



Financial Stability Report

June 2009

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

The stability of the banking system is of particular importance for financial system stability. This is due to the role of banks in financing the economy and in the settlement of payments. Banks also perform another important function, i.e. they provide products that allow other entities to manage their financial risk. Therefore, a special emphasis is put on the analysis and assessment of banking system stability.

Maintaining the stability of the financial system is of particular importance from central banks' perspective. This is due to the fact that 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. The instability of the financial system may hamper the efficient implementation of the monetary policy. Another reason for the involvement of the National Bank of Poland in activities supporting the stable functioning of the financial system is the fact that the central bank is entrusted with the task of organising monetary clearing. One of the conditions for the efficient operation of payment systems is the stable functioning of financial institutions that are the integral components of these systems. Financial system stability is also the object of the NBP's particular interest due to its tasks to contribute to the stability of the domestic financial system and to establish the necessary conditions for the development of the banking system.

The "Financial Stability Report" is primarily addressed to financial market participants, as well as other persons and institutions interested in the subject. The aim of the Report is to present the conclusions from analytical and research work on financial system stability, including the assessment of its resilience to potential disturbances. The dissemination of 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 these 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 National Bank of Poland has presented the results of its analyses in extensive annual "Financial Stability Reports", as well as shorter "Financial Stability Reviews", published in the second half of each year. Given the strength of the present turmoil in the global economy and the resulting need to provide more specific information about the risk taken by financial institutions, beginning from 2009, the National Bank of Poland will publish the extensive "Financial Stability Report" twice a year. The baseline scenarios in macro stress tests presented in the *Reports* will be based on June and October macroeconomic projections of the NBP.

The analysis conducted in this *Report* covers the period from the end of first half of 2008 and is based on data available up to 10 June 2009. The *Report* was approved by the Management Board of the National Bank of Poland at a meeting on 25 June 2009.

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Chapter 1.

Assessment of financial stability and risk outlook

Since the publication of the last "Financial Stability Review" the conditions in the economic environment of the domestic financial system have worsened markedly due to the global crisis. As Polish financial institutions entered the period of difficult economic conditions in a sound financial position, the global crisis has so far had only a limited impact on the safety of financial system functioning.

In the coming quarters, the profitability of financial institutions is expected to worsen. The analyses presented in the "Report" indicate, however, that the financial system will be able to absorb the effects of a slower-than-in-the-past economic growth without a major impact on its stability.

In the medium term, the main risk to preserving financial system stability will be posed by a potentially more pronounced economic slowdown than currently expected, which would lead to a deterioration in banks' profits. A decline in the banking sector's earnings would result both from a possible increase in the cost of credit risk (loan impairment provisions) and the cost of funding, and a decline in banks' revenues due to a fall in credit growth rate. Due to the relatively limited availability of capital and its high cost, banks could be prompted to reduce lending, which would create the risk of a procyclical aggravation of economic slowdown. Exchange rate developments and the financial position of foreign banks which are the owners of banks operating in Poland are other factors that will have an impact on financial system stability in the medium term.

Compared to the fourth quarter of 2008, the short-term risk to financial system stability which resulted from a fall in liquidity of the domestic interbank market decreased. Banks that had so far relied on the domestic interbank market for a large portion of their funding, received funds from their foreign strategic investors. Banks that could have difficulties in raising liquidity in the market or hedging FX risk can use instruments offered by the National Bank of Poland under the "Confidence Pact".

Since the publication of the last "Financial Stability Review" in October 2008, the conditions in the economic environment of the domestic financial system have worsened markedly. This was caused by the growing impact of the global crisis on Poland's economy. The impact of the crisis was visible in the spillover of the turmoil in global markets to the Polish market, which led to a decline in domestic financial markets' liquidity and a strong depreciation of the zloty on a scale not justified by fundamental factors. A worsened outlook for economic growth was another effect of the global crisis. All these factors contribute to an increase in the risk to financial system stability.

Table 1.1 sums up the assessment of the impact of the global crisis on the stability of the Polish financial system. It is based on the analysis of transmission channels identified in Section 3.7. of "Financial Stability Report - June 2008". The financial standing of financial institutions was sound when they entered the period of difficult operating conditions. This was due, among others, to very high profits generated by financial institutions in 2008 and historically good asset quality in banks. Banks, as well as insurance companies and fund management institutions generated large earnings in this period. In an environment of low capital availability from market sources, the high earnings became the source of a capital buffer increase in financial institutions, primarily in banks. The increase in capital buffer has a favourable impact on the banks' capacity to absorb the effects of an economic slowdown.

Due to the unfavourable conditions that financial institutions operate in at present, their earnings will be worse in the coming quarters than in recent years. The reasons for the expected decline in banks' earnings may include, among others, the increasing cost of credit risk and cost of funding, as well as reduced revenues related to lower lending growth.

Poland's current and expected macroeconomic situation indicates that a further increase in

credit risk costs borne by banks is very likely. The economic growth outlook worsened mainly as a result of a recession in the economies of Poland's main trading partners. Beginning from October 2008, there has been a strong – albeit not as strong as in other countries of the region – slowdown of economic growth rate in Poland. A deterioration in consumer and corporate sentiment and a tightening of banks' lending policy contributed to the slowdown. The economic outlook for Poland is fairly uncertain due to large uncertainty about the outlook for global economic growth. However, according to the NBP projection of June 2009, Poland's GDP growth will remain positive in 2009.

Due to a large share of loans denominated in foreign currencies in the portfolio of housing loans, the developments of the zloty exchange rate constitute an additional factor influencing credit risk underlying this portfolio. The impact of the strong depreciation of the zloty in the analysed period on the cost of servicing foreign currency loans was curbed by cuts of Swiss interest rate which determines the interest rate on foreign currency-denominated housing loans. A potential further depreciation could, however, have an adverse effect on bank asset quality. Fundamental factors do not, however, indicate that a further strong and prolonged depreciation is probable.

The current market conditions pose a challenge for banks to maintain a positive profitability of their loan portfolios, especially the profitability of long-term housing loans. In some banks interest income on such loans may not cover related costs. This may be due to an increase in funding costs, including deposits from non-financial entities, and an increase in the cost of hedging FX risk, as well as constant spreads on housing loans. The bid-ask spread used by banks when repayment of foreign exchange loans is done in zloty is a factor that increases banks' revenues from the portfolio of foreign currency-denominated housing loans. In mid-2009, a recommendation of the banking supervision authority enabling cus-

tomers to repay the debt in the currency of the loan will become effective. It is, however, difficult to anticipate the impact of this solution on banks' earnings since it is difficult to estimate the percentage of borrowers that will make use of this possibility and to forecast what actions banks will take to adjust to the new situation.

Table 1.1. Transmission channels of the global crisis to the Polish financial system

| Transmission channel | Transmission mechanism | Assessment of impact on the Polish financial sector |
|--------------------------------|---|---|
| Direct transmission channels | | |
| Credit channel | Current and potential credit exposures of banks towards foreign financial institutions | Banks did not record significant losses as a result of their claims on foreign financial institutions. The scale of these exposures has been significantly limited since the third quarter of 2008, as a result of banks' preference to hold zloty liquid assets and supervisory actions of the PFSA. |
| Funding channel | Funding acquired by domestic banks from foreign financial institutions. | The risk of withdrawal of funding did not materialise. Starting from September 2008, banks received significant liquidity support from foreign financial institutions, mainly from their parent entities (see Chapter 3.4). |
| Direct market channel | Securities issued by nonresidents held by domestic financial institutions | Changes in the value of securities issued by nonresidents had a small change in the profits of banks. These securities account for a very small share of the banking sector balance sheet. |
| Indirect transmission channels | | |
| Macroeconomic channel | Slowdown of economic growth in Poland as a result of events in other economies | The most important transmission channel of the economic crisis. The recession in the economies of Poland's major trading partners leads to a strong decline in Polish GDP growth rate, which will probably lead to an increase in unemployment and a deterioration in the quality of banks' loan portfolios (see Chapters 2, 3.2.2 and 3.5). |
| Capital (ownership) channel | Dependence of dividend policy and capital injections on foreign parent entities | Despite the losses recorded by many foreign parent entities, most Polish banks decided to retain 2008 profits in capital. Some banks also received subordinated loans from parent entities (see Chapter 3.5). |
| Indirect market channel | Dependence of the events on domestic financial markets on the developments on international financial markets | The liquidity of the markets used by banks to hedge market risk decreased. This makes it more difficult for banks to manage this risk. However, banks can hedge their positions, as operations with parent entities and with the NBP (in the case of FX swaps) are available (see Chapter 3.3). The increase in global risk aversion contributed to a depreciation of the zloty, which is much deeper than warranted by fundamental indicators (see chapter 2). |

| Transmission channel | Transmission mechanism | Assessment of impact on the Polish financial sector |
|-------------------------|---|--|
| Indirect credit channel | Exposure of borrowers to market risk, including FX risk related to FX mortgages | In the household sector, the increase in loan repayment burden resulting from zloty depreciation was to a large extent offset by the fall in foreign interest rates (see Chapter 3.2.2). In the corporate sector, some companies recorded significant financial costs due to the mark-to-market valuation of hedging strategies and FX market speculation (see Chapter 3.2.1). The deterioration of the financial standing of the corporate sector is not a systemic event and does not pose a threat to the stable functioning of the banking sector. |
| Confidence channel | Decrease in confidence in individual financial institutions and the banking sector as a whole | The decrease in mutual confidence among banks on global markets after the failure of investment bank Lehman Brothers led to a decrease in mutual credit limits for Polish banks and to a decrease in transactions on the interbank deposit market. In October 2008, news concerning bad financial results of global banks led also to a short-term fall in the confidence of customers in banks operating in Poland. This led to a temporary outflow of funds deposited by households in some banks. This event did not, however, lead to liquidity problems of banks. |

Note: Section 3.7 of "Financial Stability Report - June 2008" presents a broader analysis of individual transmission channels through which the crisis in the global financial market can affect Poland's financial system stability", NBP, Warsaw 2008.

In a number of countries falling prices in the property market are a source of risk. Following a dynamic rise in prices, a moderate decline in property prices has been observed in Poland since mid-2008. This trend is expected to persist in the coming quarters. The decline in property prices, accompanied by a high level of LtV ratios, mainly for loans extended in 2007-2008, may generate risk to the banking system since a simultaneous decline in property prices and a deterioration in the financial position of some of the borrowers may be expected.

In the period of lower domestic money market liquidity and a reduction in banks' mutual exposures some banks received additional support from their foreign parent entities. This enhances financing stability due to a lower probability, compared with funding acquired from other market participants, that the parent bank will fail to

rollover funding to its subsidiary. At the same time, funding concentration risk increased as the stability and prospects for the growth of Polish banks became more dependent on the financial condition of banks' parent entities.

Banks in which the value of loans exceeded the value of non-financial customer deposits and which had been raising a major part of funding in the interbank market were particularly active in obtaining deposits from customers. This group of banks seems to be restructuring its balance sheet in order to increase the role of stable funding sources and reduce the funding gap. To this purpose, these banks compete in an aggressive way in the market for household deposits and may strongly tighten their lending policy.

The growth rate of lending declined in the analysed period and its further decrease may be expected. In response to the worsening economic

growth outlook banks tightened lending policies, both with regard to loans to corporates and loans to households. NBP survey data also indicate that banks expect the lending policy to be further tightened. Uncertainty about future economic trends is the main factor prompting banks to tighten their lending policies. This tightening is also reflected in the increased percentage of corporates whose loan applications are rejected by banks.

At the same time, uncertain economic growth outlook induces bank customers to reduce demand for loans. This is visible both in the debt plans of enterprises and in the demand for loans observed by banks. A decline in lending growth rate may have an adverse impact on banks' capacity to raise revenues. NBP surveys carried out among enterprises also show a rising percentage of corporates reporting difficulties in obtaining loans as a factor hampering their business activity. In the long term, low availability of loans may also have a negative influence on borrowers' financial position (in particular, on their liquidity position) and may contribute to the worsening of the loan portfolio quality.

The large rise in lending in recent years has led to a decline of banks' capital buffers in spite of the increase in banks' regulatory capital. Simulations presented in this publication indicate that banks' capacity to absorb the cost of credit risk that might arise from a deterioration of loan portfolio quality decreased. Macroeconomic stress test simulations show, however, that even if banks' revenues significantly decreased, the majority of the sector is able to absorb the hypothetical cost of credit risk with the revenue it generates and the capital buffer it holds, without threatening its capital adequacy. In the context of heightened uncertainty about economic outlook, the decreasing capital buffers are, however, an additional factor inducing banks to contract loan supply, which is reflected in NBP surveys' data.

The analysis presented in this "Report" makes it possible to identify four processes that may de-

termine Polish financial system stability in the medium term. The first process is the development of the macroeconomic situation in EU countries. A deeper recession than currently expected may lead to a recession in Poland and to a marked deterioration of financial institutions' earnings. Due to a high volatility of economic growth forecasts, the risk related to this process remains high.

The second factor that will determine the stability of the domestic financial system is the financial position of parent banks. Their significance for financial stability increased in the analysed period due to the liquidity support they had provided to their subsidiaries. As a result of a broad support provided by the authorities of home countries to international banking groups, there has been a marked decline in the probability of a strong deterioration in their financial position which could trigger the need for a quick withdrawal from Central European countries.

Another factor influencing the stability of the Polish financial system is the development of the zloty exchange rate and its dependence on the economic situation in the countries of the region (regional risk). The strong depreciation of the zloty in the analysed period was a consequence of a rise in global investors' risk aversion, and the fact they perceived Central European countries as a homogeneous region in terms of investment risk. In this context, pessimistic information about economic outlook for countries of the region influenced quotations in the Polish market. The recent comments made by global financial market participants indicate, however, that investors diversify their investment policy to a greater extent, according to the economic situation of individual countries of the region. These developments, as well as the evaluation of Poland's economic fundamentals indicate that a further strong and prolonged depreciation of the zloty seems rather unlikely.

The last process of major significance for Poland's financial system stability is the lending policy developments in banks operating in

Poland. There is a risk in this area of the occurrence of a negative feedback in the form of a strongly procyclical contraction of loan supply by banks. The risk may materialize as banks' earnings decrease in the context of low availability of capital and its high cost. Another factor that may lead to the materialization of the risk is the attempt by some banks to reduce the funding gap. Reducing the loan supply might contribute to a deeper than currently expected slowdown in Poland, triggering a deterioration of bank assets quality. The probability of this risk materialising has increased in comparison to the situation described in the previous "Financial Stability Review". Its impact may be limited, however, due to the still small scale of financing the economy with credit.

Compared to the assessment presented in the October "Financial Stability Review" there was a decline in banks' short-term liquidity risk re-

sulting from the low liquidity of the domestic money market. The factors that contributed to the reduction of the risk were NBP operations under the "Confidence Pact" providing liquidity to banks and enabling its redistribution in the banking system, as well as funding that some banks received from their strategic investors.

Short-term risk to financial system stability decreased in the period analysed in this publication but the medium-term risk remains higher. The financial position of financial institutions is likely to worsen in the coming quarters. However, their good financial standing at a time they entered the period of lower economic growth and the smaller scale of imbalances in Poland's economy than in other countries of the region make it possible to believe that the Polish financial system will function in a safe way also in the period of an economic slowdown.

Since October 2008, the National Bank of Poland and the Government of the Republic of Poland have taken measures to sustain economic growth during the global financial crisis and a recession in the developed economies. The measures are in line with the conclusions of the ECOFIN meeting held on 7 October 2008.

Measures taken by the National Bank of Poland

The objective of the "Confidence Pact" developed by the National Bank of Poland and announced on 13 October 2008 is to provide banks with the zloty funds for periods longer than one day, to provide banks with foreign currencies and broaden the possibilities for banks to obtain liquidity in zloty. Under the "Confidence Pact" the National Bank of Poland:

- introduced repo transactions, with maturities of up to three months enabling banks to obtain short-term funding.
- introduced FX swaps on currency pairs of EUR/PLN, USD/PLN and CHF/PLN enabling banks to hedge open currency positions against the risk of changes in the zloty exchange rate; standard swap transactions were carried out with maturity of 1 week;
- extended the list of collateral in open market operations and decreased the haircut when determining the value level of Lombard credit collateral;
- maintained issuance of seven-day NBP bills as the main excess liquidity absorbing instrument.

The National Bank of Poland makes swap operations available for banks and finances them pursuant to agreements with the European Central Bank of 6 November 2008 and the Swiss National Bank (SNB) of 7 November 2008. Under these agreements, SNB signed a foreign exchange swap agreement with the National Bank of Poland which enables the NBP to obtain Swiss francs against euro while the ECB provided the NBP with a credit line in the form of repo transactions for a total amount of up to 10 billion euro. To date the NBP did not need to use the ECB repo line and obtained Swiss francs from the SNB using euro funds from the official reserves. The scale of swap operations with banks is low - at the end of April 2009, the value of foreign currencies provided to banks amounted to 1.8 billion zloty. On 31 March 2009, the National Bank of Poland announced a revised version of the "Confidence Pact" pursuant to which, beginning from 29 May 2009, the NBP offers repo operations to banks with maturity of up to 6 months and foreign exchange swap operations with maturities of up to 1 month. It also broadened the range of securities accepted as collateral in repo operations.

At the same time, the National Bank of Poland took measures aimed at continued lending growth. On 22 January 2009, the NBP Management Board made a decision on the early redemption of bonds which were issued by the NBP in 2002 in order to absorb funds released as a result of a reduction in the reserve requirement rate. The total value of bonds redeemed amounted to 8.2 billion zloty (including interest accrued). In addition, at the turn of April and May 2009, the NBP organised a series of meetings with representatives of the banking sector and public institutions to develop solutions conducive to maintaining a positive growth rate of lending. The conclusions from the meetings have been presented to the Financial Stability Committee.

Measures taken by the Government of the Republic of Poland

Regulatory package of the Ministry of Finance

Under the regulatory package, the Ministry of Finance drafted a set of laws aimed at improving the functioning of the financial safety net in Poland and developing anti-crisis mechanisms. The package consists of the following laws:

- Law on the Financial Stability Committee
- Law amending the law on the Bank Guarantee Fund
- Law on State Treasury assistance to financial institutions
- Law on recapitalisation of distressed financial institutions

The objective of the Law on the Financial Stability Committee is to strengthen cooperation between the Ministry of Finance, the Polish Financial Supervision Authority and the National Bank of Poland and to provide legal grounds for the cooperation under the Financial Stability Committee framework. Members of the Committee meet at least once every 6 months to assess, among others, the domestic financial system. Under the law, the NBP is entrusted with the task to take action supporting the stability of the domestic financial system. The statutory power of this task stems from the important role of an efficient functioning of the financial system for the economy. Following the entry into

force of the law, the National Bank of Poland joined the group of banks whose mandate to support financial system stability is empowered by law. The Law entered into force on 13 December 2008.

The Law amending the law on the Bank Guarantee Fund increases the level of deposit protection from the present EUR 22,500 to EUR 50,000. In addition, the co-insurance principle has been abandoned and thus deposits are fully guaranteed. The Law entered into force on 13 December 2008, but its deposit guarantee provisions have been in force since 28 November 2008.

The Law on State Treasury assistance to financial institutions provides that the State Treasury may assist a financial institution at its request in the form of:

- State Treasury guarantee;
- loans in the form of Treasury securities;
- sale of Treasury securities with payment in instalments;
- sale of Treasury securities through an offer addressed to a specific financial institution,

At the same time, such assistance may be granted until 31 December 2009. The provision of the guarantee will be remunerated pursuant to the law. The Law entered into force on 13 March 2009.

The law on recapitalisation of distressed financial institutions, which is now debated in the Parliament, allows the Minister of Finance to issue a guarantee to a financial institution to increase regulatory capital or increase its capital by taking up shares, bonds or bank securities. At the request of the Minister of Finance, the Council of Ministers, following consultations with the NBP President and the Chairperson of the Polish Financial Supervision Authority, may take over a distressed financial institution when it is of particular systemic importance or in the absence of reasons justifying the issuance of guarantees for the increase of its regulatory capital. When the situation of the financial institution stabilizes, the State Treasury will have the possibility of withdrawing its stake from the institution.

Stability and Development Plan

The objective of the Stability and Development Plan, published on 30 November 2008, is to stimulate investment and consumer demand. The measures projected in the Plan are, among others:

1. increasing State Treasury guarantees, as set in the budgetary law, to 40 billion zloty. The guarantees may be used to develop infrastructural projects implemented under the program of EU assistance or the system of public - private partnership, export projects or orders placed by enterprises;
2. strengthening the system of loan guarantees which would enable to increase lending by 20 billion zloty in 2009;
3. accelerating investments co-financed from EU funds by increasing qualified expenses in 2009, certified by the European Commission, of the value of 16.8 billion zloty and simultaneously increasing the actual value of investments carried out to 21.4 billion zloty;

4. modifying the VAT regulations to accelerate VAT refund;
5. maintaining the decision about a two- tier tax scale on personal income, enhancing a major increase in consumer demand;

The strengthening of the loan guarantee system, including an increase in capital of Bank Gospodarstwa Krajowego (BGK) will be possible pursuant to the law amending the Law on guarantees and endorsements granted by the Treasury and certain legal persons, the Law on Bank Gospodarstwa Krajowego and certain other laws passed by the Parliament on 2 April 2009. The law provides that BGK may, in its own name and at its own account, issue guarantees or endorsements under the government socio-economic programs approved by the Council of Ministers. A new instrument to support exports will be launched: it consists in BGK's directly granting loans to the foreign buyers of Polish goods and services. The aim of the amendments to the law on guarantees and endorsements granted by the Treasury and certain legal persons is to facilitate access of small- and medium-sized enterprises to external funding (mainly in the form of loans). The law entered into force on 15 May 2009.

According to government estimates, when carried out, the proposed measures will yield an additional demand impulse of 91.3 billion zloty.

Flexible Credit Line

On 6 May 2009, at the request of the Polish government, the International Monetary Fund approved a Flexible Credit Line of SDR 13.69 billion for Poland for 12 months. The line is intended as a precautionary instrument to strengthen investor confidence in Poland's economy and the country's capacity to avert unfavourable processes taking place in the external environment of the Polish economy, and will enable to maintain access to foreign funding through the international financial market. The Polish government does not intend to use the approved credit line.

The Flexible Credit Line is a new IMF instrument, developed as part of the reform of IMF instruments, published on 24 March 2009. The line may be granted to countries that have strong macroeconomic fundamentals and are implementing appropriate economic policies. The goal of the FCL is, first of all, to prevent crises. In contrast to typical loans and credit lines granted by the IMF, the FCL is not subject to any conditionality. Therefore, the beneficiary of IMF aid undertakes no obligations regarding its economic policy. The decision of the International Monetary Fund to approve a Flexible Credit Line is based on a comprehensive assessment of the requesting member country. The assessment includes a review of macroeconomic fundamentals and institutional policy frameworks, assessment of the rationale for the policy, and the economic policy outlook.

The IMF has also approved the Flexible Credit Line for other countries, Mexico and Columbia, with the amounts of the FCL being SDR 31.5 billion and SDR 6.966 billion, respectively.

Chapter 2.

Financial institutions' economic environment

The financial crisis in highly developed economies intensified in the second half of 2008. The international financial market experienced serious turmoil, leading to a considerable decline of economic activity in many countries. This resulted in a strong slowdown of economic growth rate in Poland, which was additionally strengthened by a deterioration in consumer and enterprise sentiment. A high volatility of forecasts for economic growth across the world persists, which translates into highly uncertain economic outlook also for Poland. Poland's GDP, in contrast to highly developed economies, is expected to increase slightly in 2009.

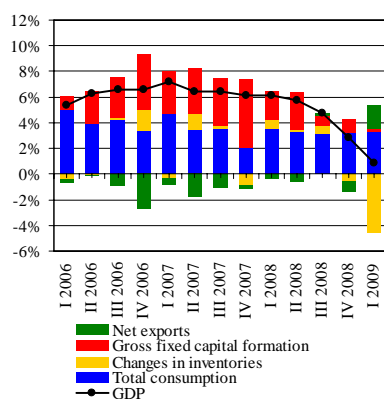
Serious strains persist in the domestic financial market. They are connected with market participants' limited possibility to assess counterparty credit risk and with banks' attempts to invest surplus funds in the safest investments. Disruptions in the functioning of the money, currency and bond markets persist. A combination of global and local factors, including the fact that investors did not differentiate between individual markets, led to the depreciation of the zloty to a level lower than fundamentally justified. The Polish financial market is very sensitive to information published about highly developed economies and other countries of the region.

In 2008, the prices of residential property declined. This was the consequence of lower availability of funding for real estate purchase and deterioration in consumer sentiment. Expectations of further declines in residential property prices persist. In 2009, banks' lending policies will be of major importance for the situation in the residential property market. There was an increase in the supply of new office space, rents went up slightly and the space vacancy ratio declined. However, a decline in rents for office space may be expected in 2009.

2.1. Macroeconomic developments

At the end of 2008, recession connected with the global financial crisis affected a large number of countries, both those financially and economically developed and developing countries. The growth rate of the Polish economy also slowed considerably, but the real GDP growth remained positive until the end of 2008 and amounted to 4.9% in the whole year. This represents a decline in the economic growth rate compared to data presented in the last *Financial Stability Review*. Poland's economic growth rate has been declining systematically since the third quarter of 2007 and according to the central forecast of the NBP of June 2009, in 2009 it will amount to 0.4% y/y¹.

Figure 2.1. Decomposed GDP growth (y/y)



Source: GUS data, NBP estimates.

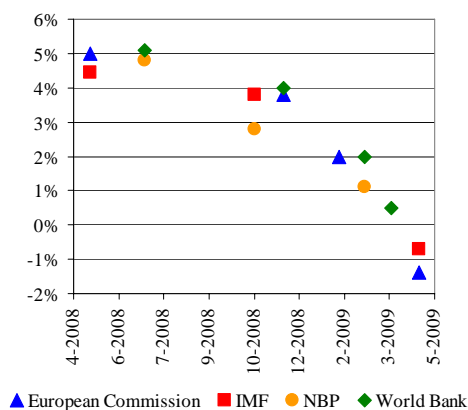
A positive GDP growth rate in the last quarter of 2008 (2.9%) resulted primarily, like throughout the year, from a significant rise in internal demand. This was supported by total consumption growth and the growth rate of gross fixed capital formation, although the growth rate of investment declined considerably in comparison with the first half of the year (see Figure 2.1). Net exports and an increase in inventories con-

¹ See "Inflation Report - June 2009", NBP for more information about the current economic situation and forecasts for the coming quarters.

tributed to economic growth to a much lesser extent and their growth rate was negative in the fourth quarter. In the first quarter of 2009, GDP growth rate declined further, although, contrary to many other EU countries, it stayed positive. In contrast to previous quarters, net exports contributed positively to economic growth. GDP growth was also driven by continuing consumption growth and - to a small extent - by gross fixed capital formation.

The growth rate of individual consumption and investment has also declined since the fourth quarter of 2008, which was a consequence of a deterioration in consumer and business sentiment and banks' lending policy decisions. The tightening cycle of banks' lending policy started towards the end of 2007 and it was strengthened in the fourth quarter of 2008. As the decline in credit supply influences the economy with a lag, the decline will have a significant influence on economic growth rate in 2009. These developments have had a major impact on the worsening of the outlook for Poland's growth since the fourth quarter of 2008. (see Figure 2.2).

Figure 2.2. Selected forecasts for Poland's economic growth in 2009



Source: NBP.

A strong decline in industrial output and exports observed since the end of 2008 was mainly caused

by a sharp deterioration in the economic situation of Poland's key trading partners, in particular the EU countries. (see Table 2.1). In the first quarter of 2009, the economy of euro area countries contracted by an average of 4.9% y/y (against a 1.8% y/y fall in the fourth quarter of 2008), while the growth rate in the United States was -2.5% y/y (against -0.8% y/y in the fourth quarter of 2008)². Russia and China also recorded a slowdown in GDP growth, but their economies continued to grow in the fourth quarter. Current economic forecasts indicate that there will be a deep recession in highly developed economies in 2009 and that the economic recovery phase will commence in 2010-2011.

The global economic recession is forecasted to

continue in 2009 and it may contribute to a decline in demand for Polish exports. On the other hand, a major depreciation of the Polish zloty against main currencies observed in the fourth quarter of 2008 and the first quarter of 2009 led to an increase in the competitiveness of Polish exports and is likely to reduce demand for imported products.

The size of external imbalance in the Polish economy declined gradually. In 2008, the current account deficit (5.5% of GDP) resulted from a negative balance on goods and a negative balance on income. However, a significant portion of the negative balance on income was related to the reinvestment of profits by foreign investors and, thus, did not require additional funding sources.

Table 2.1. Current and forecasted economic growth in the economies of Poland's key trading partners (yearly)

| | GDP growth in 2008 (in % y/y) | GDP growth in 2009 (in % y/y) | GDP growth in 2010 (in % y/y) |
|----------------|----------------------------------|----------------------------------|----------------------------------|
| | Forecasts | | |
| European Union | 0.9 | -4.0 (-4.0) | -0,3 (-0.1) |
| Euro zone | 0.8 | -4.2 (-4.0) | -0.4 (-0.1) |
| Germany | 1.3 | -5.6 (-5.4) | -1.0 (0.3) |
| Great Britain | 0.7 | -4.1 (-3.8) | -0.4 (0.1) |
| France | 0.4 | -3.0 (-3.0) | 0.4 (-0.2) |
| Italy | -1.0 | -4.5 (-4.4) | -0.4 (0.1) |
| United States | 1.1 | -2.7 (-2.9) | 0.0 (0.9) |
| Russia | 5.6 | -6.0 (-3.8) | 0.5 (1.5) |
| Ukraine | 2.1 | -8.0 | 1.0 |
| China | 9.0 | 6.5 (6.1) | 7.5 (7.8) |

Source: data for 2008 - Eurostat and IMF. Forecasts: IMF forecast: "World Economic Outlook" of 22 April 2009, European Commission forecast (data in brackets) of 4 May 2009

² US GDP figures are traditionally reported as seasonally adjusted annualised quarterly growth rates. Under this approach, US GDP declined in the fourth quarter of 2008 at an annualised rate of 6.3%, and in the first quarter of 2009 the annualised fall amounted to 5.5%.

At the beginning of 2009, the current account deficit declined significantly³, which was mainly caused by an improvement in the balance on goods. The decline in the scale of imports was larger than that of exports. Both the structure of Polish foreign trade and the depreciation of the zloty supported the decline in imports. The decline in internal demand growth came from decreasing investments that generate a higher demand for imports than the demand generated by consumption. These factors, as well as current transfers received by Poland from the European Union could contribute to further improvement

in the current account balance.

A favourable composition of Poland's short-term external debt (see Box 1), i.e. a large portion of trade credits and liabilities towards associated entities reduces the risk of financing residents' foreign liabilities.

Taking into account the considerable decline of current account deficit and the favourable composition of external liabilities, it may be assessed that the probability of a substantial increase in payment difficulties of Polish entities towards non-residents is low.

Box 1. Structure of Poland's short-term foreign debt

The international financial crisis was conducive to a rise in concerns about the ability of Central and Eastern European countries to raise external financing necessary to roll over foreign liabilities due for repayment and cover the current account deficit. Detailed data about the amount of Poland's external liabilities due for repayment in 2009 are not available. Therefore, this amount has been estimated by analytical centres that prepare economic forecasts for Poland. Such estimates often showed there was a very high need for foreign debt refinancing, which could have led to excessively pessimistic conclusions related to future changes in Poland's balance of payments.

On 18 May 2009, the National Bank of Poland published¹ estimates of Poland's external debt due for repayment in 2009. The total amount of liabilities due in 2009 and the repayments of long-term debt due in 2009 is EUR 63.9 billion, of which EUR 57.5 billion are liabilities of the private sector (non-financial enterprises - EUR 33.5 billion, banks - EUR 24.0 billion). The majority of non-financial enterprises' debt (58%) are trade credits.

