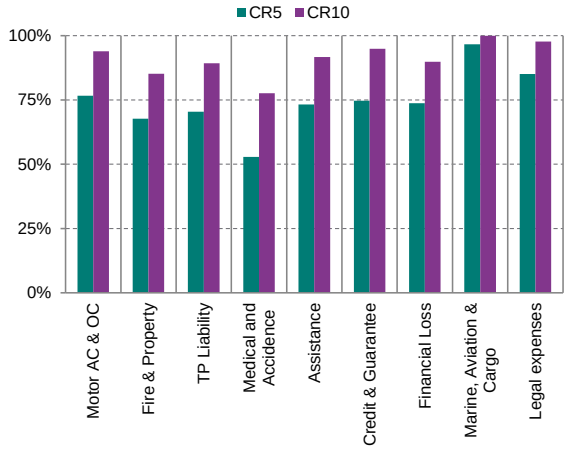
The most important products of the non-life insurance sector comprised motor insurance, and fire and property insurance (see Figure 4.6). They were offered by the majority of companies, nevertheless, insurance company concentration in this business line was very high. Companies with a limited offer focusing on selected products were also active on the market.

In non-life insurance, concentration was also related to specialist business lines: marine and aviation insurance, credit insurance[117] and insurance of legal expenses (see Figure 4.6). It was niche insurance offered only by certain companies with proper experience and HR base. However, due to the small share of these groups in the gross written premium, the cessation of activities by a company offering this type of insurance should not affect the availability

[117] Insurance of low own downpayment in the case of mortgage loans constituted a minor part of credit insurance

of services. Other entities, in particular large ones, would be able to provide similar protection in a short time. Moreover, owing to the freedom of services within the EU, foreign insurance companies could present a similar offer.

Figure 4.7. Concentration of non-life insurance companies in selected business lines



Note: The figure shows the share in gross written premiums of five and ten largest non-life insurance companies of selected business lines.
Source: UKNF.

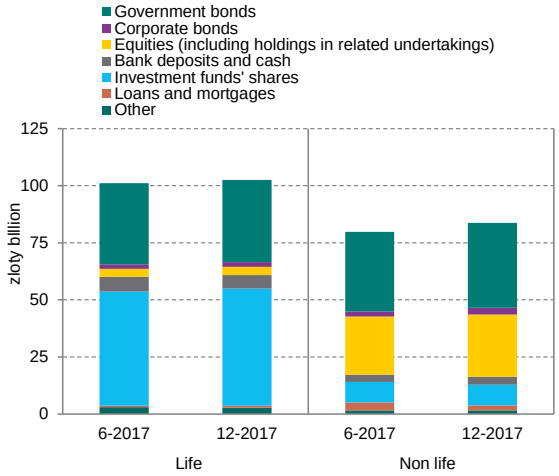
Assets and investment risk

Insurance companies bore the investment risk associated with assets other than unit-linked insurance.. At the end of 2017, assets of insurance companies amounted to 198.6 billion zlotys (at the end of 2016 – 184.3 billion zlotys), including unit-linked assets constituting 55.7 billion zlotys. Approximately 90% of assets were denominated in domestic currency.

In the life insurance sector, assets for which the investment risk was borne by the policyholders had the highest share. Almost 85% of unit-linked funds were invested in shares of investment funds. In the portfolio of investments, where the investment risk was borne by the insurance companies, Treasury securities prevailed. Direct investment in real estate and shares listed on the regulated market accounted for a marginal part of investments of life insurance companies.

Similar to companies of the life insurance sector, Treasury securities constituted the dominating part of non-life insurance companies' investments. Their value at the end of the year amounted to 37.2 billion zlotys (see Figure 4.8). Equities and shares in affiliated entities also constituted a significant part of assets. It resulted, to a large extent, from the structure of investments of the largest entity of non-life insurance sector. Compared to the first half of 2017, insurance companies granted less loans, including in the repo transactions. Receivables due to such operations constituted a marginal part of insurance companies' assets.

Figure 4.8. Investments of insurance companies

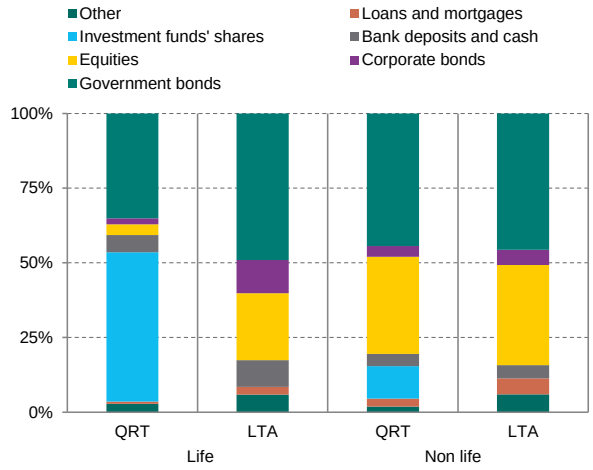


Note: The item - loans granted covers also those granted in the repo transactions.
Source: UKNF.

Investments in shares of investment funds comprised a significant part of the sector's assets – both unit-linked assets and funds for which the investment risk was borne by the insurance company. In the case of unit-linked insurance, fund selection and the resulting investment policy depended on decisions of the policyholders. Other investments, which mostly comprised insurance companies' assets, were usually allocated in shares of dedicated

investment funds, created for the needs of entities from the capital group. The biggest companies invested much more assets in shares of investment funds than other companies.

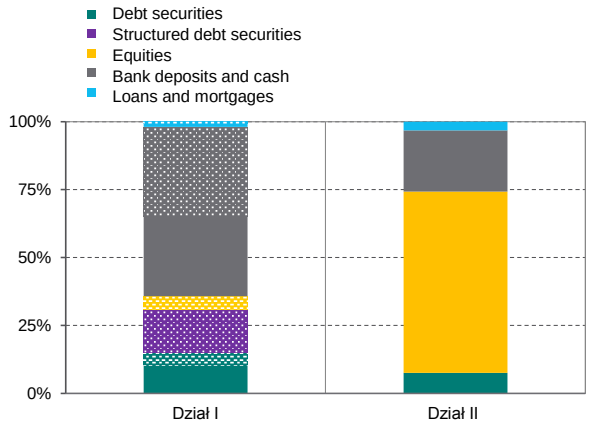
Figure 4.9. Structure of insurance companies' investments at the end of 2017



Note: QRT – investments presented in accordance with the Solvency II methodology, LTA – structure of assets presented taking into account components of investment funds' assets. The item - loans granted also comprises those granted in the repo transactions.
Source: UKNF.

If assets of investment funds whose shares were purchased by insurance companies were taken into account, (*look-through* approach), their structure of investments would change significantly (see Figure 4.9). The share of Treasury debt securities in the portfolio of the whole sector would increase to 50% and the exposure of the sector to equities and shares would also increase. The changes were mainly affected by the method of investing unit-linked insurance assets. The application of the *look-through* approach in relation to investments of non-life insurance companies would affect the growth in the value of loans granted and, to a lower extent, non-Treasury debt securities.

Figure 4.10. Structure of insurance companies' exposure to the domestic banking sector at the end of 2017



Note: Squaring was used for unit-linked investments. The item - loans granted also comprises those granted in the repo transactions.
Source: UKNF.

The value of assets related to the banking sector at the end of 2017 amounted to 24.5 billion zlotys and accounted for 13% of insurance companies' sector. In the non-life insurance sector, it was associated, among others, with the exposure of the largest insurance company to equities of domestic banks (see Figure 4.10), whereas in life insurance companies, unit-linked assets accounted for over a half of the exposure. The second largest category of exposures to banks were deposits whose value remained at a level close to that recorded at the end of the first half of 2017. However, it did not exceed 5% of all sector's deposits. On the other hand, a high concentration of investments deposited in one bank was observed in many companies, exceeding 75% of all investments of a given entity. Insurance companies often invested their funds in banks belonging to the same capital group. The value of liabilities of the insurance sector towards banks was also low and it did not exceed 1 billion zlotys.

Insurance companies were important participants of financial markets. The share of their direct investments in the domestic market of Treasury bonds

amounted to approx. 11%. Direct exposure to equities of domestic companies listed on the WSE accounted to approx. 2% of their capitalisation. The extent of the sector's exposure to debt securities of enterprises and banks remained at a similar, insignificant level. After taking into account components of investment funds' assets, particularly within the unit-linked investments, the real share of the sector in the aforementioned markets would be higher. Despite continuing low interest rates, insurance companies maintained a stable structure of investments. Therefore, the sector did not search for yield through investing funds in less liquid and riskier assets.

Few non-life insurance companies used leverage. The largest institutions on the market used derivatives, mainly for the purpose defined in reporting as effective portfolio management. The nominal value of those instruments dropped significantly compared to the first half of 2017. Moreover, entities of the insurance sector took out loans granted by other entities operating within the same capital group.

Liquidity risk

Despite the failure to include the liquidity risk in the Solvency Capital Requirement, insurance companies should manage it in an adequate manner.[118]. Each of the entities is obliged to describe the liquidity risk it is exposed to and applied techniques used for its mitigation in the solvency and financial condition report.[119] Under liquidity risk management, many entities adjusted their cash flows from assets and liabilities, maintained properly liquid assets as well as performed stress tests.

Insurance companies were not significantly exposed to liquidity risk. The premium which was the main source of financing was paid in advance, before the occurrence of the insured peril. The surplus of premiums over claims was observed in the insurance sector, which made companies finance their activity from current revenue. Moreover, insignificant exposure to illiquid assets and maintaining of the adequate level of liquid investments made an important element of liquidity risk management in case of the necessity to make sudden payments of benefits. Liquid government bonds constituted a dominant part of the portfolio of debt securities.

Liquidity risk could have occurred in life insurance contracts, for which legal regulations and contractual terms stipulated a possibility to lapse from contracts and withdraw funds. This related to investment products, where the risk was borne by policyholders. Under the circumstances of a sudden and significant number of surrenders, some entities could demonstrate a higher demand for liquidity. This related, in particular, to those companies for which unit-linked insurance made core activity. However, in the case of unit-linked insurance assets managed by insurance companies, liquid investments prevailed. On the other hand, in relation to this part of unit-linked insurance assets which were invested in shares of investment funds, insurance companies usually used the relevant provisions in the insurance documentation[120], to hedge themselves against liquidity risk. Moreover, the regula-

[118] see"Financial Stability Report. December 2017", NBP, Warsaw 2017, p. 103.

[119] Article 295(1)(d) of Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II)((OJ L12 of 17.1.2015, p. 1, as amended.

[120] Insurance companies envisaged a possibility of postponed payouts or a payout of only a portion of funds from the unit-linked insurance in the case of suspension of the disposal and redemption of investment fund shares in which unit-linked insurance assets were invested. The insurance documentation made a possibility to establish the value of unit-linked insurance units dependent on the valuation of shares of investment funds.

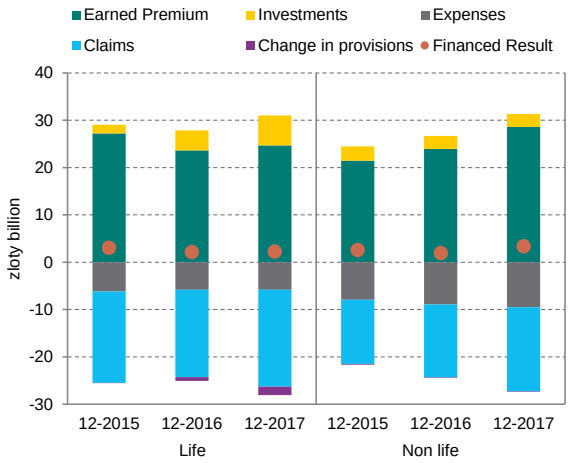
tions do not define the term of payment of funds from the unit-linked insurance. This term is agreed between the insurance company and the policyholder in the general terms and conditions of insurance and it may limit the company's liquidity risk.

Financial results

In 2017, the financial performance and technical results of insurance companies improved (see Figure 4.11 and Table 4.2). As in 2016, approximately one-third of entities with a minor market share recorded a loss. In life insurance, the premium and revenues from net investments increased, however, as a result of the growth of claims and provisions, the technical result increased only by 0.1 billion zlotys. Nevertheless, the level of technical viability of this sector remained very low. In non-life insurance, a high growth of premium significantly translated into the improvement of the technical result, which increased almost five-fold compared to 2016. The financial result also increased whose level was predominantly determined by the largest entity on the market.

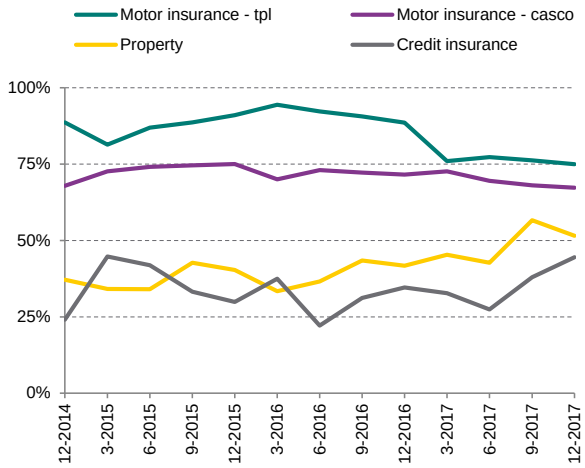
The financial result of the sector was also affected by the tax on certain financial institutions[121], which covered more than a half of active insurance companies. The annual burden due to this tax is estimated, as in 2016, at a level of approx. 0.6 billion zlotys, of which almost a half fell to insurance entities of the largest domestic capital group.

Figure 4.11. Revenues and costs of insurance companies



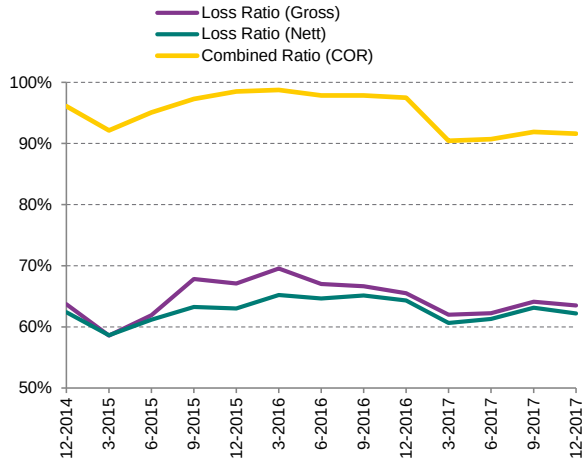
Source: UKNF.

Figure 4.12. Selected loss ratios in non-life insurance sector



Source: UKNF.

Figure 4.13. Loss ratios and COR in the non-life insurance sector



Source: UKNF.

[121]The Act of 15 January 2016 *on Tax on Certain Financial Institutions* (Journal of Laws of 2016 item 68).

Table 4.2. Financial results and basic indicators of the insurance sector

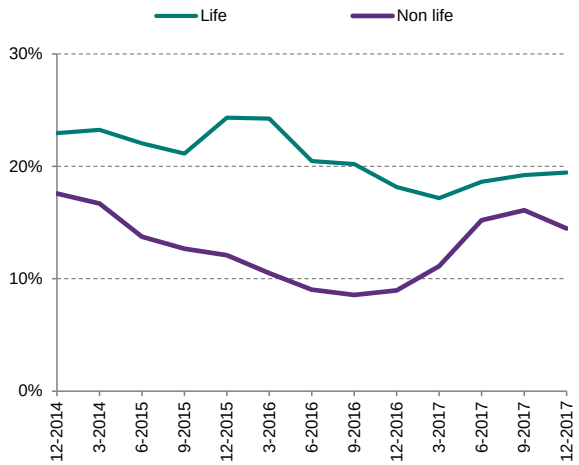
	12-2015 (zloty million)	12-2016 (zloty million)	12-2017 (zloty million)	12-2017/12-2016 (in %)
Life insurance (Sector I)				
Earned Premium	27 232	23 660	24 672	4.3
Technical Result	2 845	2 940	3 064	4.2
Financial Result	3 046	2 170	2 293	5.7
Equity Capital	12 427	12 220	11 951	-2.2
Technical profitability (in %)	10.4	12.4	12.4	0.0 pp.
ROE (in %)	24.3	18.2	19.4	1.2 pp.
Non life insurance (Sector II)				
Earned Premium	21 502	23 947	28 624	19.5
Technical Result	246	366	2 078	467
Financial Result	2 574	1 929	3 404	76.4
Equity Capital	21 574	21 980	24 495	11.4
Technical profitability (in %)	1.1	1.5	7.3	5.7 pp.
ROE (in %)	12.1	9.0	14.5	5.5 pp.

Note: Due to the adjustments made, data may differ from those presented in the previous editions of the *Report*.
Source: UKNF.

In 2017, the loss ratio in non-life insurance markedly improved. The growth in prices of motor third-party liability insurance (OC) led to a clear decline in the loss ratio (see Figure 4.12), which, in turn, contributed to the improvement of the COR (see Figure 4.13). This measure decreased to the level of 90%, which enabled the recovery of profitability of insurance activity. In fire and property insurance and credit insurance, the loss ratio remained at a low level while costs of the insurance cover constituted only approx. a half of the premium.

A growth of profits in the insurance sector resulted in the growth of the ROE indicator (see Figure 4.14). Life insurance was more profitable than non-life insurance. It was a consequence of a high share of very profitable group and individually continued life insurance. High surpluses of own funds over the capital requirements did not encourage companies to accumulate earnings. It was allocated for the payment of the dividend, therefore, it did not increase the sector's equity.

Figure 4.14. Profitability of the insurance sector



Source: UKNF.

A factor which could reduce the profitability of life insurance companies in the future is a possibility of policyholders' surrender of unit-linked contracts. This type of insurance shows a high share of costs and commissions, charged against clients. Thus, unit-linked insurance is a significant source of profits for intermediaries and insurance companies.

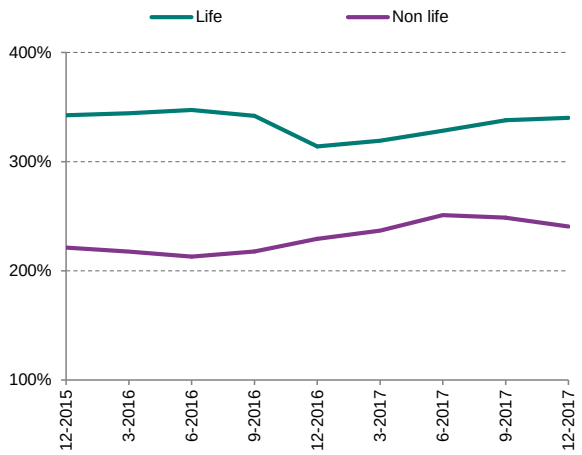
Clients' mass resignation would result in a decrease of the results and own funds, particularly of those companies which hold large portfolios of unit-linked insurance[122]. However, this phenomenon was not observed in 2017.

Unpredictability in determining the level of compensation due to non-pecuniary damages remains the highest risk for profitability of non-life insurance companies providing motor insurance. The data of the Insurance Guarantee Fund indicated that 1/3 of claims in this insurance group comprised personal injuries[123] occurring in traffic accidents before 2008, i.e. prior to defining the right to compensation payment for relatives of the deceased persons in the regulations[124]. In 2017, work on legal solutions, which would contribute to mitigation of this problem, continued.

Solvency

The insurance sector had a large surplus of own funds over capital requirements arising from the Solvency II Directive. The coverage of solvency parameters in the life insurance sector was over threefold and for the non-life insurance sector - over twofold higher than the capital requirement (see Figure 4.15). None of the entities used LTG tools or transitional measures provided for in the Solvency II Directive that allowed the distribution of the implementation of new solvency rules for a period of 16 years.[125]

Figure 4.15. The solvency ratio in the insurance sector



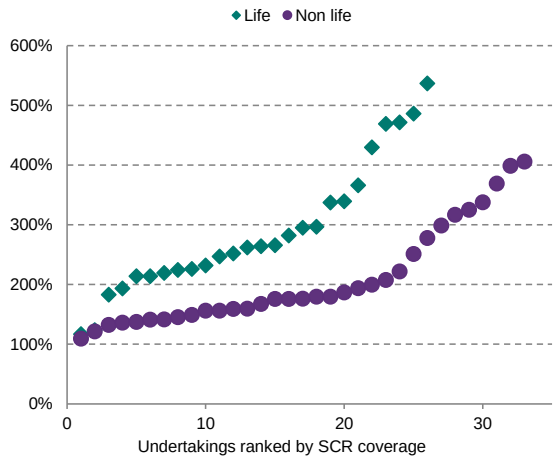
Note: The SCR coverage ratio, the minimum value of this ratio is 100%
Source: UKNF.