The composition of private sector liabilities is favourable from the point of view of risk of failure to roll over external financing. Almost 60% of private sector debt due in 2009 is of intra-group character, i.e. liabilities to shareholders within capital groups. In the banking sector, the share of transactions with related parties in total foreign liabilities due in 2009 amounts to 76,8%.

In 2009, the general government sector is to repay a total of EUR 4.7 billion in liabilities to foreign entities. The majority of the repayments results from the need to redeem securities issued in foreign markets. In February and May 2009, the Ministry of Finance issued euro-denominated foreign bonds with the total value of EUR 1.75 billion, which means that a portion of foreign liabilities of the State Treasury due in 2009 has already been refinanced.

Data about Poland's balance of payments in the first quarter of 2009 confirm that the risk of failure to roll over foreign financing is small. Notwithstanding major turmoil in international financial market and a deterioration in market assessment of investment risk in Poland the repayment of

³ In the fourth quarter of 2008, the deficit stood at an average of 1.7 billion euro per month. In January, February and March 2009, the current account balance amounted to -1.069 billion euro, +0.915 billion euro and +0.075 billion euro, respectively

debt was broadly compensated with the inflow of capital to the sectors of enterprises and banks. The owners of Polish banks, in particular, provided the necessary financing to their subsidiary companies operating in Poland.

¹, "External debt due for repayment in 2009", NBP press release of 18 May 2009

2.2. Developments in financial markets

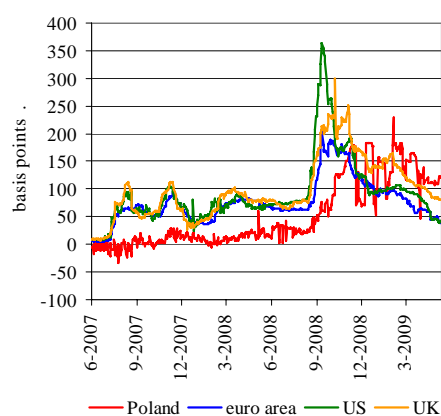
The major turmoil in the international financial market that started in summer 2007 intensified after the bankruptcy of the investment bank Lehman Brothers in September 2008. Investors' attempts to protect capital, lower financial leverage and reduce risk in their portfolios have deepened the earlier fall in financial markets liquidity. Coupled with a considerable deterioration in prospects for global economic growth, this was conducive to a rise in investment risk premium to a very high level. Financial institutions and firms whose creditworthiness was low were among the most affected.

The prospect of a marked growth in impairment charges and the inability to raise equity in the market have heightened fears about the financial condition of banks in developed countries, particularly in the United States, euro area countries and the United Kingdom. Bank share prices dropped strongly in conjunction with the rising risk of a full or partial nationalisation of banks.

Risk of default by systemically important banks has driven governments and central banks of many countries to take extensive anti-crisis measures. Various instruments of financial assistance were applied, including provision of central bank financing to financial institutions, cutting interest rates, bank recapitalization, outright purchase of debt securities by central banks, guarantees for bank debt and guarantees for loans to the real sector (see Table 3.15). These measures prevented mass bankruptcies of banks but large uncertainty about condition of banks persisted in the financial market. The functioning of the

international financial market has remained disrupted. (see. Figure 2.3).

Figure 2.3. Risk premium in interbank deposit market



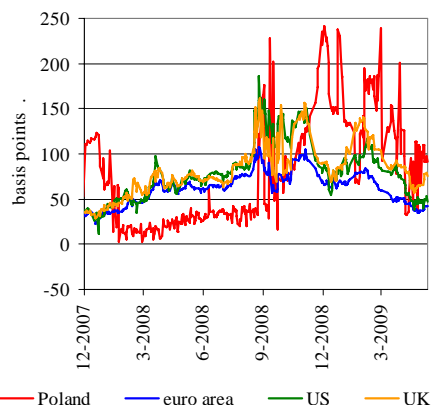
Notes: risk premium calculated as the difference between the interest rate on 3M interbank deposits and the rates on 3M overnight index swaps (OIS). The premium may be distorted owing to the permanent deviation of overnight rates, and hence OIS rates, from reference rates of central banks.

Source: Bloomberg, Thomson Reuters.

Monetary policy in the most developed economies has been eased considerably. Official interest rates in the euro area, the United States and the United Kingdom fell to a very low level, between 0% and 1%. However, due to a weakening of monetary policy transmission mechanism driven by capital constraints in the banking sector and the uncertainty about the future condition of the global economy, interest rate cuts may trigger an economic recovery only with a large delay. In addition, due to a very low level of nominal rates further easing of monetary policy with conventional instruments is impos-

sible. Therefore, some central banks decided to pursue the policy of increasing liquidity of the banking sector through purchase of financial assets⁴.

Figure 2.4. Expected spread between interbank deposit rates and OIS rates



Note: expectations calculated on the basis of OIS transactions with maturities of 3M and 6M and FRA 3x6.

Source: NBP calculations based on Bloomberg and Thomson Reuters data.

Emerging markets have also been strongly affected by the crisis. Until the third quarter of 2008 the prevailing view was that the situation in emerging markets would remain unaffected by the unfavourable developments in the developed markets. This did not come true. The main reasons for the contagious influence of the crisis on emerging markets were: downturn in the global economy, decline in the inflow of foreign direct investment and outflow of portfolio investments. The region of Central and Eastern Europe was the most significantly hit by the turmoil. Financial market participants withdrew from these markets mainly due to large external imbalances observed in some countries of the region. Countries that were the most exposed to the effects of the crisis received assistance from the International Monetary Fund in the form of loans and credit facilities under stand-by agree-

⁴ Such a policy leads to an increase in the monetary base and the liquid assets in the financial system. It is referred to as quantitative easing and credit easing.

ments for countries with significant external imbalance.

The expectations of international financial market participants suggest that the turmoil in financial markets will last at least until the end of 2009 (see Figure 2.4) but is not expected to intensify. These expectations reflect a further downturn of the macroeconomic situation of the largest economies and the related demand of banks for capital. If the scenario that materializes is more pessimistic than the scenario discounted by market participants, the turmoil in the international financial market may escalate again.

2.2.1. Interest rates

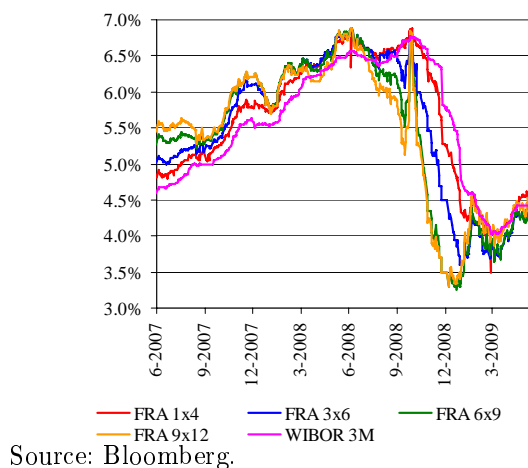
Developments in the Polish money market indicate that there are considerable liquidity strains and limited mutual confidence among market participants. Although the maximum maturity of interbank loans has increased since October 2008, credit and liquidity risk premia for money market transactions still remain very elevated. Arbitrage between individual segments of this market is not functioning due to a considerable reduction in limits for counterparty credit risk in banks and a small number of active participants in the money market.

Since October 2008 the Monetary Policy Council has cut the reference interest rate by a total of 225 basis points, to the level of 3.75%. Forward rates indicate that despite further cuts in the NBP reference rate expected by analysts, WIBOR rates will remain on unchanged levels for another year (see Figure 2.5). Due to very low liquidity of the market for unsecured interbank deposits WIBOR does not reflect the actual price of short-term money.

The banking sector is seeking possibilities of investing its surplus liquidity in instruments of high liquidity and very low credit risk. Banks report high demand for NBP money bills.

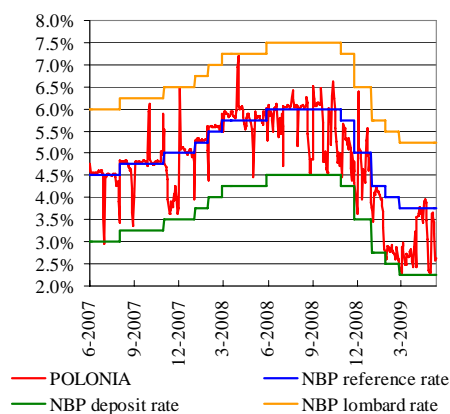
Overnight rates remained below the reference rate and approached the NBP deposit rate (see Figure 2.6). This was linked with the way the NBP conducted open market operations.

Figure 2.5. Current and expected WIBOR rates



Source: Bloomberg.

Figure 2.6. NBP interest rates and POLONIA rate

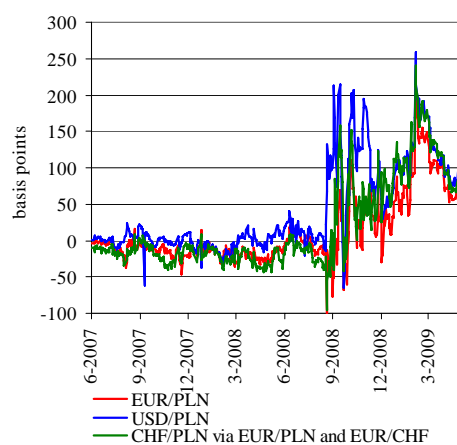


Source: NBP.

An increase in investors' propensity to hold very liquid assets is also observed in the primary market for treasury bills. Despite increased liquidity in the bills market and the possibility of using

them in repos or sell-buy-backs, the yield on 52-week treasury bills exceeds the swap rates of the same maturity by around 60-100 basis points⁵. The premium is lower for bills with shorter maturity. Such a term structure of risk premium reflects a very strong tendency of seeking liquid and safe investments in the Polish financial market.

Figure 2.7. Margins in foreign exchange swap markets



Note: margins defined as the spread between the interest differential implied by foreign exchange swap prices and interest rate differential observed in the interbank deposit market. Margins are presented for 3M transactions.

Source: NBP calculations based on Bloomberg data.

The turmoil in the money market has spread to the foreign exchange swap market. Hedging an open currency position with a forward transaction or FX swap is far more expensive than suggested by the interest rate differential between Poland and base markets (see Figure 2.7). This is the consequence of three factors whose impact on the FX swap rates is difficult to isolate: assessment of counterparty credit risk of Polish banks, the need of some banks to hedge open balance sheet currency position⁶, and significant

⁵ Average yield on 52-week treasury bills at the auction held on 27 April 2009 amounted to 4.957%, while the 1Y IRS reached 4.35%. The premium results partly from the difference in credit risk rating for Poland (A-) and counterparty rating under standard swap contracts (AA).

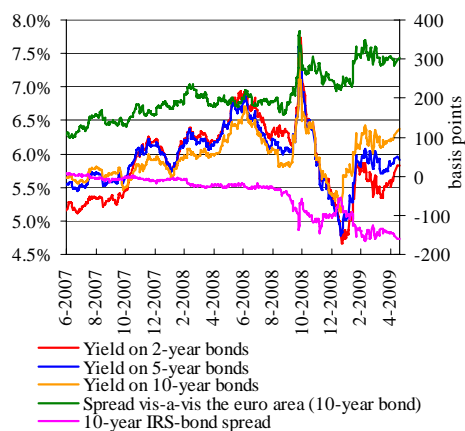
⁶ Some banks use long-term CIRS transactions for this purpose or obtain FX liabilities in the form of received loans.

⁷ OIS rates reflecting the expected overnight rates may play an important role in the valuation of foreign exchange swaps in the context of the lack of liquidity in the market for interbank deposits over 1 month.

surplus of short-term liquidity in zloty of some banks⁷. Moreover, major strains also persisted in the market for EUR/CHF and USD/CHF currency swaps, which translated into an additional cost of hedging the Swiss franc positions of Polish banks.

The assessment of credit risk of Polish banks, which are the main providers of zloty in swap transactions, is important as swap settlement is performed through delivery of currency. Therefore, when market assessment of Polish banks creditworthiness declines⁸, their counterparties will expect a higher risk premium because of the risk that when settling the swap transaction they will be forced to sell the zloty received at the market exchange rate that may be far less favourable than the forward exchange rate set in the swap transaction.

Figure 2.8. Yield on Polish treasury bonds



Source: Bloomberg.

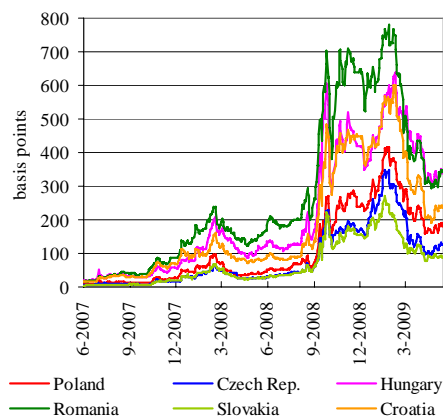
Some Polish banks use foreign exchange swaps as the most important instrument hedging currency and interest rate risk which stems from portfolio of foreign currency loans to non-financial sector. Their dependence on the market for FX swaps, which have to be rolled over frequently due to their short maturity, may be conducive to the persistence of distortions in FX swap prices. Counterparties of these banks probably quote

⁸ The deterioration of Polish banks' creditworthiness in the fourth quarter of 2008 and at the beginning of 2009 is reflected in the rise in implied cost of financing Polish banks in the eurobonds market and the downgrading of ratings or rating outlook, see Chapter 3.6.

swaps with a large margin as they assume that Polish banks need to hedge their open currency position regardless of the price. The ceiling for margins in the swap market is the margin implied by the price of swaps offered to banks by the NBP.

Long-term interest rates responded, to a great extent, to developments in the international financial market. Similarly as for treasury bills, the yield on treasury bonds largely exceeded the swap rates of similar maturity (see Figure 2.8). This was driven by three key factors: risk aversion related to investing in the markets of the region, the expected high bond supply connected, among others, with the risk of an increase in the state budget deficit and the need to redeem maturing treasury securities, and by a rise in investor propensity to invest in highly liquid assets. Yields on bonds were subject to strong fluctuations. After a marked fall in October 2008, non-residents holdings of Treasury bonds gradually returned to the levels recorded before the fall of Lehman Brothers.

Figure 2.9. Risk premium on eurobonds of Central European countries



Note: premium for 5-year Credit Default Swap contracts for eurobonds issued by the governments of individual countries.

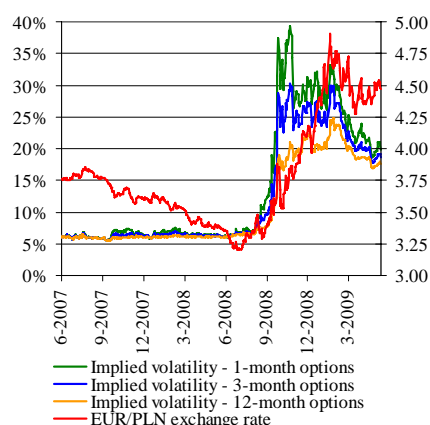
Source: Bloomberg.

The price for hedging the default risk of the Polish government eurobonds has increased significantly since September 2008 (see Figure 2.9). The rise in CDS premium on the Polish government debt was largely connected with the global tendency to assess credit risk very prudently and the negative impact of the situation in the region on perception of investment risk in Poland. CDS premia for all Central European countries have increased significantly. The probability of default of the Polish government implied by CDS prices was much larger than suggested by ratings for Poland⁹.

2.2.2. Foreign exchange market

In August 2008, a four-year trend of zloty appreciation, when the zloty had appreciated against the euro by almost 35%, came to an end. From the end of September the zloty depreciated sharply, driven by developments in the international financial market (see Figure 2.10). The scale and speed of zloty depreciation in the period from September 2008 to February 2009 was unprecedented since Poland had adopted a floating exchange rate regime. The Polish currency was subject to the largest depreciation among currencies of the region.

Figure 2.10. Zloty exchange rate and its volatility

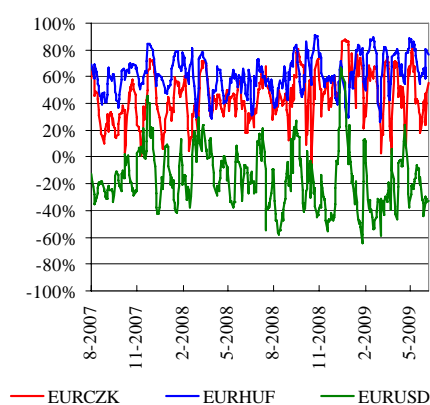


Source: Bloomberg.

⁹ CDS prices imply a BBB rating for Poland, while Moody's rates Poland at A2, and S&P and Fitch rate Poland at A-.

The scale of the zloty exchange rate depreciation is not substantiated by real capital flows shown in the Poland's balance of payments. Foreign investors sold Polish securities but the resulting capital outflow was more than compensated by the inflow of deposits and loans to banks that were provided by banks' foreign owners. In addition, the inflow of funds to Poland related to foreign direct investment continued.

Figure 2.11. Correlation of the EUR/PLN exchange rate and exchange rates of selected currencies



Note: linear correlation coefficients implied by MGARCH-BEKK model estimated on the basis of data from the period of 30 June 2008 – 1 March 2009. Source: NBP calculations.

Zloty exchange rate volatility increased sharply in September 2008 (see Figure 2.10) with the rise in the volatility of major currencies across the world and currencies of the emerging markets which run floating exchange rate regimes. This, coupled with a high, positive correlation of returns for Polish currency and other currencies in the region (see Figure 2.11), indicates that zloty depreciation was mainly driven by global and regional factors. These factors are: return of foreign capital to developed markets and the poor economic situation of certain Central and Eastern European countries. The importance of the latter factor partly resulted from the fact that the whole region was perceived as homogenous in

some analyses and recommendations despite major differences between individual countries with regard to their macroeconomic situation, including the balance of payments, fiscal policy as well as structure and condition of banking sectors.

The zloty depreciation was driven by a number of local factors. As the Polish market is the most liquid in the region of Central and Eastern Europe it is relatively easy for investors to close long positions they have in Poland or open short positions. The liquidity of this market is, however, small in comparison with the key currency markets - the euro, the dollar and the yen markets. The small depth of the zloty market was confirmed by the considerable effectiveness of currency intervention by the Ministry of Finance in February 2009. In addition, the settlement of currency options written by Polish enterprises led to a rise in demand for foreign currencies. The lack of a political consensus on the schedule of Poland's euro adoption was conducive to a high uncertainty in the market and may have enhanced zloty depreciation.

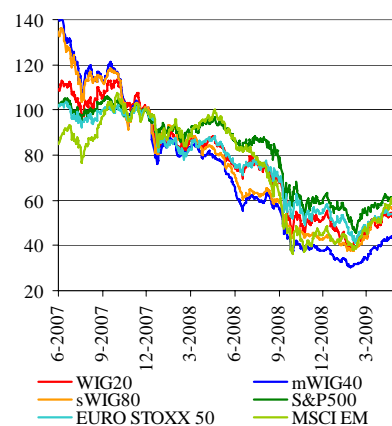
In the first quarter of 2009, the zloty exchange rate was weaker than the exchange rate justified by fundamental factors. This is proved, among others, by the large gap between the market exchange rate and the break-even point of Polish exports.

2.2.3. Equity market

Stock indices of the Warsaw Stock Exchange (GPW) continued the downward trend which started in summer 2007 (see Figure 2.12). This was connected with the worsening of prospects for earnings posted by Polish enterprises, which was clearly seen in earnings for the fourth quarter of 2008, and with global factors - strong declines in equity prices on foreign exchanges. Information about losses recorded by some companies on currency derivatives and negative valuation of hedging transactions had an adverse impact on stock prices. The volatility of stock prices on the GPW was very high. In the middle of March

2009, as in the developed markets, an upward correction started on the GPW.

Figure 2.12. Polish and global equity market indices



Source: Bloomberg.

In the second half of 2008 and at the beginning of 2009, the strongest fall was recorded in prices of medium-cap stocks. A considerable decline in the WIG20 index has also been observed since the beginning of 2009, which was mainly driven by a significant fall in the price of banks' shares. (see Chapter 3.6).

Supply for equities on the GPW was mainly generated by domestic investment funds, which, as in the first half of 2008, sold shares as a result of redemptions. Net transactions executed by foreign investors were close to zero (see Chapter 4.5).

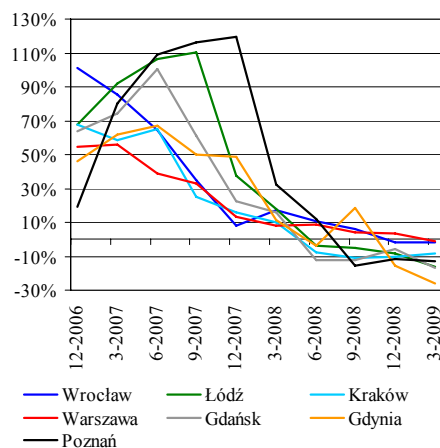
2.3. Property market

Residential property market

Prices of flats and rents

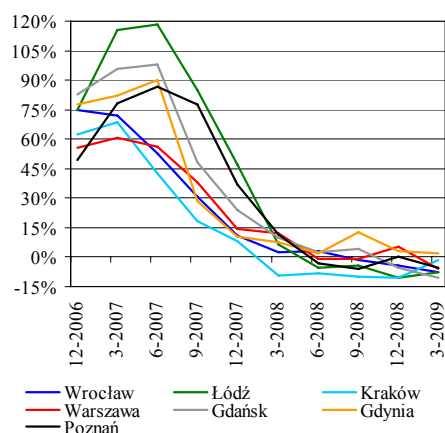
Following a period of strong rise in the prices of flats in previous years, in the second half of 2008 and in the first quarter of 2009 ask prices of residential property displayed a downward tendency in most cities. Prices declined by 1% to 25% year-on-year (see Figures 2.13 and 2.14).

Figure 2.13. Annual growth in residential property prices in the biggest cities - primary market



Note: the figures present growth rate of ask prices.
Source: NBP calculations based on Pont Info data.

Figure 2.14. Annual growth in residential property prices in the biggest cities - secondary market



Note: the figures present growth rate of ask prices.
Source: NBP calculations based on Pont Info data.

The price correction in the residential property market was larger than shown in the ask prices data. The difference between sale and ask prices increased in 2008 to around 6-12%, depending on the location¹⁰. Discounts granted by developers on the primary market usually had the form of

¹⁰ Data for the Warsaw market.

¹¹ For example, the average cost of renting a two-room flat which were the ones most frequently rented increased by 4.3% y/y in February 2009 in Warsaw. Source: "Report of Szybko.pl and Expander. Analysis of the secondary property market - February 2008", www.szybko.pl.

provision, in addition to the flat, a free garage, parking place or home finishing free of charge. It was also possible to negotiate individually the price of a flat, both on the primary and the secondary market.

The stagnation in the residential property market was conducive to an increase of rents in 2008.¹¹ Developers' announcements that unsold flats may be let for rent can lead to stabilisation of rents in the coming quarters.

Supply factors determining residential property prices

In 2008, the supply of flats in the primary market increased considerably. The number of flats completed amounted to 165.8 thousand, which represented a rise by 24% compared to 2007. The growth rate of flats completed was lower in the first months of 2009 than in 2008 and in April 2009 amounted to 9% y/y.

A decline in demand observed in 2008 contributed to a slowdown of supply. In 2008, the number of flats for which construction permits had been granted declined by 7.1%, and the number of flats whose construction had started decreased by 5.6%. Developers' difficulties in obtaining funding will probably lead to halt of some construction projects. At the end of 2008, developers reported they would reduce the scale of investment in 2009 and would stop works on around 80-90% of construction projects. In the first four months of 2009, the number of flats whose construction was started decreased by 35% compared with the same period of 2008, and the number of permits issued fell by 19.1%. As a result of the slowdown of multi-family construction, supply of flats will fall in a few-year horizon. Subsequently the fall of flat prices will slow down, and later prices will likely rise.

The decline in the number of transactions was also observed on the secondary market. Some

banks differentiated their lending policy with regard to flats under construction and flats completed, in favour of the latter. Such a policy may contribute to stagnation in the primary market as is conducive to a relative rise in the number of transactions on the secondary market compared to the primary market. The rise in supply of flats was also connected with withdrawal of some buyers, who in the past years treated the purchase of flats as an investment.

Demand factors determining residential property prices

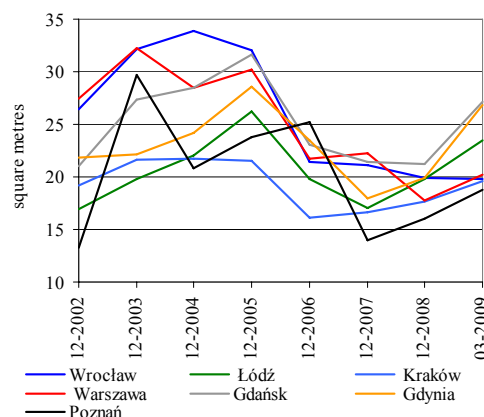
In 2008 and at the beginning of 2009, effective demand in the residential property market declined. This resulted, among others, from limited opportunities to finance the purchase of flats with loans to households. The uncertainty with regard to the financial situation of developers considerably reduced the capability of investors to contract loans.

In the first three quarters of 2008, sales of flats on the primary market declined by 40-50% y/y. In the fourth quarter of 2008, the fall in volume on the residential property market deepened, reaching around 80% y/y. Contrary to the situation in previous years, the share of transactions with regard to flats completed or flats with an approaching completion date increased due to a fall in demand. In 2007, this share did not exceed 2-3%, due to insufficient supply of flats. Available flats were to be completed at a distant, future date. Despite the fall in volume on the residential property market the number of available completed flats as at the end of December 2008 did not exceed between 10 and 20 percent percent in any of the big cities. The increase in supply of completed flats coupled with a decrease in effective demand contributed to an increase in the imbalance on the housing market at the beginning of 2009.

Concerns about liquidity of developers, and hence the scale of their bankruptcy risk were other major factors that influenced buyers' behaviour. Limited access to information about

the condition of developers prompts buyers either to seek flats with a close completion date, constructed by experienced developers, or to turn to the secondary market.

Figure 2.15. Purchasing power of the consumer on selected residential property markets



Notes: The simulation shows the size of a flat (in square metres) which a person with average income for the region (voivodship), funding the purchase with a loan, could afford to buy. Assumptions for the calculation: downpayment of 20%, borrower is a one-person household, borrower's income equals the average gross salary for a given voivodeship as calculated by GUS, monthly funds left to cover expenses after loan instalment has been paid - zloty 1,000, loan maturity of 25 years, loan repaid according to fixed principal, declining interest payment schedule (borrower is able to cover the highest instalment).

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

Since mid-2008 the interest of domestic and foreign investors in the residential property market declined. This was influenced by the fact that the residential property prices had reached a high level and were not expected to rise further.

Following the decline in the prices of flats in most big and small cities and the rise in salaries, consumer purchasing power increased. It should be emphasised, however, that due to a tightening of housing loan terms the rise in the purchasing power did not translate into an increase in real

capability to buy a flat.

Outlook

The crisis in the global financial market leads to a correction of the imbalance in the Polish residential property market. The current consumer sentiment is strongly influenced by the uncertainty in the financial market, constraints in extending housing loans and concern about a decline in economic growth rate and, in consequence, a worsening in the situation on the labour market. Expectations of a further decline in the residential property prices also play a significant role in the behaviour of consumers. In surveys, banks voice expectations of a further tightening of lending policy, which leads to the conclusion that a rise in effective demand in the housing market is not to be expected in 2009, neither in terms of the number of potential buyers nor the funds they will be able to earmark for the purchase of a flat or house.

In 2009, the demand for the residential property may be stimulated due to the amendment of terms on loans subsidized by the State Treasury under the government program "First family home (Rodzina na swoim)"¹², effective since January 2009. The amendment has introduced an option to increase a borrower's creditworthiness by allowing their next of kin to join the preferential loan, and has raised the price limit of one square metre of a flat that may be purchased using preferential loan. The implementation of these solutions has increased the percentage of flats eligible for the "First family home (Rodzina na swoim)" program¹³.

¹² Law of 21 November 2008 amending the law on financial assistance to families purchasing an apartment. Journal of Laws no. 223/2008, item 1465

¹³ In 2008, around 6.6 thousand loans were extended under the "First family home (Rodzina na swoim)" program for the total amount of 852.6 million zloty. BGK, the state-owned bank which manages the program, is planning that in 2009, the number of loans will increase to 19.2 thousand and the total value of loans extended will amount to 2.5 billion zloty.

¹⁴ According to IAS 18, which has to be used by developers starting from the beginning of 2009, income on sales of flats is recognised only after flats are handed over to customers. IAS 11 allowed to recognise the income before the project was completed, in proportion to the share of project completed and sold.

¹⁵ See among others: "Inflation Report", NBP, June 2009; "Residential market in Poland - spring 2009", REAS, www.reas.pl; "Residential market 2009", Knight Frank, www.knightfrank.com.pl.

A lower supply of residential property compared to the previous year should also be expected in 2009, among others due to a difficult situation of some developers. Large companies with significant capital which allows them to maintain liquidity despite a fall in residential property sales are in the best standing. Companies that have not ensured adequate funding to carry out investment activities are currently exposed to the risk of illiquidity due to a strong decline in residential property sales. Serious constraints in developers' access to bank loans increase liquidity risk of the sector.

The change in accounting treatment of income from projects under development by developers (shift from IAS 11 to IAS 18 starting from 2009) may be a significant factor adversely influencing the availability of bank funding for developers¹⁴. Consequently, most developers may find it difficult to report positive net accounting earnings, and the differences in accounting treatment of income on projects under development between 2008 and 2009 may make it more difficult for bank analysts to assess the financial standing of developers.

In 2009, further falls in the prices of residential property are expected. According to market experts, the falls will not exceed several percent¹⁵. Experts expect a growth in demand and a reversal of the trend in the prices of residential property in the second half of 2010, at the earliest.

Office space market

The year 2008 may be considered as positive for office space market. The total volume of lease transactions reached record highs. In Warsaw, around 252 thousand square metres of new space were completed and in the local markets around 296 thousand square metres¹⁶. Compared to 2007, this represented a rise by around 25% for Warsaw, and around 115% for regional markets.

According to forecasts available at the end of 2008, around 315 thousand square metres of new office space would be completed in 2009, of which around 30% had been pre-leased. In view of investors' problems in obtaining funding it may, however, be expected that the volume of projects completed will decline. Another factor that will significantly influence the decline in new office space supply will be a decline in demand triggered by economic slowdown and a decline in the inflow of foreign investment. The need to reduce the general expense in companies (including costs

related to office space lease) is conducive to the expected stagnation or slight declines in the market for office space lease in 2009.

In 2008, office space vacancy rate was low and amounted to 2.9% in Warsaw and 1.1-4.1% in other big cities¹⁷. This represented a decline of office space vacancy ratio, which in 2007 amounted to 3.5% in Warsaw and 2-5% in other big cities.

As at the end of 2008, rent rates in the centre of Warsaw were slightly higher than in 2007 (they ranged from 24 euro to 28 euro for square metre). However, in 2009 a decline in rents is expected. The decline will be triggered by a fall in demand and the emergence of a new trend of sub-leasing office space by companies that had leased larger space expecting to use it when their operations expanded further. Therefore, office space which returns to the market represents an additional competition for the already existing space or space under construction.

¹⁶ Source: Colliers International, www.colliers.com

¹⁷ Office space vacancy rate was higher only in Łódź where it amounted to 9.5%. Source: Cushman&Wakefield

Chapter 3.

Banking sector stability

The earnings of banks for the whole of 2008 were high. However, from the fourth quarter of 2008 the earnings worsened as a result of an increase in the value of irregular loans, which led to an increase of the cost of credit risk (impairment provisions). In the second half of the year, lending growth slowed both in the case of lending to households and to enterprises. Under lower lending growth, banks have fewer opportunities to increase their income. Uncertainty over the prospects of economic growth and capital constraints of banks imply that a low pace of lending may be expected, especially if banks' capital is not increased.

Most of the banks operating in Poland follow a traditional funding model, based primarily on customers' deposits. Therefore, the decrease in the liquidity of the domestic interbank market did not strongly affect the situation of banks. Some of the banks that used the interbank market to raise a significant portion of funding were, however, forced to change the strategy. Some of them were supported by their foreign strategic investors. Some banks took measures aimed at reducing an excess of loans over deposits. Liquidity support by strategic investors and the fact that the National Bank of Poland could provide liquidity to banks under the Confidence Pact led to a considerable decline in the liquidity risk of banks in the analysed period.

The expected economic slowdown has led to a worsening of the outlook for banks' financial position in comparison with the assessment published in the October edition of the "Financial Stability Review". However, the analyses presented in this report show that the banking sector as a whole will be able to absorb the effects of economic slowdown without posing a threat to its operations.

3.1. Earnings

In 2008, banks posted record high earnings. In the fourth quarter of 2008 and in early 2009, the costs of materialised credit risk were growing rapidly, which contributed to a considerable decrease in banks' net profit in the period. In the coming quarters, earnings are expected to be under pressure from further charges to loan impairment provisions, growing funding cost and deceleration of lending growth.

In 2008, the earnings of banks again reached their record highs, but their growth rate weakened considerably (see Table 3.1). Towards the end of the year, the earnings began to worsen. In the fourth quarter of 2008, the total net profit of banks was two times lower than average earnings in the first three quarters of the year.

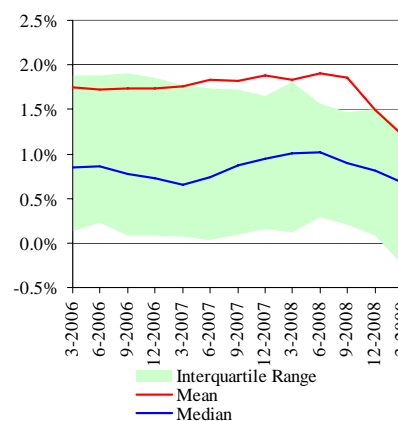
Fourteen commercial banks and branches of credit institutions (the same number as in 2007), with a total share in the assets of the banking sector amounting to 1.5%, reported net losses for the financial year 2008. This group included not only institutions that commenced their operations in Poland in 2008 (two banks and three branches), but also the entities that had been operating for several years but had not made a profit yet.

In spite of record high earnings in 2008, the profitability ratios, i.e. ROA, ROE and the ratio of net earnings to net income from banking activity worsened (see Table 3.2). The deterioration in profitability accelerated in the first quarter of 2009. It should be noted, however, that profitability ratios continue to be relatively high. On average, larger entities reported higher decrease in profitability, yet they still remain more profitable (see Figure 3.1).

Decomposition of the return on equity of the domestic banking sector indicates (see Table 3.3) that the fall in ROE was primarily connected with the decrease in return on earning assets. Other ratios remained close to 2007 levels. The

fourth quarter of 2008 saw a considerable increase in financial leverage (resulting chiefly from the depreciation of the zloty in the period), which was higher than the total decrease of the ratio recorded in each of the first three quarters.

Figure 3.1. Return on assets/ROA



Note: annualised data.

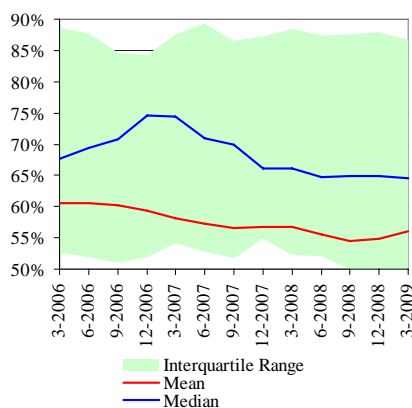
Unless otherwise indicated, the dispersion plots in Chapter 3 relate to commercial banks and branches of credit institutions. At the end of March 2009, the assets of commercial banks and branches of credit institutions accounted for around 95% of the assets of the whole banking sector.

Source: NBP.

Deterioration in the quality of loan portfolio was the primary factor behind the fall in the profitability of the banking sector's earning assets. The amount of charges to loan impairment provisions rose in 2008 over threefold in comparison with 2007 (more on the subject in Section 3.2).

On the other hand, the efficiency of banking activity, measured as operating costs to net income from banking activity continued to improve (see Figure 3.2). In 2008, the general expense of banks increased mainly due to expansion of branch network and competition for employees. However, net income from banking activity in 2008 was growing at a faster pace than general expense, which resulted primarily from the increase of net interest income.

Figure 3.2. Operating costs to net income from banking activity



Note: annualised data.

Source: NBP.

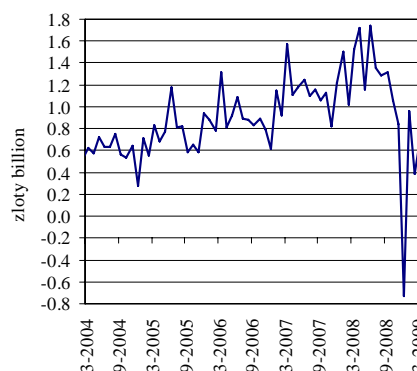
The deterioration of the profitability of the banking sector, observed in the fourth quarter of 2008, persisted in the first months of 2009. Earnings of the banking sector in the first quarter of 2009 were half the size of the net profit in the corresponding period of 2008. The poor earnings of the first months of 2009 suggest that an upward trend observed in recent years was reversed (see Figure 3.3).

In the first quarter of 2009, the total share of loss-making commercial banks and branches of credit institutions in the assets of the banking sector amounted to 14% and was much higher than in previous years. Among these banks, there were large institutions that had long been present on the Polish market. A further decline of banks' profits resulted from the growth in charges to loan impairment provisions and charges to impairment provisions for currency options written by enterprises.

Due to the growing competition for retail deposits and the increasing risk premium in the interbank market, the marginal cost of funds had grown since the fourth quarter of 2008, which led to the reduction of the spread between the effective interest rate on loans and on deposits (see Section 3.4). In the first quarter of 2009,

this development led to a slowdown of net interest income growth, observed for several quarters, and to a decrease of net interest margin.

Figure 3.3. Monthly net profit of the banking sector



Source: NBP.

In the quarters to come, a further deterioration in banks' earnings should be expected. This deterioration will be primarily driven by the economic slowdown resulting in the worsening loan portfolio quality and in the growth in charges to loan impairment provisions (see Section 3.2). It is possible that net interest income, the major component of net income from banking activity, may drop as a result of the slower lending growth and continued strong competition for deposits of the non-financial sector, which is the consequence of banks' attempts to close the funding gap (see Section 3.4). Net interest income is very sensitive to changes of the effective interest rate on liabilities: a simple simulation shows that if the 2008 increase of the effective interest rate on liabilities (interest expense to average stock of liabilities) had been higher by 100 basis points, net interest income would have, *ceteris paribus*, fallen by nearly 25% and net income from banking activity by 14%.

The risk of a decline in net income from banking activity is also tied with banks' low credit spreads on loan portfolios, including mortgage loans of long maturities. The spreads may turn out to be insufficient to cover a simultaneous increase in

costs of credit risk materialisation, cost of funding and an increase of the risk premia on hedges which banks need to close their FX position related to foreign currency-denominated loans.

Banks are striving to offset the expected decrease

of their earnings by raising fees and charges related, among others, to operating customers' bank accounts. However, the diminishing scale of economic activity and the stagnation of other fee income may cause the total fee income not to rise or to rise insignificantly.

Table 3.1. Selected items from the profit and loss account of the banking sector

| | 2007 (PLN billion) | 2008 (PLN billion) | 1st quarter of (PLN billion) | 1st quarter of 2009 (PLN billion) | Change in 2008 (y/y in %) | Change 2009 1st quarter (y/y in %) |
|--|-----------------------|-----------------------|---------------------------------|--------------------------------------|---------------------------------|---|
| Interest income | 43.24 | 59.82 | 13.09 | 15.22 | 38.35 | 16.29 |
| Interest expense | 18.89 | 29.86 | 6.11 | 8.45 | 58.06 | 38.18 |
| Net interest income | 24.34 | 29.95 | 6.98 | 6.77 | 23.05 | -2.91 |
| Net fee income | 11.00 | 11.33 | 2.78 | 2.85 | 2.94 | 2.54 |
| Income from equities and other securities | 0.97 | 1.51 | 0.27 | 0.35 | 56.34 | 28.51 |
| Net income on financial operations | 1.44 | -0.53 | 0.22 | 3.28 | – | 1407.7 |
| Net FX income | 3.69 | 6.23 | 1.24 | -1.44 | 67.14 | – |
| Net income from banking activity | 41.44 | 48.49 | 11.47 | 11.80 | 17.01 | 2.89 |
| General expense | 21.77 | 24.81 | 5.61 | 6.27 | 13.94 | 11.78 |
| Depreciation | 2.29 | 2.33 | 0.56 | 0.63 | 1.96 | 10.94 |
| Net movements in provisions and valuation allowance | 1.71 | 5.33 | 0.70 | 2.57 | 211.31 | 268.83 |
| - of which: net charges to provisions for irregular loans ¹ | 1.04 | 3.64 | 0.47 | 1.60 | 250.83 | 238.11 |
| Pre-tax earnings | 16.72 | 17.03 | 4.91 | 2.51 | 1.87 | -48.88 |
| Net earnings | 13.64 | 13.80 | 4.05 | 2.05 | 1.13 | -49.32 |

¹ The amount for 2007 refers only to continued activity.

Note: unless otherwise stated, data in tables in Section 3.1 refer to the continued activity and discontinued operations.

Source: NBP.

Table 3.2. Selected operating ratios of the banking sector

| | As % of average assets | | | As % of net income from banking activity | | |
|--|------------------------|-------|---------------------|--|-------|---------------------|
| | 2007 | 2008 | 1st quarter 2009 | 2007 | 2008 | 1st quarter 2009 |
| Net interest income | 3.29 | 3.34 | 3.12 | 58.75 | 61.78 | 60.95 |
| Net non-interest income | 2.31 | 2.06 | 2.00 | 41.25 | 38.22 | 39.05 |
| Operating costs ¹ | 3.25 | 3.02 | 2.92 | 58.07 | 55.98 | 57.08 |
| Net movements in provisions and valuation allowances | 0.23 | 0.59 | 0.75 | 4.13 | 10.99 | 14.76 |
| - of which: net charges to provisions for irregular loans ² | 0.14 | 0.41 | 0.50 | 2.51 | 7.52 | 9.77 |
| Income tax | 0.41 | 0.36 | 0.30 | 7.34 | 6.77 | 5.89 |
| Pre-tax earnings | 2.26 | 1.90 | 1.53 | 40.35 | 35.13 | 29.98 |
| Net earnings | 1.84 | 1.54 | 1.31 | 32.97 | 28.47 | 24.19 |
| ROE (pre-tax earnings) ³ | 30.36 | 25.36 | 20.68 | – | – | – |
| ROE (net earnings) ³ | 24.83 | 20.57 | 16.68 | – | – | – |

¹ Operating costs = general expense + depreciation.

² Values (of the ratio) for 2007 refer only to continued activity.

³ As percentage of core capital (no deductions), data for the domestic banking sector.

Note: annualised data.

Source: NBP.

Table 3.3. Components of ROE decomposition of the domestic banking sector

| | ROE (net earnings) | = | ROEA ¹ (pre-tax earnings) | * | earning assets over assets | * | assets over core capital | * | net earnings over pre-tax earnings |
|------------------------------|-----------------------|---|---|---|-------------------------------|---|-----------------------------|---|---------------------------------------|
| 2007 | 24.83% | | 2.48% | | 94.74% | | 12.90 | | 82.11% |
| 2008 | 20.57% | | 2.09% | | 94.19% | | 12.91 | | 81.10% |
| 1st quarter of 2009 | 16.68% | | 1.68% | | 94.41% | | 12.99 | | 80.82% |
| 2007 dynamics | 1.1173 | | 1.1021 | | 1.0026 | | 1.0024 | | 0.9987 |
| 2008 dynamics | 0.8282 | | 0.8424 | | 0.9942 | | 1.0013 | | 0.9877 |
| 1st quarter of 2009 dynamics | 0.6824 | | 0.6903 | | 0.9980 | | 1.0080 | | 0.9826 |

¹ Return on earning assets.

Note: annualised data.

Source: NBP.

3.2. Credit risk

The year 2008 ended with irregular loan ratios at their historical lows. In the analysed period, the upward trend of value of irregular loans consolidated and their total share in total loans increased in the first quarter of 2009 - for the first time since mid-2003. Unfavourable trends with regard to the development of the value of irregular loan may be expected to deepen in the coming quarters, which will push up the charges to impairment provisions.

The value of new loans to enterprises and households has declined since the fourth quarter of 2008. These developments were supported by uncertainty over Poland's economic growth outlook, particularly strong tightening of banks' lending policies since the fourth quarter of 2008, reduction of investments, contraction in demand for goods and services offered by enterprises and lower consumer confidence. However, the value of loans is seen to grow (the credit growth is still positive), although its growth, in the corporate sector in particular, is low.

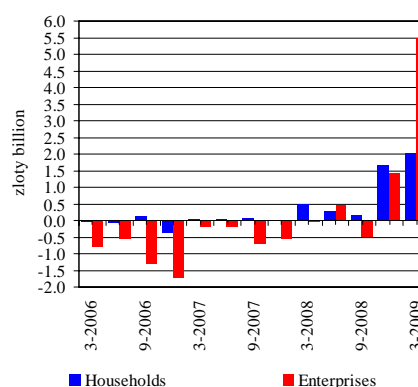
3.2.1. Credit risk of loans to corporates

Loan quality

The quality of corporate loans, understood as the percentage of irregular loans in loan portfolio, improved in the year 2008 (see Figure 3.5 and Table 3.4). Irregular loan ratios remained at their historical lows for most of the year. At the same time, however, a growth in the value of irregular loans to corporates was recorded for the first time since the end of 2003 (by around 12% q/q in Q4 of 2008). In the fourth quarter of 2008, the growth rate of the value of irregular loans to enterprises was higher than the growth

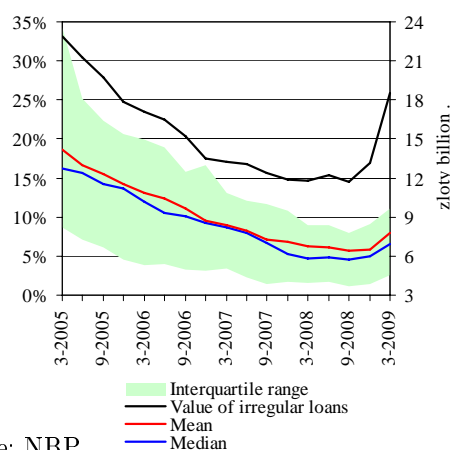
rate of the value of loans, which lead to an increase in the irregular loan ratio. These trends intensified in the first months of 2009: the value of irregular loans to enterprises in the first quarter rose by 41%, whereas the irregular loan ratio increased to 7.9%.

Figure 3.4. Quarterly changes in the value of irregular loans



Source: NBP.

Figure 3.5. Irregular loan ratio – corporate loans



Source: NBP.

The value of loans and the irregular loan ratio increased in a few sections of the economy. The increase was observed in typically export-oriented sections (manufacture of furniture, wood and products of wood, machinery, food products, textile products and wearing apparel), in sections related to the motor vehicle industry (manufac-

Table 3.4. Irregular loan ratios

| | 2006 | 2007 | 2008 | 3-2009 |
|-------------------------|------|------|------|--------|
| Non financial customers | 7.4 | 5.2 | 4.4 | 5.3 |
| Enterprises, of which: | 9.7 | 6.9 | 5.8 | 7.9 |
| Zloty loans | 10.4 | 7.5 | 6.7 | 8.9 |
| Foreign currency loans | 7.4 | 4.4 | 3.4 | 5.3 |
| Households, of which: | 5.6 | 4.1 | 3.5 | 3.8 |
| Zloty loans | 7.4 | 5.3 | 5.4 | 6.0 |
| Foreign currency loans | 1.7 | 1.0 | 0.7 | 0.9 |

Note: a correct interpretation of irregular loan ratios is not straightforward as irregular loans include claims regarded as unrecoverable for a long time that are shown on banks' balance sheets, being already covered by provisions. These issues were thoroughly discussed in the previous issues of *Report*.

Source: NBP.

ture of motor vehicles, trailers and semi-trailers, transport and communications), and sections related to the construction industry (manufacture of metals and metal products, fabricated metal products except machinery and equipment). In these sections, both the value of irregular loans and the irregular loan ratio increased.

The quality of loans extended to enterprises from sections of the economy with the highest share in loans to enterprises (real estate, research and business services, trade and repair, construction, manufacture of food products)¹⁸ deteriorated. With the exception of loans to food manufacturing companies, the quality of loans to enterprises from these sections is still better than the average quality of loans to enterprises.

Profitability of the corporate sector

The year 2008 was particularly difficult for exporters. In the first half of 2008, a strong appreciation of the zloty had a negative impact on exporters' profits, whereas in the second half of the year, the worsening global macroeconomic situation contributed to the decrease in the number of foreign orders in the portfolios of Polish enterprises. The growth in the value of exports in the last quarter of 2008 was smaller than in the

corresponding period of the previous year, and number of expected exports orders decreased.¹⁹

Among the non-exporting industries, the construction industry was the first to experience a deterioration of the economic conditions. This concerns mostly home builders. Contraction of the supply of housing loans to households led to a decrease in demand for flats and to impediments in financing of new housing projects. Developers had to finance their projects with equity capital or loans which were difficult to raise after banks had tightened their lending policies.

The adverse effects of a strong slowdown in global economic growth were also felt by the suppliers of the exporters and the construction firms. In the case of other sections, factors determining their financial positions included lower internal demand, mostly investments, and a gradual weakening of individual consumption²⁰. The growing pessimism of consumers contributed to cuts in spending and a decrease of the growth rate of retail sales.

A sudden depreciation of the zloty had a very strong influence on the deterioration of net income of enterprises. Starting in the third quarter, the financial results of enterprises were unfavourably influenced by an increase in the cost of

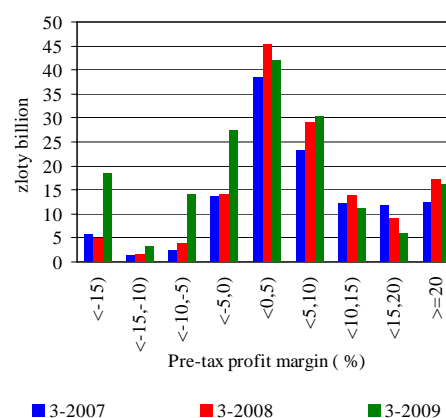
¹⁸ The share of loans extended to enterprises from these sections in total loans to enterprises amounts to around 59%.

¹⁹ See "The condition of the non-financial enterprises in Q4 2008", NBP, 2009, p. 16 (in Polish only).

²⁰ See "Inflation Report, February 2009", Warsaw, 2009, NBP, pp. 25-26 and pp. 28-29.

servicing loans denominated in foreign currencies and valuation of derivatives (including currency options, see Box 2). The deterioration of net income on enterprises' financing activities was so significant that despite a positive influence of the zloty exchange rate on export revenues, the corporate sectors posted a net loss in the fourth quarter of 2008, as a result of which the net profit for the whole 2008 was by 27% lower than in 2007. The lower profitability of the sector as a whole means that the value of loans, including bank loans, extended to enterprises whose profitability is low is growing (see Figure 3.6).

Figure 3.6. Distribution of debt of enterprises by pre-tax profit margin (annualized)



Note: debt includes advances and loans.

Source: NBP calculations based on GUS data.

Box 2. The risk of currency options written by enterprises

The appreciation trend of the zloty continued from 2004 to July 2008, markedly accelerating in early 2008. These developments led many enterprises, exporters in particular, to use foreign currency options in order to hedge against the risk of further zloty appreciation. As buying currency options to hedge against this risk is costly (unlike in forward transactions, the buyer of a foreign currency option has to pay the premium for having the right to exercise the option), some enterprises began to speculate on the FX market by concluding zero-cost options strategies. Under these strategies, exporters sold call options to banks. The premium of the options sold covered the cost of buying put options from banks. The nominal value of sold options was often higher than the nominal value of bought options, which was designed to obtain a much more favourable strike exchange rate of put options, while maintaining a zero-cost strategy. In certain cases, the nominal value of sold options exceeded the expected currency income of an enterprise.

Part of the option contracts concluded by enterprises were barrier options. Some of bought 'knock-out' barrier put options ceased to exist in the final phase of the zloty appreciation trend.

A firm majority of banks that concluded foreign currency options with enterprises hedged their option portfolios by back-to-back transactions with foreign banks. As a result, domestic banks do not bear market risk but bear credit risk related to a potential impairment of the bank's claims with respect to bought options.

The zloty depreciation trend against main currencies, which began in August 2008 (see Figure 2.10), caused the valuation of the options strategies written by enterprises to be negative. In this situations, enterprises had liabilities towards banks emerging from written foreign currency options. The NBP has aggregated data on the valuation of all options bought by the banking sector. The aggregate includes both the valuation of options bought from enterprises and options bought from foreign banks. Therefore, it is hard to determine the exact sum of the corporate

sector's currency options' liabilities towards banks. According to the assessment by the Office of the Polish Financial Supervision Authority (UKNF) ¹, at the EUR/PLN exchange rate of around 4.28, the liabilities were around 4.5 billion zloty. Owing to the growth in the credit risk of counterparties that sold options to banks, banks established provisions and made adjustments to valuations for a total amount of 1.34 billion zloty.

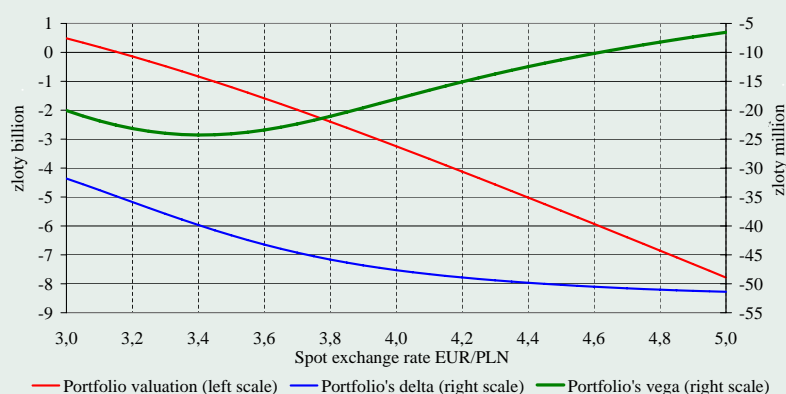
Table 1. Sensitivity of enterprises' options portfolio to changes in risk factors

| Change in risk factor | Impact on the value of the NBP sample portfolio | Impact on the value of the portfolio of all option transactions concluded by enterprises |
|---|---|--|
| EUR/PLN depreciation by 0.01 zloty (delta) | -1.956 zloty million | -49 zloty million |
| Increase in EUR/PLN implied volatility of 1 percentage point (vega) | -0.552 zloty million | -14 zloty million |
| Fall in domestic interest rate of 1 percentage point (rho) | -0.034 zloty million | -0.85 zloty million |
| Decrease in residual maturity of 1 day (theta) | + 0.083 zloty million | +2.1 zloty million |

Notes: as of 28 April 2009, with the assumed annual implied volatility of the zloty exchange rate of 25%. The portfolio of NBP sample denotes all options whose detailed terms were provided to the NBP by enterprises taking part in economic climate surveys. The approximate results for the portfolio of all options contracted with enterprises were obtained by rescaling the results for the portfolio of the NBP sample by the factor equal to the quotient of valuation of options released by UKNF on 28 April 2009 and the valuation of the portfolio of the sample.

Source: NBP estimates based on economic climate survey.

Figure 1. Information on the portfolio of enterprises' currency options



Note: estimates based on a sample of options transactions of enterprises obtained from NBP's economic climate survey.

Source: NBP.

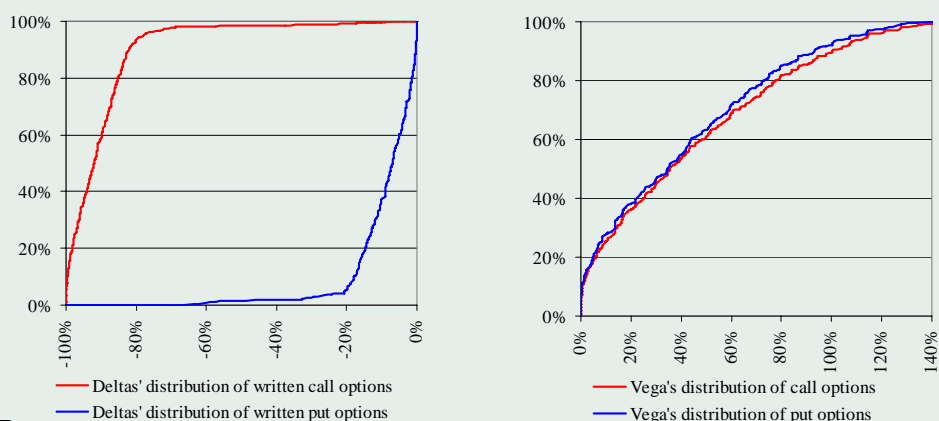
In March 2009, the nominal value of foreign currency options sold to the banking sector fell by around 40% in comparison with September 2008 (after adjusting for exchange rate movements)

as a result of the settlement of maturing options, the early closing of positions by enterprises and substitution of options liabilities for loans. In certain cases, banks decided to cancel some part of customers' liabilities related to written foreign currency options.

In March 2009, National Bank of Poland conducted a survey on the use of foreign currency options among enterprises. Around 6.7% of enterprises taking part in NBP economic climate surveys used foreign currency options and 3.3% of the enterprises disclosed detailed data on transactions in the foreign currency options market. The data were used to determine the impact of risk factors related to the valuation of foreign currency options on enterprises' liabilities (see Table 1). An estimate was also made on the valuation of the portfolio of foreign currency options contracted with enterprises depending on the EUR/PLN exchange rate. The estimate concerning the options with settlement dates after the end of March 2009 is shown in Figure 1.

The enterprises that provided detailed parameters of their foreign currency options do not constitute a representative sample for the corporate sector as a whole. Therefore, any generalisation of the results for the entire sector should be regarded as an approximation that may carry a risk of error. However, on account of the similarity of option strategies offered by banks and the fact they were concluded at a similar zloty exchange rate, error should be small, whereas the results are close to the results of the analyses carried out by the Office of the Polish Financial Supervision Authority.

Figure 2. Empirical distributions of delta and vega indicators of enterprises' currency options



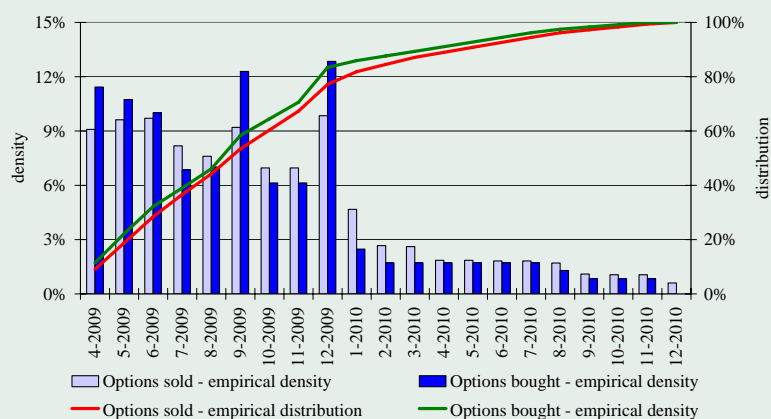
Source: NBP.

The spot rate of the zloty is a major risk factor for the valuation of the portfolio of enterprises' currency options. As written *in-the-money* call options with strike exchange rate within the band of 3.20-3.60 are a major component of the portfolio, the dependence of portfolio valuation on the spot rate is close to linear at the current zloty exchange rate (gamma ratio is insignificant). This is confirmed by the deltas of these options, which are mostly within the band from -90% to -100% (see Figure 2).

Zloty exchange rate volatility is another significant risk factor for the valuation of the portfolio of options. The importance of this factor is limited by the fact that the portfolio held by enterprises is composed of long and short options positions. However, some of these options display a high

sensitivity to changes in zloty exchange rate volatility. The significance of other factors, including domestic and foreign interest rates, affecting valuation of foreign currency options contracted with enterprises is much lower.

Figure 3. Distribution of nominal value of enterprises' currency options by settlement dates



Note: only options with settlement dates falling after 1 April 2009 were accounted of
Source: NBP.

Under the contracts, around 80% of options sold by enterprises should be settled by the end of 2009 (see Figure 3). The impact of the settlement of currency options on the zloty exchange rate and on the financial position of enterprises beyond this date should be very limited unless the zloty rapidly depreciates against main currencies. The intensity of the issue of currency options sold by enterprises will grow smaller over time. However, should the zloty depreciate strongly against main currencies, the currency options liabilities of Polish enterprises could grow considerably.

¹ „Podstawowe wnioski z analizy zaangażowania przedsiębiorstw w walutowe instrumenty pochodne" (Note on exposure of Polish companies to FX derivatives), a statement of UKNF of 11 March 2009 (available in Polish) and „Aktualizacja danych o zaangażowaniu przedsiębiorstw w walutowe instrumenty pochodne" (Updated data on exposure of Polish companies to FX derivatives), a statement of UKNF of 28 April 2009 (available in Polish)

Liquidity

In 2008, the liquidity position of enterprises worsened slightly. This is reflected by the fall of the cash and quick liquidity ratios which, nevertheless, remained at historically high levels. Moreover, NBP survey data show that in 2008 the

timeliness of liabilities settlement, including liabilities towards banks, worsened.²¹

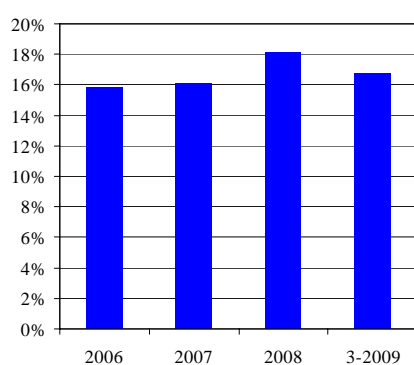
The symptoms of the deterioration in the liquidity position of enterprises are also reflected in the analysis of the cash flows from operating activities²². In comparison with 2007, the percentage of enterprises reporting a negative value of cash

²¹ See "The condition of the non-financial enterprises in Q3 2008", NBP, 2009, pp. 45-46 (in Polish only).

²² The value of cash flows from operating activities is estimated according to the indirect method, in accordance with the Polish Accounting Standard No. 1 on the basis of data compiled by GUS in compliance with F-01 reports. For a detailed definition see *Glossary*.

flows from operating activities (see Figure 3.7) increased. At the same time, the ratio of cash flows from operating activities to the value of liabilities and loans (the so-called coverage of liabilities and loans with cash flows) decreased (see Figure 3.8).

Figure 3.7. Percentage of enterprises with negative value of cash flows from operating activities (annualised)



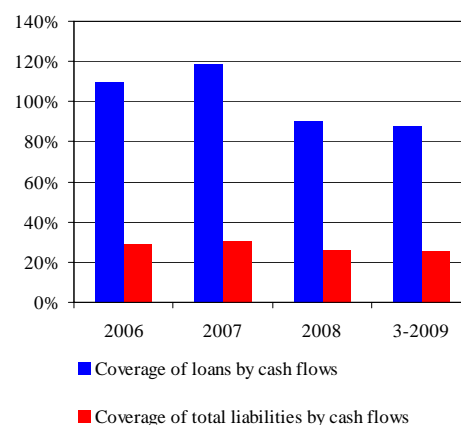
Note: calculations for a fixed sample of enterprises which are present in the database for all presented periods.