The structure of the sector's own funds has not changed – items classified to the category with the best qualitative features constituted 95% of own funds. The value of own funds eligible to cover the solvency capital requirement at the end of 2017 increased. It related mainly to non-life insurance companies where eligible own funds increased by 2.1 billion zlotys compared to the end of the first half of 2017 and amounted to 41.5 billion zlotys. It was the result of a higher growth of premium in relation to claims in motor insurance, which translated into a growth in assets of non-life insurance companies. At the same time, a significant decline in liabilities (other than technical provisions) occurred, arising from settlements with shareholders due to the dividend. It affected the increase in the surplus of assets over liabilities. The value of subordinated liabilities

[122] See "Financial Stability Report. June 2017", NBP, Warsaw 2017, p. 92.
[123] Personal injuries comprised not only compensations but also benefits for persons injured in accidents.
[124] See "Financial Stability Report. December 2016", NBP, Warsaw 2016, p. 87.
[125] In accordance with the Solvency II Directive, insurance companies, under the approval of the supervision authority, may use adjustments for long-term insurance guarantees (LTG) and transitional measures. For LTG tools the directive stipulates a correction adjusting to the relevant term structure of risk-free interest rate (*matching adjustment* – MA) and the correction due to volatility to the relevant term structure of the interest rate (*volatility adjustment* – VA). Their application is designed to serve for mitigation of volatility in insurance companies' balance sheets as a result of the application of market valuation of assets and liabilities. Also, the directive stipulates a possibility to use transitional measures related to risk-free interest rates as well as technical insurance provisions over a maximum period of 16 years following its entry into force. The transitional measures should mitigate the impact of amendments to the regulations on the solvency indicators of individual entities.

remained at a similar level. In the life insurance sector, insurance companies held 27.3 billion zlotys of eligible own funds.

Figure 4.16. Solvency capital requirement (SCR) for insurance companies at the end of 2017

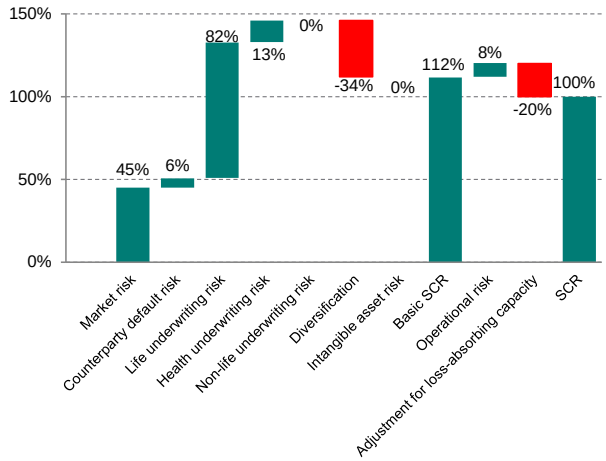


Note: The companies are ranked according to the SCR coverage. One non-life insurance company recorded the SCR coverage over 800% and it is not presented in the Figure.
Source: UKNF.

In the non-life insurance sector, the solvency ratio decreased whereas in the life insurance sector it increased. In non-life insurance companies, the SCR increased significantly (by 10.2%), which resulted from the growth in the premium and provisions for unpaid claims and benefits in motor insurance. On the other hand, solvency ratios in life insurance companies improved, which resulted from the decline in the capital requirement for the counterparty default risk. However, all insurance companies fulfilled the capital requirements (see Figure 4.16).

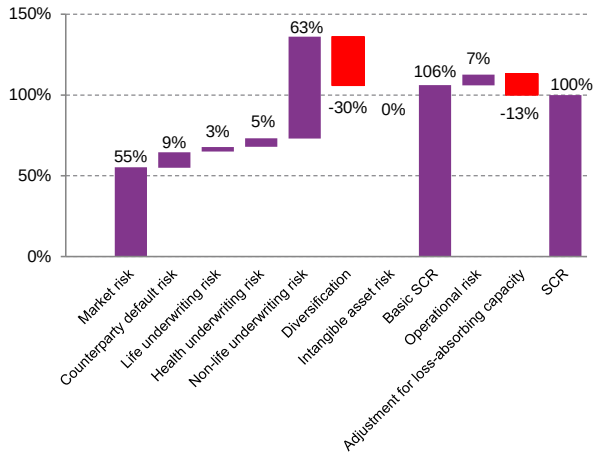
All insurance companies calculated the Solvency Capital Requirement on the basis of the standard formula. The level of the SCR in both insurance sectors was mostly affected by the underwriting risk module and subsequently, by the market risk module (see Figures 4.17 and 4.18).

Figure 4.17. Structure of the Solvency Capital Requirement for life insurance companies at the end of 2017



Note: The adjustment means adjustment for loss-absorbing capacity of technical provisions and deferred taxes.
Source: UKNF.

Figure 4.18. Structure of the Solvency Capital Requirement for non-life insurance companies at the end of 2017



Note: The adjustment means adjustment for loss-absorbing capacity of technical provisions and deferred taxes.
Source: UKNF.

The capital requirements in the underwriting risk module of life insurance sector reflected the specific product characteristics of individual life insurance companies. Considering the significant share of unit-linked insurance, companies presented the highest capital requirement for the risk of lapses. The capital requirement for mortality risk was lower

by almost a half. The exposure of life insurance companies to the longevity risk was only marginal.

For the non-life underwriting risk the highest requirement comprised the non-life premium and reserve risk, whose level was related to the extent of activity pursued. The capital requirement for cat risk was lower by a half. Reinsurance programmes had a significant impact on reducing the solvency capital requirement for the underwriting risk in non-life insurance companies.

Both in life insurance sector and in non-life insurance sector, in the market risk module, the highest capital requirements comprised the submodule of equity risk. These requirements stemmed from investing assets of insurance companies in investment funds' shares. Moreover, in non-life insurance companies, holdings in related undertakings had an impact on capital requirements stemming from equity risk. They also generated a requirement for market risk concentration, which was higher than in the case of the life insurance sector.

The majority of life insurance companies demonstrated sensitivity to the increase in the term structure of interest rate. Interest rate changes did not represent a significant risk factor for insurance companies. The share of the capital requirement for this risk in the SCR did not exceed 15%. The exposure to the increase in interest rates stemmed from a considerable excess of assets sensitive to the increase in interest rates over liabilities and investing a significant portion of own funds in debt securities. In contrast to insurance companies in other countries of the European Union, the environment of low interest rates was not a source of risk for domestic entities.

Non-life insurance companies demonstrated a higher requirement for the counterparty default risk than life insurance companies. It was mainly associated with a much broader use of reinsurance cover which reduced the risk in the sector. However, the increase of the capital requirement under the counterparty default risk module was offset by a much greater decline of the capital requirement for cat risk. In the case of the scenario in which companies do not use the reinsurance cover, the capital requirements would grow to such a level that own funds of the majority of entities would not be sufficient to cover the SCR. Reinsurers had the highest share in aviation insurance and in financial insurance. In the life insurance sector, the role of reinsurance was marginal.

4.2. Investment funds and investment fund management companies

The investment funds' activity is based on pooling capital resources of many investors in order to invest them collectively[126]. Inflows are converted into investment fund units (shares)(in open-ended funds) or investment certificates (in closed-ended funds), expressing the proportional share of their holders in the fund assets. The funds provide the opportunity for indirect investment in various assets classes, including those that are not available to individual investors with little capital. Investment funds also enable investors to reduce investment risk through a significant diversification, which is more difficult to acquire in the case of individual investments in financial markets.

In the sector of investment funds there were also entities whose shares could be acquired only by a specific group of investors. Most often, they

[126] Alternative investment companies defined in accordance with the Act of 27 May 2004 *on Investment Funds and Management of Alternative Investment Funds* (uniform text, Journal of Laws 2018, item 56, as amended) as alternative investment funds are described in the box (see Box 7).

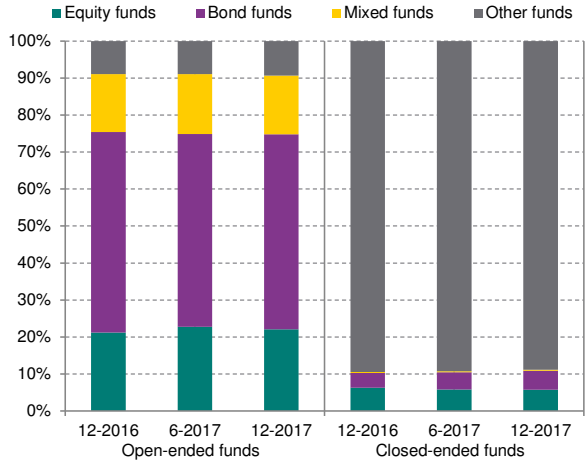
took the form of closed-ended investment funds and served to create individual investment solutions tailored to the needs of specific customers – primarily enterprises, but also affluent retail investors and insurance companies.

The safety of assets accumulated in investment funds is independent of the financial situation of the investment fund management companies (TFI) and depositaries. Investment fund management companies and the investment funds they manage have separate legal personalities and the funds' assets are legally separated from TFI's assets. Assets accumulated in the funds are not included in depositaries' bankruptcy estate, therefore investment funds' participants do not bear the consequences of a possible bankruptcy of these institutions. Investment fund management companies and depositaries are responsible for the operation of investment funds and for potential damages caused by non-performance or improper performance of their duties.[127]

The size of the sector

At the end of 2017, net assets of investment funds reached the highest level in the history of the sector – 303.0 billion zlotys. The ratio of net assets of the funds to GDP amounted to about 15%. It was still significantly lower than in countries with more developed financial markets.[128] In 2017, net assets of domestic funds grew by 10.1%. This growth resulted both from the change in prices of assets and the net inflows.

Figure 4.19. The structure of the investment funds sector by investment policy



Note: Open-ended investment funds and specialised open-ended investment funds were included in the group of open-ended funds.
Source: NBP.

Net capital inflows were observed in the entire sector. All types and kinds of funds recorded net inflows.[129] In 2017 net inflows to the sector amounted to approx. 15 billion zlotys. Unlike in previous years, when the capital inflows to closed-ended funds were mainly recorded, in 2017 capital was mainly contributed to open-ended funds. The highest payments were made by households – mainly to debt securities funds (in particular, corporate bonds and cash and funds). Their investments in shares of investment funds could have resulted from the search for potentially more profitable capital investments than bank deposits. On the other hand, the highest amounts were withdrawn by insurance companies.

The value of net assets of open-ended and closed-ended funds was similar. Debt funds had the high-

[127] In accordance with Article 64(1) and (3) of the Act*on Investment Funds and Management of Alternative Investment Funds* the TFI is liable before participants of the investment fund for – in principle – all damage caused by non-performance or improper performance of its duties in the management of a fund and its representation. Entrusting the performance of certain duties by the TFI to a third party shall not limit the TFI's liability. Pursuant to Article 75(1) of this Act, the depositary shall be also liable for damage caused by non-performance or improper performance of its duties.

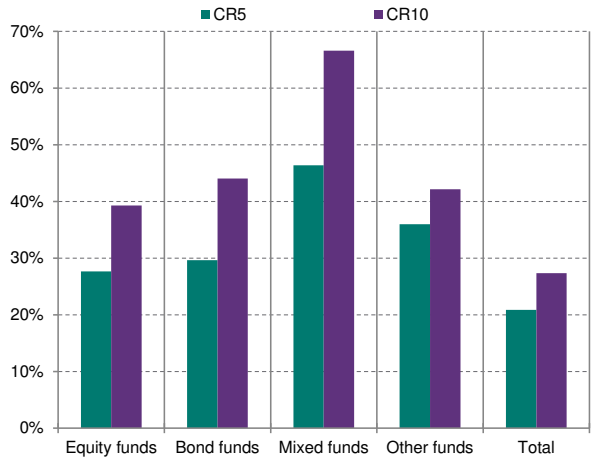
[128] At the end of 2017, investment funds' net assets in the euro area corresponded to the value of its GDP.

[129] The report uses a classification of investment funds into kinds and types. In accordance with the provisions of the Act *on Investment Funds and Management of Alternative Investment Funds*, kinds of investment funds include: open-ended investment funds, specialised open-ended investment funds and closed -ended investment funds. On the other hand, the classification into types refers to the investment policy of the funds. The following were distinguished: equity funds, debt funds, mixed funds and other funds.

est share in the structure of open-ended funds (see Figure 4.19). On the other hand, other funds dominated among closed-ended funds. This group of entities comprised, among others, securitisation funds. Their share in the sector's assets was insignificant – at the end of 2017 it amounted to approx. 3%.

The risk of restriction on financial services provided by the investment fund sector is insignificant. The funds do not have bankruptcy capacity.[130]. At the end of 2017, approximately 1,300 entities were active on the market (funds and subfunds). The highest level of concentration was observed for the smallest group of mixed funds (see Figure 4.20). Services provided by entities with similar investment policies can be considered as substitutive. In the case of potential cessation of activity by some funds (e.g. those managed by specific TFI), other funds could provide services with the same functions to investors.

Figure 4.20. The concentration of investment funds by investment policy

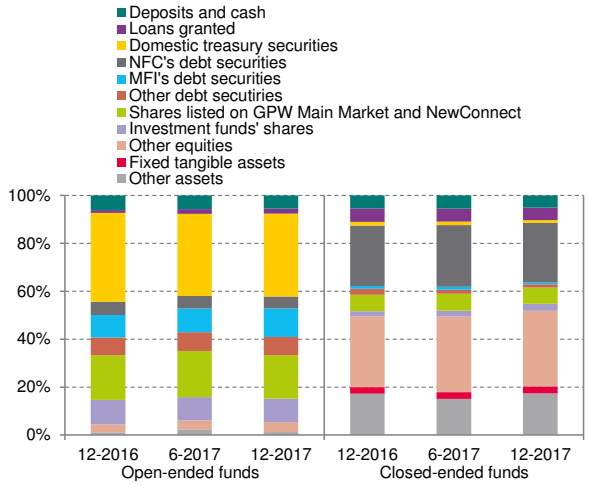


Note: The figure shows the share of five and ten largest investment funds in the net assets of individual groups of funds by the investment policy.
Source: NBP.

Investment risk and the structure of assets

Open-ended and closed-ended funds invested in different types of financial instruments. Domestic treasury bonds continued to dominate in the structure of open-ended funds' assets, however, in 2017 their share decreased (see Figure 4.21). On the other hand, the importance of banks' debt securities rose. This change could have been associated with the management companies' search for potentially more profitable instruments with a limited risk. The second most important component of open-ended funds' assets were shares listed on markets organised by the WSE. On the other hand, other equity financial instruments prevailed in assets of closed-ended funds, including in particular unlisted shares. Corporate debt securities also made a significant component of their assets.

Figure 4.21. The structure of assets of the investment funds sector



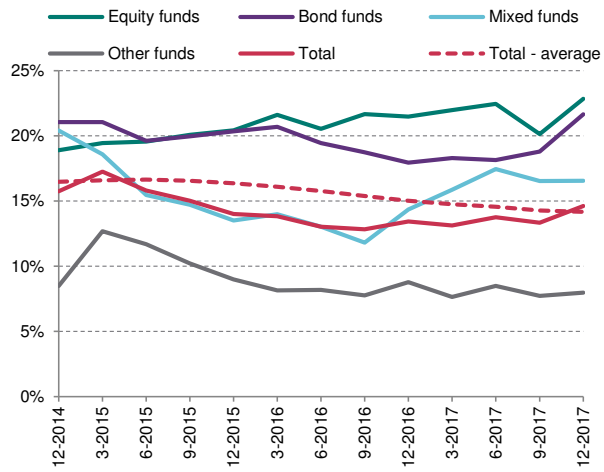
Note: Open-ended investment funds and specialised open-ended investment funds were included in the group of open-ended funds. The item - Deposits and cash also comprises margins. The item - Loans granted also comprises those granted in the repo transactions. The item - Debt securities of banks also includes state-guaranteed infrastructure bonds issued by BGK for KFD. Due to the adjustments made, the data may differ from those presented in the previous editions of the *Report*.
Source: NBP.

Investment funds were important participants of financial markets. They played an important role as buyers of domestic debt securities. However, their share in financing of the corporate sector and the

[130] Article 6 of the Act of 28 February 2003 *Bankruptcy Law* (uniform text, Journal of Laws 2017, item 2344, as amended.

banking sector was low, due to a small value of the market of debt instruments of those institutions. The funds were essential for the liquidity of markets organised by the WSE – in 2017 their share in equity trading on the WSE Main List amounted to 10.7%, and on NewConnect – 8.6%. The share of investment funds in the capitalisation of domestic companies listed on the WSE Main List at the end of 2017 amounted to 5.6%, and on NewConnect – 15.1%.

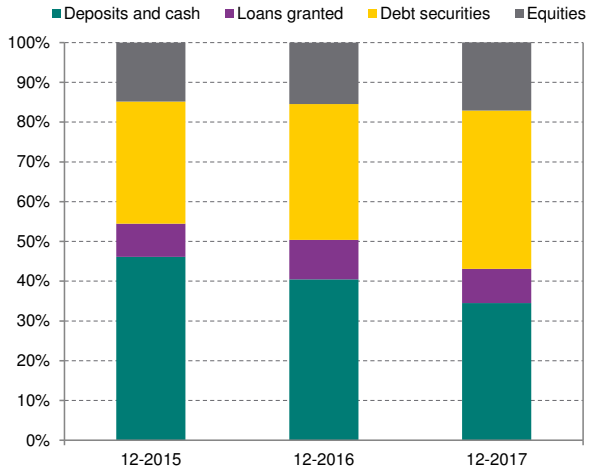
Figure 4.22. The share of assets associated with the domestic banking sector in total assets of investment funds by investment policy



Note: Assets associated with the banking sector include: deposits (including funds on current accounts and margins), receivables from loans granted to banks (including in repo transactions) as well as equity and debt securities issued by banks. The item - Debt securities also includes state-guaranteed infrastructure bonds issued by BGK for KFD. For total funds, a three-year moving average. Due to the adjustments made, the data may differ from those presented in the previous editions of the *Report*.
Source: NBP.

The banking sector was most significant among financial institutions the investment funds were linked with. Those linkages were significantly greater in the case of open-ended funds. In 2017, the share of assets with the exposure to the banking sector increased and at the end of December it was slightly higher than the three-year average (see Figure 4.22). This change stemmed mainly from the increased exposure of funds to banks' securities which, at the end of 2017 were more important in the structure of exposure to the banking sector than deposits and cash (see Figure 4.23).

Figure 4.23. Structure of investment funds' exposure to the domestic banking sector



Note: The item - Deposits and cash also comprises margins. The item - Loans granted also comprises those granted in the repo transactions. The item - Debt securities also includes state-guaranteed infrastructure bonds issued by BGK for KFD.
Source: NBP.

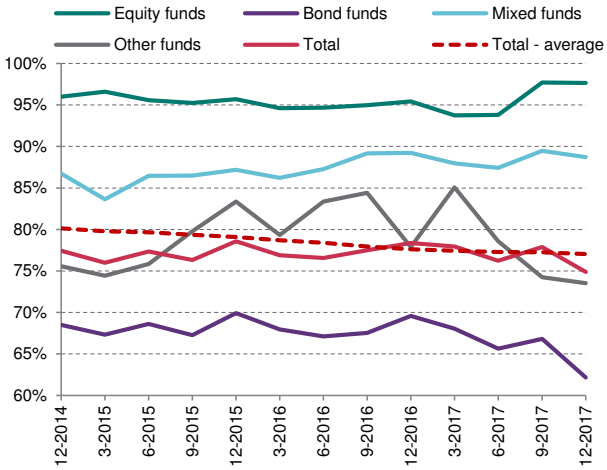
Liquidity risk

In the case of large outflows, investment funds can be forced to sell off assets. This sell-off could particularly relate to those open-ended funds which redeem their units at the request of participants and it would particularly affect those entities whose assets cannot be converted into cash within a short period of time, without material impact on their prices. In the case of a slump in prices and deterioration of market liquidity, investors could seek to redeem their shares in investment funds to protect their capital against continued loss in value. A mass sell-off of assets by the funds could, on the other hand, result in further turmoil on the financial markets, contributing in particular to a further decline in prices and liquidity.