Source: NBP calculations based on GUS data.

The comparison of the cash flows from operating activities of enterprises with the quality of loans granted to enterprises at the level of particular sections of the national economy show that the liquidity position of enterprises and their capacity to service debts were changing in a similar way. An increase of the percentage of firms which generated negative cash flows from operating activities or a drop in the ratio of the cash flows from operating activities to total liabilities was

observed among enterprises from the sections of the national economy where there were problems with settling liabilities towards banks (see Table 3.5).

Figure 3.8. Ratio of the value of cash flows from operating activities to total liabilities (annualised)



Note: calculations for a fixed sample of enterprises which are present in the database for all presented periods.

Source: NBP calculations based on GUS data.

Debt of the corporate sector

In the fourth quarter of 2008 and in the first quarter of 2009, banks considerably tightened their lending policies towards enterprises²³. For the first time since the end of 2003 when the NBP started publishing the surveys, banks were largely unanimous with regard to changes in lending policies, especially in the fourth quarter of 2008 when the net percentage describing the tightening of standards of granting loans to enterprises amounted to 80%–90%.

²³ See "Senior loan office opinion survey on bank lending practices and credit conditions (1st quarter 2009)", Warsaw, 2009, NBP; "Senior loan office opinion survey on bank lending practices and credit conditions (2nd quarter 2009)", Warsaw, 2009, NBP.

Table 3.5. Changes in the liquidity position in sections in which deterioration in the quality of loans was reported

| Classification | Ratio of the value of cash flows from operating activities to total credit | | | Percentage of enterprises with negative value of cash flows from operating activities | | | Increase of irregular loans ratio(y/y) 2008 |
|---|--|--------|--------|---|-------|-------|--|
| | 2006 | 2007 | 2008 | 2006 | 2007 | 2008 | |
| Transport and communication | | | | | | | |
| Water transport | 121.1% | 43.2% | 155.3% | 11.1% | 37.5% | 11.1% | 0.3 p.p. |
| Land transport and transport via pipelines | 141.9% | 138.3% | 86.6% | 14.8% | 11.3% | 24.7% | 0.3 p.p. |
| Postal and courier activities | 405.2% | 301.9% | 78.6% | 21.9% | 13.0% | 34.0% | 0.3 p.p. |
| IT | 222.5% | 209.1% | 307.2% | 20.4% | 18.5% | 21.2% | 0.3 p.p. |
| Manufacturing | | | | | | | |
| Manufacture of metals | 140.2% | 253.1% | 98.2% | 16.2% | 18.7% | 17.4% | 3.3 p.p. |
| Manufacture of furniture | 53.5% | 154.7% | 83.2% | 20.7% | 20.3% | 21.2% | 0.4 p.p. |
| Textile products | 73.4% | 80.8% | 87.6% | 21.1% | 19.9% | 27.8% | 4.6 p.p. |
| Wood production and products of wood | 73.1% | 71.4% | 39.0% | 20.6% | 17.6% | 22.4% | 2.4 p.p. |
| Machinery production | 127.2% | 113.9% | 99.0% | 20.0% | 19.6% | 21.2% | 0.8 p.p. |
| Manufacture of motor vehicles, trailers and semi-trailers | 158.7% | 202.0% | 202.1% | 16.3% | 14.8% | 23.7% | 0.9 p.p. |
| Manufacture of food products and beverages | 89.6% | 69.6% | 72.5% | 14.7% | 16.8% | 20.0% | 0,3 p.p. |
| Manufacture of fabricated metal products except machinery and equipment | 113.8% | 102.3% | 106.1% | 16.2% | 15.7% | 19.2% | 0.2 p.p. |

Source: NBP calculations based on GUS data.

The tightening of lending policy is beginning to result in the decline in the growth rate of corporate loans as well as in the value of new corporate loans (according to data adjusted for exchange rate movements, see Figure 3.9). These trends relate to all types of loans, both investment loans (including ones for property purchase) and working-capital loans.

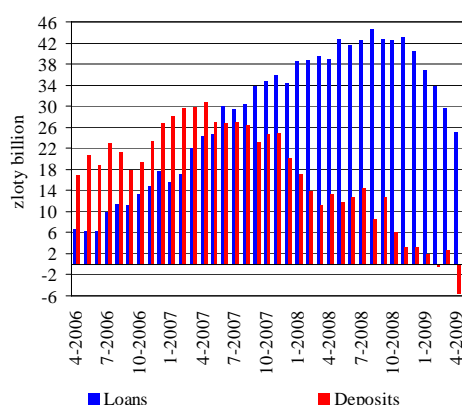
Apart from supply factors, a slower growth in

corporate loans was also influenced by demand developments. A strong slowdown in the world economy raises concerns among enterprises (in particular, exporters) about the future demand for their products, and leads to a decline in capacity utilisation. This contributes to the lowering of the growth of gross fixed capital formation. The lower investment growth limited the demand of enterprises for long-term loans²⁴. On the other hand, subdued demand for the products and ser-

²⁴ See "Senior loan office opinion survey on bank lending practices and credit conditions (1st quarter 2009)", Warsaw, 2009, NBP, p. 5; "Senior loan office opinion survey on bank lending practices and credit conditions (2nd quarter 2009)", Warsaw, 2009, NBP, p. 5.

vices of enterprises may have reduced corporate demand for operating loans²⁵.

Figure 3.9. Annual changes of stock of corporate loans and deposits



Note: data adjusted for exchange rate movements.

Source: NBP.

It seems that the supply factors play a greater role in reducing the growth in lending to enterprises than the demand factors. This is suggested by the results of survey polls of enterprises; it follows from the results that, from mid-2008 onwards, the percentage of enterprises that were denied credit has risen²⁶. The enterprises indicate that towards the end of 2008, the role of creditworthiness and value of collateral as a factor determining denial of credit significantly diminished, whereas the role of other factors increased. The percentage of enterprises reporting problems in accessing bank credit is close the levels recorded for the last time six years ago. Enterprises are more frequently pointing out that problems in obtaining bank credit hamper their further development. However, it should be pointed out that Polish enterprises are largely financed with own funds and with funds provided by foreign parent entities or related parties.

Foreign debt has a significant share in the composition of corporate sector debt (around 54% of

total debt)²⁷. The loans from direct investors account for a major portion of the corporate sector foreign debt (41% in the fourth quarter of 2008)²⁸. The percentage has remained almost on the same level for a few years, slightly falling or rising at the expense of debt securities held by foreign portfolio investors. Such a situation is favourable from the point of view of financial stability, because refinancing risk seems to be smaller in the case of liabilities from foreign direct investors than from other foreign institutions.

Summary

The halt in improvement of the quality of loan portfolio in 2008 and a slight increase of the value of irregular loans is likely to result from the deterioration in the liquidity position of the corporate sector. Thus, the expected further deterioration in the economic climate in Poland and abroad in 2009 may - in the future - lead to a greater likelihood of the materialisation of credit risk in the corporate loan portfolio.

It cannot be ruled out that in 2009 enterprises will face more serious liquidity problems than in 2008. On the one hand, the economic slowdown limits the opportunities to generate cash flows, which are needed to settle liabilities, internally. On the other hand, the liquidity position of enterprises is negatively affected by the constraints in the access to external funding sources. Also, constraints to the liquidity of enterprises may result in an increase in payment arrears and in the rise of the share of irregular loans at banks (as a result of reduced capability to service debts).

The corporate sector has significantly improved its financial position since the last economic slowdown in the years 2000-2002 (the sector's average cash liquidity ratio and the average pre-tax profit margin in the last three years were twice as high as in the years 1995-2000). This may

²⁵ See "The condition of the non-financial enterprises in Q1 2009", Warsaw, 2009, NBP, p. 15 (in Polish only)

²⁶ See "The condition of the non-financial enterprises in Q1 2009", Warsaw, 2009, NBP, p. 44 (in Polish only).

²⁷ Calculations based on balance of payments statistics and on GUS data.

²⁸ Calculations based on data on the foreign debt of enterprises, expressed in zlotys.

suggest that enterprises are better prepared to face an economic slowdown than at the start of the century. As the scale of the global economic slowdown is uncertain, it cannot be excluded that the deterioration of economic climate in the Polish economy may lead to a major deterioration in the corporate sector, and its lenders.

3.2.2. Credit risk of the loan portfolio to households

Loan quality

In 2008, the ratio of irregular loans from households decreased, but to a much lesser degree than in the past, and it reached its historical low level of 3.5% at the end of December (see Table 3.4). The reasons for the decrease were – to a much higher degree than in previous periods – statistical, i.e. the high growth rate of lending and an increase of the share of housing loans that are traditionally characterised by best repayment performance in the loan portfolio ²⁹. At the same time, however, an increase in the value of irregu-

lar loans was relatively high (by 14.5% in Q4 2008 and by 24.5% in the whole 2008). In previous years, the values tended to fall or their growth was insignificant (see Figure 3.4).

As in the case of the portfolio of loans to corporates, unfavourable trends related to irregular loan values intensified in early 2009. This occurred in all types of loans, including housing loans (although to a lesser degree than in the case of consumer loans). In the first quarter of 2009, the value of irregular loans rose by 15.4% quarter on quarter, while the irregular loan ratio amounted to 3.8%.

A relatively high increase in the value of irregular loans in 2008 should be attributed to a high growth in lending and a lenient lending policy of previous periods, whose effects appear in the banks' balance sheets with a lag, in line with the change in the phase of the business cycle (see Figure 3.11). In addition, the loan portfolio of Polish banks is very young. In the years 2007–2008, the value of loans to households more than doubled (after excluding the impact of exchange rate movements).

Table 3.6. Irregular loan ratios for consumer and housing loans to households

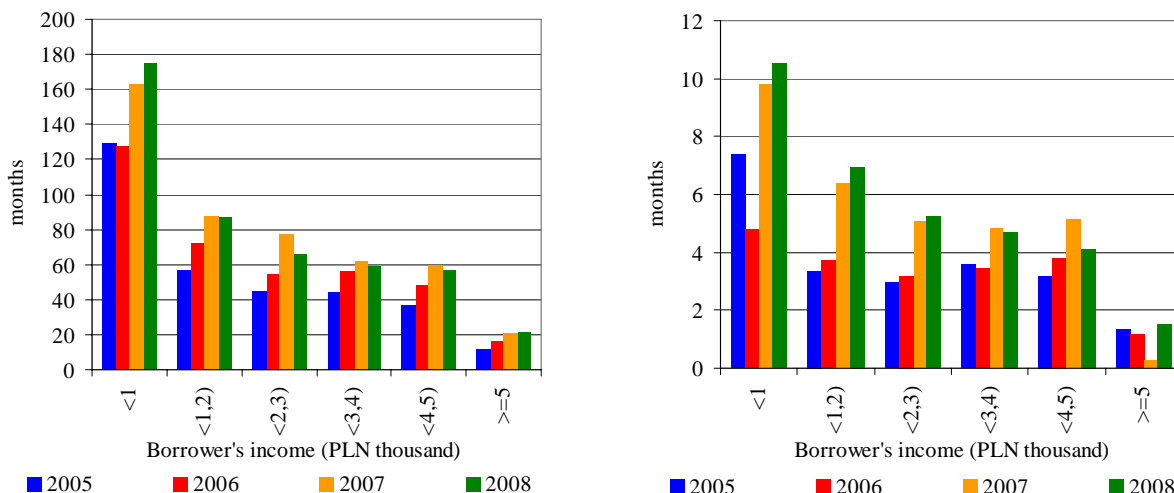
| | 2006 | 2007 | 2008 | 3-2009 |
|------------------------------|------|------|------|--------|
| 1. Housing loans, of which: | 1.8 | 1.2 | 1.0 | 1.1 |
| Zloty loans | 3.0 | 1.7 | 2.0 | 2.2 |
| Foreign currency loans | 1.0 | 0.7 | 0.5 | 0.6 |
| 2. Consumer loans, of which: | 7.9 | 6.6 | 6.6 | 7.3 |
| Zloty loans | 8.2 | 6.8 | 7.0 | 7.8 |
| Foreign currency loans | 3.7 | 2.8 | 2.1 | 2.6 |

Note: data refer to residents.

Source: NBP.

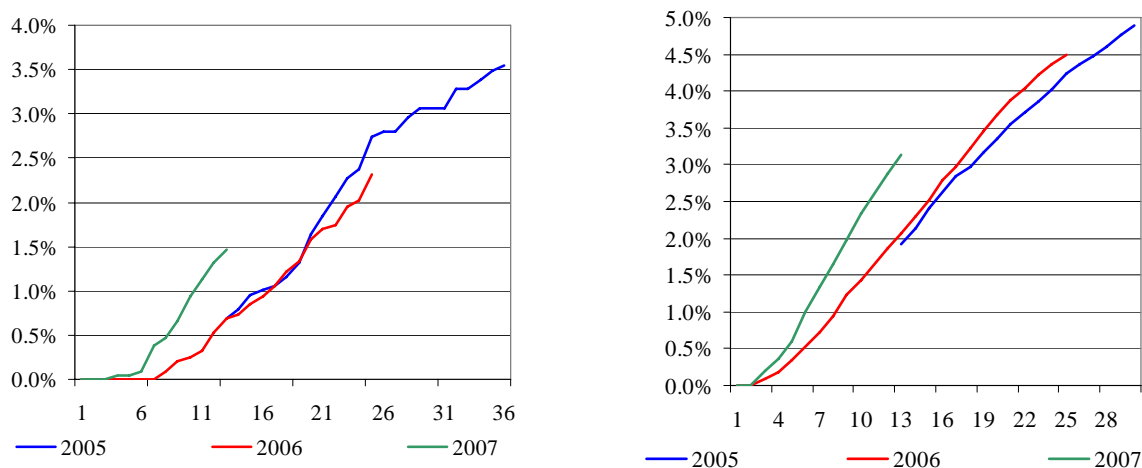
²⁹ In 2008, the impact of this factor was particularly high, as there was a high increase of the share of foreign currency-denominated housing loans due to, among others, their high growth rate and depreciation of the zloty.

Figure 3.10. Average ratio of the value of loan to monthly income of the household taking out the loan: housing loan (left-hand panel) and consumer loan (right-hand panel)



Note: columns in particular colours represent values of the ratio for loans taken out in a given year.
Source: NBP estimates based on BIK data.

Figure 3.11. Cumulative fraction of loans in arrears in the successive months of the loan contract: housing loans (left-hand panel) and consumer loans (right-hand panel)



Notes: lines in particular colours represent the percentage of loans in arrears of more than 90 days, taken out in a given year; the figure for 2005 begins from the 12th month, because data on loan repayments are available only for last 36 months; data on consumer loans are presented for the first 30 months of the loans, because this is the average maturity of consumer loans; the curve for loans granted in 2008 is not presented, because no adequately long repayment record for that year was compiled, in particular for loans granted in December 2008.

Source: NBP estimates based on BIK data.

The impact of the effect of the ageing of loan portfolio on the deterioration of their quality ratios may be particularly noticeable in 2009, as banks conducted a lenient lending policy in previous years. The lenient lending policy manifested itself in the form, among others, of an increase of the average income gearing of households taking out loans in the years 2007–2008. In addition, individual data indicated a particularly high income gearing of lower-income-brackets households (see Figure 3.10).

Housing loans

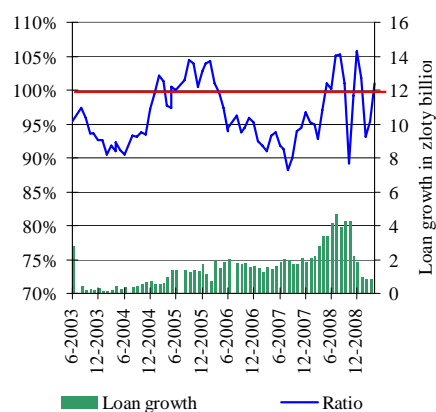
Housing loans account for a significant part of the loan portfolios of banks (32.7% of loan total at the end of April 2009 and 52.6% of loans to households). The majority of housing loans extended by banks is denominated in foreign currencies (69.7%), mostly in Swiss francs (around 96%). It should be noted that a relatively high degree of the product concentration of banks' loan portfolios makes some commercial banks similar, in terms of credit portfolio structure and the risk taken, to specialist banks. Unlike mortgage banks, these banks do not have to meet the more rigorous prudential standards (among others, with regard to the assessment of collateral value and loan size), which make the portfolios of mortgage banks more resilient to changes in the position of borrowers and contain the negative impact of a decrease in the economic growth rate on the earnings of this group of banks.

At the turn of 2008 and 2009, the value of irregular housing loans rose (by 21.0% to 2.4 billion zlotys in Q1 2009 and by 43.5% throughout 2008)³⁰. The value of loans in shortest arrears also grew, which may signal increasing problems with loan repayment in the coming quarters.

In the case of foreign currency denominated loans, the loan repayment burden was adversely influenced by the depreciation of the zloty, which

was especially noticeable in the first quarter of 2009. In this period, the burden of servicing part of foreign currency housing loans denominated in Swiss franc was significantly higher than at the time the loan was originated.

Figure 3.12. The ratio of the loan instalment calculated on the basis of current market data to the instalment at time of loan origination, against monthly loan growth



Assumptions: swiss franc-denominated loan of maturity of 25 years, repaid in equal principal instalments (decreasing interest instalment), present instalment calculation based on the Swiss franc exchange rate and LIBOR 3M rate of 10 June 2009, and the average spread on Swiss franc loans at the time of origination; loan growth after excluding the impact of foreign exchange rate movements.

Source: NBP.

The increase of the burden would have been higher, if interest rates in Swiss francs had not fallen considerably³¹. Following the appreciation of the zloty at the start of the second quarter of 2009, the housing loan service burden of households repaying such loans dropped. The simulations show that at the level of exchange rate of the Swiss franc from the beginning of June 2009, the instalments of housing loans for the majority of households that had taken out Swiss-franc-

³⁰ Data adjusted for exchange rate movements show that irregular housing loans rose in 2008 by around 31% and in Q1 2009 by around 16%.

³¹ Interest rate on Swiss franc loans is generally determined as the average rate of interest on interbank deposits in this currency, to which a fixed margin is added, as agreed in the loan contract.

denominated loans should be lower than at the time of loan origination (see Figure 3.12).

If the volatility of CHF/PLN exchange rate observed at the turn of 2008 and 2009 persists in the long run, the probability of the occurrence of exchange rate shocks of a scale leading to an increase in the housing loan service burden on households beyond their capacity to service loans in a timely manner, would grow. The results of the simulation carried out on individual borrowers' data show that as a result of an abrupt depreciation of the zloty to the level of 5.5 EUR/PLN (and the same scale depreciation against the Swiss franc) the number of households with a negative income buffer would grow from around 10.7-14.3% to around 10.9-16.9% – with the former figure concerning data on borrowers' income indexed by the average wage growth rate, and the latter concerning data upon loan origination (assumptions of the simulation and of the indexation of original data on income derived from BIK database are included in Annex).

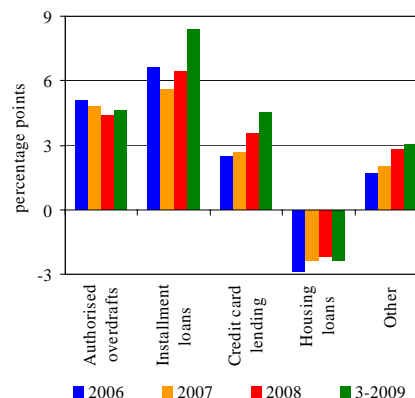
Consumer loans

Consumer loans account for 22.9% of loans to non-financial sector and 36.8% of loans to households. They are almost entirely zloty-denominated loans with a floating interest rate. The irregular loan ratio for this portfolio increased markedly in the course of the first quarter of 2009 to 7.3%. In the period, the value of irregular consumer loans grew by 15.3% to 10.4 billion zloty, and by 33.6% throughout 2008.

In the case of certain types of consumer loans, their quality deteriorated considerably. This concerned, among others, credit cards and installment loans. These loans are granted on a mass scale. In most of the cases the lending procedures are simplified, and banks' requirements with regard to creditworthiness are low. With the exception of loans for car purchase, consumer loans are relatively poorly collateralized. Therefore, the deterioration of their quality makes it necessary to create high provisions, in relation to loan value (at the end of March 2009, irregular con-

sumer and housing loan coverage with provisions was 83% and 37%, respectively).

Figure 3.13. Quality of main types of loans to individuals



Note: the figure shows the difference between the values of the irregular loan ratios for specific types of credit and the average irregular loan ratio for loans to individuals.

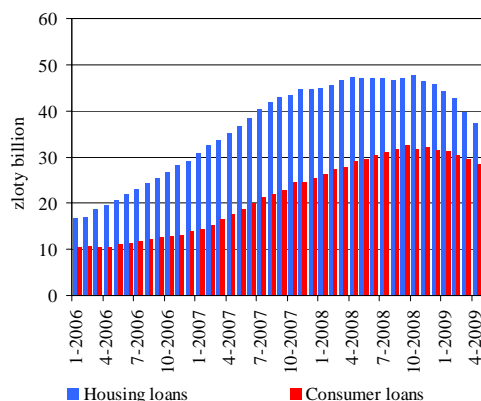
Source: NBP.

A series of NBP interest rate cuts led to the reduction of the maximum (permitted by law) interest on loans (among others, maximum interest rate used to be applied to credit card debt). Lower interest and worse loan repayment, which result in increased credit risk cost, exert a negative influence on the profitability on the portfolio of the loans and on banks' earnings.

Growth rate of lending to households

The growth rate of lending had a considerable influence on the ratios of the quality of loans to households. Until October 2008, lending to households rose at a fast pace (see Figures 3.14 and 3.15). In this period, the annual increases of both consumer and housing loans were historically high. They were supported by, among others, a good economic climate and related growth in consumer confidence. The growth rate of foreign currency denominated housing loans was particularly high, which had an influence on the increase in banks' exposure to indirect FX risk.

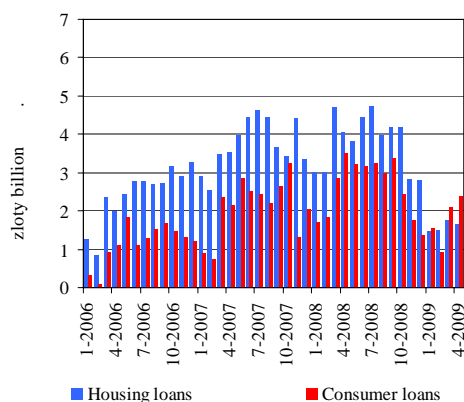
Figure 3.14. Annual changes in the value of loans to households



Note: data after excluding the impact of exchange rate movements.

Source: NBP.

Figure 3.15. Monthly changes in the value of loans to households



Note: data after excluding exchange rate movements

Source: NBP.

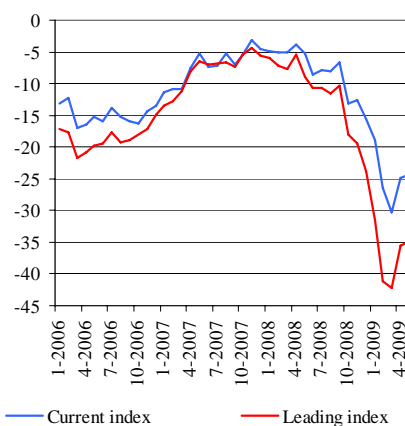
By the end of 2008, the fast upward trend of the value of loans to households reversed. This change was reflected in a considerable fall of the monthly increments of both housing and consumer loans (see Figure 3.15). The major factors contributing to the fall of the lending growth include a strong tightening of standards and terms

³² See "Senior loan officer opinion survey – on lending practices and loan conditions", 1st quarter 2009 and 2nd quarter 2009 editions, NBP, 2009.

of granting loans. According to banks surveyed by the NBP, the tightening of lending policy stemmed chiefly from a worse economic situation and from the capital position of banks. Banks increased, among others, spreads and required LTV ratios on housing loans³². This increase of credit spreads was particularly high in the case of Swiss franc-denominated housing loans. Some banks ceased to offer this product.

Other factors contributing to the falling growth rate of lending at the end of 2008 were: developments on the housing market – some prospective buyers delayed property purchase in anticipation of further price falls, and marked deterioration of consumer confidence in the fourth quarter of 2008. Consumer confidence surveys indicate that households' assessments about their future financial position, Poland's economic developments and unemployment risk worsened (see Figure 3.16).

Figure 3.16. Current and leading consumer confidence index



Source: GUS.

Outlook

The economic outlook indicates that the coming quarters will not be favourable for the household sector's capacity to service debt. It may be expected that the rise in unemployment rate in the years 2009-2011 will push up the value

of irregular loans and make it necessary for the banks to create further impairment provisions. A strong increase in the value of irregular loans and provisions in the first quarter of 2009 show that the process may be fairly fast. Unemployment growth would reduce the capacity of households-borrowers to repay their loans. Data from GUS Household Budget Surveys for 2007 show that the average percentage of households-borrowers with a negative income buffer was 8.7%. With the unemployment rate rising in line with the NBP projections of June 2009 (i.e. up to 13.2% in the fourth quarter of 2010), the percentage of households with a negative income buffer would rise by nearly one fourth to 10.7%³³. If the unemployment rate rises by the amount assumed in macroeconomic shock scenario described in Chapter 3.5, i.e. by 1.5 percentage points above the NBP projection, the percentage of households with a negative income buffer would increase by almost 30% to 11.2%³⁴.

The negative impact of unemployment on households' capacity to service loans may to some extent be cushioned by the government-planned assistance in loan repayment by the unemployed. However, it should be pointed out that the scheduled aid programme is to cover only those borrowers who repay housing loans and that the programme restricts the duration and maximum amount of aid ³⁵.

A depreciation of the zloty may be another factor that may have an adverse influence on the capacity of some of the households to service loans. The problem of the increasing burden on households that have taken foreign currency denominated loans with loan servicing costs concerns

primarily housing loans. Although the weakening of the zloty has not caused a significant deterioration in the quality of foreign currency-denominated loans until now, it cannot be ruled out that a possible further depreciation of the zloty will generate loan losses at banks. It may be assessed, however, that due to the relatively sound fundamentals of the Polish economy, the likelihood of the depreciation at the scale assumed in the above simulations is very low.

It should be emphasized that the major challenge - related to the portfolio of foreign currency-denominated loans - banks are facing is to maintain their positive profitability. As the costs of financing and hedging FX risk are rising while spreads on foreign currency denominated housing loans remain fixed, the interest income earned on these loans may not cover these loan-related costs at some banks. On the other hand, however, the bid-ask spread on currency exchange, which is involved in repayment of foreign currency denominated loans, serves to increase income on FX loans. The recommendation of the banking supervision authorities, which takes effect in mid-2009, will enable customers to repay debt directly in the currency of the loan³⁶. However, it is difficult to assess the impact of this solution on banks' earnings in advance, as it is difficult to estimate the percentage of borrowers that may exercise this option.

Depreciation of the zloty also has an unfavourable influence on the ratio of the size of loan (secured by a property) to the value of the property (the LTV ratio). The expected fall of property prices may lead to the increase of the ratio. When the borrower defaults on repayment,

³³ Assuming that the job-losing persons would not be provided with unemployment benefits, the percentage of households with a negative income buffer would rise to 12.3%. The share of households with a negative income buffer is permanently larger than the ratio of irregular loans to households. The reason why the share of households with a negative income buffer is higher than the irregular loan ratio is, among others, the fact that assets held by households they can use to satisfy their credit liabilities were not accounted for in the calculations.

³⁴ Assuming that the job-losing persons would not be provided with unemployment benefits, the percentage of households with a negative income buffer would grow to 13.2%

³⁵ The respective draft law (see parliamentary document no. 2042) provides for the aid, in the monthly amounts not exceeding 1,200 zloty, to be paid out for the maximum period of 12 months.

³⁶ See point 5.2.4. in: Recommendation S (II) on good practices with regard to mortgage-secured credit exposures, KNF, Warsaw 2008.

the high LTV ratio reduces the bank's possibility of recovering the claim³⁷.

In April 2009, a new law that allows natural per-

sons who do not pursue a business activity to declare insolvency by liquidation of property (see Box 3) entered into force. The scale of personal insolvencies is hard to estimate, but it seems that it should not contribute considerably to a rise in bank losses.

Box 3. Personal insolvency in Polish law

The law regulating the issue of the so-called personal insolvency entered into force on 1 April 2009¹. The law makes it possible for heavily indebted natural persons who do not carry on business activity to get out of the so-called spiral of debt.

The exclusive right to request a declaration of insolvency rests with the debtor being a natural person. An insolvent debtor may request to be declared insolvent once in every 10 years. A relevant procedure can be opened on the condition that insolvency results from exceptional circumstances independent on the debtor. These can include e.g. consequences of random incidents in the form of a prolonged disease of the debtor or of its family member and, in consequence, resulting in the debtor's becoming permanently incapable of working. Insolvency cannot arise from the debtor's own fault, e.g. as a result of job loss through the debtor's fault.

The law provides for only one form of insolvency, i.e. insolvency proceedings based on the liquidation of the debtor's assets. If these assets include an apartment or a house, such property is also subject to liquidation. The insolvent person receives, from funds obtained by selling off the property, an amount of money being the equivalent of the average housing rent for 12 months.

If the liquidation of the debtor's assets does provide enough funds to repay creditors' claims, the court - acting on the insolvent person's request - will issue a decision to set a schedule of repayment of creditors' claims. The schedule specifies the timeframe in which the insolvent person is obliged to repay amounts outstanding (maximum - 5 years) and the portion of liabilities to be remitted (after the debtor has repaid creditors' claims specified in the schedule).

In the course of the execution of the repayment schedule, the insolvent person can contract only such obligations that are necessary to provide for himself/herself and the next of kin, excluding purchase by instalments or via deferred payment transactions. In addition, the insolvent person is obliged to submit annual reports to the court on the execution of the plan to repay creditors' claims and also the list of his/her income plus property items purchased. Deterioration of the insolvent person's financial standing or any impediments to repayment may be the reasons for extending the five-year period, by no longer than two years, though.

The law also provides for solutions aimed at protecting the interests of creditors. Creditors have the right to take part in insolvency proceedings, file requests or complaints against decisions made

³⁷ It should be noted that risk weights for FX mortgages used in Poland are more than twice as high as the ones for zloty mortgages. Under the standard method for calculating the capital requirements (in 2008, the method was used by all banks operating in Poland) the risk weight for efficiently property-secured loans is 35% for zloty-denominated loans and 75% for loans denominated in the currency other than the borrower's income; the increased risk weight for foreign currency loans is the exercise of the so-called country option. The loan or part of the loan not efficiently secured is assigned a weight of 100%. The loan is considered efficiently secured when LtV is below 50/60% (depending on the property valuation method), which is also conservative. Cf. in Great Britain, the loan is considered efficiently secured when LtV is not higher than 80%; in Ireland not higher than 75%; in Spain not higher than 80% and in Italy not higher than 80%.

by the court in the course of the proceedings. For instance, the creditor can protect his/her rights by lodging a motion to have the schedule revised once the financial position of the insolvent person has improved considerably. This does not apply to situations when such an improvement is related to the debtor's pursuance of occupational or business activity. The purpose of this solution is to encourage debtors to enhance their occupational performance.

Limiting the insolvent person's right to contract obligations, mentioned earlier in the text, is also a form of protecting creditors. If the insolvent person has infringed on the reporting obligations towards the court and defaults on repayment, the court may - acting on a creditor's request - discontinue the proceedings. Thus, the insolvent person will have to repay amounts outstanding according to general principles.

¹ The law of 5 December 2008 on amending the law - The bankruptcy and reorganisation law and the law on court fees in civil cases.

3.2.3. Banks' credit risk premium and cost

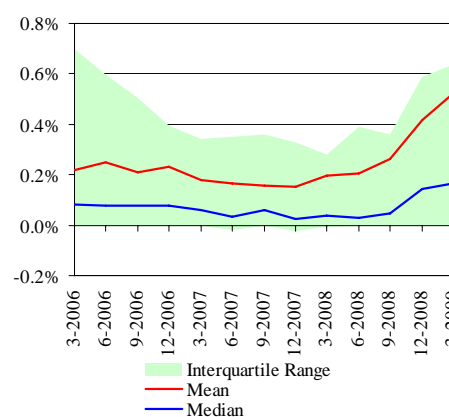
The considerable increases of the amounts of irregular loans in 2008 and in the first quarter of 2009 were accompanied by large charges to impairment provisions (see Table 3.1). The average burden of charges to provisions for irregular loans on net income from banking activity rose threefold in comparison with 2007 (see Table 3.2). Such a considerable increase of credit risk cost recorded in short term may result from underestimation of risk in the period of favourable economic conditions, which was indicated in the previous issues of the *Report*. It should be noted that the currently binding accounting standards restrain establishing provisions for unrealised credit risk.

In the fourth quarter of 2008 and the first quarter of 2009, banks also incurred costs of the materialisation of credit risk (counterparty risk) related to FX transactions (risk reversals) concluded with enterprises. As a result of the strong depreciation of the zloty some enterprises were unable to satisfy the *call* options written under these contracts. The materialisation of this risk influenced the profit and loss accounts of banks in two ways: in the case of unmatured options it reduced the net income on financial operations,

³⁸ Ratio of net interest income to assets.

and in the case of claims arising after options matured, it increased charges to provisions for impaired receivables. A few banks posted a quarterly net loss as a result of a rise in costs on this account.

Figure 3.17. Ratio of net charges to loan impairment provisions to assets



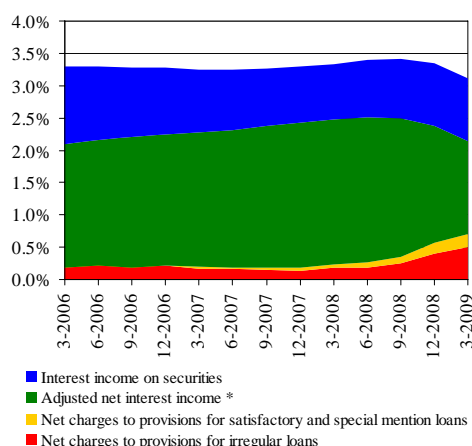
Note: data annualised.

Source: NBP.

Net interest margin³⁸ rose slightly in 2008, but this was exclusively due to the increase of interest income from the portfolio of debt securities (mostly Treasury securities). In this period, the ratio of other net interest income to assets decreased, which resulted, among others,

from the growing competition for deposits of the non-financial sector and the growth in risk premium on the interbank market. Coupled with the growth of the cost of credit risk materialization, this caused a fall of the so-called adjusted net interest margin³⁹, which measures the profitability of financial intermediation (see Figure 3.18). These trends strengthened in the first quarter of 2009. At the end of March 2009, adjusted net interest margin accounted for 45.9% of total net interest margin, compared with 62.8% six months earlier.

Figure 3.18. Net interest margin



* adjusted net interest income: net interest income less net charges to provisions for satisfactory, special mention and irregular loans and interest income on securities.

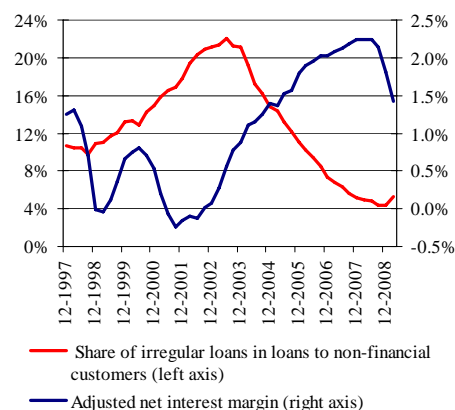
Note: data annualised.

Source: NBP.

In the coming quarters, further growth in the cost of credit risk materialisation and a fall of net interest margin can be expected, which will cause a further decrease of adjusted net interest margin. It is possible that within the next several quarters the cost of credit risk (provisions) will exceed the earned credit risk premium, as was the case in the years 2001-2002 (see Figure 3.19). In this

context, the importance of retaining profits generated in 2008 at banks, as a reserve in economic terms, should be emphasised.

Figure 3.19. Adjusted net interest margin and the share of irregular loans in the loan portfolio



Note: net interest income annualised.

Source: NBP.

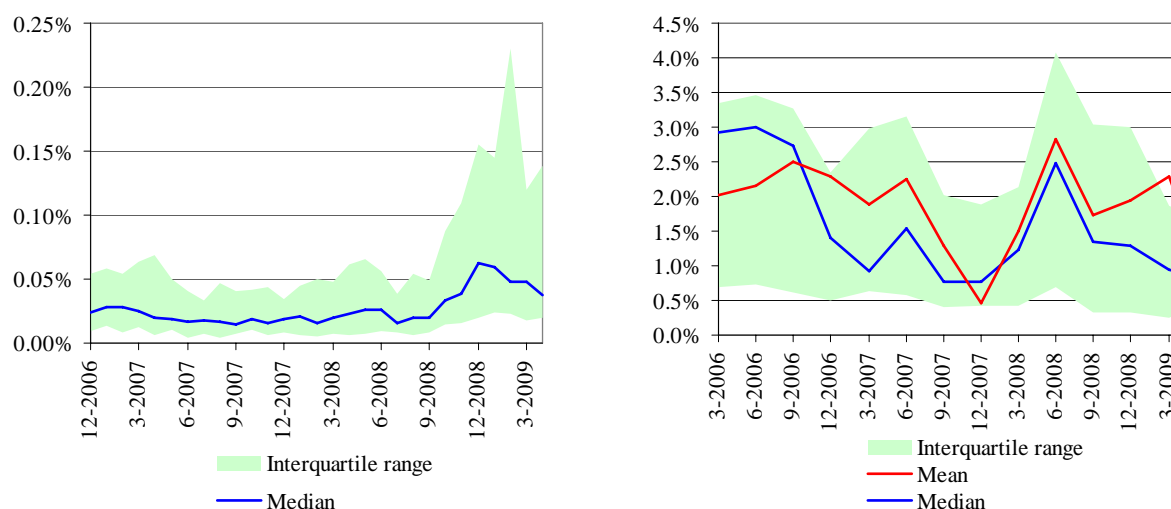
3.3. Market risk

The main sources of market risk in the Polish banking sector are: the long balance sheet FX position and the portfolio of fixed-rate securities, mainly government bonds. FX risk and interest rate risk related to these assets are hedged by banks with derivatives. In consequence, banks' exposure to market risk is low.

General interest rate risk borne by the banking sector remained at a level close to the levels of the past years. However, at individual small and medium-sized banks VaR for joint FX and interest rate risk (see Figure 3.20, right-hand panel) rose considerably in the fourth quarter of 2008 and in early 2009. The increase stems first of all from the growth in interest rate risk.

³⁹ Ratio of the net interest income less interest income on the securities held and net charges to provisions for impaired loans to assets.

Figure 3.20. Distribution of Value-at-Risk for FX risk (left-hand panel) and joint FX and interest rate risk (right-hand panel) at domestic commercial banks



Notes: VaR at confidence level of 99% over a 10-day horizon, expressed as % of regulatory capital. VaR for joint FX and interest rate risk determined jointly for the banking and trading books.

Source: NBP.

Value at risk (VaR) for FX risk remains low, but it has been regularly rising from October 2008 (see Figure 3.20, left-hand panel). This is the result of the impact of two factors. An abrupt rise of the volatility of the zloty exchange rate at the turn of September and October (see Figure 2.10) is one of the factors, the other being a gradual increase of an open FX position at certain banks, in part as a result of closing transactions hedging currency options purchased from enterprises⁴⁰.

VaR does not take into account several types of risk that may have a major influence on the net income on financial operations of the banking sector. VaR calculations are based on the assumption that the financial market is liquid. When its liquidity is limited, as is currently the case, banks may be unable to roll over maturing hedging transactions, such as FX swaps⁴¹,

or may be forced to roll them over at the cost that exceeds considerably the cost of the maturing transaction. Hypothetically, if unable to roll over the hedging transactions, the bank would have to account for an additional capital requirement for FX risk, and exchange rate movements resulting from zloty exchange rate fluctuations and the revaluation of assets and liabilities would directly impact the earnings of the bank. Despite the decrease in the liquidity of the financial market, banks were able to hedge against FX risk and interest rate risk, because hedging transactions were provided by parent entities.

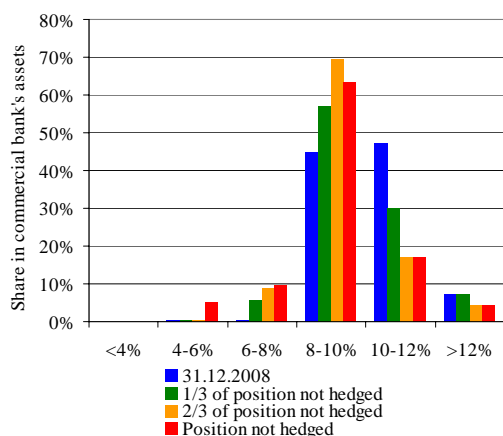
Figure 3.21 shows the impact of the hypothetical lack of rollover of maturing hedging transactions on the capital adequacy of commercial banks. In an extreme case, should it be impossible to rollover the entire value of maturing

⁴⁰ This factor relates to the banks that bought currency options from enterprises and hedged with back-to-back transactions with foreign banks. When creating provisions for impaired exposures arising from currency options, these banks were at the same time closing their hedges, which created an open long FX position. Data on FX positions are reported by banks on the basis of gross value of the position, i.e. without taking into account value adjustments resulting from counterparty credit risk (value at risk calculated on the basis of these data may be overstated).

⁴¹ Starting from the fourth quarter of 2008, monthly turnover of Polish banks on the FX swap market fell by around 20-40%, compared with the previous quarters of 2008

hedging transactions, eight banks with a total share of around 17% in the banking sector assets would not meet the regulatory capital requirement. Availability of NBP swap facilities considerably limits the risk of an occurrence of such a scenario.

Figure 3.21. Capital adequacy ratio of commercial banks when FX risk hedges are not rolled over



Notes: it has been assumed in the simulation that the zloty exchange rate is fixed at the end of February 2009 level and part or entire balance sheet FX position cannot be closed.

Source: NBP.

The sensitivity of a bank to changes in the liquidity of the market for instruments used to hedge FX risk hinges on the adopted approach to bank's balance sheet FX position management. For banks that tended to finance FX assets with FX liabilities, generally provided by parent entities, the risk is insignificant. Some banks managed to close the balance sheet FX position with long-term CIRS. The decrease in market liquidity would materially affect their results only if it persisted in the long run. Some banks used short-term FX swaps to hedge against FX risk.

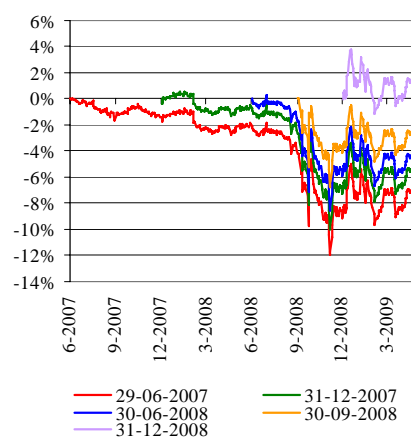
⁴² Swiss franc-denominated housing loans, extended at a fixed, low spread of 100-150 basis points above LIBOR constitute a considerable portion of the FX assets of banks. An increase in the cost of swap above this level means that the net interest income on part of this portfolio may be negative.

⁴³ These rates are approximated by the interest rates on interbank deposits and swap rates.

⁴⁴ In practice, there may be an additional accounting mismatch between the bond, classified as available for sale, whose changes in value are accounted for in capital, and a swap valued according to fair value in the profit and loss account. In the analysis it is assumed that both components of the portfolio are valued according to fair value through the profit and loss account.

Increased risk premium on the swap market (see Figure 2.7) has an influence on these banks even in the short term, posing a threat that net earnings on of FX assets may abruptly fall⁴². Banks widened spreads on currency exchange, which limited the negative effects of the increase in the cost of hedging for the return on the portfolio of FX assets, as foreign currency loans extended to households are mostly repaid in zlotys.

Figure 3.22. Valuation of a bond hedged with IRS



Notes: the simulation assumes that a 10-year benchmark government bond was purchased and at the same time a short position in 10-year IRS was opened to hedge against interest rate risk. Valuation of the position presented as % of bond par value.

Source: NBP calculations based on Bloomberg data.

VaR for interest rate risk concerns only relates to the general interest rate risk, i.e. the risk associated with the volatility of risk-free interest rates⁴³. It ignores the specific interest rate risk, whose major component in the Polish banking system is the risk related to the volatility of spread between government bond yield and interest rates on swaps that hedge portfolios of fixed-

rate government bonds⁴⁴. The impact of the risk on banks' net income on financial operations can be shown via a simulation. For instance, valuation of a long position in a 10-year government bond, hedged with a short position in an interest rate swap may, depending on the moment of the conclusion of a transaction, amount to from -5.5% to around 3.0% of the notional of the bond purchased (see Figure 3.22). High volatility of this valuation indicates a potentially high risk associated with the existence and volatility of spread between government bond yields and swap rates.

3.4. Liquidity risk

After the liquidity of the domestic inter-bank market had decreased, banks were compelled to obtain funding from other sources. Many banks took measures aimed at obtaining funding from the most stable financing sources and reducing the surplus of loans over deposits. These actions halted the growth of the funding gap. Some banks received increased support from their foreign parent entities.

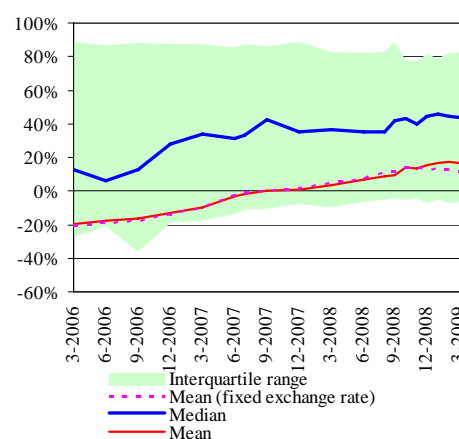
In the second half of 2008, the short-term liquidity gap stabilised. Given the decrease of the liquidity of the interbank market, banks kept more funds on accounts at NBP and enlarged their portfolios of Treasury securities. In consequence, the number of banks that fully covered their short-term liquidity gap has risen.

3.4.1. Funding liquidity

Until the end of the third quarter of 2008, the rapid growth in lending accompanied by

relatively lower growth in deposit base contributed to the widening of the funding gap⁴⁵ (zob. wykres 3.23). Banks "closed" the gap by borrowing in the interbank markets in Poland and abroad, collecting deposits from non-bank financial institutions and by issuing securities.

Figure 3.23. Funding gap in commercial banks



Note: for variable "Mean (fixed exchange rate)" values of foreign currency loans and deposits were converted into zloty according to a fixed exchange rate as of the end of March 2006 in order to eliminate the impact of exchange rate movements on the value of the funding gap.

Source: NBP.

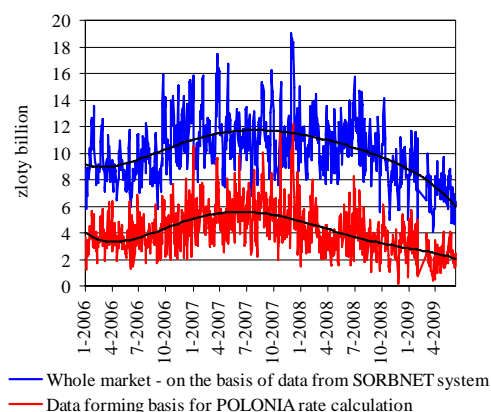
The stability of such a funding model was disturbed in September 2008. The bankruptcy of the U.S. investment bank Lehman Brothers contributed to a major growth in counterparty risk on the global markets, reduction of interbank transaction limits and decrease in the liquidity of financial markets.

As most banks operating in Poland are members of foreign banking groups, turmoil on the international markets led to a reduction in mutual limits for interbank operations also on the Polish market. Liquidity of the interbank market decreased significantly (see Figure 3.24), while transactions were concluded for periods not longer than a week (mostly O/N and T/N transactions). A

⁴⁵ 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.

group of banks emerged with whom other banks did not conclude transactions due to very high assessment of counterparty risk of the bank itself or the bank's strategic investor.

Figure 3.24. Turnover in the market of interbank deposits



Source: NBP.

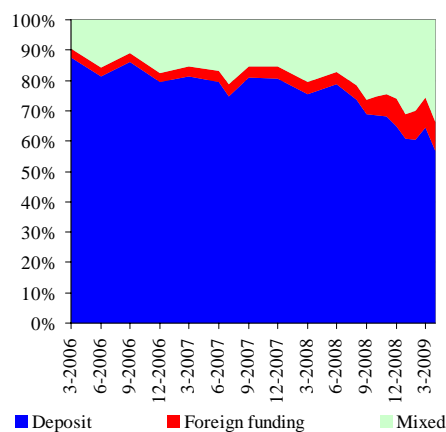
The low limits on interbank transactions might have also resulted from mounting difficulties in assessing the credit risk of the customers of Polish banks and subsequently of the future financial position of the banks themselves. Market participants find it difficult to assess the quality of the loan portfolios of individual banks and find out whether their regulatory capital is appropriate. This was reflected in the growth in the risk premium and the cost of funding.

Many banks raised funds at prices much above WIBOR rates. Lack of confidence among banks forced them to pay two types of risk premia when concluding transactions – one already included in the WIBOR rate and the other in excess of WIBOR. This development led to a considerable increase in the effective interest rate on funding from the financial sector (see Table 3.8).

Banks' responses to the restrictions in "closing" the funding gap on the wholesale markets differed and depended on their funding model.

⁴⁶ After adjustment for exchange rate movements.

Figure 3.25. Share of banks following particular funding strategies in total assets of the banking sector



Note: banks were classified into individual groups on the basis of their funding structure at the end of each period. The basis on which a bank is classified into a given strategy: deposit strategy – a share of deposits in bank's total liabilities exceeds 60%; foreign funding strategy – share of liabilities towards non-resident financial institutions exceeds 50% of total liabilities; mixed strategy – other banks.

Source: NBP.

The Polish banking system is not homogenous in this respect. In the Polish banking system, at least three groups of banks can be singled out; they apply differing funding strategies and, consequently, they can respond in a different manner in the present situation (see Figures 3.25 and 3.26). These are:

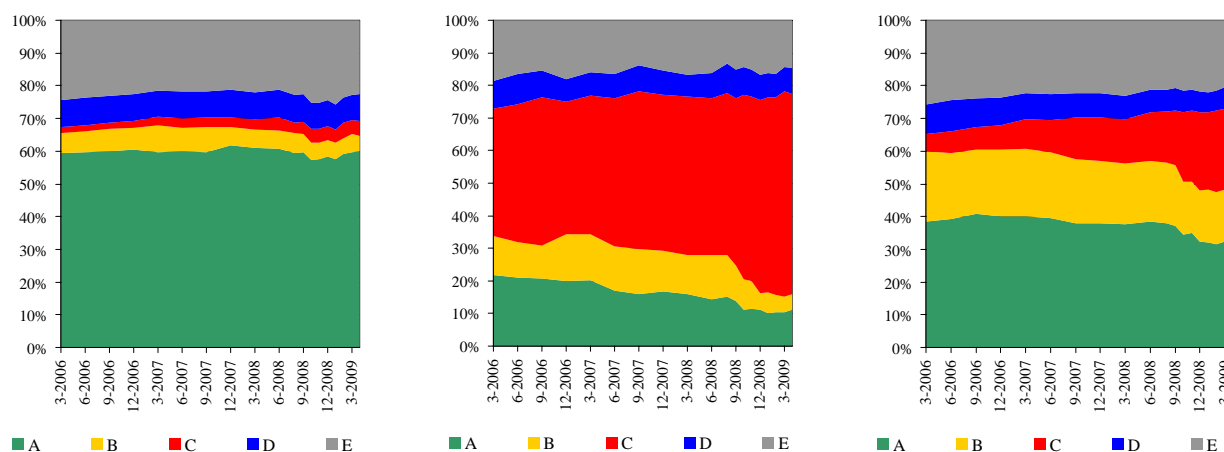
- banks whose expansion is largely based on obtaining deposits of non-financial customers and the general government sector (deposit strategy),
- banks whose funding is provided from foreign sources (mainly from foreign parent entities) (foreign funding strategy),
- banks that do not display dominance of one type of funding (mixed strategy).

The halt of the funding gap growth⁴⁶ in the banking sector - starting from the fourth quarter of 2008 - was mainly the result of measures taken by banks that follow the deposit strategy. These banks have recently increased their surplus of deposits over loans. On the other hand, the banks applying the foreign funding strategy approach and banks using the mixed strategy reported a wider funding gap despite problems in obtaining funds from the domestic interbank market. It was possible due to a significant increase in foreign funding, primarily from foreign parent entities of Polish banks⁴⁷. The increase in foreign funding concerned primarily banks whose deposit base is not broad (see Figure 3.27). These banks

were also the ones that reduced their exposure in the domestic interbank market to the largest extent (see Figure 3.28). The rise in funding from parent entities was also recorded in the group of banks applying a mixed-strategy approach that had not been funded by the parent bank to a large extent.

Domestic banks recorded the largest increases of liabilities towards parent entities in September and October 2008, i.e. during the most intense turmoil in the financial markets. This indirectly confirms the dominant role of parent banks in the provision of foreign funding. After this period, as the growth in lending declined, the increase in funding from parent entities was smaller.

Figure 3.26. Structure of funding in banks applying deposit strategy (left-hand panel), foreign funding strategy (centre panel) and mixed strategy (right-hand panel)



Legend: A - deposits of non-financial and the general government sector, B - liabilities towards financial entities-residents, C - liabilities towards financial entities-non-residents, D - capital, E - other liabilities.

Note: banks were classified into the particular groups on the basis of their funding structure at the end of March 2009

Source: NBP.

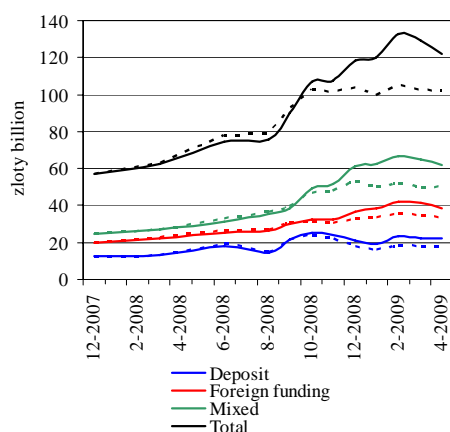
⁴⁷ At the end of December 2008, the share of foreign currency liabilities of domestic commercial banks towards parent entities accounted for around 92% of total foreign currency liabilities towards foreign monetary financial institutions.

Table 3.7. Selected indicators for banks with particular funding strategies as of the end of March 2009

| | Deposit | Foreign funding | Mixed |
|--|---------|--------------------|-------|
| Number of banks | 22 | 16 | 31 |
| Share in banking sector assets | 64.5% | 9.7% | 25.8% |
| Funding gap | -9.53% | 83.6% | 46.8% |
| Funding gap (zloty billion) | -37.3 | 57.6 | 82.9 |
| Selected liabilities (zloty billion) | | | |
| - Deposits of non-financial and general government sectors | 410.5 | 10.5 | 88.8 |
| - Liabilities towards resident financial institutions | 37.7 | 4.8 | 43.8 |
| - Liabilities towards non-resident financial institutions | 29.6 | 64.0 | 68.0 |
| Share of selected liabilities in total assets | | | |
| - Deposits of non-financial and general government sectors | 59.7% | 10.3% | 32.3% |
| - Liabilities towards resident financial institutions | 5.5% | 4.7% | 15.9% |
| - Liabilities towards non-resident financial institutions | 4.3% | 63.1% | 24.7% |

Note: banks classified into particular groups on the basis on their funding structure at the end of March 2009 r.

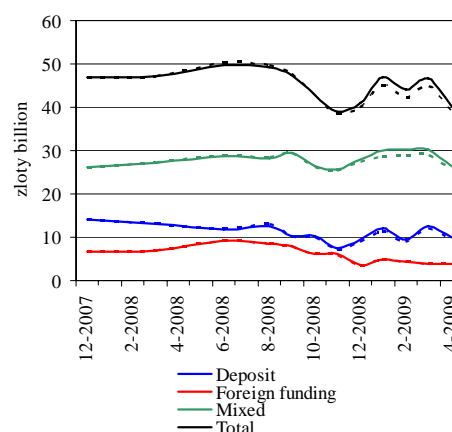
Source: NBP.

Figure 3.27. The liabilities of banks of particular funding structures towards other non-resident banks

Note: dotted lines denote values of liabilities, converted at the fixed foreign exchange rate of the end of December 2007

Source: NBP.

The growth in funding from parent banks led to a considerable increase in the share of liabilities towards non-resident financial institutions in the liabilities of the domestic banking sector (see Figure 3.29 and 3.30). This increase concerned

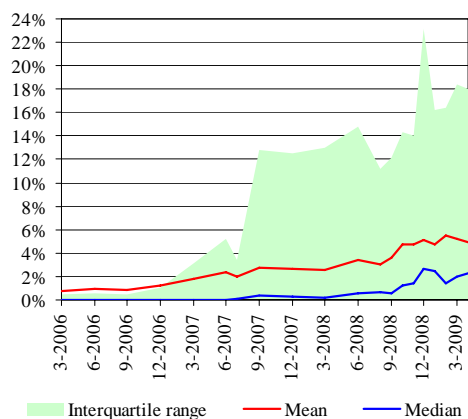
Figure 3.28. The liabilities of banks of particular funding strategies towards other resident banks

Note: dotted lines denote values of liabilities, converted at the fixed foreign exchange rate of the end of December 2007

Source: NBP.

long-term and short-term funding. At the end of March 2009, around 66% of liabilities towards foreign financial institutions were long-term liabilities.

Figure 3.29. Short-term liabilities towards non-resident financial institutions to assets



Note: to maintain comparability with previous periods, banks that started their operations after June 2008 were excluded from the calculations.

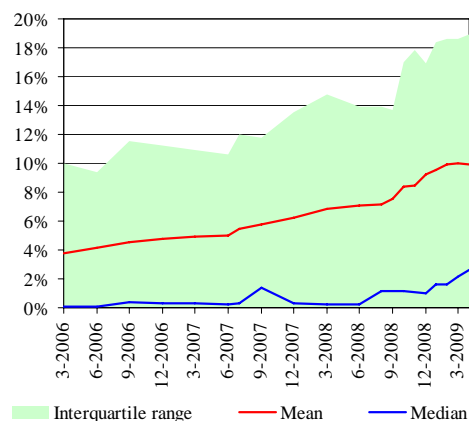
Source: NBP.

The fact that most of newly-raised foreign funding is provided by parent entities is favourable as it supports the stability of financing. The probability that the parent banks will not roll over funding to their subsidiaries is smaller than in the case of loans from non-related parties. Past experience does not confirm the concerns of some of market participants about the possible lack of rollover of foreign debt of Polish banks, the factor being indicated as having considerably contributed to the strong depreciation of the zloty observed after September 2008.

On the other hand, the risk of concentration of funding emerges, as stability and development of a bank operating in Poland is more and more contingent on the financial position of the parent bank. In the present situation, the risk is heightened, however the fact that public aid is provided to many parent banks limits the risk. The policies of supporting financial institutions and financial systems, implemented by other countries, are of major importance for the reduction of systemic risk in Poland. In this context, the

⁴⁸ Data shown in Table 3.8 refer to average interest on the entire portfolio of deposits for non-financial customers. More noticeable changes were visible in the interest on new deposits from households.

Figure 3.30. Long-term liabilities towards non-resident financial institutions to assets



Note: see Note to Figure 3.29

Source: NBP.

dispersed ownership structure of the Polish banking system is favourable, as it does not make systemic stability dependent on decisions taken in a single country (strategic investors from 15 countries, including from 13 EU states, are present in Poland, i.e. a bigger number of states than in other countries of the region).

Banks' responses to restricted access to funding in the interbank market and to problems with coverage (in the case of some banks) of the funding gap also included a sharp rise in demand for deposits of non-financial customers. Banks started to intensely compete for deposits of households, which led to an increase of the interest rate on deposits. As a result, the effective interest on liabilities towards non-financial customers rose significantly (see Table 3.8)⁴⁸.

Banks exhibiting a positive funding gap and applying a mixed funding strategy were particularly active on the deposit market (see Figure 3.31). Banks lacking a strategic foreign investor and banks whose strategic investors had serious financial difficulties also tended to offer relatively

Table 3.8. Effective interest on claims and liabilities in the banking sector

| | 12-2007 | 3-2008 | 6-2008 | 9-2008 | 12-2008 | 3-2008 |
|------------------------|---------|--------|--------|--------|---------|--------|
| Claims | 7.2% | 7.4% | 7.7% | 8.0% | 8.2% | 8.0% |
| - financial sector | 5.3% | 5.6% | 6.1% | 6.5% | 6.8% | 6.7% |
| - non-financial sector | 7.8% | 8.0% | 8.2% | 8.4% | 8.5% | 8.2% |
| - government sector | 6.9% | 7.4% | 8.1% | 8.7% | 8.7% | 8.5% |
| Liabilities | 3.1% | 3.3% | 3.6% | 3.9% | 4.1% | 4.1% |
| - financial sector | 4.6% | 4.8% | 5.0% | 5.1% | 5.3% | 5.0% |
| - non-financial sector | 2.5% | 2.7% | 3.0% | 3.2% | 3.5% | 3.7% |
| - government sector | 3.9% | 4.1% | 4.4% | 4.8% | 4.8% | 4.6% |
| Margin | 4.0% | 4.0% | 4.1% | 4.1% | 4.1% | 3.8% |
| - financial sector | 0.7% | 0.8% | 1.1% | 1.3% | 1.5% | 1.7% |
| - non-financial sector | 5.3% | 5.3% | 5.2% | 5.2% | 5.0% | 4.5% |
| - government sector | 2.9% | 3.3% | 3.6% | 3.9% | 3.9% | 3.9% |

Note: data annualised. Effective interest calculated as ratio of interest expense/income and value of the portfolio of liabilities and claims.

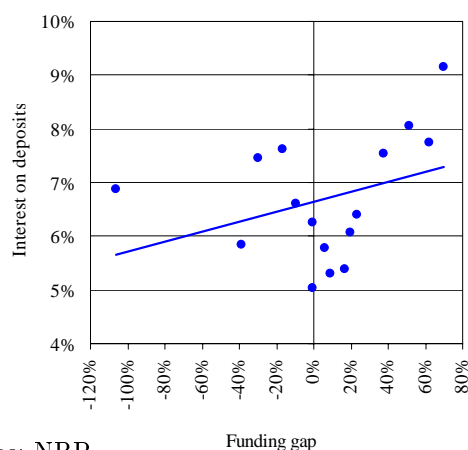
Source: NBP.

high interest rates on deposits.

The growth in competition in the deposit market could be seen in particular in the fourth quarter of 2008, which also resulted from the short-term outflow of funds from bank deposits of households in October 2008.⁴⁹ In an attempt to contain liquidity risk and retain customers' funds, banks raised their interest rates. Thus, developments on the deposit market can be analysed as an element of the long-term funding strategy, but also in the context of a short-term response to current market developments.

In the case of many banks, the interest offered on *new* deposits of households is higher than the interbank deposit interest rate. The situation can hardly last in the long term, because valuation of the majority of banks' assets is based on WIBOR rate. The rise in *average* deposit interest rate would strongly limit the current profitability of banks' loan portfolio and their capacity to internally accumulate capital.