In 2017 , the level of liquid assets of open-ended investment funds decreased and at the end of Decem-

ber it was lower than the average value of the last three years. (see Figure 4.24). Its decline was related to the growth in exposure of investment funds to bank debt securities and the decline of share in assets of Treasury securities. At the same time, in 2017 an increase was recorded in the duration of the portfolio of domestic Treasury bonds with a fixed coupon held by the funds, and it became more sensitive to changes in interest rates. Thus, the potential growth of interest rates may result in a stronger decline of certain funds' valuation and, as a consequence, increased outflow of funds from these institutions.

Figure 4.24. The share of liquid assets in total assets of open-ended investment funds by investment policy



Note: Liquid assets include: deposits (including funds on current accounts and margins), Treasury securities, shares listed on organised markets, participation units of domestic funds and units of foreign collective investment schemes. NBP has no data on investment funds' investments broken down into time periods within which it is possible to sell them without affecting their prices. For total funds, a three-year moving average. Due to the adjustments made, the data may differ from those presented in the previous editions of the *Report*.
Source: NBP.

The share of deposits and cash in funds' assets has also decreased. At the end of December 2017, it amounted to approx. 5%. The highest share of deposits and cash in assets was recorded for other funds, whereas the smallest – for mixed funds. These assets may act as a liquidity buffer which provides immediate access to capital allowing to fulfil claims of redemption (both expected and unexpected). However, maintaining the high level of deposits and cash reduces funds' exposure to market risk and causes that a smaller part of their assets is directly used for the implementation of the investment policy.

The share of liquid investments in funds' assets allows to assess their capacity of efficient management of large redemptions only to a limited extent. The funds will not always be ready to sell off assets with the highest liquidity in the first instance. Such a strategy could cause that after making a portion of payouts, only less liquid instruments will remain in the fund's assets, consequently, the fund would have no possibility to make successive redemption orders. Due to this fact, funds may prefer to sell individual components of investments evenly .

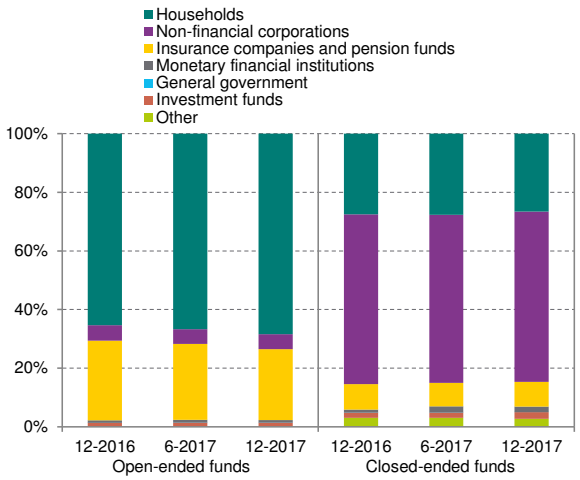
Financing and the structure of liabilities

Investment risk associated with activity of the funds is borne by their participants. Investment funds generally do not guarantee achieving the set investment target. Thus, the purchase of shares in investment funds is not associated with the guarantee of invested capital return. Accordingly, TFI managing investment funds do not bear the risk associated with the investment activity of funds. This risk is fully borne by holders of shares in investment funds.

Households had the largest share in the structure of investment funds' investors. Shares of investment funds were the third most popular form to keep savings used by them (after bank deposits and cash). In 2017, the value of those instruments held by households increased to a larger extent than the value of deposits. The share of investment funds' units increased the most among all financial assets held by households, reaching almost 12% at the end of December. Households were the main participants in open-ended funds and their share in the

structure of holders of shares in investment funds rose additionally in 2017 (see Figure 4.25).

Figure 4.25. The structure of investment fund participants

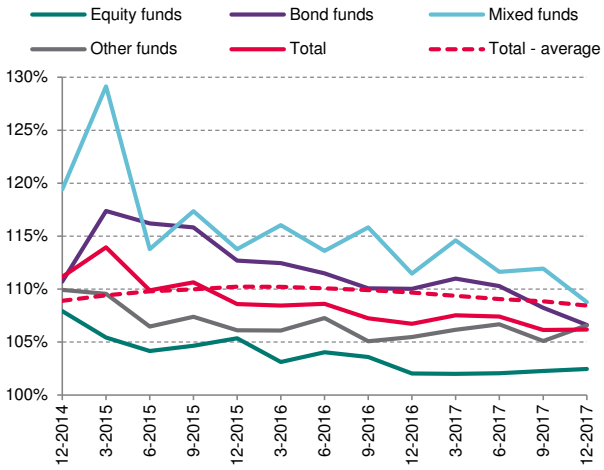


Note: Open-ended investment funds and specialised open-ended investment funds were included in the group of open-ended funds.
Source: NBP.

The role of insurance companies decreased in the structure of holders of shares in investment funds. It was associated with the withdrawal of assets from funds by those entities. Insurance companies invested the majority of assets in shares of specialised open-ended investment funds, often dedicated only for entities from the capital group. Insurance companies invested both own funds and assets of unit-linked insurance funds in investment funds' shares. In the case of the first type of assets, the risk of sudden withdrawal of capital from the funds as a result of changes in the valuation of assets may be lower than in the case of unit-linked investments. Other financial institutions did not play a significant role in the structure of investment funds' investors.

Among investors of closed-ended funds, non-financial corporations prevailed. In the vast majority, they comprised foreign undertakings, including those established by Polish entities for optimisation purposes. Investments of non-financial corporations in shares in investment funds demonstrated a significant concentration. Approx. 1/3 of assets they invested was entrusted to one investment fund.

Figure 4.26. Leverage in the investment funds sector by investment policy



Note: For total funds – a three-year moving average.
Source: NBP.

Repo transactions were an important source of leverage in the investment funds sector. Liabilities arising from these transactions were significantly higher than those from bond issues and loans and credits.[131] Mixed funds demonstrated the highest level of the leverage, measured as total assets to net assets ratio (see Figure 4.26). In order to increase exposure, the funds also used derivatives. In 2017, their nominal value rose and the structure of funds' exposure to those instruments also changed. At the end of December, interest rate and foreign currency derivatives were most important, whereas at the end of 2016 the funds were mostly exposed to foreign currency derivatives and equity options. Both in derivatives transactions and in repo transactions, domestic banks were mainly the counterparties of investment funds.

[131] Based on GUS data for the end of the first half of 2017.

Financial situation of investment fund management companies

The growth in the value of investment funds' assets contributed to the improvement of TFI financial situation (see Table 4.3). These institutions recorded a better financial result only in 2007. The ROE of the sector increased substantially. The aggregated return on equity of investment fund management companies remained much higher than for other non-credit financial institutions and banks.

Some TFI provided services of asset management type besides managing the investment funds. The value of portfolios comprising one or more financial instruments managed by them increased for the second year in a row. In the case of some investment fund management companies, the value of these portfolios was higher than the value of assets of the managed investment funds. At the same time, TFI's revenue due to portfolio management again decreased. In relation to the average value of the portfolios comprising one or more financial instruments, they were ten-fold lower than the revenues due to management of investment funds in relation to the average value of funds' assets.

Should the need arise to pay claims to investment fund participants, the financial situation of some management companies would deteriorate[132]. The equity capital of the sector increased and it was over four-fold higher than the statutory requirement. In relation to the total net assets of the investment funds, the TFI capital remained low – it did not exceed 1%.[133] The ratio of individual companies' equity capital to the total assets of the funds they managed was varied and on average, it amounted to 2%.[134] For the vast majority of management companies, the value of the participants' claims coverage ratio was lower than average. At the end of 2017, two TFI did not comply with the statutory capital requirements, however, their role in the sector was insignificant.[135]

Investment fund management companies may entrust management of the fund's investment portfolio or its part to another entity[136]. Delegating of such obligations shall neither reduce the TFI's capital requirements nor waive its liability for potential damages.[137] Approximately half of management companies operating on the market delegated the management of the fund's investment portfolio to another entity, whereas some of them delegated management of all their funds. The delegation of management related to approx. 10% of the investment fund sector, in terms of the number of entities and their net assets. The vast majority of funds whose portfolios were managed by entities other than their representing TFI were closed-ended

[132] The TFI could pay compensations to investment fund participants in case of damage arising from non-performance or improper performance of the obligations by the management company.

[133] In 2017, the KNF issued the statement on restrictions on investment fund management companies. It emphasised the liability of the TFI for damages, the guarantee type of TFI's equity capital and the necessity to ensure the appropriate structure of TFI's assets – in particular, the adequate level of liquidity of these assets, so that the TFI, at any moment, holds liquid assets or has a possibility of fast liquidation of assets held in the case of perils requiring satisfying the claims of investment fund participants.

[134] Arithmetic mean.

[135] Both managed only closed-ended investment funds, mainly private equity funds. Their net assets did not exceed 2% of the sector's net asset value.

[136] In accordance with Article 45a of the Act *on Investment Funds and Management of Alternative Investment Funds*, the management may be delegated to a brokerage house, another TFI, an entity specialised management or administration of real estate, an entity specialised in management of receivables pool or securitised receivables, and in the case of private equity fund – a specialised entity, provided that it is subject to the supervision of the competent supervision authority and has an authorisation to manage the portfolios comprising one or more financial instruments or - subject to the KNF's approval - to another specialised entity.

[137] In 2017, the KNF cancelled the operating license of one TFI. The reason of this decision was the management company's failure to exercise ongoing supervision of the entity entrusted with the management of investment portfolio of four investment funds as well as gross infringement of the articles of association on investment certificates' redemption by those funds. The representation of the funds so far managed by the TFI – also those in case of which no irregularities were found – was delegated to depositaries.

Table 4.3. Financial results and basic indicators of the TFI sector

	12-2015 (zloty million)	12-2016 (zloty million)	12-2017 (zloty million)	12-2017/12-2016 (%)
Total revenues:	3 234	3 240	3 884	19.9
– investment funds management fee	2 995	3 025	3 659	21.0
– financial instruments portfolios management fee	72	57	54	-4.8
Total costs	2 555	2 610	3 036	16.3
Pre-tax profit	679	631	848	34.4
Net profit	546	499	684	37.0
Equity capital	1 596	1 724	1 756	1.9
Equity capital requirement	295	369	392	6.3
Average value of investment funds net assets	243 132	277 534	292 277	5.3
Average value of financial instruments portfloios	28 097	46 645	60 288	29.3
Equity capital coverage ratio (%)	542	468	447	-21 pp.
Participant claims coverage ratio (%)	0.59	0.63	0.58	0.05 pp.
Pre-tax profit margin (%)	21.0	19.5	21.8	2.3 pp.
ROE (%)	37.5	30.4	41.1	10.7 pp.

Note: The participant claims coverage ratio is a ratio of investment fund management companies' equity capital to the sum of investment funds' net assets. Due to the adjustments made, the data may differ from those presented in the previous editions of the *Report*.
Source: UKNF, NBP.

funds, often securitisation funds or funds investing in the real estate market. This function was most commonly entrusted to companies dealing with debt management or debt collection, brokerage houses and companies providing services of real estate trading or management.

Box 7. Alternative investment companies

The global financial crisis revealed significant areas of the financial system that were not previously covered by Community regulations. One of these was the activities of entities managing funds not subject to the UCITS Directive[1], known as alternative investment funds. This situation changed in 2011 with the entry into force of the AIFM Directive[2], which was aimed to create an internal market of alternative investment fund managers, introduce supervision of these entities, and thus more effectively monitor risk in the European financial system.

The concept of alternative investment funds (AIFs) is very broad, as it covers all the collective investment undertakings other than UCITS, which raise capital from a number of investors in order to invest it in accordance with a defined investment policy (i.e. among others, hedge funds, private equity funds, real estate funds). Accordingly, the AIF sector is internally diverse, as it includes entities applying various investment strategies, and therefore carrying different levels of risk. Nevertheless, it seems that among all the types of AIFs the greatest risk is associated with the activities of hedge funds. These funds use leverage on a much greater scale than private equity funds and are characterised by much higher risk of redemption (in the case of private equity funds, investors' capital is frozen for several years).

In Poland, in line with the amended regulations of the Act on investment funds[3] (hereinafter: the Act), alternative investment funds comprise specialised open-ended investment funds, closed-ended investment funds and alternative investment companies (AIC), understood as entities operating in a legal form other than an investment fund, raising capital from many investors with the aim of investing it in accordance with a defined investment policy. To conduct business as an AIC manager it is necessary to be registered in the AIC managers' register kept by the KNF or obtain a permission to conduct business as an AIC manager.[4] On 4 June 2017 the one-year transitional period expired in which entities meeting the definition of AIC were obliged to adapt their activities to the regulations of the abovementioned act. At the end of March 2018, there were 12 entities in the register of AIC managers kept by

the KNF, of which 7 were registered as external AIC managers and 5 as internal AIC managers. So far the KNF has not issued any permissions for conducting activities as an AIC manager. These entities primarily originate from the environment of private equity funds.

The inclusion in the Act of provisions regarding alternative investment companies meant extending its scope to further part of the private equity sector[5], i.e. companies operating under the provisions of the Polish Code of Commercial Companies.

The new regulations allow better systemisation of the aforementioned sector in terms of structures and business models used for conducting activity. Entities carrying out investments with the biggest single value in the Polish market are companies with an international scope of activities and which have their head offices abroad. These entities raise capital primarily from foreign investors and are mainly interested in mature companies and buy-outs (including leverage buy-outs). The other group consists of entities that have already registered or will be registered in the AIC managers registry kept by the KNF[6] and entities that will obtain a permit to conduct activities as an AIC manager. These are usually local companies, often newly created in order to raise capital for investments, e.g. from the Polish Development Fund and the National Centre for Research and Development. In addition, in the private equity sector there are entities operating which cannot be classified to any of the two abovementioned groups. These companies define themselves as private equity funds or venture capital funds, but their activities are usually restricted to providing advisory services to other entities. The activities of some of these entities boil down to carrying out activities entrusted to them by another entity under an investment portfolio management contract. Such companies are not covered either by direct supervision of the KNF or by mandatory reporting. The regulations do not currently impose any capital requirements on them.

Despite significant changes in the legal status stemming from the implementation of the AIFM directive, accurate and complete data on the private equity sector in Poland are still unavailable due to the unfinished process of examining applications for entry into the register of AIC managers and for issuing a permission to conduct activities of an AIC manager, as well as due to the lack of reporting data.

However, taking into account the specificity of private equity funds, as well as the existing knowledge about the activities of such entities in Poland, it seems that this sector does not currently generate risks for the domestic financial system. On the one hand, there is no liquidity transformation risk in this sector. These funds are created for a predetermined time, have an investment horizon of several years (on average 7-10 years), and investors cannot withdraw the invested funds before the fund's exit from the investment (non-public company). On the other hand, private equity funds can contribute to an increase in leverage in the financial system as they engage in leveraged buy-out transactions. In principle, however, this leverage occurs not at the level of the funds, but at the level of the subject of the buyout (as these enterprises are the final borrowers). Such transactions are the domain of large private equity funds operating internationally.

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[1] Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (OJ L 302 17.11.2009, p. 32).

[2] Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 (OJ L 174 01.07.2011, p. 1).

[3] Act of 31 March 2016 *amending the Act on Investment Funds and Certain Other Acts* (Journal of Laws 2016, item 615). The act entered into force on 4 June 2016.

[4] The activities of the AIC manager may be performed on the basis of an entry in the register if the total value of assets included in investment portfolios managed by the AIC does not exceed the equivalent of EUR 100 million expressed in PLN, and in the case where the AIC manager manages only companies that do not use leverage and whose redemption rights can be exercised after a period of 5 years following the date of initial investment - the equivalent of EUR 500 million expressed in PLN. In the remaining cases, the AIC managers may operate solely on the basis of a permission issued by the KNF.

[5] Some of the entities operate in the legal form of closed-ended investment fund and were covered by the provisions of the Act before implementation of the AIFM Directive.

[6] According to the regulations in force, they cannot conduct cross-border activities.

4.3. Open pension funds and pension fund management companies

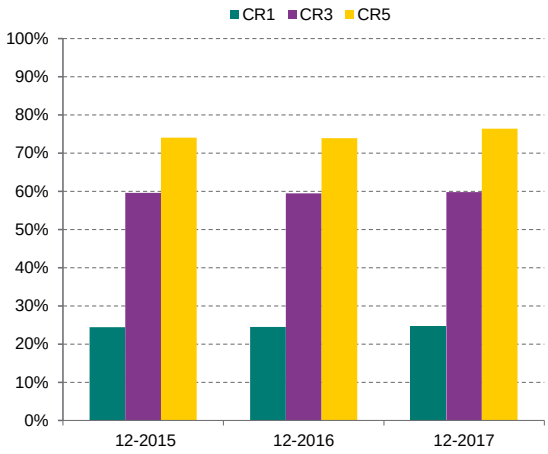
The activity of open pension funds consists in collecting and investing contributions provided to them under the capital part of the universal pension system. Assets of open pension funds are divided into accounting units assigned to the members of the fund proportionally to the size of the capital paid in. For 10 years prior to retiring, open pension funds gradually transfer assets assigned to the member to ZUS (Social Insurance Institution) under the so-called security slider mechanism.

The existing legal regulations guarantee the safety of capital accumulated in open pension funds, irrespective of the financial situation of pension fund management companies (PTE) and depositaries. The value of pension fund assets is not linked with the financial situation of the PTE, as these companies have a separate legal personality and the fund's assets are separated from the assets of management companies. Members of the open pension funds should not bear the consequences of the potential bankruptcy of a depositary, as funds' assets are not included in their bankruptcy estate.

The size of the sector

In 2017, the value of the net assets of open pension funds grew by 17% and at the end of the year it amounted to 179.5 billion zlotys. The growth in the value of funds' assets mainly came from the high financial result (28.4 billion zlotys). This result was primarily affected by the favourable situation on the domestic equity market. Funds transfers to ZUS under the security slider mechanism (6.1 billion zloyts) were almost two-fold higher than the inflow of new contributions (3.3 billion zlotys). Net assets of open pension funds accounted for approx. 9.1% of GDP.[138] This rate was significantly lower than in most OECD countries, where the average ratio of pension fund assets to GDP in 2016 amounted to almost 50%.[139] The data presented refer to the category - *funded and private pension arrangements*.

Figure 4.27. Concentration on the OFE market



Note: The figure shows the share of one, three and five largest open pension funds in net assets of the sector.
Source: UKNF.

The sector of open pension funds demonstrated a high level of concentration (see Figure 4.27). At the end of 2017, 11 open pension funds were active in Poland, i.e. one fund less than a year ago. The CR5 concentration ratio increased by 2.5 percentage points, mainly as a result of takeover of one fund's management by another PTE and the transfer of its assets. In recent years, the CR3 concentration ratio remained at a similar level, which stemmed from insignificant transfers of members between individual funds and the marginal number of first time concluded agreements.

There was no risk of discontinuation of the provi-

[138] After including the employee pension schemes, individual retirement accounts and individual retirement security accounts, the accumulated pension savings accounted for approx. 10.2% of GDP.
[139] "Pension Markets in Focus", OECD 2017.

sion of services in the sector. The reason is that individual entities provided services with identical function and in case of potential bankruptcy of one of the PTE, the law guaranteed a takeover of OFE management by another management company. At the same time, the funds do not have a bankruptcy capacity themselves.