⁴⁹ After accounting for the impact of exchange rate movements, in October deposits of households fell by 1.3 billion zloty month-on-month.

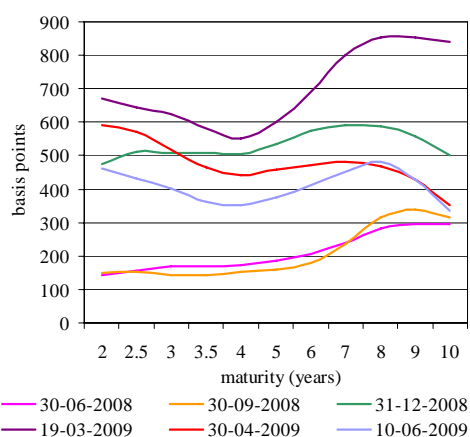
Figure 3.31. Interest on new term deposits of households and funding gap at selected commercial banks in December 2008

Source: NBP.

A possible further increase of the cost of foreign funding would have a similar impact. Despite the fall of the official interest rates of the central banks of Western European countries and of the United States, which had an influence on the

reduction of deposit rates in foreign interbank markets, the premium for counterparty risk - reflected in the difference between the deposit interest rate and the OIS rates - remains high and volatile (see Figure 2.3). The growth in Poland's risk premium (see Figure 2.9) and the fact that Polish banks were downgraded by rating agencies (which follows the similar downgrades of their parent entities) also contributed to the increase in the cost of foreign financing of Polish banks. The high cost also relates to intragroup financing, which is the consequence of the high cost of financing of parent entities themselves.

Figure 3.32. Implied credit spread for Polish banks in the bond market



Note: implied credit spread denotes the difference between the theoretical yield on bonds issued in the euro area market by a bank operating Poland, with an A rating, and the IRS rate of corresponding maturity. Theoretical bond yields have been estimated on the basis of the yields on bonds issued by European banks with A ratings and Poland risk premium calculated on the basis of the quotations of CDS contracts on Polish Treasury Eurobonds.

Source: NBP calculations based on Bloomberg and Datastream data.

The scale of the potential impact of the devel-

⁵⁰ It does not seem that such phenomena had taken place, mostly due to the fact that deposit instruments tend to constitute merely a portion of bigger product packages targeted at corporate entities.

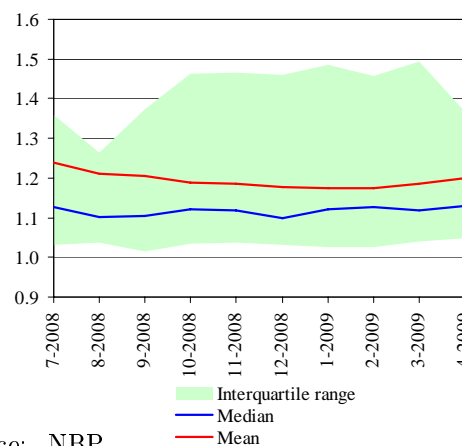
⁵¹ Resolution No 386/2008 on setting obligatory liquidity standards for banks.

⁵² The ratio of coverage of illiquid assets and limited liquidity assets with regulatory capital and stable external funds.

opments on the cost of foreign funding is shown by the consistent increase in the implied credit spread of Polish banks in the Eurobond market (see Figure 3.32).

Keeping corporate deposits is also becoming a challenge for banks. Admittedly, the fears voiced by certain banks of the possible outflow of corporate deposits to the countries where full deposit guarantees have been introduced or where such deposits are covered by the guarantees of bank guarantee funds did not materialise⁵⁰. Nevertheless, a decrease in the value of corporate deposits can be expected at banks, particularly when firms' access to credit is strongly restricted.

Figure 3.33. M4 liquidity ratio in commercial banks



Source: NBP.

According to banks' views, the liquidity risk standards introduced by the Polish Financial Supervision Authority⁵¹ are a major factor impacting their funding strategies. Under the regulations on the long-term liquidity ratio, the so called M4⁵², banks' regulatory capital and liabilities deemed as stable are required to exceed the sum of fixed assets and claims to the non-financial and general government sectors. Therefore, the smaller the ratio of loans to deposits,

whose stable part (the so-called core deposits) can be included by banks as stable external funds, the higher the M4 ratio. Most banks abide by the required M4 ratio set by the KNF (see Figure 3.33); some smaller banks funded by parent entities have problems with meeting the requirement.

Outlook

The funding gap of the banking sector can be expected to decrease in several quarters. Several banks exhibiting a positive funding gap have already signalled their plan to balance the portfolio of loans and deposits. If taken, these measures may reduce the growth rate of lending. When opportunities to further increase the deposit base are restricted⁵³ and very costly, banks may seek to decrease the funding gap through reduction of the asset side of their balance sheets.

3.4.2. Short-term liquidity

In the second half of 2008, the value of the short-term (one-month) liquidity gap⁵⁴ in the banking sector (see Figure 3.34) stabilized. The growth in long-term loans (mostly housing loans), which was one of the reasons of a strong widening of the gap in the first half of 2008, weakened. However, this has so far had no influence on the average maturity of assets, which was rising in the analysed period. At the same time, maturity of liabilities remained stable (see Figure 3.35).

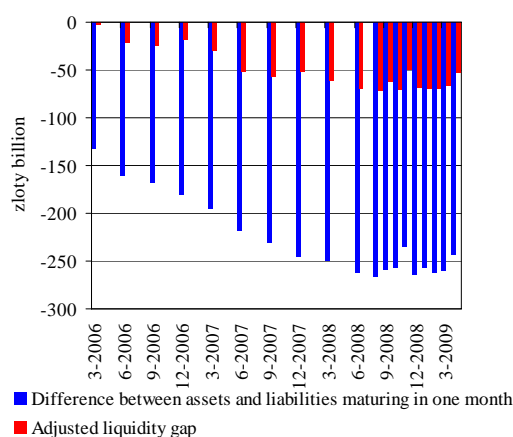
Short-term liquidity gap stabilised also as a result of banks holding more liquid assets. Banks kept more funds in NBP accounts or in the form of bills issued by the central bank. To some extent, transactions with the central bank substituted for transactions on the interbank market, both in terms of raising financing (repos) and investing short-term liquidity surplus (in the form of NBP bills and standing deposit facility). In

⁵³ The forecasted economic slowdown is likely to reduce the value of funds households and enterprises will place in bank accounts. In addition, it seems that banks have already absorbed majority of the funds outflowing from investment funds.

⁵⁴ For definition of short-term liquidity gap, see *Glossary*.

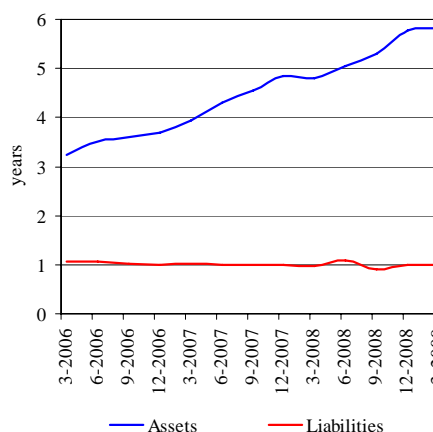
the case of certain banks, the rising number of transactions with the central bank may also have resulted from growing capital constraints and a bid to halt the fall of the capital adequacy ratios (via an increase of the share of transactions of a zero risk weight at the expense of loans).

Figure 3.34. Short-term liquidity gap



Note: For definition of the adjusted gap, see *Glossary*.
Source: NBP.

Figure 3.35. Average maturity of assets and liabilities at commercial banks

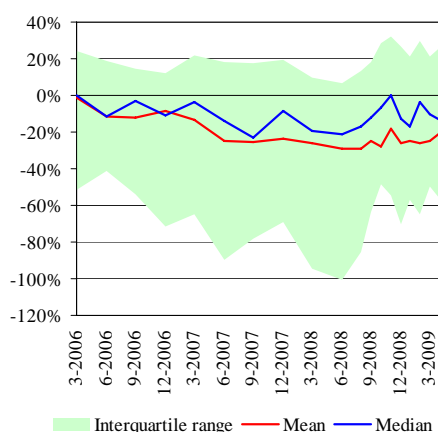


Source: NBP.

The growth of the adjusted (among others, adjusted for core deposits) gap was also reduced.

To some extent, this was the consequence of the changes in the composition of deposits of the non-financial sector. The intense competition of banks for term deposits of households led to an increase in the value of deposits, including deposits with the original maturities over 1 month.

Figure 3.36. Ratio of adjusted one-month liquidity gap to assets with maturity of up to 1 month

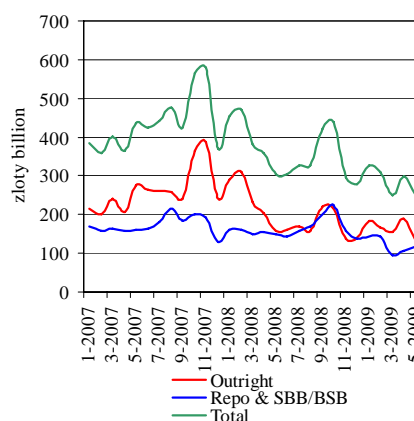


Source: NBP.

Banks increased their portfolios of Treasury securities which – if it is impossible to roll over maturing liabilities – can be used to obtain liquidity through outright sale, use in conditional transactions or as loan collateral with the NBP.

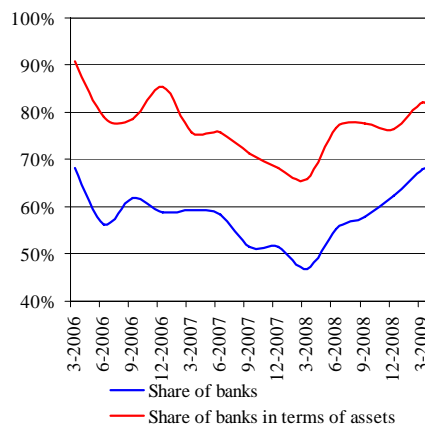
Against this background, the liquidity of the Treasury bond market is of major importance. Despite certain increases in the nominal values of conditional transactions (see Figure 3.37), the liquidity of the market decreased considerably in September and October 2008. Transactions were conducted less frequently, while the size of individual transactions markedly decreased. Following the period of the most serious turmoil in September and October, the situation on the market began to improve, but the liquidity of the Treasury bond market continues to be subject to large fluctuations. In the first five months of 2009, average turnover in outright transactions on the Treasury bond market was lower by around 30% than in the corresponding period of 2008.

Figure 3.37. Nominal value of transactions in the Treasury bond market in a given month



Note: value of conditional transactions calculated according to value of the initial leg of the transaction. Source: NBP calculations based on KDPW data.

Figure 3.38. Commercial banks with 100% coverage of the adjusted liquidity gap with Treasury securities



Source: NBP.

The share of the portfolio of Treasury securities in the assets of commercial banks rose from 13.4% at the end of September 2008 to 15.0% at the end of April 2009. This led to the enlargement of the group of banks with a full coverage of the adjusted liquidity gap (see Figure 3.38). This primarily applied to banks with a mixed funding strategy. Constraints related to obtaining funding on the interbank market, which increased liquidity risk, made these banks increase

their portfolios of liquid securities.

There is still a group of banks holding small portfolios of Treasury securities and maintaining a relatively large short-term liquidity gap. These are mostly branches of credit institutions operating in Poland and banks funded by their parent entities.

3.5. Banks' capital position and loss absorption capacity

The high growth rate of lending in the first three quarters of 2008 and the depreciation of the zloty in the fourth quarter of 2008 and in early 2009 caused the capital adequacy ratios to fall.

Banks' capacity to absorb losses that could arise from the deterioration in the quality of loans currently serviced in a timely manner diminished. The results of stress tests indicate that in case of an economic slowdown at a scale that considerably exceeds current forecasts some banks may be required to raise new capital.

The high earnings of banks generated in 2008 allowed them to increase their regulatory capital. The regulatory capital of domestic banks⁵⁵ increased by 13% from September 2008 to April 2009. It was mainly composed of core capital, i.e. the most stable element, which is favourable in terms of possible loss absorption capacity (see Table 3.9). The sector's core capital grew mainly as a result of inclusion of the profit generated in 2008 in regulatory capital.⁵⁶ In April 2009, fifteen commercial banks used this possibility, and the profit included in regulatory capital accounted for 7% of the regulatory capital of this group of banks. Regulatory capital also grew af-

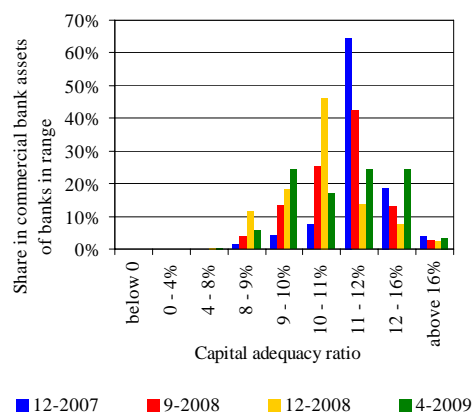
⁵⁵ Domestic banks, i.e. domestically controlled banks and subsidiaries of foreign banks, excluding branches of foreign banks operating in the territory of Poland. At the end of February 2009, the assets of domestic banks accounted for around 94% of the banking sector's assets.

⁵⁶ In accordance with Article 127 of the Banking Law Act, banks can include their profit from the current period and the profit awaiting approval, up to the amount verified by the auditor, in regulatory capital.

ter two new banks (of total regulatory capital of 1.3 billion zloty) had started their operations, as a result of a new share issue (by nine banks) with the total value of 0.8 billion zloty and of raising 1.8 billion zloty (by twelve banks) in subordinate debt. It may be expected that in the near future subordinated loans will be the preferred form of increasing banks' capital by their strategic investors, as the whole amount of interest on subordinated loans constitutes the revenue of the strategic investor.

The growth of regulatory capital stabilised the capital adequacy ratios. In the case of one small commercial bank, the ratio was slightly below the regulatory minimum of 8% at the end of April 2009 (see Figure 3.39).

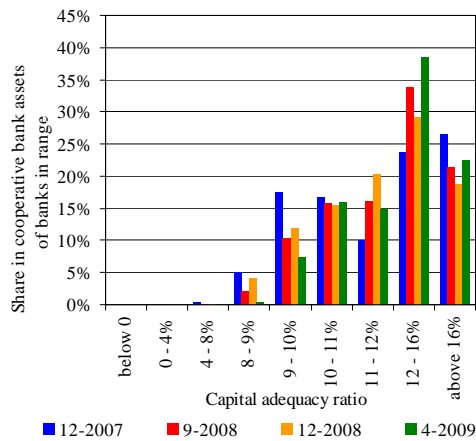
Figure 3.39. Assets of domestic commercial banks by the capital adequacy ratio



Source: NBP.

Cooperative banks exhibited higher capital adequacy ratios than commercial banks (see Figure 3.40). At the end of April 2009, two small cooperative banks had a capital adequacy ratio below 8%. As a result of the depreciation of the zloty, some small cooperative banks may face problems with keeping their regulatory capital above the regulatory minimum of 1 million euros.

Figure 3.40. Assets of domestic cooperative banks by the capital adequacy ratio



Source: NBP.

The growth structure of the banking sector's assets in the analysed period contributed to the stabilisation of capital the adequacy ratio (see Table 3.10). The growth in loans to non-financial sector⁵⁷ was accompanied by the increase in the value of Treasury securities that do not generate the capital requirement for credit risk. The

increase of the value of Treasury securities in banks' portfolios reflected the willingness of certain banks to increase their buffer of liquid assets. In the same period, banks reduced the value of claims on financial institutions, including foreign banks.

The observed decline of the capital adequacy ratios and the worsening economic outlook implies that banks will have to increase their capital, if they want to continue to expand their lending. If all commercial banks retained the whole profit generated in 2008, they would be able to extend approximately 45 billion zloty in loans to non-financial sector⁵⁸ (this translates into an around 8% increase of claims on the non-financial sector) and to keep their capital adequacy ratios at the March 2009 level.

Banks hold sufficient capital to meet the minimum regulatory requirements, but the decline of the capital adequacy ratios and the assessments presented below indicate that banks' capacity to absorb losses has diminished.

Table 3.9. Regulatory capital and the capital adequacy ratio of domestic banks

| | 2007 | 2008 | 4-2009 |
|---|------|------|--------|
| Regulatory capital (zloty billion) | 61.0 | 77.5 | 81.9 |
| - of which: core capital | 55.5 | 70.1 | 74.4 |
| Sum of capital requirements | 40.8 | 55.5 | 56.1 |
| - of which: against operational risk | – | 5.7 | 5.7 |
| Capital adequacy ratio (%) | 12.0 | 11.2 | 11.7 |
| Capital adequacy ratio taking core capital into account (%) | 10.9 | 10.1 | 10.6 |

Note: regulatory capital: core capital and supplementary capital, less any shortfall of specific provisions and the so-called regulatory deductions, plus trading book ancillary capital. The value of core capital for 2007 is not comparable with data for subsequent years due to changes in the reporting layout.

Source: NBP.

⁵⁷ The depreciation of the zloty was largely responsible for the increase of claims on the non-financial sector in the fourth quarter of 2008 and the first quarter of 2009.

⁵⁸ calculations based on the following assumptions: risk weight for new loans at 100%, no foreign exchange rate movements and risk weight of the present loan portfolio remains unchanged.

Table 3.10. Annual changes in the value of selected positions of assets, the capital requirement for credit risk and regulatory capital of domestic banks

| | 2007 | 2008 | 4-2009 | 2007 | 2008 | 4-2009 |
|-------------------------------------|--------------------|-------|--------|--------|-------|--------|
| | (in zloty billion) | | | (in %) | | |
| Assets, of which: | 100.2 | 225.0 | 232.1 | 15.2 | 29.6 | 28.4 |
| - non-financial customers | 99.6 | 152.0 | 166.2 | 32.5 | 37.4 | 37.5 |
| - financial sector | -10.8 | -18.8 | -26.9 | -8.5 | -16.2 | -22.7 |
| - securities | -7.7 | 43.5 | 47.6 | -5.5 | 33.1 | 33.5 |
| Capital requirement for credit risk | 9.4 | 9.6 | 8.2 | 32.0 | 24.5 | 20.1 |
| Regulatory capital | 9.2 | 16.3 | 16.8 | 17.9 | 26.8 | 26.0 |

Source: NBP.

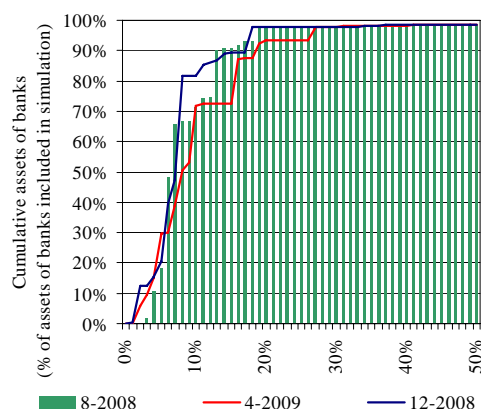
Simulations of loan loss absorption capacity

Three simulations were carried out to determine whether banks' capital is sufficient to absorb possible credit risk losses. The results of the first simulation (see Figure 3.41) provide an answer to the question of what scale of the deterioration in the quality of performing loans individual banks may absorb without the capital adequacy ratio falling below 8%.

The simulation performed on April 2009 data shows that banks' capacity to absorb losses has tended to diminish in comparison with mid-2008. This is reflected in the increase of the share of banks than can absorb only a relatively minor deterioration in the quality of loans. According to data as of April 2009, deterioration in the quality of 5% of loans would mean that banks with a 30% share in the sector's assets would record a capital adequacy ratio of or below 8%. In August 2008, an identical shock would have caused the capital adequacy ratio to fall below 8% at banks with a share of 18% in the banking sector's assets.

The decline of banks' loss absorption capacity largely stemmed from the increase in the capital requirements for foreign currency loans, related to the depreciation of the zloty⁵⁹ of the turn of 2008 and 2009.

⁵⁹ The capital requirement is based on the value of loan, expressed in zloty according to the current exchange rate.

Figure 3.41. Assets of commercial banks by percentage of performing loans whose impairment would lower the capital adequacy ratio to 8%

Assumptions of the simulation:

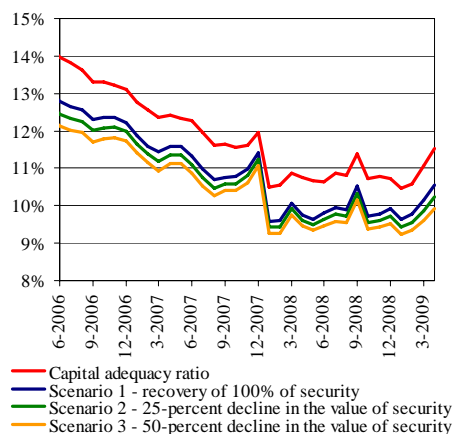
1. Impairment of the percentage of loans indicated on the horizontal axis means they are ascertained as 50% impaired.
2. Hypothetical charges to impairment provisions fully decrease a bank's regulatory capital.
3. Impaired loans carry a 100% risk weight.
4. No releases for impairment provisions.

Source: NBP.

The purpose of the second simulation was to determine the capital adequacy ratio in the case of an abrupt deterioration in the quality of loans with identified impairment and a decrease in the value of their collateral. The results of this simu-

lation may show whether the present portfolio of loans with identified impairment poses a threat to banks' capital adequacy. The first scenario assumes that the assessed impairment of all loans with identified impairment is equal to the value of unsecured portion of these loans. The second and third scenarios assume an additional decrease in the value of collateral by 25% and 50%, respectively.

Figure 3.42. Average capital adequacy ratio of commercial banks in scenarios assuming deterioration in the quality of impaired loans



Assumptions of the simulation:

1. The assessed impairment of all loans with identified impairment is equal to the value of unsecured portion of the loans.
 2. The portfolio of loans without identified impairment remains unchanged.
 3. Additional charges to impairment provisions fully decrease a bank's regulatory capital.
 4. In the case of Scenario 2 and Scenario 3, charges to impairment provisions are increased by the value of a decrease of collateral (25% of collateral value under Scenario 2 and 50% under Scenario 3.).
- Source: NBP.

The results of the simulation indicate that in 2008 and in the first months of 2009, banks' resilience to losses originating from the portfolio of loans with identified impairment did not change considerably, despite the growth in the value of the loans in the second half of 2008. (zob. wykres 3.42). However, as a result of the decline of the

capital adequacy ratios of some banks, in the most pessimistic third scenario, the capital adequacy ratios of eight banks would drop below 8%. Despite the reduction of banks' capital adequacy ratios, the potential impact of the portfolio of impaired loans on banks' capital adequacy is relatively low. This results from both a low share of these loans in the portfolio as a whole, and a fairly high ratio of impaired loans coverage with impairment provisions (around 63%).

The third simulation was designed to assess the effect of a simultaneous bankruptcy of the banking sector's three largest non-financial borrowers (according to end of February 2009 data). These are enterprises from power and telecommunications sectors. The simulation assumes impairment at 100% in the case of all the loans extended to these enterprises⁶⁰ and that costs of provisions decrease banks' regulatory capital, which results in a fall of their capital adequacy ratio.

The bankruptcy of the three largest borrowers would cause a considerable decrease in banks' capital, but its scale would not pose a systemic threat. The bankruptcy of these entities would affect 18 banks and would push up the costs of creating impairment provisions by around 7.3 billion zloty. This group of banks holds 67% of the banking sector's assets. In the case of three banks with a combined share of 5.7% in the sector's assets, the capital adequacy ratio would fall below 8%, of which in one bank its regulatory capital would be exhausted. A comparison of these results with the results of a corresponding simulation carried out on July 2008 data and presented in the last "Financial Stability Review" points to an increase of banks' sensitivity to exposures towards the largest borrowers. In the simulation performed on July 2008 data, the costs of provisions would amount to 4.3 billion zloty, and the regulatory capital of one bank would be exhausted. The sensitivity of banks rose following the increase of bank debt by the enterprises analysed.

A similar simulation was also carried out to ex-

⁶⁰ The calculations account for available data on loans' collateral accepted by banks.

amine the impact that the bankruptcy of three largest financial borrowers might have on banks. In the simulation, account was taken neither of exposures towards subsidiaries and affiliates, nor towards other banks. Among the three largest borrowers, there are no institutions analysed in Chapter 4, i.e. insurance companies, investment funds, pension funds, investment fund management companies and pension fund management companies. Bankruptcy of the three largest borrowers would affect 16 banks and it would push up the costs of impairment provisions by around 5.2 billion zloty. This group of banks held a total of 65% of the banking sector's assets. In the case of three banks with a combined share of 11.5% in the banking sector's assets, the capital adequacy ratio would fall below 8%. A comparison of these results with the results of the simulation performed on July 2008 data shows there were no major changes in banks' sensitivity to exposures towards this group of borrowers (in the simulation performed on July 2008 data, additional costs would be 4.7 billion zloty, and the regulatory capital of one bank would be exhausted).

The results of the simulation point to the important role of the financial position of the group of largest borrowers for the safe operation of the banking sector, and suggest the existence of a relatively high concentration of the portfolio of claims on non-financial customers at some banks.

The simulations indicate that the hypothetical losses originating from the impaired loans portfolio could be absorbed by most of the banks without a fall in the capital adequacy ratios below 8%. At the same time, however, banks' sensitivity to the deterioration in the quality of loans serviced currently in a timely manner is growing. Banks' sensitivity to losses originating from this portfolio has been rising since 2006, which is due to the high lending growth rate that exceeds the growth rate of banks' capital.

Macro stress tests

Macro stress tests were also used to assess banks' capacity to absorb possible loan losses that might arise from the deterioration in economic conditions. The tests are not designed to present the most likely developments in the banking sector, but only to analyse the possible effects of hypothetical negative shocks.

The simulation analysed a shock scenario that included a recession in the euro area and a slow-down of private consumption in Poland related to a contraction of credit supply by banks. The NECMOD⁶¹ model was used to assess the impact of the analysed developments on Poland's economic situation. The paths of macroeconomic variables in the shock scenario formed the basis for the conditional forecasts of the impact of macroeconomic condition on banks' loan losses. This was done using panel models explaining the development of charges to provisions for impaired loans at the level of individual commercial banks. The GDP projection from the June "Inflation Report" is the point of reference in the simulation (baseline scenario). In the shock scenario, the Polish economy reports a fall in real GDP in the years 2009 – 2010. Due to the worsened outlook for Poland's main trading partners, the simulation also analysed the scenario based on the European Commission forecast of May 2009. However, the latter is not considered as the most likely scenario.

The simulation includes the period till the end of 2010. Details of the results of the simulation are shown in Table 3.11, while a description of the analysed scenarios and the simulation procedures are contained in the Annex to this Chapter.

⁶¹ The multi-equation macroeconomic model of the Polish economy NECMOD has been developed for monetary policy purposes. The specification of the model was published in the paper "NECMOD - Description of the new forecasting model", www.nbp.pl, June 2008.

Table 3.11. Results of macro stress tests

| | 2008 | Simulation 2009-2010 baseline scenario | Simulation 2009-2010 European Commission forecast | Simulation 2009-2010 shock scenario |
|---|------|--|---|-------------------------------------|
| Impairment charges ¹ for loans (zloty billion) | 2.3 | 34.7 | 45.7 | 61.2 |
| - of which for loans to enterprises | -0.2 | 19.7 | 26.8 | 33.8 |
| - of which for loans to households | 2.5 | 15.0 | 18.9 | 27.4 |
| Impairment charges expressed as percentage of value of regulatory capital at the end of 2008 (in %) | 3.3 | 50.4 | 66.2 | 88.6 |
| Average yearly impairment charges expressed as percentage of 2008 pre-impairment income (in %) | 11.4 | 84.5 | 111.1 | 148.6 |
| Value of capital increase necessary to ensure that all banks have capital adequacy ratios above 8%, assuming a fall in pre-impairment income of 10% in relation to 2008 (zloty billion) | n/d | 0.4 | 0.8 | 4.1 |

1. In this Table, the term "provisions" is understood as the difference in the stock of provisions between the beginning and the end of a given period.

2. Net operating income before provisions - net income from banking activity, less general expense and depreciation.

3. The simulation assumes a fixed value of loan portfolio in the simulation horizon and earmarking the whole 2008 profit to increase banks' capital.

Source: NBP.

The results of the simulation indicate that in all scenarios a considerable increase in charges to provisions for impaired loans may be expected, resulting in the decrease of banks' earnings. The costs of credit risk in relation to assets in the baseline scenario (1.8% per annum) are somewhat higher than during the economic slowdown of the years 2001-2002⁶².

The simulation also accounted for the possibility of offsetting loan losses with bank's net operating income before provisions for impaired loans⁶³. In the baseline scenario, when a 10% decrease of the net operating income, defined above, was

assumed, four small banks would need to have their capital increased to keep the capital adequacy ratio above 8% (by a total of around 400 million zloty). In the scenario based on the European Commission forecast, nine banks would need to have their capital increased; however, the amount of capital increase is only slightly higher. In the shock scenario, if an identical income of banks is assumed, the amount of the hypothetical increase of banks' capital would be higher but would not exceed 6% of the regulatory capital of commercial banks. Under this scenario, the capital of 22 banks would have to be increased.

⁶² In 2001, net charges to specific provisions were 1.2% of assets and in 2002, 1.4% of assets.

⁶³ Net income from banking activity, less general expense and depreciation.

As there is significant uncertainty over the future quality of banks' portfolios, it is essential for banks to maintain high capital levels. The observed slowdown of economic growth follows a period when lending growth was rapid in an environment of loose lending policy, particularly in the segment of mortgage loans. This makes the quality of loans highly uncertain. The uncertainty is further enhanced by the lack of data on the repayment performance of certain categories of loans, among others housing loans, across the full business cycle. Thus, in order to ensure the stable operation of banks in the long run, it is desirable that banks maintain their capital at the level that allows them to operate safely even if the quality of loans substantially deteriorates. It is especially important due to accounting principles in force, as these make banks' establishment of provisions for credit risk contingent on past events. The announcement by the majority of banks to earmark the high profits generated in 2008 to increase their capital will allow them to enhance their capacity to absorb the effects of the economic slowdown. Banks' decision to increase their capital is also positive for the Polish financial stability outlook.

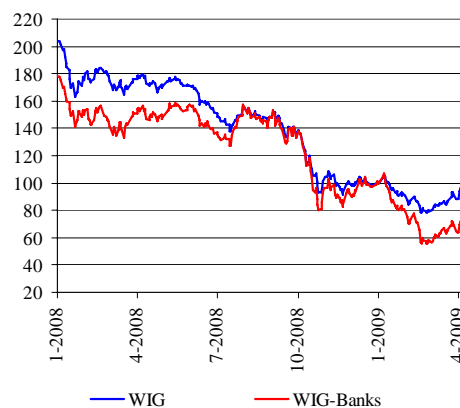
3.6. Market assessment of Polish banks and their parent entities

The ratings of the parent entities of Polish banks further worsened on the back of the deepening crisis in the global economy. The ratings of Polish banks were also downgraded as a result of the negative assessment of the parent entities. The market assessment of risk related to investment in Polish banks rose.

As the outlook for the Polish banking sector was worsening and Q4 2008 earnings were lower than forecasted, the share prices of Polish banks fell. From the beginning of 2009, the financial posi-

tion of the banking sector has been assessed by stock market investors as worse than other companies listed on the Warsaw Stock Exchange⁶⁴ (see Figure 3.43).

Figure 3.43. Sectoral index WIG-Banki against WIG index



Notes: stock exchange indices rescaled to 100 at the end of 2008. Indices' values as at the close of a trading session.