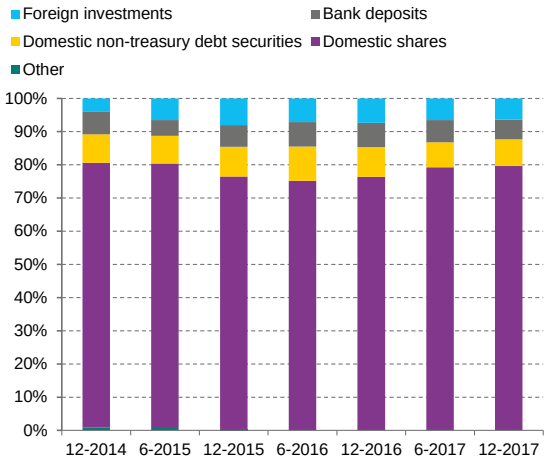
Investment risk and the structure of assets

Domestic equities prevailed in open pension funds' investment portfolio[140], which accounted for 79.6% of its value (see Figure 4.28). In individual funds, this share ranged from 74.3% to 82.8%. Open pension funds purchased almost exclusively shares listed on the domestic regulated market. Domestic non-Treasury debt securities represented 8.1% of the funds' portfolio. Exposures to this type of instruments differed among individual OFE, ranging from less than 2% to almost 12% of the portfolio. The structure of the investment portfolio stemmed, among others, from the statutory ban on investment in Treasury securities as well as from the size and specific nature of the domestic market of Treasury securities.

An small part of open pension funds' assets was directly dependent on economic conditions on foreign markets. The OFE invested, on average, 6.4% of the portfolio in foreign assets. Depending on the fund, these investments ranged from 3.6% to 9.3% of the portfolio. This comprised almost entirely shares of companied listed on foreign regulated markets.

In contrast to many European Union countries, the environment of low interest rates did not pose risk to the stability of pension funds in Poland. The reason is that the pension system was not based on the mechanism of defined benefit. Consequently, the OFE did not have pre-determined values of liabilities towards their members. Those liabilities only corresponded to net assets of the funds and depended on the current financial results. In a long term, low interest rates would have an adverse impact on the revenues from investments from the debt part of the investment portfolio. However, due to the limited share of those instruments in OFE assets, the impact of low interest rates on the deterioration of the sector's financial results would be insignificant.

Figure 4.28. Structure of open pension funds' investment portfolios



Source: UKNF.

Open pension funds were not allowed to grant direct cash loans [141]. In recent years, open pension funds did not perform repo transactions due to the ban on investment in Treasury securities, which were usually used as a collateral for this type of transactions.

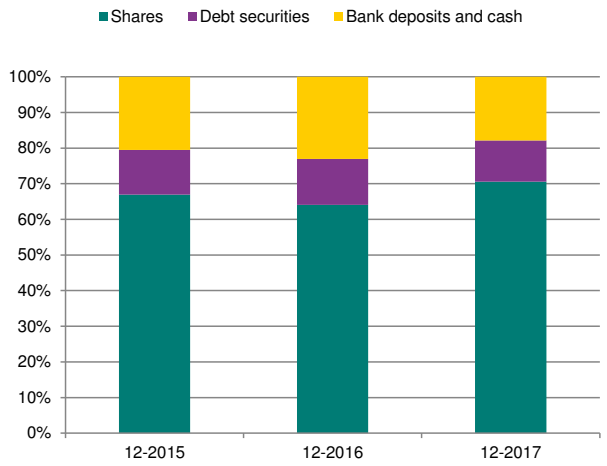
Assets of open pension funds demonstrated a significant exposure to the domestic banking sector. The OFE invested over 37% of the investment portfolio in assets related to domestic banks. These were mainly shares of banks listed on the domestic regu-

[140] This category also includes shares of foreign issuers listed on the WSE and bonds convertible into shares of companies whose securities are listed on the WSE.

[141] Article 150(3) of the Act of 28 August 1997 *on the Organisation and Functioning of Pension Funds* (uniform text, Journal of Laws 2017, item 870, as amended

lated market (see Figure 4.29). At the end of 2017, deposits,cash and debt securities issued by banks accounted for 11% of OFE's net assets. Pension funds played an important role in the market of debt securities issued by banks. OFE had a significant share in the market of covered bonds issued by domestic banks, whereas 2/3 of related OFE's exposure referred to three biggest funds.

Figure 4.29. Structure of open pension funds' exposure to the national banking sector



Source: UKNF.

The financing of the sector of non-financial corporations by the OFE was limited. The scale of purchases of corporate debt securities was limited. However, the funds could have a significant impact on prices of equity instruments listed on the WSE. At the end of 2017, OFE share in the capitalisation of companies listed on the WSE amounted to over 20%, whereas, their share in trading of equities on the WSE Main List 2017 – to approx. 4.3%.

Liquidity risk

Liquidity risk arising from a rapid withdrawal of funds by their members is non-existent in the sector of open pension funds. Unlike participants of investment funds, OFE members have no possibility to withdraw capital and resign from this form of investment in the case of financial market turmoil.[142] In order to limit the volatility of the price of accounting units or its decline, the funds may only reallocate resources among categories of assets available to them, however, the investment limits and the structure of the domestic financial market prevent funds from rebuilding the portfolio on a significant scale.

Due to the obligation to transfer a part of OFE assets to the Social Insurance Institution under the so-called security slider mechanism, the funds are required to maintain an adequate share of liquid investments in their assets. In 2017, under the slider mechanism, OFE transferred almost 75% more capital than in the previous year, which mainly resulted from lowering of the retirement age and the growth in the value of their assets. However, the funds were not forced to perform a fire sale of assets since, besides contributions, in 2017 they received 3.7 billion zlotys of dividends and interest. At the end of 2017, the OFE also had a significant liquidity buffer i.e. 10.6 billion zlotys of bank deposits and 1.4 billion zlotys of cash.

Financing and the structure of liabilities

The risk related to investing assets of open pension funds is borne solely by their members. OFE are funds with defined contribution. Therefore, they do not guarantee achievement of the determined investment target. Pension fund management companies do not bear the risk associated with the investment activity of the funds. This risk is fully borne by accounting unit holders.

Due to the function played by the OFE, the house-

[142] In accordance with the binding legal regulations, starting from 2016, every four years, in the period from April to July, OFE members can decide to cease transferring part of their pension contribution to OFE. In such a case, the full contribution will be transferred to the Social Insurance Institution. In the same periods, it is possible to decide to start (or recommence) transferring a part of pension contribution to the OFE.

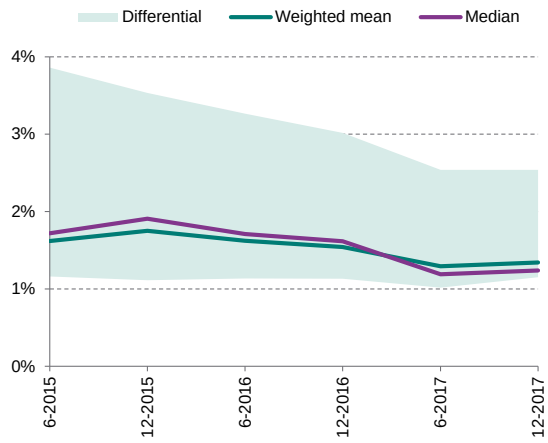
hold sector is a source of capital invested in the funds. A part (2.92% of the base for contributions) of mandatory pension insurance contribution (amounting to 19.52% of the base for contributions) is transferred to open pension funds for those insured who declared their voluntary participation in the fund. At the end of 2017, 16.1 million persons were members of the OFE, including only approx. 16% of members who transferred a part of the contribution to the fund.

Open pension funds did not use leverage. According to the legal regulations, the OFE were not allowed to take out loans and credits for an amount exceeding 1.5% of the value of the fund's assets.[143] At the end of 2017, the ratio of OFE assets to their net assets amounted to 100.2%, and the funds did not have any liabilities from loans and credits. They also could not purchase derivatives which would serve to create leverage.

Financial situation of pension fund management companies

In 2017, open pension fund management companies posted a significantly higher technical result on funds' management than in 2016. This occurred owing to a significant growth of revenues from remuneration for pension fund management, which was the result of a significant growth in the value of assets under management (see Table 4.4). Costs of pension fund management remained at a level of previous year, which translated into a significantly higher net profit of management companies in 2017. Despite the increased value of PTE's equity capital, the ROE increased to almost 20%.

Figure 4.30. The ratio of equity capital of PTE to the value of net assets of OFE managed by them



Source: UKNF.

Similar to the previous two years, the ratio of equity capital of pension fund management companies to assets of pension funds managed by them decreased (see Figure 4.30). At the end of 2017, the ratio amounted to 1.3%, on average. The decline in the value of this ratio – contrary to the previous year – did not stem from a decline in the value of equity capital but only from the growth in the value of OFE assets. However, the level of PTE capital is not associated with the risk incurred by fund members.[144] The value of the management companies' capital could only matter in the case of claims of fund members against PTE[145].

[143] Article 154(1) of the Act *on Organisation and Functioning of Open Pension Funds*.

[144] In accordance with Article 31 and Article 33(1) of the Act*the Organisation and Functioning of Pension Funds*, a pension fund management company is required to maintain its equity capital at a level not lower than the equivalent of 2.5 million euro, calculated according to the average NBP foreign currency exchange rate effective on the date of executing the articles of association of the management company.

[145] In accordance with Article 48(1) of the Act *on the Organisation and Functioning of Open Pension Funds*, the management company is liable towards fund members for any damages arising from non-performance or improper performance of its obligations related to fund management and its representation, unless such non-performance or improper performance of those obligations is caused by circumstances for which the management company is not accountable and which it could not have prevented despite best endavours.

Table 4.4. Financial results and profitability of the PTE sector

	12-2015 (zloty million)	12-2016 (zloty million)	12-2017 (zloty million)	12-2017/12-2016 (%)
Revenues from funds' management:	939	872	968	11.0
– contribution fee	49	52	50	-4.0
– management fee	743	698	805	15.3
– payments from reserve account	48	50	52	4.2
– overpayment repays from Guarantee Fund	50	27	6	-78.7
Funds' management costs	410	434	434	-0.1
Technical profit on funds' management	529	437	534	22.1
Net profit	482	400	465	16.3
Equity capital	2 459	2 358	2 409	2.2
Average value of OFE's net assets	150 858	141 570	173 084	22.3
Technical profitability on funds' management (%)	56.4	50.2	55.2	5.0 pp.
ROE (%)	17.8	17.1	19.9	2.7 pp.

Note: PTE data also include management of voluntary pension funds. In 2017, revenues of PTE from voluntary pension fund management accounted for 0.7% of their revenues on pension fund management. The data in the table do not include results of Nordea PTE, which was liquidated in the fourth quarter of 2017. Due to the adjustments made, the data may differ from data presented in the previous editions of the*Report*.
Source: UKNF.

Chapter 5.

Assessment of systemic risk in the Polish financial system

The domestic financial system functions in a stable manner, and the intensity of short-term risks to its stability has been decreasing successively over the several last publications of the *Report*. The main risk-reducing factor is the cyclical strengthening of recovery in the global economy, alongside a lack of significant imbalances in the domestic macrofinancial sphere. Despite the favourable current macroeconomic situation, risk assessment in the medium-term remains at an elevated level, among others, due to concerns regarding the sustainability of the economic recovery in the external environment of the Polish economy, the rationality of investment risk re-pricing in the global financial markets and the international trade outlook. In a longer horizon, a high level of debt of many important economies is the most significant, external risk source for macroeconomic tendencies and, consequently for the domestic financial system.

5.1. Possible vulnerabilities in the financial system

Risk arising from excessive growth or the value of indebtedness or leverage

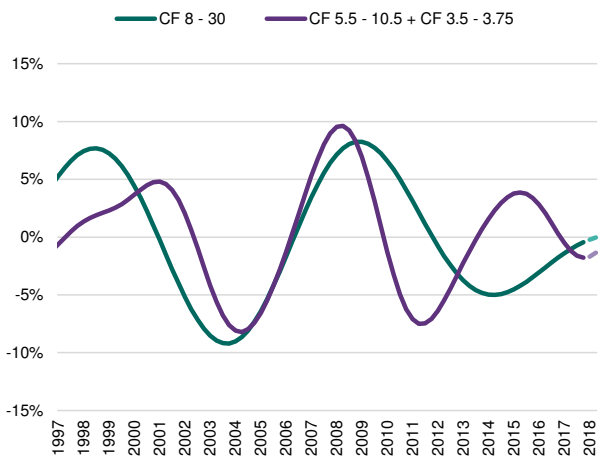
The analysis of the credit cycle in Poland indicates a low risk of excessive credit expansion. Determining of the current position in the credit cycle in Poland depends on the assessment of its length. In the light of the recent studies performed in NBP, there are indications to claim that the length of the credit cycle in Poland ranges from 5.5 to 10.5 years. Irrespective of the assessment of cycle characteristics, the deviation from the long-term trend in this case is insignificant, which means that the threat of excessive credit expansion is low[146] (see Figure 5.1). NBP assesses the current position in the credit cycle on the basis of three variables – credit growth

[146] The threat would be high primarily if a country had been in the expansion phase for a long time.
[147] The Debt Service Ratio (DSR) is defined as the sum of interest and amortisation to income in the private non-financial sector – it is therefore the measure of debt burden on income.

rate, value of the credit gap and the debt service ratio.[147]

The credit gap[148] remains negative, which also implies that there is no threat associated with excessive credit growth. Both the total debt of the private non-financial sector to GDP (the so-called *broad credit measure*, which amounted to 81.6% of GDP in the fourth quarter of 2017), and the debt towards banks and domestic credit unions (the so-called *narrow credit measure*, which amounted to 52.8% of GDP in the fourth quarter of 2017) were growing at a pace close to or slower than the long-term trend (see Figure 5.2), and, in relation to GDP, they decreased.

Figure 5.1. Position in the credit cycle – average cyclical component



Notes: Last real observation for 2017 Q4 and extrapolations using ARIMA models for the period 2018 Q1-Q2. The average cyclical component was calculated as the arithmetic mean of long-run cyclical components for variables: credit to GDP, credit growth rate and the debt serviceratio, obtained by using the Christiano-Fitzgerald filter for a deviation band from 8 to 30 years and for deviation bands from 5.5 to 10.5 years and from 3.5 to 3.75 years. Source: NBP calculations based on NBP, BIS and GUS data.

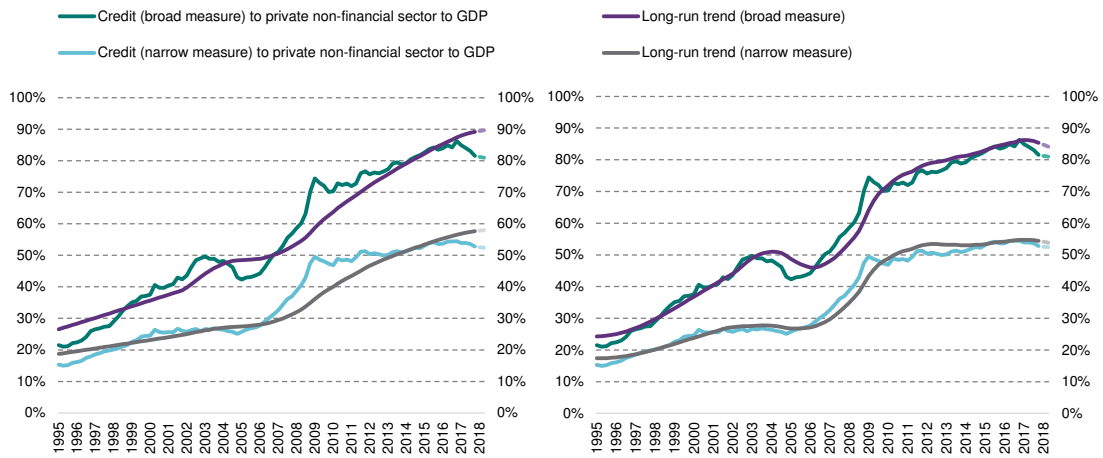
Early warning models also indicate that in the horizon of 1 year to 4 years systemic risk associated with excessive credit growth remains low. These models aggregate the predictive power of variables which, based on international experience, indicate in advance a threat associated mainly with excessive credit growth.[149] Thus, the crisis likelihood ratio obtained from the models reflects relationships observed in history, includes only a part of possible causes of turmoil in the financial system and it is treated as of one of components of the comprehensive systemic risk assessment. The average (model quality-weighted) likelihood does not exceed 13% and 4% respectively for models that include both domestic and global variables and for models based on domestic variables only. The historical analysis of the results of the models implies that the risk should be assessed as significant when the likelihood exceeds approx. 25% (See Figure 5.3).

The banking sector remains the dominant source of financing for the real economy. Bank lending is growing at a rate that neither generates macroeconomic imbalances, nor creates barriers to economic growth. The growth rate of loans to non-financial sector remained close to the nominal GDP growth. A certain tightening of lending policy by banks was observed in all credit segments. The percentage of impaired loans to households did not change significantly, while in the case of loans to enterprises it decreased again. The ratio of loan losses to the value of the portfolio is stable. The quality of the loan portfolio in large cooperative banks, which is worse than in other cooperative banks and commercial banks, is a vulnerability. However, the share of these banks in the whole banking sector is small.

The role of credit unions in the financing of the economy is small (less than 1% of loans to households). The capital position of a significant portion of this sector reduces the scope for growth of lending.

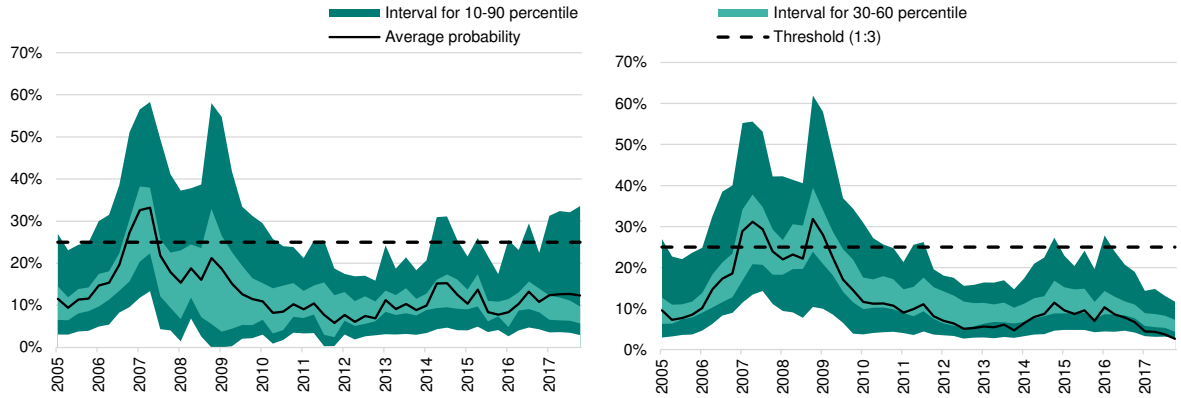
[148] The credit gap is a deviation of the private non-financial debt to GDP ratio from the long-term trend.
[149] Details of the applied approach are presented in the NBP study „Antycykliczny bufor kapitałowy i modele wczesnego ostrzegania przed kryzysami bankowymi. Zastosowanie dla Polski", http://www.nbp.pl/nadzormakroostroznosciowy/publikacje/2016.05_ewi_i_ccb_ksf_stronanbp.pdf.

Figure 5.2. The private non-financial sector debt to GDP ratio and the long-run trend separated in accordance with the ESRB 2014/1 recommendation (left-hand panel) and corresponding to the length of the financial cycle in Poland (right-hand panel)



Comments: Last real observation for 2017 Q4 and extrapolations using ARIMA models for the period 2018 Q1-Q2. In accordance with the ESRB recommendation (2014/1), the standardized credit gap (i.e. calculated based on the broad credit measure) is a deviation in the value of credit to GDP ratio from the long-run trend which was specified using a recursive HP filter with the smoothing parameter $\lambda = 400.000$, which corresponds to fluctuations lasting 20 years and more.
Source: NBP calculations based on NBP, BIS and GUS data.

Figure 5.3. The results of early warning models for Poland



Notes: Last observation in 2017 Q4. The Figures show the average (signal quality-weighted) value of probability obtained on the basis of 215 models including domestic and global variables (left-hand panel) and 156 models including only domestic variables (right-hand panel) as well as the cut-off threshold which, when exceeded, signals the threat of a banking crisis (it has been assumed, following ESRB studies, that the cost of the lack of a signal warning against a crisis is 3 times higher than the cost of a wrong signal about a crisis if no crisis occurs). The green shaded areas denote the range of values of probability (not weighted by signal quality) for all models, excluding the models which show the lowest and highest probability of a banking crisis in Poland in every period. The average value of probability (a black line) weighted by the quality of signals of the models sometimes runs below the line of 30th percentile of probabilities (left-hand panel), because better models have indicated a lower probability of a crisis in these periods and above the line of the 60th percentile of probabilities (right-hand panel), because better signal quality models have indicated a higher probability of a crisis in these periods
Source: NBP calculations based on BIS, Eurostat and NBP data.

The NIF sector does not generate imbalances related to real sector indebtedness. After several years of growth, the role of debt securities in financing the enterprise sector stabilised in 2016-2018. The value of outstanding corporate bonds currently amounts to about 23% of banks' domestic corporate loans. Among non-credit financial institutions, only investment funds are significant buyers of these instruments. The share of other non-credit financial institutions in the financing of the real economy is low.

The current trends in the indebtedness of the non-financial sector are not accompanied by the build-up of imbalances in asset markets, although the equilibrium on the residential real estate market is less stable than in the past. Most of the financing of the real estate sector provided by the domestic financial sector flows to residential real estate market. This market is characterised by growing demand and a corresponding increase in supply, which remain close to equilibrium. The increase in demand is partly due to the investment demand (purchase for rental) stimulated by low interest rates. Due to robust activity in the market and the declining ratio of housing stock available for sale to market turnover, the probability of an emergence of imbalances is increasing. In this context, potential barriers which could limit housing production in the future could have a significant influence. In an environment of low interest rates, an increase in prices could be a trigger for growth of speculative investment.

The recovery on the housing market is not accompanied by excessive growth in real estate loans. In contrast to the growth phase of the previous cycle on the housing market (2006-2008), the high demand for housing is, to a significantly larger extent, financed from buyers' own funds. Moreover, during the last three years banks tightened the lending policy, although in certain terms – among others the average DSTI of new loans – the tightening followed a period of quite liberal policy.

Oversupply of space was still observed on the commercial real estate market, although the growing demand contributed to its reduction. The oversupply occurred in the most important segments of this market (office and commercial and retail property). A decline in the vacancy rate is a sign of the reduction of oversupply. It results from good economic conditions linked with enhanced demand for space rental. In the majority of cases, the problem of vacancies relates to lower quality real estate. A growth in the supply of modern commercial space will create a significant challenge for owners of older stocks, which will contribute to a continuation of a diversified situation of commercial real estate owners. The situation in the commercial real estate sector in Poland, irrespective of imbalances on this market, does not pose a threat to the stability of the financial system in Poland because the exposure of the domestic banking sector to commercial real estate is moderate.

Risk arising from excessive mismatch between assets and liabilities, or the risk of illiquidity in markets

This risk relates mainly to credit and deposit institutions (banks and credit unions), which results from the nature of their business (financing illiquid assets with deposits). To reduce the risk of a sudden outflow of deposits, these categories of institutions are covered by the regulatory liquidity requirements, as well as Bank Guarantee Fund guarantees.

The structure of financing of the Polish banking sector can be assessed as stable. The main source of funding for domestic banks are deposits from the non-financial sector. In the sector of commercial banks, the credit to deposit ratio for transactions with the non-financial sector remained at a level be-

low 100%. At the same time, the share of liabilities to financial institutions, including foreign entities, was falling. Nevertheless, since mid-2016 the growth rate of non-financial sector deposits, including retail deposits, has been decreasing. The environment of low interest rates fosters the search for alternative forms of saving. At the moment, this trend has no adverse effects for the banking sector. However, an increased flow of funds from guaranteed bank deposits to markets of assets with elevated investment risk may potentially have an adverse effect on the stability and cost of the deposit base in the banking sector. Increased investment risk-taking by households may also, in the case of its materialisation, negatively affect their economic situation.

The short-term liquidity risk in banks is low. This is indicated both by levels of regulatory liquidity ratios and the level of liquid assets in banks. The buffer of liquid assets is greater than the average in the EU, and its structure is of high quality, i.e. it consists mainly of NBP bills and government bonds. However, it should be highlighted that the materialisation of liquidity risk may occur irrespective of the bank in question holding significant buffers of liquid assets, if it is triggered by the bank's financial or capital situation. In this context, the concentration of financing sources is also significant. In the case of the majority of banks, such concentration is not substantial and a high share of a small group of customers in liabilities is characteristic for a group of banks with a low — approx. 5% – share in the sector's assets. The improvement in the structure of banks' financing – in the context of the decrease in the maturity mismatch of assets and liabilities and the diversification of financing sources - may be driven by the expected growth in the role of covered bonds as a source of lending financing in the segment of housing loans.

Market risk for Polish banks results mainly from the mismatch of the balance sheet structure in terms of currency and interest rates within the banking book. This mismatch is offset with hedging transactions. Most banks in Poland, both commercial and cooperative ones, are characterised by a positive interest rate gap, which means that a decline in interest rates causes *ceteris paribus* a reduction in banks' earnings, and the growth in interest rates – an improvement. Deposits with interest rates set by the decision of the banks themselves are a significant part of their liabilities. In principle, this enables the banks to compensate for changes in market interest rates that adversely affect their interest income. However, this possibility is to some extent limited by the low level of interest rates[150] and competition between banks. The significant on-balance sheet currency mismatch in the banking sector is hedged using derivatives transactions. Therefore, banks are not directly exposed to exchange rate risk, however, the use of derivatives is associated with banks' sensitivity to market conditions, in particular to the availability and prices of hedging transactions.

The significant buffer of liquid assets has a positive influence on the liquidity situation of the credit union sector, but the liquidity position could be highly sensitive to the difficult financial and capital situation of the sector. The share of liquid assets in assets remained relatively high and all the credit unions (besides incidental cases) met the supervisory liquidity requirements. The ratio of loans extended by credit unions to deposits does not exceed 60%. In a longer term, it is not only maintaining of sustainable liquidity position but also an improvement of capital position that is required for the safe functioning of credit unions.

In the case of the majority of non-credit financial

[150] Liabilities with an interest rate managed by the bank are mainly checking and savings accounts, whose interest rate is currently close to zero.

institutions, due to their business model, the mismatch between the liability of assets and liabilities plays a minor role. This is due to the following factors:

- the maturity structure of the balance sheet – in the insurance sector, due to the longer maturity of technical insurance provisions compared to assets and the inverted production cycle (payment of insurance premium in advance),
- the nature of offered products – in the case of closed-end investment funds, the withdrawal of funds is possible only in certain periods,
- legislative solutions – in the case of open pension funds there is no possibility of withdrawal of funds by a participant prior to obtaining the pension rights.

In the insurance sector, liquidity risk plays a certain role only in the case of unit-linked insurance products. However, the long-term nature of those policies limits the possibility to withdraw funds. Moreover, in the portfolios of unit-linked insurance products, liquid deposits dominated, whereas in the case of funds invested in investment funds' units, insurance companies reduced the liquidity risk via contractual provisions, which make the payment of funds to clients of unit-linked insurance products dependent on the possibility of receiving funds from redeemed participation units.

In the case of open-ended investment funds, liquidity risk plays a certain role. In 2017, a decline in the share of liquid assets in investments of the majority of fund categories was recorded. With a statutory obligation of an immediate repayment of the value of redeemed participation units by the fund, despite the direct link between the liabilities of funds towards the participants with the value of assets, the funds may be exposed to liquidity risk in the absence of the possibility to liquidate their assets, for example, in the case of turbulences in financial markets. Among open-ended funds, debt funds had assets characterized by the lowest liquidity.

In the analysed period, financial markets functioned smoothly and the impact of the global market correction in February 2018 was limited. The functioning of the domestic money market was stable. The liquidity of the secondary market of government bonds remained at a relatively high level. The persistent low liquidity of the OIS market is a negative development due to the role of OIS rates as an approximation of risk-free rates and their role in the valuation of financial instruments.

Risks arising from excessive concentration of exposures to entities or risk factors and related links between financial system entities

Concentration

The portfolio of foreign currency loans, which is an example of the concentration of banks' exposures to common risk factor, is a sensitive area of a significant part of the banking sector. This portfolio may generate risk in several areas:

- credit risk, whose additional factor – compared to other portfolios – is the sensitivity of borrowers to changes in the exchange rate,
- the risk of non-rollover of hedging for the currency position (so far, even in a period of strong market turbulence, the risk has not materialised),
- liquidity risk related to exchange rate changes, associated with the need to roll-over hedging currency positions,

- legal risk associated with litigation between banks and borrowers and possible legislative measures interfering in loan agreements.

Due to the existing buffers in the banking sector (capital) and households (income buffers), foreign currency loans do not pose a systemic risk even when large shocks are assumed. The persistent relatively strong Swiss franc exchange rate (despite a fall by 13% since the beginning of 2017) compared to the exchange rate at the time that the majority of loans denominated in this currency were contracted does not cause a significant deterioration in quality of this portfolio. The percentage of impaired loans in the portfolio of FX housing loans is slightly higher compared to zloty-denominated loans, however, it mainly results from the fact that the foreign currency portfolio is older and at the same time its value is falling. The good repayment performance of the portfolio of FX loans, despite significant foreign exchange shocks in the past, confirms the sufficient level of income buffers allowing borrowers to absorb the effects of shocks. The value of banks' exposure decreases annually by approx. 7%, along with the repayment of the principal of FX loans. In the case of the deterioration of repayment performance in that portfolio, the high levels of LtV which characterize a significant share of FX loans would be a factor increasing credit risk costs.

The concentration of banks' credit exposures – both in terms of economic entities and in terms of industries – is not a major source of risk. The quality of receivables from the sections of the economy which have the largest share in the loan portfolio of banks improved. Simulations performed by NBP show that most banks have capital that allows them to absorb the impact of potential bankruptcies of the largest borrowers, although there is a group of large cooperative banks, which are particularly sensitive to that risk.

Linkages

Linkages between financial institutions, including the capital and financing linkages, may be a source of risk for financial stability. Interlinkages under the circumstances of material disturbances in a given sector may convey shocks to another sector (contagion effect). A large scale of linkages between financial institutions may contribute to risk transmission between them. Linkages between financial institutions may be additionally increased by exposure to the same assets. Their potential fire sale by some entities may contribute to the decline in the value of such assets in the balance sheets of other entities.

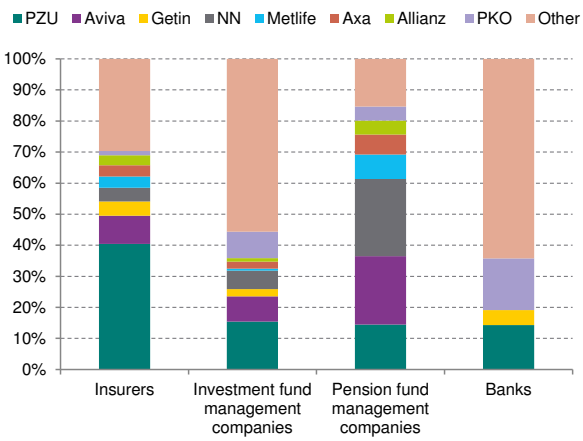
Debt links (deposit and credit links) between institutions currently do not represent a significant risk source. Interlinkages between commercial banks through the interbank deposit market were small, as evidenced by the absence of the domino effect even in the shock scenario of the stress tests (see Chapter 5.3.2.).

On the other hand, deposit links between associating banks and cooperative banks are significant. They result from the role of associating banks in the monetary settlements of cooperative banks and the depositing of a portion of cooperative banks' cash surpluses in associating banks. In connection with the key role of associating banks in institutional protection schemes, this determines the significance of the financial and capital situation of the associating banks for the stability of the cooperative banking sector, and justifies the systemic relevance of associating banks.

In the second half of 2017, the scale and nature of cross-sectoral linkages in the Polish financial system did not change. The largest capital group comprising both entities of the non-credit financial institutions sector and the banking sector had a signif-

icant role for the financial system (see Figure 5.4). This group was again considered to be a financial conglomerate.[151] Capital linkages of entities in this group had the most significance for the financial system. Assets of insurance undertakings included in the group accounted for 40% of assets of the domestic insurance sector, whereas its banking entities were responsible for almost 15% of domestic banking sector assets. However, this need not lead to an increase in risk.[152]

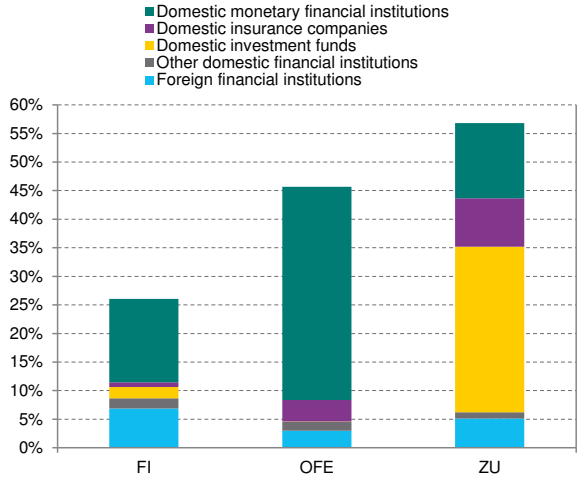
Figure 5.4. Assets of the financial sector managed by selected capital groups at the end of 2017



Note: Share of the specific capital group for a pension fund management company calculated according to net assets of an open pension fund, for an investment fund management company - according to the value of assets under management.
Source: NBP, UKNF.

Capital links between institutions of the non-credit financial institution sector were relatively strong. These linkages, apart from the relatively small—influence of the financial situation of investment fund management companies on revenues of insurance companies, may also potentially generate common brand risk.[153] In the case of the investment fund management companies, these were mutual linkages with brokerage houses. These entities were dominant shareholders of eight investment fund management companies. Their share in the share capital of this sector at the end of 2017 amounted to 14.7%. In the case of pension fund management companies, all entities carried out their operations within capital groups, mainly headed by insurance entities.

Figure 5.5. Exposure of the non-credit financial institutions sector to other financial institutions at the end of 2017 (as % of assets)



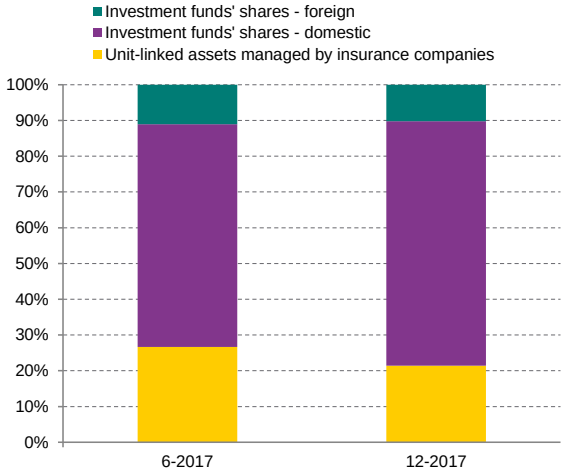
Note: Exposure to domestic international financial institutions in investment funds sector includes BGK bonds issued for KFD. The analysis covers only non-credit financial institutions' assets.
Source: NBP, UKNF.

Exposures to other financial institutions have a significant share (almost 40% of the value) in the assets of the non-credit financial institutions sector.[154] Assets of non-credit financial institutions demonstrated the highest exposure to the banking sector (see Figure 5.5). Almost half of this exposure was generated by investments of open pension funds which, to a substantial extent, invested funds in eq-

[151] Article 14 of the Act of 15 April 2005 *on Supplementary Supervision of Credit Institutions, Insurance Companies, Reinsurance Undertakings and Investment Firms Included in the Financial Conglomerate* (uniform text, Journal of Laws 2016, item 1252).
[152] See Box 7 in "Financial Stability Report. February 2016", NBP.
[153] The common brand risk means a situation when clients' confidence in entities that share a brand is damaged under the impact of a situation related to one of those entities, e.g. negative investment results posted by investment funds lead to a disruption of clients' confidence in the bank using the same brand as the investment fund management company.
[154] The analysis covered the following categories of assets: deposits (including margin deposits and cash), loans granted (including, under the repo transactions), debt securities and equity financial instruments, including shares in investment funds.

uity instruments issued by banks. Insurance companies showed the highest exposure to financial institutions. Over 50% of their assets was invested in instruments with the exposure to the financial sector, mainly in shares of investment funds.

Figure 5.6. Structure of assets of unit-linked insurance funds



Source: UKNF.

Investment linkages of insurance companies and investment fund management companies remained significant for both sectors. Shares in domestic investment funds represented the second most important category of the NIF sector assets. They comprised both unit-linked assets and other investments, for which the investment risk was borne by the companies. At the end of 2017, the value of assets of unit-linked insurance funds invested in shares of domestic investment funds amounted to 38.0 billion zlotys (see Figure 5.6). This type of linkages may be of potential importance for insurance companies and investment fund management companies in the case of a significant number of withdrawals of resources from unit-linked insurance funds. However, due to the long-term nature of unit-linked insurance contracts as well as the necessary costs of funds' withdrawal to be incurred by policyholders, the risk associated with a potential fire sale of assets seems low. Insurance companies managed only approx. 20% of assets accumulated in the unit-linked insurance funds. Other investments of insurance companies in investment funds' shares usually concentrated on funds dedicated to such entities and managed by investment fund management companies linked by capital to the insurers.

The value of assets managed by the investment fund management companies belonging to the same capital groups as insurance companies increased to over 52 billion zlotys.[155] Their share in all funds entrusted to the management companies as a part of *asset management* service increased to 80%. It demonstrated specialization of individual entities within the capital group.

The deposit guarantee and resolution system is an indirect channel of linkages between banks as well as between the banking sector and credit unions. The source of financing of potential payments of deposits and restructuring of problem banks and credit unions are mostly banks continuing to operate. In this context, an ongoing restructuring of the credit union sector and sensitivity of some large cooperative banks to shocks increases systemic importance of those linkages. Potential payouts of guaranteed deposits will, in the first instance, affect the funds accumulated*ex ante* by the BFG.[156] The necessity of rebuilding resources of the BFG would result in raising contributions by credit institutions which, in turn, *ceteris paribus*, would affect their earnings and the capacity to increase capital.

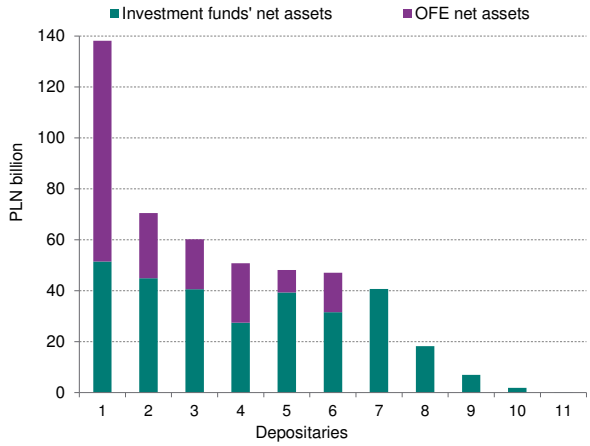
[155] Management in the form of portfolios comprising one financial instrument or more financial instruments.

[156] This model of payments was introduced by the Act of 10 June 2016 *on the Bank Guarantee Fund, the Deposit Guarantee System and Forced Restructuring* (Journal of Laws 2016, item 996). Compared to the previous model (financial payments in the first instance from the Guaranteed Deposit Protection Fund), the present model provides the possibility to spread out over time the impact of payments of guaranteed deposits on the financial situation of the entities covered by the guarantee system. The rebuilding of the financial potential of the BFG would take place via the payment of higher contributions by the entities covered by the guarantee system.

The banking sector was linked with the investment fund sector and pension fund sector by acting in the capacity of a depositary. This activity demonstrated quite a high concentration (see Figure 5.7). Depositaries fulfil specific control and oversight functions towards the funds. Their role is to ensure the fulfilment of the funds' obligations in compliance with the law and the statutes, at least through a permanent control of activities performed by them and supervising the provision of compliance of such activities with the law and the statutes.[157] Depositaries' tasks include, among others, verifying the valuation of fund assets, control of permissibility of investments and adherence to investment limits and timeliness of settlement of asset agreements. Depositaries of investment funds shall also ensure, in compliance with the legal regulations and the statute of the fund, the sale and redemption of shares in investment funds as well as issuance, release and redemption of investment certificates, appropriate use of funds' income and proper storage and monitoring of cash flows. These institutions are liable for any damage caused by non-performance or undue performance of the obligations. Depositaries of open pension funds (OFE) included exclusively banks while in the case of investment funds – banks and brokerage houses[158]

Another indirect channel of cross-sector linkages may be the reputation risk for banks related to the distribution of investment products. In the case of significant losses incurred by investors, the negative reputational effects may affect not only the entities that created the product (e.g. managed an investment fund that generated losses to investors), but also entities that distributed the product or financial instrument.