Source: NBP calculations based on www.bossa.pl

The low level of the "price to book value" indicator also shows that stock market investors expect banks' earnings to worsen. The median of the indicator for banks included in the WIG-Banki index was below one from the end of January 2009 to April 2009 and is still much lower than in January 2008 (see Figure 3.44). This indicates that investors discount possible losses of certain banks.

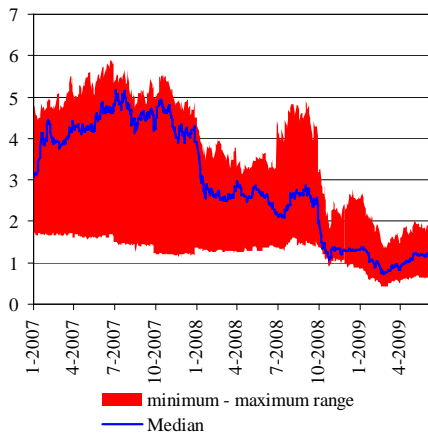
The more negative market assessment of banks did not only result from the financial position of Polish banks, but was also tied with fears about negative developments in the countries of Central and Eastern Europe. These fears led to the fall of the share prices of banks in the entire region (see Figure 3.45).

The share prices of banks also fell due to an increase in the global risk premium and strong declines in equity prices on the stock exchanges of

⁶⁴ WIG index fell from January 2009 to March 2009. In April and May 2009 WIG index increased and reached a level 12% above January 2009 levels. WIG-Banki index recorded a fall in the corresponding period (-15%)

developed countries (see Figure 2.12).

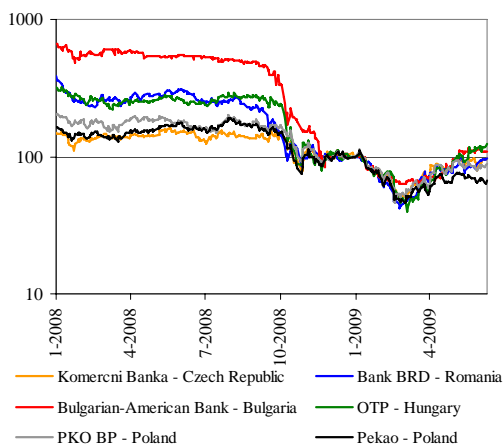
Figure 3.44. The "price to book value" ratio for domestic listed banks



Note: the indicator based on data of domestic banks comprising the WIG-Banki index, excluding BPH (given the bank's division) and Noble Bank (as a subsidiary of Getin Holding included in the WIG-Banki index).

Source: Bloomberg.

Figure 3.45. Stock prices of banks in Central and Eastern Europe



Note: share prices rescaled to 100 at the end of 2008. The Figure has a logarithmic scale.

Source: Bloomberg.

Rating agencies downgraded the outlook for long-term deposit ratings for most of Polish

banks. Initially, it was the result of negative changes in the ratings of parent entities of Polish banks. Due to worsening outlook for the Polish economy and Polish banking sector, Moody's decided on the 26th of May to put 8 Polish banks on watch list for possible downgrade. In consequence of this decision, ratings of 5 Polish banks were downgraded on the 18th of June 2009 (PKO BP, Pekao, BZ WBK, BGZ, Bank Handlowy). Fitch kept individual ratings on the same level for most of Polish banks. This shows that according to rating agencies, increased risk in the banking environment did affect the capacity of some Polish banks to operate as stand-alone economic entities.

Moody's financial strength ratings of Polish banks ranged from C- to D, with the median at D, whereas Fitch's individual ratings were between B/C and D, with the median at C/D.

As the position of the parent entities worsened, Moody's downgraded the long-term deposit ratings of six banks and short-term deposit ratings of four banks, whereas Fitch downgraded the long-term ratings of four banks and the short-term ratings of three banks (see Table 3.12).

Fitch rates the likelihood of providing support to Polish banks by their parent entities. In the case of most of Polish banks, support rating remains at top level. It results from the strategic character of investments in banks in Poland. Support rating for BZ WBK was lowered from 1 to 3 after the rating of its parent had been downgraded, which was related to the expected further deterioration in the quality of assets of the parent company as the crisis deepened.

State-owned banks controlled 17.6% of banking sector assets in March 2009. State Treasury, despite growing budget deficit, may have more capability and resources to recapitalise banks than private owners. State Treasury owns shares of corporations of substantial value and has a possibility to issue debt securities which carry zero risk weight.

Table 3.12. Ratings of Polish banks by Moody's and Fitch

| Moody's | Financial strength rating | Long-term deposit rating | Short-term deposit rating | Outlook |
|-----------------|---------------------------|--------------------------|---------------------------|-----------|
| PKO BP | C- (C) | A2 (A2) | P-1 (P-1) | STA (STA) |
| Pekao | C- (C) | A2 (A2) | P-1 (P-1) | STA (POS) |
| ING Bank Śląski | D+ (D+) | A2 (A2) | P-1 (P-1) | NEG (STA) |
| BRE Bank | D (D) | A3 (A2) | P-2 (P-1) | RUR (STA) |
| BZ WBK | D+ (C-) | Baa2 (A2) | P-2 (P-1) | NEG (STA) |
| Bank Millennium | D (D) | A3 (A3) | P-2 (P-2) | RUR (POS) |
| Bank Handlowy | D+ (C-) | Baa1 (A2) | P-2 (P-1) | NEG (STA) |
| Kredyt Bank | D (D) | A2 (A2) | P-1 (P-1) | RWR (STA) |
| BGŻ | D (D) | A3 (A2) | P-1 (P-1) | STA (STA) |
| Getin Bank | D- (D) | Baa3 (Ba2) | NP (NP) | NEG (STA) |
| BPH | D- (C-) | Baa2 (A3) | P-2 (P-2) | RUR (RUR) |
| Lukas Bank | C- (C-) | A2 (A2) | P-1 (P-1) | RUR (STA) |
| BRE Hipoteczny | D- (D-) | Baa3 (A3) | P-3 (P-2) | RUR (STA) |
| Fitch | Individual rating | Long-term rating | Short-term rating | Outlook |
| Pekao | C (B/C) | A- (A) | F2 (F1) | NEG (STA) |
| ING Bank Śląski | C (C) | A+ (AA-) | F1 (F1+) | STA (STA) |
| BRE Bank | C/D (C/D) | A (A-) | F1 (F2) | STA (STA) |
| BZ WBK | C (C) | BBB+ (A+) | F2 (F1) | NEG (STA) |
| Bank Millennium | C/D (C/D) | A (A) | F1 (F1) | STA (STA) |
| Kredyt Bank | C/D (C/D) | A (A+) | F1 (F1) | NEG (STA) |
| Getin Bank | D (D) | BB (BB) | B (B) | NEG (STA) |
| BOŚ | D (D) | BBB (BBB) | F3 (F3) | STA (STA) |

Note: in brackets - ratings as of end of March 2008. For definitions of ratings, see *Glossary*. Kredyt Bank decided to terminate agreements to provide rating services with Moody's (on 11 March 2009) and Fitch (on 30 March 2009). The Table shows the final ratings of Kredyt Bank before its decisions to terminate agreements with the two rating agencies. Banks ordered by value of assets.

Source: www.moody.com, www.fitchpolska.com.

The share of Polish banks in the profits generated by their banking groups is higher than it follows from their size and importance in the group, by share in assets (see Table 3.13). On average, Polish banks generated 8.6% of the net income of their banking groups. For some banks, this share is much larger. In terms of profits generated in their groups and assets, the importance of Polish banks rose in comparison with December 2007.

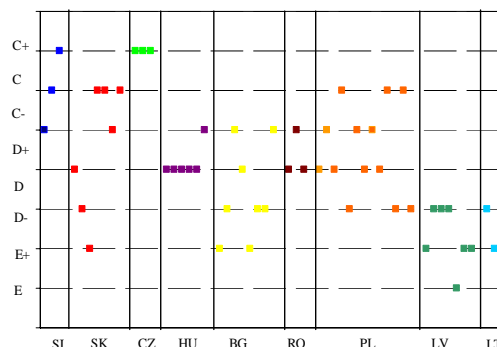
The high profitability of Polish subsidiaries is a good reason for their parent entities to support them with capital and liquidity, where nec-

essary. In the hypothetical case of lack of support, the reputation of parent entities would materially suffer. The negative changes in the assessment of the financial position and the long-term rating outlook related to banks in all the countries of Central and Eastern Europe. Comparing to other countries of the region, the financial strength of Polish banks is average (see Figure 3.46). The worsening economic situation in the region's countries, as well as the lower rating of the financial position of the parent entities of the banks were the source of these changes.

Changes in ratings of the parent entities of Polish banks concern both the long-term ratings, rating outlooks and financial strength ratings of the banks (see Table 3.14). The changes resulted from the deterioration in the financial position of the parent entities of Polish banks and the deepening crises in their home markets.

The growth in the risk of default of the parent entities was reflected in CDS premia. In the first three quarters of 2008, the credit risk premium of parent banks rose as the crisis in the financial markets was spreading. The risk premium peaked in October 2008. As a result of state aid programmes launched by various governments and central banks, the risk premium began to decrease.

Figure 3.46. Financial strength ratings of Polish banks against the banks of the region



Source: NBP calculations based on www.moodyseurope.com.

Table 3.13. Share of Polish banks in the assets and net earnings of their parent companies

| Polish subsidiary | Share in assets | Share in net earnings | Parent company |
|--------------------|-----------------|-----------------------|-----------------------|
| Pekao* | 3.58% | 13.61% | Unicredit |
| ING Bank Śląski* | 1.45% | 4.38% | ING |
| BRE Bank* | 2.88% | 22.59% | Commerzbank |
| BZWBK** | 7.25% | 12.53% | AIB |
| Bank Millennium* | 12.06% | 53.52% | BCP |
| Bank Handlowy* | 0.74% | -1.90%*** | Citigroup |
| Kredyt Bank* | 2.56% | 43.27% | KBC |
| Raiffeisen* | 7.31% | 8.15% | Raiffeisen Bank |
| BGŻ** | 1.08% | 2.95% | Rabobank |
| GE Money Bank* | 1.03% | 0.38% | General Electric |
| Polbank* | 10.45% | 5.27% | EFG Eurobank Ergasias |
| Fortis* | 0.58% | 3.55% | Fortis |
| Nordea* | 0.91% | 1.40% | Nordea |
| Deutsche Bank PBC* | 0.18% | 0.18% | Deutsche Bank |
| BPH* | 0.44% | 0.26% | GE Corporation |
| Lukas Bank** | 0.21% | 4.21% | Credit Agricole |
| Average | 3.29% | 10.90% | |

Notes: *as of September 2008, **as of June 2008, *** Citigroup posted a loss in the period.

Source: NBP calculations based on Bloomberg data.

Table 3.14. Ratings of the parent companies of Polish banks by Moody's

| Parent company | Financial strength rating | Long-term deposit rating | Outlook | Polish subsidiary |
|-----------------------|---------------------------|--------------------------|-----------|--|
| Unicredit | C+ (B-) | Aa3 (Aa2) | STA (STA) | Pekao |
| ING Bank | C+ (B) | Aa3 (Aa1) | STA (STA) | ING Bank Śląski |
| Commerzbank | C- (C+) | Aa3 (Aa3) | NEG (STA) | BRE Bank |
| AIB | D (B-) | Aa3 (Aa2) | RUR (STA) | BZ WBK |
| BCP | C+ (C+) | Aa3 (Aa3) | RUR (STA) | Bank Millennium |
| Citigroup | C- (B) | A3 (Aa3) | STA (STA) | Bank Handlowy |
| KBC | C+ (brak) | Aa3 (Aa2) | NEG (NEG) | Kredyt Bank |
| Raiffeisen Bank | D+ (C) | A1 (Aa2) | STA (STA) | Raiffeisen Bank Polska |
| Rabobank | B+ (B+) | Aaa (Aaa) | STA (STA) | BGŻ |
| GE Corporation | brak (brak) | Aa2 (Aaa) | STA (STA) | BPH, GE Money Bank |
| EFG Eurobank Ergasias | C (C+) | A1 (Aa3) | NEG (POS) | EFG Eurobank Ergasias Branch in Poland (Polbank) |
| Fortis | C- (B-) | A1 (Aa2) | STA (STA) | Fortis Bank, Dominet Bank |
| Nordea | B (B) | Aa1 (Aa1) | STA (STA) | Nordea Bank |
| Deutsche Bank | B (B) | Aa1 (Aa1) | NEG (STA) | Deutsche Bank PBC |
| Credit Agricole | B- (B) | Aa1 (Aa1) | NEG (STA) | Lukas Bank |

Note: as of end of March 2008 - in brackets. For definitions of ratings, see Glossary. The data concern the group of those 20 largest commercial banks with a majority foreign shareholder.

Source: www.moodys.com.

In early 2009, as a result of concerns about the future of banks with strong exposures in Central and Eastern Europe, the CDS premia of certain banks began to rise again. For some banks, CDS premia reached the levels higher than in October 2008 or close to the March 2008 level. This implies a deterioration of the risk assessment of the parent banks, which may negatively impact the market risk assessment of their subsidiaries in Poland (see Figure 3.48).

The increase in CDS premia was accompanied by a strong decrease in the share prices of the parent entities of Polish banks. The share prices of certain banks reached their all-time lows. The

share prices fell between 35% and 97% since early 2008⁶⁵ for various parent entities. Such a low valuation of the companies shows that without public aid, some parent entities might not have survived as independent institutions.

The "price to book value" indicator for a selected group of parent entities also indicates the worsening of the assessments of banks' development prospects. The median of the indicator has remained below 1 since October 2008, in March 2009 it stood at 0.25 (see Figure 3.47). It is much lower than for Polish banks.

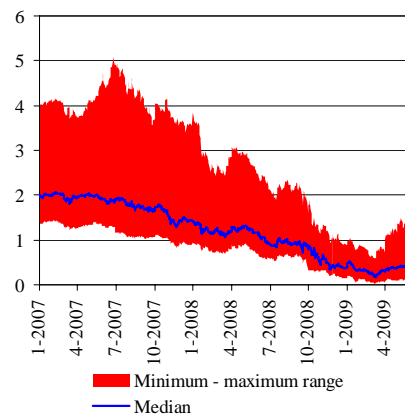
Mounting problems with obtaining market funding, pressures from other financial market par-

⁶⁵ Data for the period from 1 January 2008 to 10 June 2009

ticipants and poor earnings made certain parent entities request public aid in their home countries. This aid was granted primarily in the form of capital injections (see Table 3.15). Information about possible nationalisations of some banks also appeared (Citigroup, AIB and AIG).

The improvement of the financial position of parent entities, which came as a result of the intervention of governments and central banks of home countries, may benefit their subsidiaries through the enhancement of funding opportunities from parent entities, as well as the reduction of investors' concerns related to the financial position of capital groups of which Polish banks are members.

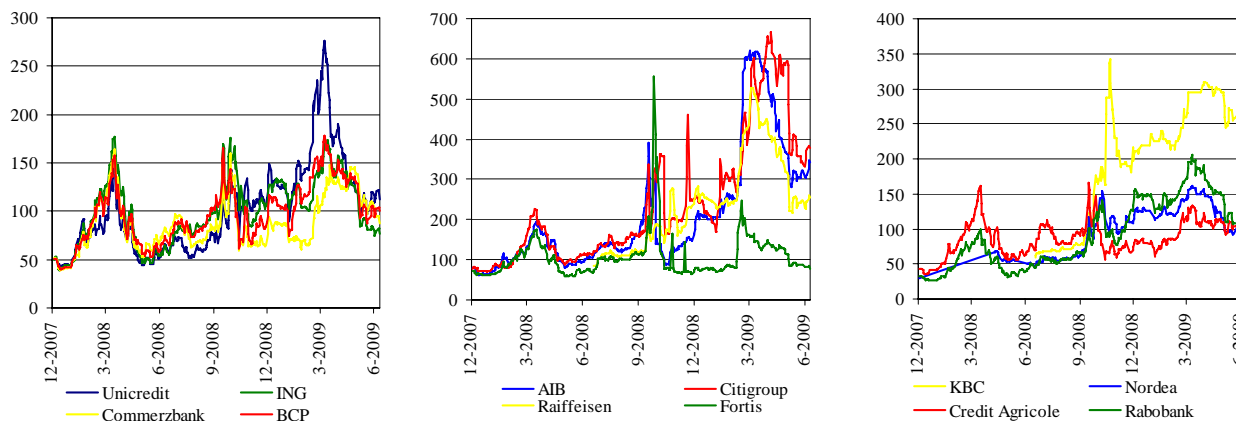
Figure 3.47. The "price to book value" ratio for selected parent entities of Polish banks



Note: the following banks were included: Credit Agricole, Fortis, ING, KBC, AIB, Commerzbank, BCP, Nordea, Citigroup, UniCredit.

Source: Bloomberg.

Figure 3.48. CDS premia for bonds of parent entities of selected Polish banks



Source: Bloomberg.

Table 3.15. Public aid for selected parent entities of Polish banks

| Parent company | Country | Polish subsidiary | Aid |
|------------------------|----------------------|-------------------------------------|--|
| Unicredit | Italy | Pekao SA | Unicredit declared that it will use EUR 4 billion support from a government support program |
| ING Bank | Netherlands | ING Bank Śląski | Government capital injection of EUR 10 billion (preferred shares) |
| Commerzbank | Germany | BRE Bank | Capital injection of EUR 18.2 billion from a government bank support scheme and credit guarantees amounting up to EUR 15 billion |
| AIB | Ireland | BZ WBK | Government capital injection of EUR 3.5 billion (preferred shares) |
| Citibank | USA | Bank Handlowy | Support from TARP (Troubled Assets Relief Program) - capital injection of USD 45 billion (preferred shares) and guarantees for risky assets amounting to USD 306 billion |
| KBC | Belgium | Kredyt Bank | Central government capital injection of EUR 3.5 billion and capital injection by Flandres regional government amounting to EUR 2 billion (additional EUR 2 billion is also set aside by Flandres regional government for KBC). Government guarantees against losses of up to EUR 20 billion, including EUR 2 billion of capital injection. |
| Raiffeisen | Austria | Raiffeisen Bank Polska | Capital injection from a government support fund of EUR 1.75 billion (preferred shares) |
| Fortis Bank | Belgium, Netherlands | Fortis Bank | Initial capital injection of EUR 11.2 billion by governments of Belgium, Netherlands and Luxembourg. Later – full nationalisation of the Dutch part of Fortis (outstanding shares bought for EUR 16.8 billion) and the Belgian part (EUR 4.7 billion) |
| Credit Agricole | France | Lukas Bank | Government capital injection (subordinated debt) of EUR 3 billion |
| Societe Generale | France | Euro Bank | Government capital injection (subordinated debt) of EUR 1.7 billion |
| AIG | USA | AIG Bank | Support of USD 152.5 billion (of which: Fed loan USD 60 billion, government capital injection through preferred shares (USD 40 billion, with additional USD 30 billion announced for this purpose), purchase of mortgage-related assets amounting to USD 52.5 billion) |
| Royal Bank of Scotland | United Kingdom | ABN AMRO Bank (Polska) SA | Government capital injection of GBP 20 billion (of which GBP 5 billion through preferred shares), asset guarantees up to GBP 325 billion through government Asset Protection Scheme |
| Dexia | France, Belgium | Dexia Kommunalkredit Bank Polska SA | Government capital injection by governments of Belgium, France and Luxembourg amounting to EUR 6.4 billion |

Source: Thomson Reuters.

Annex

3.7. Methodology of stress tests presented in the *Report*

Macro stress tests are one of the tools of the analysis of banking sector stability conducted at the NBP. These analyses are designed to determine the sensitivity of the Polish banking system to unfavourable changes in external conditions, which would result in banks' sustaining losses. The analyses consider scenarios with low occurrence probability but with a potentially significant impact on the functioning of the banking sector.

Impact of unemployment shock on households' capacity to service loans

The simulation assumed two scenarios of a rise in unemployment: a baseline scenario and a shock scenario. In the former, an increase of the unemployment rate was assumed to be in line with the NBP projection from the "Inflation Report - June 2009", i.e. an increase from 6.9% in Q4 2008 to 13.2% in Q4 2010. The latter scenario, constructed on the basis of a simulation using the NECMOD model, assumed an increase of the unemployment rate by 1.5 percentage points above the projection.

The simulation drew on the results of the study on the impact of a rise in unemployment on households' capacity to service loans, based on data on individual households from the GUS Household Budget Survey for 2007⁶⁶. The aim of the survey was to estimate the unemployment

shock-related rise of the percentage of household-borrowers with a negative margin.

Household margin was calculated as the difference between household's disposable income and its expense on debt repayment and basic living costs. Basic living costs were estimated as the product of household's equivalence scale⁶⁷ and the income threshold which makes a household eligible for application for social security benefits. A household with a negative margin is one that is unable to cover basic living costs and to repay its loan instalments from its current income.

The results of the simulation were estimated in two variants; in the first one, payment of unemployment benefit was taken account of and in the other it was not taken into account. In the former, income from employment was replaced by unemployment benefit, in the latter - unemployment benefit was not included in household's income. It seems that the results of both variants should be considered, as the period in which the benefit is paid out is short and it is paid out to a relatively small number of the unemployed.

GUS Household Budget Survey contains information on the value of service costs (instalments) of specific types of loans. Loan values' estimations are based on average interest rate and average maturity of housing loans and other loans.⁶⁸ (separately for the two types of loans). At the same time, it was assumed that loans are repaid in equal principal instalments.

Impact of zloty depreciation on credit risk of the portfolio of household loans

Indirect credit risk is present in the financial systems in which foreign currency-denominated loans can be drawn. It stems from the fact that it is may be very difficult to repay the debt taken

⁶⁶ See "Financial Stability Report - June 2008" for details of the study.

⁶⁷ The so-called OECD equivalence scale was adopted, i.e. this assigns a value of 1 to the first household member, of 0.7 to each additional adult aged 14 or more and of 0.5 to each child under 14.

⁶⁸ Banking statistics data on the average maturity of housing loans were used; for other loans the average maturity of 2.5 years was adopted.

out by the household in case of a rapid depreciation of the domestic currency. For borrowers, the weakening of the domestic currency translates into an increase of the amount of the debt taken out and into larger current principal and interest instalment service burden. For this reason, it is essential to periodically review the resilience of borrowers to an abrupt depreciation of the zloty.

Estimating the household margin is an appropriate method to review the resilience of households to defined shocks⁶⁹. By comparing available income with expenses of the individual borrower, this method can determine the amount of the financial surplus of the household under analysis. A household with a negative margin exhibits a bigger value of burden than the value of income it holds.

The results of the simulation and the estimates of actual situation as at the end of February 2009 were set on the basis of loan parameters and data on borrower's income levels available at BIK database. In line with this information, the value of principal instalment and the value of interest instalment at the end of February 2009 were calculated for each borrower. The calculations were made in line with market data (levels of interest rates and foreign exchange rates) available until the end of February 2009. Loan instalment value calculations are based on information and assumptions regarding the types of instalment, the amount of interest rate and frequency of interest rate movements. The following assumptions were made:

- loans' repayment in diminishing instalments was assumed,
- the rate at which a loan is repaid by the borrower is the loan currency-specific market rate from the interbank market, plus

spread,

- the value of spread was calculated as the difference between the interest rate reported by banks to BIK upon conclusion of an agreement with the borrower and the reference rate on the loan extension day,
- the interest rate of the loan changes once in three months.

The values of borrowing burden were increased with values of the monthly expense of each borrower. Given incomplete data on the value of monthly expenses, it was assumed that the value of monthly expenses equalled half of the amount which was a sum of ⁷⁰:

- the amount of statutory income threshold below which the household is eligible to apply for social security benefits ⁷¹, multiplied by OECD equivalence scale,
- rent amounting to 500 zloty.

Next, combined borrowing and expenses burden was compared with the level of available income. The simulation was supplemented with the scenario assuming indexation of households' income according to the index of the nominal wage in the corporate sector (indexes published by the GUS). The level of income was updated for each borrower from the last update of data on the borrower's income stored at BIK database to the end of 2008.

In order to estimate the effects of an abrupt depreciation of the zloty on the change of a share of households with a negative margin, the actual situation was compared with the calculations resulting from the assumptions of the shock scenario. The following assumptions of the shock scenario were adopted:

- interest rates at the 22 April 2009 level,

⁶⁹ See "Obciążenia gospodarstw domowych spłatami długu: rozkład i stress testy - na podstawie badań budżetów gospodarstw domowych GUS", Materiały i studia, No 221, NBP, 2007.

⁷⁰ The value of income and expenses reported by banks to BIK is given to the borrower. A borrower can be a single person or several persons. Therefore, the total amount of expenses is divided by two.

⁷¹ See The Social Security Act (Journal of Laws - Dz. U. No 64/2004, item 593).

- the same depreciation of the zloty relative to all currencies by around 18% (EUR/USD, EUR-CHF exchange rates etc. remain at the 27 February 2009 level.),
- the depreciation of the zloty to the EUR/PLN level of 5.5, CHF/PLN - 3.7 and USD/PLN - 4.3.

Impact of deteriorating economic situation on the financial position of banks

Deterioration in the macroeconomic situation may result in limiting the capacity of the customers of the banking sector - corporates and households - to repay debt taken out. Should the scale of this phenomenon be significant, banks would have to establish provisions for impaired assets at a scale that may have a major negative effect on their earnings. An analysis that used macroeconomic shock scenarios was conducted to assess the scale of macroeconomic slowdown-related threat to the financial position of banks

The simulation is based on econometric panel data models. In these models, the dependent variable is the ratio of the stock of provisions for impaired losses to value of the loans. The models are estimated for loans to households and loans to corporates, respectively. They were used in the simulations referred to in "Financial Stability Report – June 2008". These models can be used to assess the impact of macroeconomic scenarios on the cost of credit risk at the level of individual commercial banks. The simulation was conducted on the assumption that the value and composition of banks' assets over the simulation horizon were fixed.

The shock analysis was conducted as a four-stage procedure. Firstly, the "shock" scenario was defined and its impact on macroeconomic processes was examined using the Polish economy model

NECMOD over the period till the end of 2010. This scenario assumes that the economic slowdown in the United States will turn out to be much stronger than indicated by the present assessments and will result in a strong recession in the euro area. As a result, Poland's economic growth rate would also drop. Consequently, the growth rate of lending would also be lower as banks would probably significantly tighten their lending policy. Therefore, the shock scenario assumes that the tightening of lending policy will have a negative impact on private consumption, corporate investments and on the property market⁷². The GDP projection prepared for the June issue of "Inflation Report" is the point of reference (baseline scenario) for the simulation. As economic growth forecasts for the economies of Poland's main trading partners were revised downward, which enhances the risk of an occurrence of a lower economic growth than expected earlier, the *Report* also contains the results of the simulation based on the forecast unveiled by the European Commission in May 2009. However, this forecast is not considered to be the most likely scenario.

Table 3.16. Annual growth rate of GDP in analysed macroeconomic scenarios

| | 2009 | 2010 |
|------------------------------|-------|-------|
| Baseline scenario | 0.3% | 1.1% |
| European Commission forecast | -1.4% | 0.8% |
| Shock scenario | -2.3% | -3.2% |

Source: NBP.

In the second stage, conditional (taking account of the impact of the analysed shocks) forecasts of the impact of the macroeconomic condition on banks' loan losses were prepared; the NBP-developed panel models were used to forecast loan losses at the level of individual commercial banks. In the model of loan losses, they

⁷² A comparison of the path of GDP growth rate in the shock scenario with the fan chart presented in the "Inflation Report" indicates that the shock scenario path is close to the first percentile of the distribution of GDP growth paths. This indicates that, taking into account the uncertainty included in the fan chart, the probability of a more severe slowdown of economic growth than the one presented in the shock scenario is around one percent.

are explained both by macroeconomic variables (changes in the real WIBOR 3M rate, GDP growth rate), as well as by the characteristics of individual banks (composition of loan portfolio) and an autoregressive component.

The third stage of the simulation consisted in the calculation of banks' hypothetical earnings, with the adopted assumptions concerning net operating income before provisions for impaired loans. The simulation assumed that net operating profit before provisions decreased by 10% against the 2008 value. Such a decrease is comparable with the hypothetical decrease of net operating income before provisions as a result of lower interest income due to the deterioration of the quality of loans from the non-financial sector⁷³ at a scale corresponding to the results of the most pessimistic scenario presented. Banks' income was not accounted for in the simulation presented in

the "Financial Stability Review - October 2008". For this reason, the results of these simulations cannot be compared.

In the final stage, based on the hypothetical net operating income before provisions and the model-generated amounts of provisions for impaired loans, the value of banks' earnings that alters the value of their regulatory capital was calculated. At certain banks, the estimated provisions for impaired loans would exceed the amount of net operating income before provisions, which would decrease their regulatory capital. On the basis of the banks' hypothetical regulatory capital calculated in this manner, their capital adequacy ratios were estimated as well as the value of an increase of capital that would enable all the banks to maintain their capital adequacy ratios above 8%. Details of the simulation results are shown in Table 3.11 in Section 3.5.

⁷³ The growth in value of loans with identified impairment translates into the fall of banks' income by decreasing - *ceteris paribus* - the value of loans generating interest income.

Chapter 4.

Non-bank financial institutions

The operations of non-bank financial institutions in Poland, contrary to countries where financial system is more developed, focused on offering traditional financial and insurance services. Due to a relatively small scale of relationships between banks and non-bank financial institutions, their impact on the situation of banks in Poland is limited.

Price declines in the equity market have reduced profits of non-bank financial institutions significantly, in particular the profits of insurance companies and – to a far lesser degree – of investment fund management companies and pension fund management companies. However, their profitability remained relatively high. The deterioration in economic growth rate may negatively influence earnings of NBFIs, in particular, earnings of the insurance sector. The situation in investment fund management companies and pension fund management companies will also depend to a great extent on the situation in financial markets.

Non-bank financial institutions (NBFIs) form an important part of the financial system in Poland⁷⁴, but in terms of asset size banks are the dominating institutions (see Table 4.1).

In 2008, the value of NBFIs' assets declined as a result of the turmoil in the financial markets. Open pension funds (OFE) were relatively less hit by these developments due to the transfers of pension contributions from the Social Insurance Institution (ZUS), which were record high (21 billion zloty).

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

| | OFE | ZU | FI | Banks |
|------|-------|-------|-------|---------|
| 2006 | 116.6 | 108.6 | 99.2 | 681.8 |
| 2007 | 140.0 | 126.6 | 133.8 | 792.8 |
| 2008 | 138.3 | 138.0 | 73.7 | 1 041,3 |

Source: Chamber of Fund and Asset Management, KNF, NBP.

Unfavourable developments in the capital market contributed to high demand for "anti-tax" deposits and products guaranteeing return of cap-

⁷⁴ This chapter discusses the following largest sectors: institutions of the pension sector, insurance companies and institutions of the investment funds sector. Detailed information about all types of non-bank financial institutions in Poland is presented in Financial System Development in Poland (2007), NBP, Warszawa 2009., pp. 126-204.

ital, due to which funds entrusted to insurance companies (ZU) increased.

4.1. Influence of non-bank financial institutions on the banking sector stability

The current financial crisis across the world is first of all a crisis of the banking sector. However, the situation and the activities of non-bank financial institutions contributed to both the emergence of risks to the stability of the financial system and their increased scale. Box 4 describes the main channels of NBFIs influence on the financial stability in countries with more developed financial systems. In Poland, some processes described in the box are not present as banks do not follow the originate-and-distribute model, and funds obtained from NBFIs do not constitute an important funding source for banks (banks liabilities originating from the issue of own securities with original maturity of up to 2 years represented 0.3% of total liabilities as at the end of March 2009). The influence of NBFI on bank's situation is therefore far smaller than in countries with more developed financial systems.

The main channels of influence of non-bank financial institutions on the domestic banking sector, i.e. the credit channel, funding and liquidity channel, ownership channel and indirect market channel, are shortly presented below.