Figure 5.7. Depositaries of investment funds and open pension funds according to the net value of assets at the end of 2017



Source: NBP, UKNF.

Risk arising from misaligned incentives influencing the behaviour of financial institutions or their customers

The existence of " too big to fail" (TBTF) institutions resulting from the high concentration of entities in the sector can lead to systemic risk. Such institutions can take excessive risks using their market position and expectations of getting support from the authorities. Therefore, financial supervision authorities may, in the case of banks, impose more stringent requirements on banks with such characteristics. At the global level, similar requirements also apply to the insurance sector.

Compared to the European average, the Polish banking sector is characterised by low concentration. This situation, however, may change due to the ongoing mergers and acquisitions. They result both from the actions of some strategic investors in Pol-

[157] Pursuant to Article 72(3) of the Act*on Investment Funds and Management of Alternative Investment Funds* and Article 159(4) of the Act *on Organisation and Operation of Pension Funds*.

[158] In accordance with Article 71 of the Act.*on Investment Funds and Management of Alternative Investment Funds*, the agreement on performing the function of a depositary may be concluded with a domestic bank, branch of a credit institution established in Poland, KDPW, and in the case of closed-end investment funds — also with an investment firm. Banks had the highest share in the market of depositaries of investment funds, both in terms of the number of entities serviced as well as their assets.

ish banks, as well as the development of the involvement of the country's largest insurance group in the banking sector. The decline in banking sector profitability may strengthen the upward trend of concentration, which stems from higher profitability of large institutions.

The buffers imposed by the Polish Financial Supervision Authority (KNF) on domestic (so-called "other") systemically important institutions (OSIIs) help to increase the capacity to absorb the effects of the materialisation of risk by institutions with the highest market share and may reduce the risk associated with the concentration of the banking market.

In other sectors, a high and growing level of concentration occurs among credit unions. In the context of the difficult capital position of the sector, this increases the risks associated with its functioning.

The insurance sector and pension sector are characterised by relatively high concentration. As a result of the good capital position of the largest insurance companies and institutional arrangements in the pension sector, it does not generate significant risk.

The risk of moral hazard may also relate to the behaviour of customers of financial institutions. In this context, possible measures to reduce the portfolio of FX loans should take into account threats associated with moral hazard. Those threats stem from potential incentives for borrowers to use risky products in the future, as it would raise expectations of a similar public policy protection.

5.2. Risk triggers

The risk triggers analysed in the report refer to two main areas. The first area is related to macroeconomic trends in the environment of the Polish economy and their impact on the macroeconomic situation of Poland. This situation, in turn, materially affects the quality of loans which constitute the most significant exposure of banks to risk, although the loan portfolio as a whole does not represent a vulnerability of the financial system. A worsening of the macroeconomic situation may also foster intensification of problems in the credit union sector as well as in some cooperative banks. The second area refers to factors significantly affecting the risk associated with the portfolio of FX loans, identified as a sensitive area of some banks' balance sheets.

Factors associated with the macroeconomic situation

The persisting significant uncertainty in the economic environment of Poland, despite a positive current macroeconomic situation, indicates that significant negative shocks may occur, which may slow down economic growth in Poland in a longer term. The assessment of the macroeconomic environment impact on the stability of the financial system in Poland depends on the adopted timeframe. In the second half of 2017, a recovery of economic activity, both in Poland and in the global economy, continued. The present macroeconomic situation in Poland does not give rise to threats to the stability of the financial system and forecasts indicate that sustainable economic growth will be maintained in the nearest quarters. According to current forecasts of international institutions, a minor decline in the GDP growth can be expected in the euro area and in the United States. On the other hand, good business conditions should continue in major emerging economies although a slight deceleration of the GDP growth is likely in China. In a longer term, economic growth in the environment of the Polish economy may be substantially slower. The major areas of uncertainty may include the situation in global financial markets and the outlook of international trade developments. In this context,

a high accumulated level of real or government sector's debt is a significant vulnerability of a number of economies.

The prices of instruments in global financial markets indicate a continued possibility of a significant underestimation of risk by investors, which could result in a significant correction of valuations and an increase in their volatility. The beginning of February 2018, when the period of low volatility and growth in financial asset prices continuing for many months had ended, was a significant turning point in the analysis of the situation in the global financial markets. Before February 2018, greater optimism in financial markets, caused by, among others, low interest rates and a stronger-than-expected economic recovery of major world economies, translated into higher prices of financial assets (shares and corporate bonds, along with persistently high prices of government bonds). At the same time, the low current and expected volatility of market prices, reflected in the historically low level of the VIX index, implied that investors did not expect a shift in the trends. In the past, periods of low volatility of market indicators often preceded market corrections. In February 2018, the change of financial market participants' behaviour was driven by mounting uncertainty related to the monetary policy of the Federal Reserve. As a consequence, valuations on the market of equity instruments dropped significantly and volatility went up. Following the U.S market, equity markets in emerging economies also recorded a decline. It is a potential mechanism of operation of the trigger factor, i.e. the international macroeconomic and financial environment of the Polish economy. However, the events of February 2018 translated to a limited extent into financial markets in Poland and in other emerging economies. Declines of valuations were observed in the equity market. However, no capital outflows or significant depreciation of currencies took place.

Should further correction in the global markets occur, it would affect the Polish financial system via similar channels as the correction of February 2018. The intensity of this impact is difficult to foresee. In the context of the persisting economic and geopolitical uncertainty, risk associated with the underestimation of risk in asset markets should be recognised as high. Factors which could trigger a market correction include, among others, changes in the monetary policy of the major world economies and geopolitical factors, including the restriction on international trade as a result of the introduction of customs barriers by the United States and, as a response, also by other countries, including China.

The effect of a correction of risk assessment could be greater volatility of international capital flows and a fall in the prices of assets considered to be more risky. Increased bond yields of major developed economies and increased risk aversion could result in an outflow of capital from emerging economies, causing the emergence of imbalances and a depreciation of exchange rates against the US dollar, euro and Swiss franc. A consequence of this could be an increase in debt servicing costs, particularly in the case of loans denominated in foreign currencies.

The structural problems of some economies – such as the high level of debt and the weaknesses of certain banking systems – increase the potential of the correction to affect the real economy. An intensification of the current problems may reduce enterprises' propensity to invest, which in turn will weaken, both, short- (decline in demand) and long-term (lower capital accumulation) economic growth. Additionally, despite some symptoms of recovery, persisting imbalances in the largest emerging markets, especially in China (in the real estate and financial sectors), constitute a signif-

icant source of risk globally.

Enhanced uncertainty in the global economy is of major importance for the stability of the domestic financial system in a longer term, mainly through influencing the macroeconomic situation in the environment of the Polish economy, especially in countries that are Poland's major trading partners. The situation in those countries affects the dynamics of the Polish economy, and this, in turn, exerts an impact on the situation of domestic borrowers. The growth forecasts published for developed countries, including the euro area, in the coming years point to a strengthened economic recovery, however, concerns about the sustainability of this tendency still exist. Furthermore, an influence of the potential economic slowdown in emerging economies would be observed in Poland manly due to its influence on the situation of Poland's main trading partners. Such a scenario would also weaken the pace of economic growth in Poland.

An increase in risk aversion and increased volatility in financial markets could be an additional channel. Despite a limited impact of the market correction of February 2018 on the domestic financial market, a negative impact of further episodes of increased volatility in global markets on prices of Polish Treasury securities (representing approx. 15% of bank assets) cannot be excluded, as well as on the quality of the loan portfolio - due to the prevailing share of floating interest rate loans — particularly if a potential rise in market interest rates stemmed from external shocks.

Growth in market interest rates in Poland, even if expected and in line with trends in the real economy, may have a certain impact on the quality of loans due to the fact that approx. 60% of the loan portfolio is indexed against them. A rise in interest rates may lead to the materialisation of the risk related to the portion of zloty housing loans which were granted by banks to borrowers with inadequate income buffers. However, the effects of the rise in interest rates on debt servicing costs would be mitigated by the growth in borrowers' income, therefore, the assessment of net effects is difficult.

The persistent heightened uncertainty as to the future macroeconomic trends in the global economy indicates that it is desirable to maintain a high resilience of the domestic financial system to disturbances.

Factors associated with the portfolio of foreign currency loans

The normalisation of monetary policy in the euro area and the United States, combined with strong increase of global risk aversion, could lead to an increase in risk associated with the portfolio of foreign currency loans. In such a scenario, capital outflow to countries regarded as safe would probably occur, which could translate into an appreciation of the euro and the Swiss franc against the zloty. If it were to be permanent, it could adversely affect the quality of the foreign currency loan portfolio. Ample income buffers of borrowers and banks' capital buffers limit the scale of threats in this area. A potential rise in volatility on the foreign currency market could also have a negative impact on the availability and cost of banks' hedging against FX risk, as well as contribute to the materialisation of liquidity shocks associated with the necessity to roll over the hedges.

The implementation of the Financial Stability Committee (FSC) recommendations regarding restructuring of the FX housing loan portfolio contributes to a decrease ofthe likelihood of the materialisation of risk associated with unfavourable (from the point of view of financial stability) legislative solutions to the issue of foreign currency loans. The voluntary restructuring called for in the recommendations allows for a reduction of risk to

the financial system, and also allows for an elaboration of individual solutions, matching the situation and financial capacity of individual borrowers. Thanks to this measure, the funds earmarked for loan restructuring can be used in an effective way.

Other factors

Besides the risks discussed above, there are also other factors, which – although they are not strictly associated with the business or financial cycle, or the structure of the sector, may have systemic implications. These factors primarily include operational risk, in particular, legal and technological risk. Legal risk is associated with the possibility to incur large losses or costs arising from administrative procedures or court litigations. In this context, the interaction between public policy actions aimed at consumer protection and those aimed at maintaining the stability of the financial system, becomes important.[159] Within technological risk, the risk related to the operation of ICT systems, in particular, their exposure to failures and cyber-attacks seems especially important. The potential materialisation of such risks may have substantial implications for financial stability through the impact on the reputation of the financial institutions affected, and in extreme cases, on their capacity to provide services and, in a broader context, on the level of confidence in financial institutions.

A significant factor affecting the situation in the cooperative banking sector will be the termination of the functioning of associations in the current form in the fourth quarter of 2018[160]. At the end of the third quarter of 2017, 69 cooperative banks operated outside the IPS. In the fourth quarter this year, at the latest, those banks must take the decision concerning their further form of activity: accession to the IPS (if meeting the criteria defined by the specific IPS), independent operation (which is associated, among others, with the requirement to hold initial capital at a level of equivalent of at least 5 million euro), or functioning within the new association (depending on the issuance of the KNF consent for its establishing). For banks which will be unable to use any of the aforementioned possibilities, an additional option of merger with other bank exists. Banks outside the IPS which will not implement any of the aforementioned procedures, will not meet the statutory conditions for running banking activity after the termination of existing association agreements.

5.3. Resilience of the banking sector to shocks

The dominating share of banks in assets of the Polish financial system implies that an adequate resilience of banks to shocks is a prerequisite for maintaining its stability. In order to assess this resilience, NBP performs simulations of effects resulting from given shocks and stress tests. Neither the result of the reference scenario simulation nor any other simulations presented in this chapter can be regarded as a forecast of the situation in the banking sector.

[159] see Box 5 in "Financial Stability Report. December 2016", NBP.

[160] Article 22b (12) of the Act on the Functioning of Cooperative Banks indicates that in the association where a institutional protection scheme was created and the associating bank joined the IPS, the existing association agreement with respect to banks which did not join the scheme would expire within 36 months of the date of concluding the IPS agreement. Analogous provisions are included in Article 22o(12) of the same Act, related to the integrated association.

5.3.1. Single-factor simulations of materialisation of the credit exposure concentration risk

In order to assess the banking sector's resilience to the materialisation of the credit exposure concentration risk, simulations were performed to examine the impact on banks resulting from a simultaneous bankruptcy of the three largest borrowers of each of the banks. The analysis covered commercial and cooperative banks[161] and three largest domestic borrowers in the sector.

Methodology and assumptions

The simulations cover only balance sheet exposures of non-financial sector borrowers, mainly enterprises[162] The lack of realisation of collateral was assumed and it was also assumed that all loans would be subject to 100% impairment. Costs resulting from the recognition of impairment provisions reduce in the first place bank's current profit not recognized as regulatory capital, and subsequently bank's Common Equity Tier 1 capital.

The simulation of bankruptcy of the three largest borrowers of each bank was performed in two variants:

- borrowers do not repay their loans only in a particular bank,
- borrowers do not repay their loans in all banks.

The calculation of changes in the capital requirement incorporates the average credit risk weights for non-financial sector exposures in a particular bank. Capital adequacy and accounting regulations applicable to banks at the end of 2017 were taken into account. The simulations are static and based on reported data as of December 2017.

The simulations examine whether as a result of a simultaneous bankruptcy of a given group of borrowers, the bank meets the capital adequacy requirements of pillar 1 and pillar 2.

Results

The results of the simulation of the bankruptcy of the three largest borrowers at each bank indicate that losses would not jeopardise the capacity of the majority of the domestic banking sector to keep the required level of capital buffers. Assuming the fulfilment of all assumptions, a shortage of capital relative to pillar 1 and pillar 2 requirement would be recorded in 92 banks (including 4 commercial banks) representing a 5% share in the banking sector's assets. The total shortage of the capital would reach 0.8 billion zlotys (13.1% of regulatory capital of a group of banks in which the shortage occurred).

The simulation additionally assuming that the borrowers have ceased to service their total credit liabilities towards all banks shows that the shortage of capital necessary to meet the requirements of pillar 1 and pillar 2 would occur in 163 banks (including 7 commercial banks) representing a 9% share in the banking sector's assets. The total shortage of the capital would reach 2.2 billion zlotys (18.5% of regulatory capital of a group of banks in which the shortage occurred).

In both variants of the simulation of the bankruptcy of the three largest borrowers of each bank, shortages appear more frequently in the sector of cooperative banks. The results of both simulations also show that compared to simulations based on data from June 2017 the amount of the potential short-

[161] The simulations did not comprise branches of credit institutions and BGK.
[162] In cooperative banks, natural persons sometimes belong to the group of three largest borrowers. Those borrowers also have loans in commercial banks and due to the contagion effect, they are also taken into account in the group of commercial banks.

Table 5.1. Simulation of the impact of hypothetical bankruptcy of the three largest borrowers of each bank

	before simulation December 2017	after simulation	
		exposures in particular bank	exposures in all banks
Credit losses after simulation (zloty billion)	–	25,8	41,1
Share[1] of banks in banking sector assets that are not compliant with capital ratios standards (pillar 1 and pillar 2)	0,05%	5,1%	9,4%

[1] Share in assets of the domestic banking sector.
Source: NBP.

age of capital did not change.

The comparison of both variants of the bankruptcy of the three largest borrowers of a given bank may indicate that around half of borrowers meeting the criteria of selection for the simulation have liabilities to other banks. This applies, to a greater extent, to enterprises using services of commercial banks. However, a large economic potential of commercial banks, including mainly capital levels, simultaneously makes them only slightly exposed to the risk associated with the bankruptcy of the largest borrowers. On the other hand, at commercial banks the concentration of entities with credit exposures is much higher.

The results of the simulation of a simultaneous bankruptcy of the three largest borrowers of the banking sector show that the materialisation of such scenario would not have a significant impact on the solvency of creditor domestic banks or their capacity to absorb shocks via capital buffers. Indebtedness of such borrowers is still relatively small in relation to the size of domestic banks' assets and their capital levels. Receivables from the three analysed borrowers are present in the portfolios of 12 commercial banks (representing approx. 68% share in the banking sector's assets). The losses arising from the bankruptcy of these borrowers (totalling around 10.5 billion zlotys) would not cause capital shortages in banks, neither with regard to pillar 1 and pillar 2 capital adequacy ratios, nor capital buffers.

5.3.2. Stress tests

Stress tests encompassing macroeconomic, market and liquidity shocks were carried out to assess the resilience of domestic commercial banks to negative shocks. Analysis was aimed at quantifying effects of hypothetical shocks on domestic commercial banks[163] in the period from the first quarter of 2018 to the end of 2020. **The results of the simulation for the reference scenario as well as other simulations contained in this chapter should not be treated as a forecast of the situation in the banking sector.**

Methodology and assumptions

Stress tests were run in three stages, consisting in the impact analysis of, respectively: (1) macroeconomic scenarios, (2) market shock and (3) liquidity shock. In the first stage, the impact of two macroeconomic (reference and shock) scenarios on the costs of credit risk materialisation and on net interest income of banks was examined. In the second stage, the analysis of macroeconomic shock included the impact of an additional negative market shock on the capital position of banks. In the third stage, the impact of both market and liquidity

[163] Tests were conducted on domestic commercial banks, including their foreign branches. The tests exclude commercial banks and branches of credit institutions from other EU countries operating in Poland and BGK.

shocks on the liquidity position of banks was analysed.

the hypothetical capital needs of banks in both scenarios were defined under the assumption that all analysed banks must preserve regulatory capital at a level compliant with the capital adequacy ratios (pillar 1 and pillar 2 combined). Amounts of capital necessary to comply with the combined buffer requirement were also presented[164], however, non-compliance with this requirement is not associated with such serious consequences as in the case of capital adequacy ratios. In accordance with the provisions of the CRDIV/CRR package, banks not complying with the supervisory capital buffers – despite the fact that they must prepare the capital protection plan – may continue their activity, maintaining a relatively high lending autonomy.[165] In the context of the analysis of the shock scenario, it should be also emphasised that the basic assumption of the buffers is the appropriate provision of adequate capital surpluses over the standards of pillar 1 and pillar 2, so that they can be used to absorb the effects of a shock.

The analysis of macroeconomic scenarios includes the simulation of the impact of the entry into force, beginning from 2018, of the IFRS 9 financial reporting standard (Box 4). This applies to both changes reflected directly in the capital level upon the entry into force of new accounting standards, as well as additional provisions for expected losses on non-impaired loans (so-called stage 1 and stage 2) created in 2018-2020.[166]

It was assumed that in each quarter, banks holding adequate capital surpluses over the standards of the required capital ratios increase their loans and other assets at a rate not higher than the quarterly growth of the nominal GDP[167]. Growth rates for individual banks were made conditional upon the level of capital surplus above the set capital ratios. With respect to FX housing loans, it was assumed that the value of their repayments will take place at a rate observed in previous quarters and they will be simultaneously replaced by housing loans in zloty, with a lower risk weight assigned. This assumption is favourable for banks' capital ratios in the projection period.

Balance-sheet value of the loan portfolio is also affected by provisions for recognized impaired loans and expected losses on loans classified into stage 1 and stage 2, whereas the value of the debt securities portfolio – – by valuation changes triggered by a market shock. The decreasing relation to assets was assumed for net fees and commissions income, and constant relation to assets for other non-modelled profit and loss account items. The assumptions concerning these relations were based on the EBA stress test methodology, consequently, their levels in the shock scenario were less favourable than in the reference scenario.

Possibility of dividend pay-out from profits earned under the analysed scenarios and from profit undistributed at the end of the fourth quarter of 2017 was also allowed. The dividend rate was made conditional upon banks' compliance with the criteria regarding the capital adequacy ratios outlined in the "KNF position of 14 March 2018 on the dividend policy of banks in a medium-term perspective ".

The central path of the NBP macroeconomic projection from "Inflation Report. March 2018", pre-

[164] The transitional period for the conservation buffer was taken into account and the assumption was made that the systemic risk buffer at a level of 3% will become effective from the beginning of 2018.
[165] The consequences of non-compliance with the combined buffer requirement are described more extensively in Box 4 in "Financial Stability Report. July 2017 ", NBP.
[166] The simulation of the impact of the IFRS 9 was calibrated on the basis of the survey data and stress test results provided by the KNF.
[167] Provided that GDP growth is positive.

pared under the assumption of constant interest rates, served as the reference scenario. In the macroeconomic shock scenario, a significant deterioration of the economic outlook was assumed, resulting particularly from:

- Materialisation of the risk of tariff wars between the United States and China, leading to restrictions on international trade and a decline of output, also in EU countries.
- Global debt crisis translating into lowering of the path of economic growth paths of the major developed economies.
- A sharp economic slowdown in China, associated with imbalances in the real economy and the situation on the debt market, leading to dampening of growth paths of China's major economic partners, including Germany.
- Deep correction in global asset prices worldwide due to a significant growth in investment risk which would precipitate flight to safe havens, which in turn would lead to a significant strengthening of the Swiss franc against other currencies.

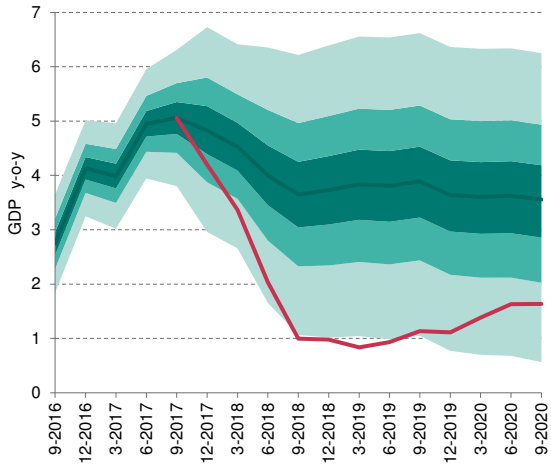
Under such assumptions Poland would experience a significant slowdown in the pace of economic growth[168] (see Table 5.2). Probability of such a combination of shocks and economic slowdown as severe as the one resulting from the shock scenario can be assessed as minor (see Figure 5.8). In the current edition, as the economic growth outlook is better and the situation on the labour market in relation to the previous inflation projection improved significantly[169], both the reference scenario and the shock scenario are more favourable for banks than in the previous edition of the *Report*. However, the differences between the reference scenario and the shock scenario are similar to those in the previous edition.

Table 5.2. Major economic indicators considered in the macroeconomic scenarios (in %)

	2018	2019	2020
GDP growth y/y			
Reference scenario	4.2	3.8	3.6
Shock scenario	2.6	1.0	1.4
LFS unemployment rate, annual average			
Reference scenario	3.9	3.5	3.3
Shock scenario	4.5	6.0	7.4
CPI inflation y/y			
Reference scenario	2.1	2.7	3.0
Shock scenario	2.2	3.0	2.0
WIBOR3M			
Reference scenario	1.7	1.7	1.7
Shock scenario	1.6	1.4	1.0

Source: NBP.

Figure 5.8. Macroeconomic shock scenario against the fan chart of GDP presented in "Inflation Report. March 2018"



Note: Red line denotes the shock scenario.
Source: NBP.

A market shock was added to the macroeconomic shock scenario in order to assess the impact of a potential rise in foreign investor aversion to risk towards emerging markets and the region (resulting

[168]The interest rate path in the shock scenario is based on the Taylor rule (taking into account a deviation of inflation from the target and the output gap). Due to its theoretical nature, the interest rate path in the shock scenario should not be interpreted as a forecast of a response from the monetary authority to the circumstances described in this scenario.
[169]See: Inflation Report. March 2018 pp. 73-76

in capital outflow from Poland) on the situation of banks. Capital outflow would be reflected in a rise in Polish Treasury debt yields resulting from an increase in credit risk premium and the zloty's depreciation. Depreciation of the zloty would, in turn, lead to an increase in the capital requirements and a deterioration in the quality of banks' loan portfolios due to the rising zloty value of FX-denominated loans and a related increase in repayment burden for borrowers. The simulation assumed an increase in bond yields by 300 basis points and the depreciation of the zloty against all major currencies by 30%.[170] Due to appreciation of the zloty exchange rate, the impact of exchange rate shock on the deterioration of banks' situation in the current edition was weaker than in the previous Report.

The analysis also encompasses the impact of a market shock and additional liquidity disturbances on banks' liquidity position. The purpose of this simulation was to check whether banks exhibit adequate buffers of liquid assets in the event of developments assumed in the scenario, i.e. a depreciation of the zloty, a rise in Polish Treasury debt yields and, in addition, an outflow of part of foreign funding and a loss of confidence both from other domestic financial institutions and real economy entities, leading to a withdrawal of a portion of their deposits.[171]

The last part of the simulation was to analyse the impact of a potential bankruptcy of a bank in the two macroeconomic scenarios on the standing of other banks through the so-called domino effect.

Results

The majority of banks would meet all capital ratios of pillar 1 and pillar 2 if the reference scenario were to materialise. The average total capital ratio for the analysed sample of banks would fall from 18.1% to 17.1%, among others, due to a rise in lending and the related growth in risk exposure. The capital ratios in the majority of banks would decrease (see Figure 5.10).

The majority of banks would meet the combined buffer requirement. Banks which would fail to meet this requirement have a relatively low share in assets of the banking sector. The estimated value of their capital needs would amount to 4.3 billion zlotys, i.e. 16.1% of the their regulatory capital at the end of December 2017 (see Table 5.3). A common feature of the banks which do not meet the combined buffer requirement is a relatively low level of capital surplus and low profitability. The latter factor limits the capacity to accumulate capital from retained earnings.

The materialisation of the shock scenario would result in a general decline in the sector's profitability and some banks would record losses and would have to cover them from available capital. As a result, the average total capital ratio for the analysed group of banks would fall from 18.1% to 15.4%. The decline in the total capital ratio would be recorded by the majority of banks (see Figure 5.10). Additionally, the dispersion of banks with regard to total capital ratios would increase substantially – certain banks would be much more affected if the shock scenario were to unfold. Four banks with a total share in assets of the banking sector amounting to 5.2% would not fulfil the pillar 1 and pillar 2 capital requirements. Those banks would have to increase their regulatory capital at the end of the simulation period by PLN 2.1 billion zlotys (i.e. approx. 28.4% of these banks' regulatory capital at the end of December 2017). In the shock scenario, 20

[170] Against the bond yields and the zloty exchange rate as of the end of December 2017.

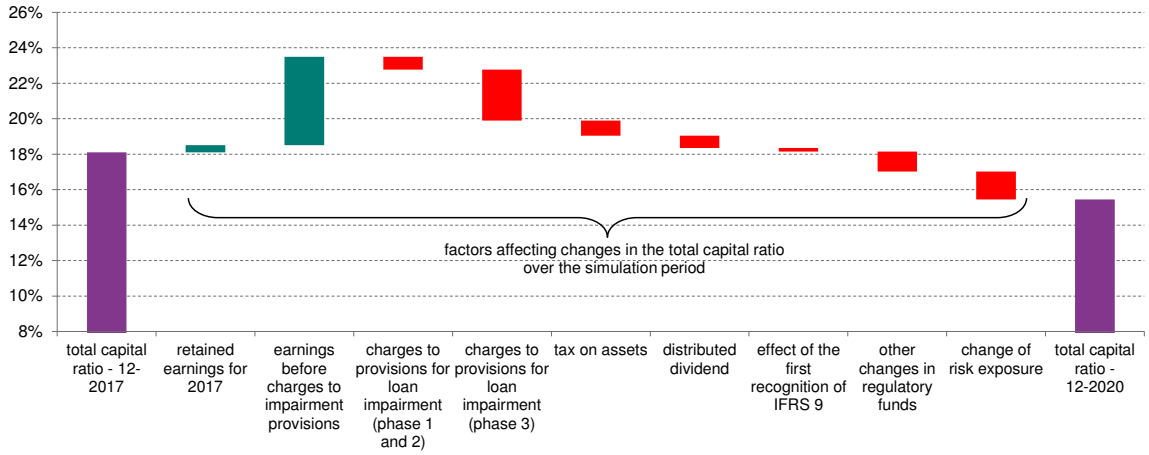
[171] Among others, a withdrawal of 100% of deposits, 10% of loans and 25% of other liabilities towards foreign financial institutions was assumed as well as an outflow of the unstable (not classified as core deposits) part of deposits from households, enterprises and the general government sector, and respectively 5%, 10% and 10% of their other deposits.

Table 5.3. The results of macro stress test

	Historical data for the period Q1 2017 – Q4 2017	Simulation results for the period Q1 2018 – Q4 2020	
		reference scenario[1]	shock scenario
On average per year (as % assets)			
Charges to loan impairment provisions	0.522	0.516	1.044
Net interest income[2]	2.412	2.412	2.150
Net earnings	0.846	0.851	0.136
Capital needs[3]			
Capital shortfall in term of Pillar 1 and 2 requirements (zloty billion)	0	0	2.1
Capital shortfall in term of Pillar I and II requirements increased by the combined buffer requirement (zloty billion)	0	4.3	13.6
Banks that do not meet Pillar 1 and 2 requirements			
- number of banks	0	0	4
- share of assets in the banking sector (in %)	0.0	0.0	5.2
Banks that meet Pillar 1 and 2 requirements, but do not meet the combined buffer requirement			
- number of banks	0	8	20
- share of assets in the banking sector (in %)	0.0	13.7	27.7
Additional information – market shock in the simulation period (zloty billion)			
Change in bond value recognized in the profit and loss account	n/d	n/d	-0.5
Change in bond value recognized in capital	n/d	n/d	-11.4
Zloty depreciation impact (impairment charges to FX loans to households) recognized in the profit and loss account	n/d	n/d	-1.2

[1] The scenario is based on the central path of the NBP macroeconomic projection from "Inflation report. March 2018 "
[2] Net "interest income" includes fees and commissions income on extended loans, but does not include interest income on debt securities.
[3] "Capital needs" result from the macroeconomic and market shock and the domino effect. A detailed description of minimum capital levels (requirement of pillar 1 and pillar 2 and the combined buffer requirement) can be found in Box 4 in "Financial Stability Report. June 2017".
Note: **The result of the simulation for the reference scenario or other simulations contained in this section should not be considered as a forecast of the condition of the banking sector.**
Source: NBP.

Figure 5.9. Accumulated changes in the total capital ratio in the shock scenario (% of risk-weighted assets)

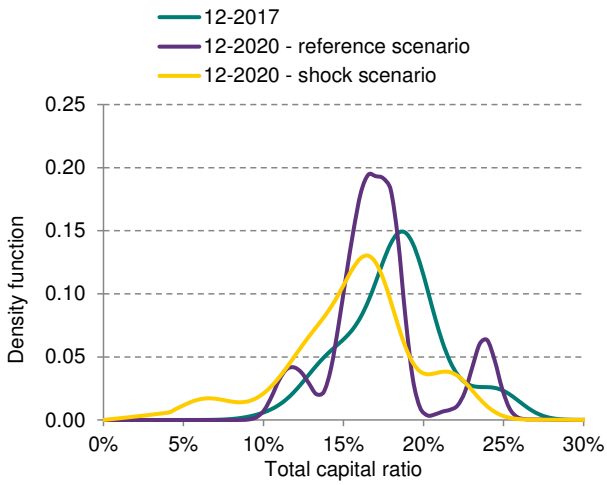


Notes: Purple bars represent the value of the total capital ratio of banks analysed at the beginning and the end of the simulation period under the shock scenario. Factors with a positive influence on the average total capital ratio over the simulation period are marked with green bars, and those with an adverse influence – with red bars. The influence of these factors is expressed in percentage points.
"Retained earnings for 2017 " are an assumed increase in the capital of banks by a part of undistributed (end of December 2017) profit earned prior to the start of the simulation.
"Earnings before impairment charges and tax on assets" are equivalent to net income from banking activity, less, among others, operating costs.
"Tax on assets" is the estimated amount of a tax on certain financial institutions, which would be paid by banks in the simulation period. It is assumed that a bank to record a loss in a particular quarter will be subject to the recovery plan, which will exempt it from paying the tax over the remaining projection period.
The simulation assumed that banks with positive earnings and complying with the assumed minimum capital adequacy levels would pay out a dividend whose rate depends on the fulfilment of the criteria for capital ratios and for the share of FX housing loans in receivables from the non-financial sector specified in the " KNF position of 14 March 2018 on the dividend policy of banks in a medium-term perspective ".
Source: NBP.

banks with the share of 27.7% in banking sector assets would not meet the combined buffer requirement. The estimated value of their capital needs would amount to 13.6 billion zlotys, i.e. 25.3% of their regulatory capital at the end of December 2017 (see Table 5.3). However, it should be indicated that one of the main objectives of capital buffers is to increase banks' capacity to absorb losses under stress conditions. Therefore, a temporary use of capital buffers by banks in the periods of crisis should not be perceived as a negative development.

In the scenarios under analysis, none of the banks would meet the conditions for the declaration of bankruptcy, therefore, there would be no need to estimate losses due to so-called domino effect.

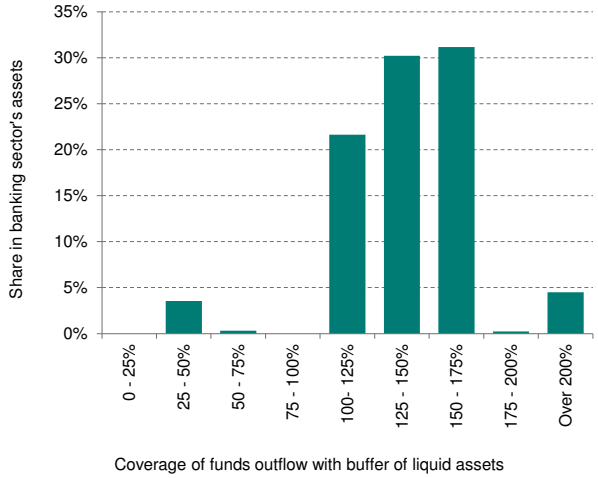
Figure 5.10. Distribution of banks covered by stress tests according to the total capital ratio



Note: Distribution approximated with the use of *kernel density estimator*. Asset-weighted observations. The range of presented total capital ratio values was limited to the range between 0 and 30% in order to eliminate outliers.
Source: NBP.

The liquidity shock simulation demonstrated a slight improvement in the banking sector's resilience. If a very restrictive shock scenario were to materialise, a group of domestic commercial banks with a share of about 4% in the sector's assets would not have sufficiently high surpluses of liquid assets to cover liabilities resulting from foreign capital outflows, the depreciation of the zloty and a fall in customer confidence (see Figure 5.11), and their total shortfall of liquid assets would amount to approx. 17 billion zlotys. In the simulation presented in the previous edition of the *Report*, it amounted to 8% and 17 billion zlotys, respectively.[172]

Figure 5.11. Assets of domestic commercial banks by coverage of funds' outflow with a buffer of liquid assets in the shock scenario



Source: NBP.

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The results of the stress tests indicate that materialisation of the scenario of asignificant economic slowdown, would lead to a decline in capital ratios of the majority of banks. Over a dozen commercial banks would record losses and a part of them (mostly small and medium-sized ones) would not have enough regulatory capital to cover capital requirements stemming from pillar 1 and pillar 2. A considerably higher number of banks (including some large ones) would not meet the combined buffer requirement if the risk were to materialise.

The results of the stress tests indicate that the likelihood of materialisation of systemic risk, under-

[172] The assumptions regarding the liquidity stress test are permanent in each edition of the *Report*, which allows to compare their results.

stood as the risk of disruption in banks' provision of financial intermediation services, is very low. The relatively high initial levels of capital ratios would allow most banks to absorb losses arisen as a result of materialisation of external risk factors and only a small group of banks would face insignificant capital shortages in relation to the pillar 1 and pillar 2 capital requirements. The remaining banks would still be solvent and could continue lending even if they failed to meet the combined buffer requirement. Moreover, as the level of exposure in the interbank market is low, the risk of the direct channel contagion is also insignificant.

The liquidity shock simulations showed that the banking sector's resilience is high and it has slightly recovered in relation to the assessment presented in the previous issue of the *Report*. Banks hold adequate buffers of liquid assets to face situations of stress in financing markets. There is, however, a group of banks with an elevated liquidity risk profile.

The results of the stress tests do not take into account potential legal changes affecting banks' situation. In particular, additional costs associated with the changes to operating design of the Borrowers' Support Fund would lead to a decline in banks' profitability and, as a result, would reduce their potential capacity to absorb shocks. On the other hand, intensification of the process of voluntary conversion of FX denominated housing loans would reduce banks' exposure to risk, which would be reflected in a decline of capital requirements related to risk involved in these loans. A potential introduction of other solutions, in particular ones assuming the statutory obligation to convert FX denominated housing loans at a non-market exchange rate, would significantly weaken banks' resilience. In such conditions, the negative feedback between the economy and the banking sector could intensify as a result of curbing lending to the real sector by banks affected by losses, which would have a negative impact on banks' operation as a consequence of the second round effects.

5.4. Resilience of other financial institutions to materialisation of risk

Similarly to the case of banks, the key for resilience of the credit union and insurance sectors and to the materialisation of risk are: the capital position and profitability of business. For the resilience of the credit unions sector, liquidity buffers also play a certain role. In the case of pension fund management companies and investment fund management companies, legal conditions, in particular the separation of fund management companies from the funds as such, play a vital role, which helps to ensure continuity of the provision of services to customers, regardless of the financial situation of managing entities.

The credit unions sector is characterized by relatively low resilience. The capital condition of the credit unions sector remains difficult, although varied – the smallest unions are characterized by the best capital adequacy. However, the credit unions sector demonstrates a high concentration and a relatively better capital adequacy of smaller credit unions does not improve the difficult situation of the entire sector. At the end of 2017, the sector's average reported capital adequacy ratio was significantly below the required statutory minimum. In 2017, the credit unions sector posted a profit. However, its source was not the core activity of credit unions associated with granting loans and performing financial settlements. Still, the sector continues to exhibit low efficiency and one-off transactions, among others, the sale of overdue debt, were an important fac-

tor improving financial result.

Resilience of the insurance sector to shocks is good, as evidenced by a high capital level. The domestic insurance sector had a large surplus of own funds over the capital requirements, and the vast majority of insurance companies met the new capital adequacy requirements. Own funds of life insurance companies exceeded the capital requirements more than three times and non-life insurance companies – more than two times. The vast majority of insurance products did not include the rate of return guarantee. Thus, liabilities of insurance companies did not generate interest rate risk. Financial and technical results improved, which was driven by an improvement in investment results in life insurance and a significant increase in premium, especially in the case of non-life insurance.

In the case of other sectors analysed in the *Report* (investment funds and open pension funds), institutional arrangements provide the opportunity to continue to provide services to customers even in the event of bankruptcy of the investment fund management companies and pension fund management companies. These solutions include, in particular, the separation of the balance sheet of investment funds and investment fund management companies, as well as bearing the entire investment risk by the participants. The services provided by the funds belonging to the same category of funds but managed by various companies are close substitutes. The financial and capital situation of the investment fund management and pension fund management companies only affects the capacity to cover losses arising from non-performance or improper performance of obligations related to the management of funds.

5.5. Recommendations

In addition to identifying and assessing risk in the financial system, the role of the *Report* is to offer measures aimed at eliminating or mitigating systemic risk. This is one of the methods to fulfil the statutory mandate of NBP which includes acting to maintain domestic financial stability (Article 3 paragraph 2 items 6a and 6b of the Act on NBP). In the opinion of Narodowy Bank Polski, the implementation of the following recommendations will support the maintenance of the stability of the Polish financial system:

1. **The restructuring of FX housing loans should proceed on the basis of voluntary agreements between banks and borrowers.** Following the entry into force at the turn of 2017 and 2018 of new regulatory and supervisory solutions implementing part of the recommendations of the Financial Stability Committee of 13 January 2017, banks should intensify preparations for the restructuring of the portfolio of FX housing loans. The condition for success of this process is the full implementation of the FSC recommendations. The voluntary nature of the process will allow broadly defined risk associated with the FX loan portfolio to be reduced, while preserving financial stability. Other previously proposed intrusive solutions providing for the forced currency conversion of the loans could pose a significant risk to financial stability. The fact that such solutions remain present in the public debate may also reduce borrowers' propensity to conclude voluntary agreements and negatively impact the cost of funding of banking business.
2. **In order to strengthen the cooperative banking sector, its further integration is desirable, including under the Institutional Protection**

Schemes (IPS). Experience from the functioning of institutional protection schemes gained so far is positive and points to the effectiveness of the intra-cooperative mechanisms of early intervention created at the IPS level as they strengthen stability, supervision, reporting quality, and risk identification and management.

The efficient functioning of IPSs could provide a stimulus for further integration of the cooperative banking sector, which can increase its effectiveness and competitiveness, thus creating the conditions for its stable development. The sector's integration should target efficiency growth, limiting operating costs and the focus on the business areas where these banks have the right potential to manage risk. The actions leading to improved resilience should be carried out particularly intensively by associating banks and some large cooperative banks.

3. **The cooperative banks, which have not joined the IPSs should ensure compliance of their operations with the statutory requirements by the end of 2018 at the latest.** The need for such action arises from the expiry in 2018, by act of law, of the existing association agreements. In the case of the banks that do not meet the criteria of independent operation outside an association, the solution recommended from the point of view of financial stability is their integration within the IPSs.

4. **Restructuring measures in the credit unions sector should continue; they should aim to enhance operational efficiency, decrease their operating expenses, including due to outsourcing services, as well as to increase capital of these credit unions whose restructuring is feasible.** The restructuring of credit unions should be implemented with the use of the resources of the credit unions system, limiting the use of public funds to the necessary minimum.

   In the case of these credit unions where restructuring inside the credit unions system is not feasible, efforts should be made to let them exit the market via a takeover of the credit union, or of selected property rights or selected liabilities by domestic banks, using support tools provided by the BFG.

5. **In their lending policy, banks should factor in possible interest rate hikes and demand that borrowers should have sufficient income buffers, irrespective of the formula for calculating the interest rate.**

   The interbank deposit market rates that are the basis for setting the interest rate on housing loans remain at their all-time lows. An interest rate hike may result in a faster increase in loan servicing costs than the rate of borrower's income growth. For this reason, borrowers should have an income that allows them to repay the loan even at a significantly higher level of interest rates than the current one.

   In this context, it is justified, as announced by the KNF, to establish good practices regarding banks' offer and management of mortgage-secured credit exposures with the fixed or periodically fixed borrowing rate, offered to clients.

6. **Banks should pursue a prudent policy in lending to the real estate sector.** In view of robust activity in the residential property market and existing imbalance in the commercial property market, banks should maintain prudence in lending. They should demonstrate particular prudence in examining the quality

of loan collateral and the borrower's loan repayment capacity. An excessive increase of real estate loans could, in the longer term, lead to the build-up of imbalances, whose adjustment would negatively affect both the real economy and the financial system.

7. **Financial institutions distributing investment products should pay particular attention to tailoring offered products to the client's profile and to providing full and transparent information to the client on risk associated with the investment.** An inadequate process of the sale of products may be a significant source of reputational and legal risk for the institution which sells the product. Banks should ensure compliance with particularly high standards in this area, due to the specific nature of their business of taking deposits and lending and to the negative consequences the loss in customer confidence may have for their stability.

8. **Introducing legal solutions that would make it easier for banks to obtain debt financing compliant with the MREL requirements would be beneficial.** Reducing the maturity mismatch of assets and liabilities would be an additional favourable result of an increase in the share of long-term debt instruments in the funding of banks.

Glossary

Adjusted net interest margin – the ratio of net interest income posted in a given period less interest income on securities held and net charges to provisions for impaired loans to assets (or the relevant loan portfolio) in this period.

Annualised data – in the case of data on flows – the value of cash flow in the preceding 12 months; in the case of data on balance (stock); – average value of balance in the preceding 12 months.

Assets of limited liquidity – category of assets specified by KNF Resolution No. 386/2008 defining liquidity standards for banks. Approximately it consists of assets resulting from banking activities outside the wholesale financial market.

Auto casco insurance AC – comprehensive auto insurance of land vehicles, excluding track vehicles, covering damage in automobiles or land vehicles lacking own drive — subsector no. 3 of the non–life insurance sector according to the Act on Insurance Activity.

Automobile third party liability insurance OC – third party liability insurance for land vehicles with own drive – subsector no. 10 of the non–life insurance sector according to the Act on Insurance Activity.

Availability of housing – measurement defining the number of square metres of a flat, which a person with average income in corporate sector in a given city could afford to buy at average transaction price in a given market. The average price consists of 40% of the price in the primary market and 60% of the price in the secondary market, which is reflected in the distribution of transactions in these markets.

Availability of loan-financed housing – measurement defining the number of square metres of a flat, which a person with average income in corporate sector in a given city could afford to buy at average transaction price in a given market, using a housing loan. This takes into account requirements of banks' lending policies and average market parameters of the loan (interest rate, maturity, minimal income remaining after loan instalment payment).

Available housing loan – the value of a potential maximum housing loan expressed as the multiplicity of a monthly wage in the corporate sector in a given market. The value is calculated taking into account requirements of banks' lending policies and average market parameters of the loan (interest rate, maturity, minimal income remaining after loan instalment payment).

Banking sector – all domestically incorporated commercial and cooperative banks as well as branches of foreign credit institutions operating in Poland.

Baseline credit assessment (BCA) – a main measure, developed by Moody's, designed for the assessment of the banks. Calculated in accordance with the new, implemented in March 2015, methodology, the measure replaced the financial strength rating. It presents the probability of default of the bank without any external support and its scale depends on the financial profile of bank's activity, qualitative factors, such as the level of business' diversification and complexity, and corporate practices, as well as the status of the macroeconomic environment in which the bank operates.

Class A office building – a modern office building (less than 10 years after construction or a general refurbishment), with high outfitting quality, located in city center (city center proper or its surroundings), with good transport links.

Class B office building – an office building constructed or modernised more that 10 years ago, with lower standard than class A, located in city centre or a building with technical parameters equivalent to class A located outside city center.

Combined Operating Ratio – the ratio of gross claims and expenses to premiums earned.

Commercial banks – all domestically incorporated commercial banks and branches of foreign credit institutions.

Consumer loans – credit card lending, consumer instalment loans and other consumer loans to natural persons.

Core deposits – stable part of non-financial sector's deposits.

Core liquidity reserve – category of assets specified by KNF Resolution No. 386/2008 of 17 December 2008, defining liquidity standards binding for banks. Approximately it consists of other receivables and other assets in the amount obtainable within 7 days.

CR indicator (CR1, CRS, CR5, CR10) – share in the sector of one, three, five and ten largest entities respectively. In case of investment funds and open pension funds share in the sector is calculted based on their net assets. In case of insurance companies based on gros written premium.

Credit Default Swap (CDS) – a derivative transaction under which the issuer undertakes to pay the buyer contractually specified compensation in case of a credit event pertaining to a third party (the reference entity) in return for remuneration in the form of a single/upfront or periodic payments (so called premiums). The value of remuneration paid to the issuer of CDS is interpreted as a measure of perceived credit risk of the reference entity.

Credit losses – net charges to provisions for impaired loans.

Cross Currency Interest Rate Swap – a derivative transaction under which the parties are obliged to the periodic exchange of interest payments calculated on the basis of an agreed nominal amount for a set period of time. Interest payments are denominated in different currencies and calculated on the basis of interest rates agreed for each currency. Transaction may involve the exchange of the nominal amount at the start or at the end of the transaction (at a predetermined exchange rate).

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

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

Domestic banking sector – domestic commercial banks and cooperative banks.

Domestic commercial banks – domestically incorporated banks operating in the legal form of joint–stock company or state bank.

Effective interest rate – the ratio of interest income (cost) to average value of claims (liabilities) in a given period.

Forward Rate Agreement (FRA) – a derivative transaction under which the parties are obliged to exchange the difference between the FRA rate (forward rate determined at the date of the transaction) and the reference rate that was binding two working days before the date of settlement (fixing date), calculated on the basis of an agreed nominal amount for a set period of time starting in the future.

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 written premium – the 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 Financial of the period of liability is not determined – amounts payable during a particular reporting period, whether or not the premium has been paid.

Hedonic housing price index – accounts for differences in housing attributes (i.e. location, usable area, standard) sold in each quarter. The index should react to those changes in the sample smoother than the average price growth or the median. The Hedonic price is the average transaction price from the base period multiplied by the hedonic index. For more information see the article by M. Widłak (2010) „Metody wyznaczania hedonicznych indeksów cen jako sposób kontroli zmian jakości dóbr"["Methods of computing hedonic price indices as the way to control changes in goods quality"], Wiadomości Statystyczne no. 9.

Housing loans– loans on residential real estate for individuals and debts coming out from that kind of loans that were bought.

Housing production indicator – twelve-month moving sum of the number of dwellings whose production is in progress (dwellings which construction has begun after deduction of dwellings completed).

Illiquid assets – category of assets specified by KNF Resolution No. 386/2008 defining liquidity standards binding for banks. Approximately it consists of assets not resulting from banking activities.

Impaired loan ratio – the ratio of loans with identified impairment to total loans.

Individual rating (SACP) – (the assessment of the rating agency S&P), a measure of long-term capacity of financial institution to perform its activities without the support of third parties, calculated on the basis of the assessment of the risk of operating in different countries in which it is active and the individual characteristics of this financial institution.

Interest rate gap – difference between interest-bearing assets and liabilities in a given period range to the repricing date and in a given currency.

Interquartile range – the difference between the value of the third quartile and the value of the first quartile in the distribution of a variable.

JPM G7 Volatility Index, JPM EM Volatility Index — risk indices for the FX market calculated by J.P. Morgan Chase & Co. as the weighted average of 90-day implied volatility derived from at-the-money FX options for USD against, respectively, 9 most liquid currencies from the developed countries and 14 most liquid currencies from emerging markets. The weightings of individual currencies within the indices are based on turnover data in the global market for FX options.

Large enterprises – enterprises that employ at least 250 persons.

Leverage (banks) – according to CRDIV/CRR, the leverage ratio is calculated as the ratio of Tier 1 capital to the exposure measure that includes both on- and off-balance-sheet exposures. Traditionally, leverage is also described as a ratio of assets to Tier 1 capital.

Leverage (investment funds) – the ratio of total assets to net assets of a fund expressed in percentages.

Loss ratio – the ratio of gross insurance claims and benefits paid, increased by changes in the amount of provisions for gross outstanding claims, to gross premium earned.

Loan-to-Value – the ratio of the value of loan outstanding to current value of property on which the loan was secured.

Loans with identified impairment – loans from portfolio B for which objective evidence of impairment and decrease in the value of expected cash flows have been recognised (in banks applying IFRS) or loans classified as irregular pursuant to the Regulation of the Minister of Finance regarding principles for creating provisions for the risk of banking activity (in banks applying the Polish accounting standards).

LTG package – tools used to calculate technical provisions stemming from insurance contracts containing long-term guaranteed rates of return, which can be applied by insurance companies pursuant to the Solvency II directive. Their application should mitigate the volatility in balance sheets of insurance companies, which can arise from mark-to-market valuation of assets and liabilities. The LTG package in the directive contains the matching adjustment (MA) to the relevant risk-free interest rate term structure (provided for life insurance obligations) and the volatility adjustment (VA) to the relevant risk-free interest rate term structure (for other obligations than those calculated with the use of MA).

M1 liquidity ratio – according to KNF Resolution No. 386/2008 on the establishment of liquidity standards binding for banks, in case of banks with total assets over 200 million zlotys. It is defined as the sum of core

and supplementary liquidity reserves less the value of unstable external funds. The minimum value of the ratio is 0.00.

M2 liquidity ratio – supervisory measure of bank's liquidity defined by KNF Resolution No. 386/2008 on the establishment of liquidity standards binding for banks, in case of banks with total assets over 200 million zlotys. It is defined as the ratio of the sum of core and supplementary liquidity reserves to the value of unstable external funds. The minimum value of the ratio is 1.00.

M4 liquidity ratio – supervisory measure of bank's liquidity defined by KNF Resolution No. 386/2008 on the establishment of liquidity standards binding for banks, in case of banks with total assets over 200 million zlotys. It is is defined as the ratio of the sum of own funds and stable external funds to the sum of non–liquid assets and assets of limited liquidity. The minimum value of the ratio is 1.00.

MOVE — risk index for US Treasury bond market calculated by Merrill Lynch Bank of America on the basis of a 30-day implied volatility derived from Treasury options. The share of Treasury bond options of 2-year, 5-year, 10-year and 30-year maturities in the index amounts to 20%, 20%, 40% and 20%, respectively.

MSCI EM — the stock index calculated by Morgan Stanley Capital International on the basis of stock indices of 23 emerging markets, weighted by the free float value of these instruments a given market.

Net charges to provisions for impaired loans – charges to provisions for impaired loans less releases of provisions for impaired loans in a given period.

Net income from banking activity – the sum of net interest income and net non–interest income.

Net interest margin – the difference between interest income and interest expenses, divided by average assets in a given period.

Non-interest income – the sum of income on fees and commissions, equities, other securities and other financial instruments with a variable income amount and the gain/loss on the swap position.

Non-interest margin – non-interest income for a given period to average value of assets in this period.

Operating costs – the sum of bank's general expense and amortisation.

Overnight Index Swap (OIS) – a derivative transaction under which the parties are obliged to exchange the difference between interest payments calculated on the basis of the floating and fixed rate (OIS rate) multiplied by an agreed nominal amount. The floating interest rate is computed by combining daily O/N interest rates over the transaction period. Net settlement (without the exchange of the OIS nominal amount) is made on the next working day after the maturity date of the transaction.

Own funds of insurers – sum of basic eligible own funds and ancillary own funds. Basic eligible own funds include the excess of assets over liabilities, as determined for solvency purposes, as well as subordinated liabilities. Ancillary own funds include other items than basic own funds which can be called on demand and serve to absorb losses.

Portfolio B – a portfolio of assets separated in banks' prudential reporting, comprising claims classified as available for sale or held to maturity as well as all financial instruments (including debt securities) classified as loans and receivables.

Pre–tax profit margin (TFI) – the ratio of gross financial result and total revenues.

Preferential loans – loans with supplementary payments to interests.

Price–to–book value ratio – ratio of the price of one share of a company to accounting value of capital per share.

Small– and medium-sized enterprises – enterprises that employ fewer than 250 persons.

Solvency Capital Requirement (SCR) – corresponds to one-year Value-at-Risk (with confidence level 99.5%) of change of basic own funds of an insurance or reinsurance undertaking.

Stable external funds – category of assets specified by KNF Resolution No. 386/2008 defining liquidity standards binding for banks. Approximately it consists of funds that the bank includes in stable funding sources, in particular core deposits, own securities issued that are not included in regulatory capital, other liabilities with the original maturity over 1 year, which the bank intends to renew and other liabilities resulting from banking activities, whose plan of obtaining and renewing has been approved by the supervisory board.

Supplementary liquidity reserve – category of assets specified by KNF Resolution No. 386/2008 of 17 December 2008 defining liquidity standards binding for banks. Approximately it consists of receivables and other assets in the amount obtainable within 7–30 days.

Systemic risk – a risk of disruption in the functioning of the financial system, which – in the case of its materialisation – interferes with the functioning of the financial system and the national economy as a whole (Article 4 paragraph 15 of the Act on Macroprudential Supervision of the Financial System and Crisis Management).

Technical profitability of the insurance – ratio of technical result to premiums earned, net of reinsurance.

Technical profitability on pension fund management – ratio of technical profit from pension fund management to revenues from pension fund management.

Technical profit/loss of PTE from the management of pension funds – the difference between revenues from managing pension funds (inter alia, fees from premiums paid–in and remuneration for pension fund management) and the costs of pension fund management (inter alia, commissions for ZUS on premiums paid–in, the costs of acquisition, PTE general costs).

Technical provisions – the amount of insurance liabilities arising from insurance contracts.

Technical result – the difference between income from premiums as well as the so-called other technical income and claims and benefits paid, changes in insurance provisions, the costs of conducting insurance activity (inter alia, administrative and acquisition expenses), the so-called other technical costs and a part of income from investments.

Unstable external funds – category of assets specified by KNF Resolution No. 386/2008 defining liquidity standards binding for banks. Approximately it consists of funds not included in stable external funds.

Vacancy rate – relation of vacant space to the accumulated (total) supply of commercial space in a particular location, e.g. town or district.

Value at Risk – maximum loss that can be incurred in a given time horizon with a given confidence level, estimated on the basis of historical data.

Viability rating – individual rating assigned to institutions by Fitch Ratings advising of the financial condition of single entities.

VIX — risk index for the equity market calculated by the Chicago Board Options Exchange on the basis of a 30-day implied volatility derived from the out-of-the-money options for equities included in S&P 500 index. High level of the index indicates an elevated risk aversion.

VXEEM — risk index for equity markets of emerging economies calculated by the Chicago Board Options Exchange on the basis of a 30-day implied volatility derived from the out-of-the-money options on the units of MSCI EM exchange-traded fund.

Abbreviations

AC	Auto Casco
AMA	Advanced Measurement Approac
APP	Asset Purchase Programme
BAEL	Badania Aktywności Ekonomicznej Ludności (Labour Force Survey)
BFG	Bank Guarantee Fund
BGK	Bank Gospodarstwa Krajowego
BIK	Credit Information Bureau
BIS	Bank for International Settlements
BOŚ	Bank Ochrony Środowiska
CDS	Credit Default Swap
CIRS	Cross-currency Interest Rate Swap
CIT	Corporate Income Tax
COR	Combined Operating Ratio
CPI	Consumer Price Index
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
CTA	Cost to Assets
CTI	Cost-to-income ratio
EBA	European Banking Authority
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ESRB	European Systemic Risk Board
EU	European Union
EURIBOR	Euro Interbank Offered Rate
EURO STOXX 50	Stock index of the 50 biggest companies in the euro area by value of shares in free float
EURO STOXX BANKS	Stock index of the biggest banks in the euro area
Fed	Federal Reserve System

FI	Investment fund
FIZ	Closed-end Investment fund
FOMC	Federal Open Market Committee
FRA	Forward Rate Agreement
FSC	Financial Stability Committee
GDP	Gross domestic product
GPW	Warsaw Stock Exchange
GUS	Central Statistical Office
HH	Households
H-H	Hui-Heubel ratio
IBNR	Incurred But Not Reported provisions
IFRS/IAS	International Financial Reporting Standards / International Accounting Standards
IMF	International Monetary Fund
IPS	Institutional Protection Scheme
IRB	Internal Ratings Based Approach
IRS	Interest Rate Swap
KDPW	Central Securities Depository of Poland
KNF	Polish Financial Supervision Authority
LCR	Liquidity Coverage Ratio
LIBOR	London Interbank Offered Rate
LtV	Loan-to-value
MA	Matching Adjustment
MdM	"Home for the Young"
MF	Ministry of Finance
MPC	Monetary Policy Council
MREL	Minimum Requirement for own funds and Eligible Liabilities
mWIG40	Warsaw Stock Exchange index of medium–sized companies
NBP	Narodowy Bank Polski
NEG	Negative rating outlook – expected downgrade
NIF	Non-credit financial institution
NSFR	Net Stable Funding Requirement
O/N	Overnight
OC	Third party liability insurance
OECD	Organisation for Economic Co-operation and Development
OFE	Open Pension Fund
OIS	Overnight Index Swap
PKO BP	Powszechna Kasa Oszczędności Bank Polski
PM	Primary market
PSR	Polish Accounting Standards

PTE	Pension fund management company
PZU	Powszechny Zakład Ubezpieczeń
ROA	Return on Assets
ROE	Return on Equity
RORC	Return on Regulatory Capital
S&P	Standard & Poor's
S&P 500	Stock index of 500 companies listed on NYSE or NASDAQ with the highest value of shares in free float
SACP	Stand-Alone Credit Profile
SCR	Solvency Capital Requirement
SKOK	Credit unions
SM	Secondary market
SME	Small and medium-sized enterprise
STA	Stable rating outlook
sWIG80	Warsaw Stock Exchange index of small companies
TCR	Total Capital Ratio
TFI	Investment fund management company
UFK	Insurance investment fund
UKNF	Office of the Polish Financial Supervision Authority
VA	Volatility Adjustment
VAT	Value Added Tax
VIX	Chicago Board Options Exchange Market Volatility Index
WIBOR	Warsaw Interbank Offered Rate
WIG	Main index of the Warsaw Stock Exchange
WIG20	Warsaw Stock Exchange index of 20 largest companies by the value of shares in free float
WIG–Banki	Warsaw Stock Exchange index of banks
WSE	Warsaw Stock Exchange
ZBP	Polish Bank Association
ZU	Insurance company
ZUS	Social Insurance Institution

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