Credit channel

This channel is related to loans extended by banks to non-bank financial institutions. The risk connected with this channel is small due to a very low share of loans to pension funds and insurance companies as well as loans to investment funds in the assets of the banking sector. The

total share of loans extended to firms from these sectors is no more than 0.5% of bank assets.

Funding and liquidity channel

This channel is related to financing banks by non-bank financial institutions through their bank deposits and purchase of securities issued by banks. In 2008, the risk underlying this channel increased as there was an increase in the value of bank deposits of insurance companies (see chapter 4.2). The rise in insurer deposits was mainly due to an increase in the value of so called "anti-tax deposits". The share of deposits and other bank liabilities to insurance companies and investment funds in the liabilities of the banking sector remains relatively low – at the end of 2008 it amounted to 2.3% (1.4% – in the previous year).

The significance of insurers' deposits in banks funding will probably decline in 2009 as some insurance companies announced that they will limit the sale of "anti-tax deposits", which exhibit low profitability while generating capital requirements.

Bank deposits of investment funds still represented an insignificant portion of the liabilities of the banking sector (0.1% at the end of the first half of 2008).

Ownership channel

Losses incurred by non-bank financial institutions whose shareholders are banks may have a negative impact on earnings of the owners in the form of a decline in dividends paid by NBFI and a decline in the valuation of NBFI equity.

The influence of the ownership channel in terms of equity held by banks in non-bank financial institutions may be assessed as small. This is due to a relatively low value of these instruments held by banks compared to the value of their core capital. In case of pension fund management com-

⁷⁵ The value of total share of banks in the equity capital of pension fund management companies is estimated as the sum of products of banks' share in the pension fund management companies' share capital and the value of their total equity.

panies, the ratio of the value of shares held by banks in these institutions ⁷⁵ to the banking sector core capital does not exceed 0.5%.

The size of banks' equity stakes in insurance companies is also small. Only one bank is a majority shareholder of an insurance company. In addition, one bank holds 50% of shares of two insurance companies. As all these insurance companies have been established recently, their total share in the market ⁷⁶ is small and amounts to 0.3%. In addition to the above-mentioned three companies, banks also hold minority stakes in a few other insurance companies. The total share of banks in core capital of the insurance sector does not exceed 2%⁷⁷.

Banks' influence on the sector of investment fund management companies is stronger than in the case of pension fund management companies and insurance companies. Banks' capital ties with investment fund management companies are usually of an indirect nature. In these cases, banks are shareholders of brokerage houses or other entities, which in turn are direct owners of investment fund management companies. As at the end of 2008, the share of companies directly or indirectly controlled by banks in the investment fund market (measured by the share of net assets managed by the investment fund management companies in net assets of the whole sector of investment funds) amounted to 18%. A large share in the investment funds market (28%) was also held by two investment fund management companies where banks held large equity stakes in entities that were their owners (49% and 50%).

Revenues of investment fund management companies will probably decline in 2009 due to a fall in investment funds assets and the recent relatively low interest in this form of saving from customers. This may lead to a decline in dividends paid to controlling entities.

Indirect market channel

This channel is significant due to the large value of securities portfolios held by NBFIs. Equities and Treasury bonds represent a particularly large portion of these portfolios. If NBFIs are forced to sell large stakes of these securities, banks may incur losses resulting from the decline in market prices. Such a situation might occur if large insurance claims materialised, which would force insurers to sell a portion of their investment portfolio to obtain funds for payments of claims, or if customers withdrew funds from investment funds on a large scale.

The influence of NBFIs decisions via Treasury bond prices may be of the largest potential significance. These instruments form an important component of bank assets (10.8% as at the end of March 2009). The current influence of the indirect market channel on the banking sector resulting from NBFIs involvement in the equity market is slim due to a very low proportion of listed equities in bank assets (0.08% in March 2009). Potentially, however, it may become important as the decline in equity prices increases the cost of capital for banks in the stock exchange, which in view of the current situation may be of significant. In the analysed period none of the banks attempted to obtain capital in this manner.

⁷⁶ The share is calculated as the ratio of the gross written premium for these companies to gross written premium of the insurance sector.

⁷⁷ In calculating the size of this share equity held by the European Bank for Reconstruction and Development has not been taken into account.

Box 4. Influence of non-bank financial institutions on the stability of the banking sector

The main transmission channels, through which non-bank financial institutions influence the stability of banking system, and hence the whole financial system in such countries as the United States or euro area countries are: influence on the price of instruments traded on financial markets (so called indirect market channel) and the influence on banks short-term liquidity and funding liquidity management.

As a result of a decline in availability of debt funding and a deterioration in economic outlook for 2008 part of non-bank financial institutions in developed countries took measures to reduce investment risk. These measures were taken, among others, by large euro area insurers that reduced the average share of equities in their investment portfolios considerably.

Turmoil in financial markets in the second half of 2008 resulted in large redemptions in hedge funds and in some types of investment funds, mainly equity, bond and balanced funds. This made fund managers to sell their assets (including shares, corporate bonds and mortgage bonds), which was conducive to the decline in their prices. Therefore, there was an indirect impact of the above on earnings of all financial institutions that held similar assets.

The outflow of funds from hedge funds, coupled with the decline in the level of their financial leverage¹ and the reduction in investment risk by insurance companies limited the possibility of obtaining financing by banks through securitisation of assets. In previous years, hedge funds played an important role in the process of loan securitisation, being one of the main buyers of high-risk tranches of securities created in this process (among others mezzanine tranches). The decline in hedge funds involvement in securitisation transactions was conducive to banks retaining new credits in their portfolios which led to an increase in capital requirements for banks and a deterioration in their liquidity position.

The developments in the sector of insurance companies specialised in guaranteeing the repayment of debt securities also had negative implications for the financial stability. These companies are called monolines or financial guarantors. Their high ratings made it possible to raise ratings for securities whose repayment had been guaranteed by monolines, due to which the rating of the bonds could be higher than the rating of the issuer. In this way these companies facilitated obtaining financing and reduced its cost. Initially, the operations of monolines were limited to the municipal bond market. With time, however, they became involved in similar operations on a large scale in structured finance and securitisation. The high losses incurred by monolines on this market in 2007 and 2008 were the reason for significant downgrades in their ratings, in some cases to a speculative level. This also led to an automatic downgrade of ratings for securities guaranteed by them and a resulting decline of their valuation in balance sheets of financial institutions. The rating downgrade of securities held in bank portfolios also resulted in the rise of banks' capital requirements. Through the ownership channel, the monolines' losses had an adverse impact on banks that were their shareholders.

Money market funds had a strong influence on situation of banks in developed countries, in particular in the United States. The bankruptcy of the investment bank Lehman Brothers led to a decline in net asset value of some of such funds below the amount paid up by their participants

("breaking the buck"). The losses incurred by the participants of these funds resulted in large-scale redemptions in the entire sector of money market funds. Money market funds had to sell part of their assets, including short-term debt securities issued by banks and enterprises. Due to these developments, banks' capability to raise short-term funding on the money market were further constrained.

Most of the aforementioned transmission channels of non-bank financial institutions' influence on banks did not develop in the Polish financial system or materialized to a very limited extent. The first of the channels described above, i.e. indirect market channel, was an exception, mainly due to relatively large holdings of Polish stocks and Treasury bonds held by Polish and foreign non-bank financial institutions. Polish banks did not use asset securitisation as source of funding and did not have exposure to monolines. Therefore, the mechanisms related to the role of non-bank financial institutions in the process of credit securitization were not present in the Polish financial system. In addition, banks use short-term debt securities as a source of funding only to a limited extent.

¹ Financial leverage in hedge funds is defined as the ratio of their gross assets to capital .

4.2. Insurance companies

Earnings and their determinants

Good economic situation throughout most of 2008 supported growth of the sector of non-life insurance and other personal insurance (hereinafter: non-life insurance sector) (see Table 4.2). Fairly strong growth was, among others, also observed in the sales of car insurance policies that represent a large portion of the non-life insurance sector. In the life insurance sector, insurances with predominantly investment character, among others, the so called anti-tax deposits⁷⁸ had a significant contribution in sector's growth, as well as capital guaranteed structured products offered in the form of life insurance policy.

In 2008, earnings of the insurance sector were

strongly affected by the decline in the equity market despite an insignificant exposure of the insurance sector to this market (in 2008, the share of equity in insurance companies' investments amounted to 1.9%⁷⁹, and the share of investment fund participation units and certificates amounted to 3.2%). Excluding the result on equities, the pre-tax profit of the insurance sector would have been higher by around 22%.

A relatively high rise in profits of the non-life insurance sector in 2008 was caused by a factor unrelated to the sector's core activities, i.e. the payment of a high dividend for PZU S.A. by its subsidiary – PZU Życie S.A. If the dividend had not been taken into account, pre-tax profit and net investment income of the non-life insurance sector in 2008 would have been much lower than in the previous year (by 38% and 35%, respectively).

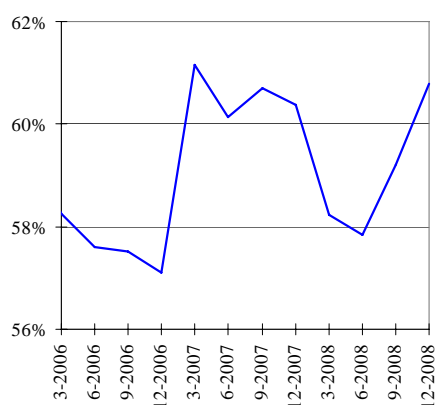
⁷⁸ In economic terms, these products are very similar to bank deposits but are offered in the form of life insurance policy, owing to which profits they generate are not subject to capital gains tax.

⁷⁹ The share does not account for equity of subsidiary companies held by insurance companies. Investments in the case of which the risk is borne by customers have not been taken into account, either. Net investment income on these investments does not influence insurance companies' earnings.

Table 4.2. Earnings of insurance companies (million zloty)

| | 2006 | 2007 | 2008 | Change in 2008 (in %) |
|--|--------|--------|--------|--------------------------|
| Non-life insurance sector: | | | | |
| - Gross premiums written | 16 425 | 17 984 | 20 284 | 12,8% |
| - Technical result | 1 574 | 1 235 | 741 | -40,0% |
| - Net investment income not included in technical result | 2 836 | 1 400 | 2 933 | 110,8% |
| - Net profit | 3 772 | 2 002 | 3 363 | 67,9% |
| Life insurance sector: | | | | |
| - Gross premiums written | 25 509 | 25 509 | 38 986 | 52,8% |
| - Technical result | 3 226 | 3 453 | 3 448 | -0,1% |
| - Net investment income not included in technical result | 316 | 600 | -340 | - |
| - Net profit | 2 882 | 3 287 | 2 580 | -21,5% |

Source: KNF.

Figure 4.1. Gross loss ratio in non-life insurance sector

Source: KNF.

The average loss ratio (main factor influencing the profitability of core operations in non-life insurance sector) in 2008 was similar to that of the previous year (see Figure 4.1). The decline in the technical result in 2008 should therefore primarily be attributed to a rise in insurance companies expenses related to the introduction, in

the fourth quarter of 2007, of the obligation to transfer part of premiums from automobile third party liability insurance policies (OC) (12%) to the National Health Fund. This change led to an increase in loss on insurance activity in the group of automobile third party liability insurance (OC) from 139 million zloty in 2007 to 693 million zloty in 2008. The technical result of remaining part of non-life insurance sector (except for the automobile third party liability insurance sub-sector) was higher by 4.4% in 2008 than in the previous year.

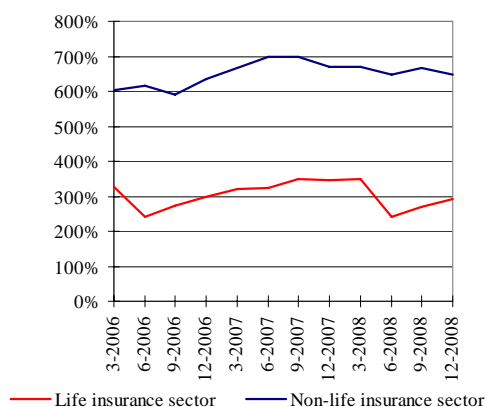
Solvency and capital position of insurance companies

The strong growth of the insurance sector, measured with gross written premiums' increase, was the reason for a decline of the capital adequacy ratio (activity monitoring ratio), especially in the life insurance sector (see Figure 4.2). However, the capital adequacy ratio still considerably exceeds the required minimum i.e. 100%: 2.9 times in the life insurance sector and 6.5 times – in non-

⁸⁰ The high excess of regulatory capital over the capital requirement in the non-life insurance sector mainly relates to the sector's largest company, where regulatory capital exceeded the capital requirement 12.4 times at the end of 2008. After excluding 5 largest non-life insurance companies, the ratio of own funds to the capital requirement falls to around 2.3 (source: NBP estimates based on KNF data).

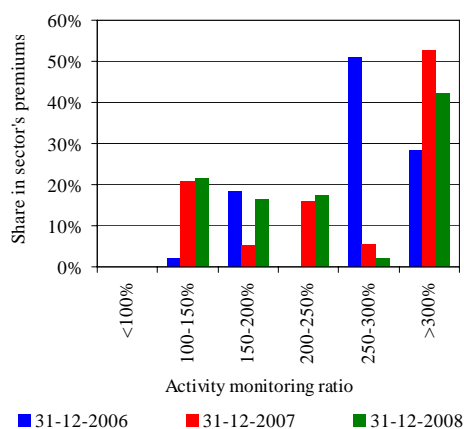
life insurance sector ⁸⁰.

Figure 4.2. Activity monitoring ratio in the insurance sector



Source: KNF.

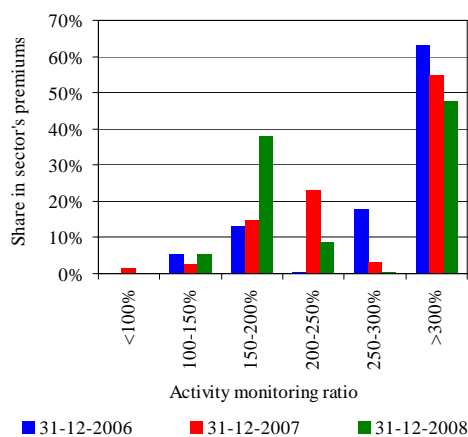
Figure 4.3. Distribution of activity monitoring ratio in life insurance sector



Source: KNF.

At the end of 2008, all insurance companies met the capital requirement and the requirement to cover insurance provisions with assets, as provided for in the Act on Insurance Activity (at the end of 2007 and in the course of 2008, a few insurance companies did not meet these requirements). The market share of insurance companies with activity monitoring ratios of 100–150% and 150–200% increased in 2008 (see Figures 4.3 and 4.4).

Figure 4.4. Distribution of activity monitoring ratio in non-life insurance sector

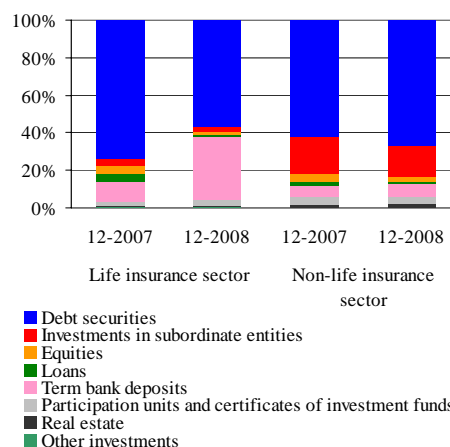


Source: KNF.

Investments of insurance companies

Investment risk taken by insurance companies is relatively low. The fraction of high risk financial instruments in investments, such as shares or participation units in investment funds, decreased in 2008 for another year in succession (see Figure 4.5). It should be noted that in the previous year it was much lower than the average for EU countries and other countries of the European Economic Area (3.5 times).

Figure 4.5. Structure of investments of insurance companies



Note: shares calculated without taking into account investments where risk is borne by customers.
Source: KNF.

Debt securities account for the majority of insurance companies investments. At the end of 2008, their share amounted to around 61% of the investment portfolio (68% a year earlier). Most of the debt securities (97%) are very low credit risk securities, i.e. securities issued, or guaranteed by the State Treasury or international organisations, of which Poland is a member.

The share of bank deposits in insurance companies' investments rose sharply from 8% to 22% in 2008. The rise in the value of these investments was mainly recorded in life insurance companies (from 4.3 billion zloty to 18.6 billion zloty), which was related to the increase in the value of the so called anti-tax deposits and structured products. Credit risk increased in life insurance companies as bank deposits represented over 1/3 of the investment portfolio at the end of 2008, while a year earlier it was only 11% (bank deposits of insurance companies are not usually highly diversified, in terms of the number of counterparties).

Outlook

The expected decline in the economic growth rate will have a negative impact on the insurance sector in 2009. The life insurance sector is particularly sensitive to changes in the economic situation. However, a deterioration in the economic situation will also have a considerable negative influence on non-life insurance sector's earnings. This will concern, among others, car insurance sub-sector in connection with an expected decline in the growth rate of second-hand car imports and new car sales.

From 2009, the obligation to transfer part of premiums from automobile third party liability insurance policies (OC) to the National Health Fund will be abolished, which will positively influence the technical result of non-life insurance companies. On the other hand, in August 2008, new regulations came into force which may lead to an increase in claims paid out from third party liability insurance policies (OC) (the so called in-

stitution of compensation for next of kin of the deceased ⁸¹). The impact of these factors on the earnings of the non-life insurance sector in 2009 is not likely to be significant as some of the owners of insurance policies are not aware the new regulations have come into force and, because - in disputed cases - it is necessary to open court proceedings before compensation is paid.

On the other hand, a fall in property prices and a decline in the value of newly extended housing loans will have a negative impact on insurance companies' revenues. In the case of housing loans, insurance companies have a possibility of selling several types of insurance policies, such as house insurance, bridge insurance policies and policies covering the shortfall in borrower's equity in housing purchase (for high-LtV housing loans), as well as financial insurance policies (among others, job loss insurance policies). The negative impact of the decline in property prices on the value of premiums written results from the fact that the amount of the premium is usually calculated as a specific percentage of the value of insured property.

The risk underlying job loss insurance contracts is that of increased cost of claims to be paid to the insured if unemployment goes up. It may be expected that in the context of a worsening situation in the labour market, individual borrowers and banks will use this type of insurance contracts to a greater extent than they have so far.

It is difficult to assess both the total value of loans insured and the size of the risk derived from this type of insurance contracts. In loan insurance policies, the insurance company is entitled to have recourse to the borrower whose liabilities related to loan servicing it has settled. The loan insurance market is largely concentrated; a major market share is held by a few largest companies.

The growth rate of sales of insurance products with predominantly investment character may be expected to fall in 2009. The factors contribut-

⁸¹ Art. 446 § 4 of the Civil Code.

ing to the fall are, on the one hand, a decline in the profitability of the so-called anti-tax deposits, driven by cuts in interest rates, and on the other hand, the fact that insurance companies may be less interested in offering these products due to an increase in the capital requirement their sale involves, and at the same time, their low profitability. The impact of the decline in the growth rate of premiums from unit-linked insurance policies and anti-tax deposits on the earnings of insurance companies will not, however, be significant due to a low profitability of these products.

An increase in perceived risk made some of insurance companies to take a decision to cut sales or cease to offer certain insurance products. This action concerns, among others, so called bridge insurance policies (housing loan insurance policies for the period until the borrower's entry in the Mortgage Register becomes valid) and policies covering the shortfall in borrower's equity for high-LtV housing loans. The decision was prompted by insurance companies' concerns about the deterioration of the quality of housing loans, which could lead to a rise in their loss ratio in the above mentioned type of insurance contracts. On the other hand, the concentration of credit risk (especially if an insurance company cooperates with only one bank when offering anti-tax deposits), the low profitability and increased capital requirement were the reasons why some insurance companies either withdrew or limited their offer of anti-tax deposits. The KNF took measures to limit the risk of concentration of the exposures in one entity by making the possibility of classifying assets to cover insurance provisions in cases of increased asset concentration in one entity conditional on having an appropriate excess of own funds over the capital requirement ⁸².

⁸² See the statement by the Office of KNF of 15 April 2009 on classifying assets covering insurance provisions available at www.knf.gov.pl

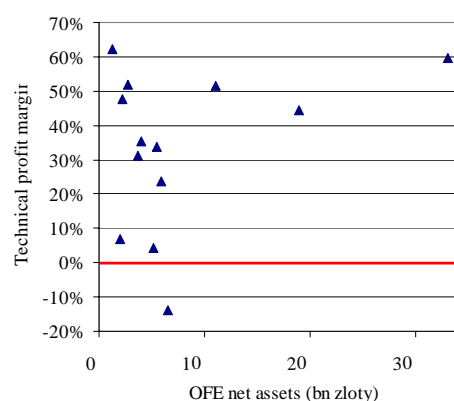
4.3. Pension fund management companies and open pension funds

Earnings of pension fund management companies

The year 2008 saw an improvement of earnings of pension fund management companies (PTE) that also maintained their technical profitability at a level approaching the 2007 figure. Revenues from open pension fund (OFE) management increased, mainly due to higher revenues from fees charged by PTEs on paid-in member contributions (see Table 4.3).

The technical profit of pension fund management companies on open pension fund management also increased, however the increase was much lower than in the previous year. The lower figure resulted primarily from PTEs' higher costs related to increasing their membership (costs of acquisition services, marketing and promotion). These changes halted the present upward trend of the technical profit margin ratio.

Figure 4.6. Technical profitability of pension fund management companies and value of the managed assets of open pension funds



Source: NBP calculations based on KNF data.

Table 4.3. Financial results and technical profitability of pension fund management companies (million zloty)

| | 2006 | 2007 | 2008 |
|--|-------|-------|-------|
| Revenues from OFE management | 1 513 | 1 737 | 1 900 |
| - revenues from member contributions | 960 | 1 056 | 1 232 |
| - remunerations for OFE management | 491 | 587 | 586 |
| OFE management costs | 866 | 961 | 1 056 |
| - obligatory costs | 404 | 426 | 428 |
| - other costs | 462 | 534 | 629 |
| Technical profit on OFE management | 647 | 776 | 844 |
| PTE net profit | 604 | 696 | 731 |
| Technical profit margin on OFE management (in %) | 43 | 45 | 44 |

Note: technical profit margin - relation of technical profit to revenues from open pension fund management.
Source: KNF.

However, an analysis of the profitability of pension fund management companies, based on the value of technical profit, may not be complete as costs of acquisition activities are not recognised in a uniform fashion in PTE financial statements. Some PTEs recognise all costs of acquisition services in the year they were borne, whereas they are distributed by other PTEs over two or more years. The manner in which acquisition costs are booked has an impact on the value of own capital reported by PTEs. Reporting acquisition costs on a one-off basis in the profit and loss account has an influence on the reduction of one item of own capital, namely the net earnings of a current year, by all acquisition costs. Therefore, should PTEs that distribute settlement of the costs over time change their accounting rules into one-off settlement in the profit and loss account, their own capital would be lower.

Due to noticeable growth in competition, which results, in the increase of the costs of acquisition services, marketing and promotion, an analysis of acquisition costs is of importance in the context of the assessment of the stable operation of PTEs. As the average value of funds ac-

cumulated in OFE members' accounts is rising, it is becoming more profitable for PTEs to acquire members who are already members of other OFEs than persons who have not joined OFE yet. Therefore, the increased number of transfers among PTEs was the result of heightened competition. In 2008, the number of members' transfers among OFEs reached its historical level when it exceeded 450,000 (an 18% rise in comparison with 2007). The acquisition costs borne by the pension fund management company that increased its membership most via transfers were so high that it was the sector's only PTE to report a loss and a negative technical profit margin on OFE management (see Figure 4.6).

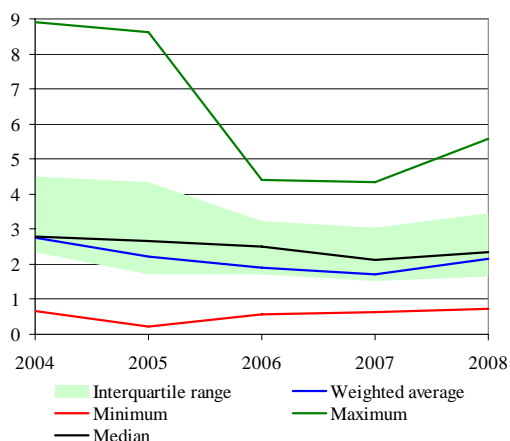
Minimum required rate of return of open pension funds

At the end of March 2009, all open pension funds generated negative 36-month rates of return; however, the fact that they were higher than the minimum required rate of return (MRRR) is of major importance for the stability of the PTE sector. This implies that although the results of

⁸³ Open pension funds' non-compliance with the MRRR does not imply that it is necessary for PTEs to use own funds to make supplementary payments. A deficit is in the first place covered from the reserve account, where funds from fund's asset management fee premia are held. In the second place, a deficit is covered with the so-called additional section of the Guarantee Fund. As a result of this action, a necessity may arise for a PTE to supplement funds in the

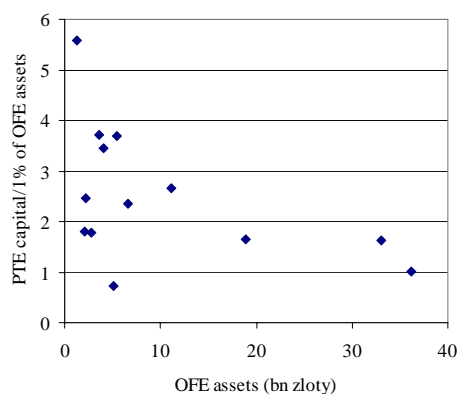
pension funds were generally worse, the supplementary payment risk of PTEs did not materialise⁸³.

Figure 4.7. Ratio of pension fund management companies' capital to 1% of the value of assets of open pension funds they manage



Note: values as at the end of the year.
Source: NBP calculations based on KNF data.

Figure 4.8. Ratio of pension fund management companies' capital to 1% of the value of assets they manage against the value of assets of the open pension funds



Note: data as at end of 2008
Source: NBP calculations based on KNF data.

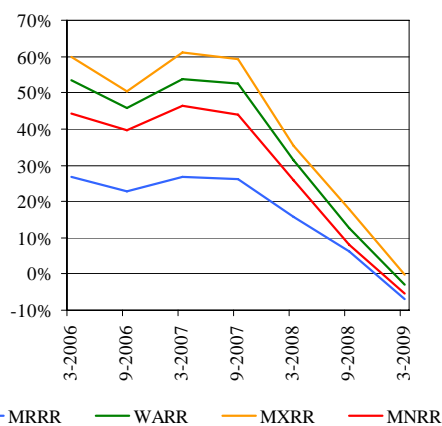
Due to an insignificant decrease of the assets of open pension funds, the capital buffer of pension fund management companies has slightly

Fund' additional section once they fall below the MRRR.

improved although it is still relatively low in comparison with the assets of open pension funds they manage (see Figure 4.7). The largest pension funds primarily exhibit the lowest levels of coverage of their assets with PTEs' own capital (see Figure 4.8). In the case of these funds, the fact that they impact the most the level of the MRRR helps reduce their risk of supplementary payments.

In the analysed period, the rates of return of some open pension funds came close to the statutory minimum level. The difference between the sector's lowest recorded rate of return and the minimum required rate of return decreased from 10.2 percentage points to 1.4 percentage points (see Figure 4.9). This increases PTEs' risk to make supplementary payments for non-compliance with the MRRR by the open pension funds they manage.

Figure 4.9. Rates of return of open pension funds



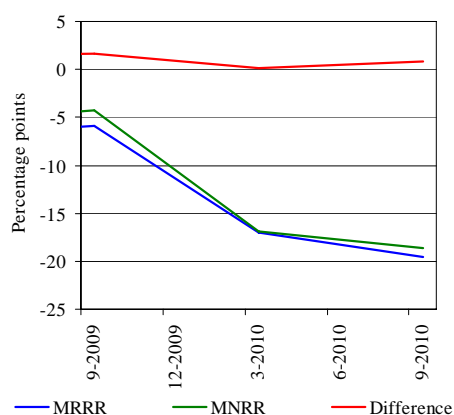
Note: MRRR/WARR/MXRR/MNRR - minimum required/ weighted average/ maximum/minimum rate of return of open pension funds.

Source: NBP calculations based on KNF data.

The results of a simulation which assumed that the value of all accounting units of all open pension funds would remain at the April 2009 level show that the value of the weighted average rate of return for the sector would fall from the end of March 2009 level of -2.9% to -13.0% and -

15.5% at the end of March 2010 and the end of September 2010, respectively (see Figure 4.10). The simulation indicates that under the assumption that no change in the value of accounting units against the end of April 2009 (i.e. assuming that unfavourable developments persist in financial markets), all pension funds continue to report rates of return higher than the MRRR over the simulation horizon (2009-2010), although in one instance the value of excess over the MRRR in late March 2010 amounts to merely 0.1%. In the same simulation conducted on the basis of the end of March 2009 value of accounting units, one pension fund failed to meet MRRR at the end of March 2010 and the end of September 2010.

Figure 4.10. Simulation of rates of return of open pension funds



Note: MRRR/MNRR - minimum required/ minimum rate of return of open pension funds.

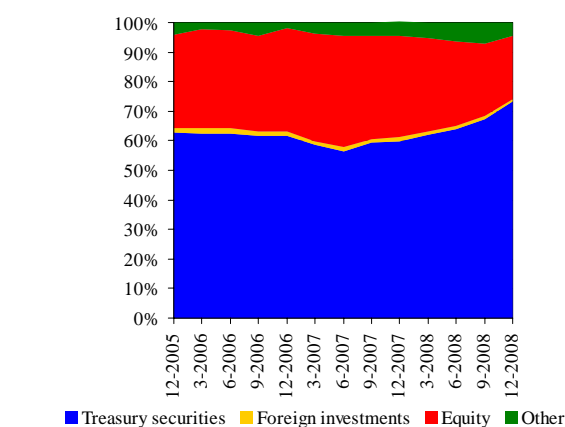
Source: NBP estimates based on KNF data.

Composition of OFE assets

The fall of share prices in 2008 led to a change in the composition of the portfolios of open pension funds, i.e. the share of Treasury debt securities in the portfolio increased (to 73% at the end of 2008) and the share of equities decreased. Other types of investment accounted for only a fraction

of the portfolio of OFEs (see Figure 4.11). It should be emphasized that unlike pension funds operating in the European Union and the United States, the composition of OFEs' portfolio was conservative and did not include, in particular, securities issued in the process of loan securitisation.

Figure 4.11. Composition of investment portfolios of open pension funds



Source: NBP calculations based on KNF data.

Outlook

In the future, the earnings of the pension sector may be affected if the government draft laws amending the law on the organisation and operation of pension funds and of the law on the organisation and operation of pension funds and certain other laws are signed into law⁸⁴. Amendments proposed in the government bill provide for a reduction of the maximum fee on contributions paid in to OFEs from 7% to 3.5% from the start of 2010⁸⁵ and setting the upper limit of 15.5 million zlotys on monthly PTE asset management charges.

⁸⁴ Earlier, two draft laws were lodged with the Polish parliament, also providing for a reduction of the maximum fee on contributions paid in to OFEs.

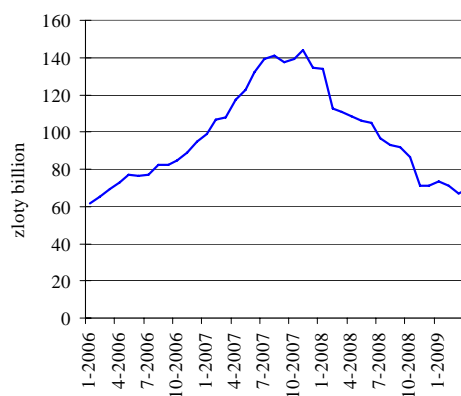
⁸⁵ At present, the relevant law in force also provides for a gradual reduction of the fee on contributions to the level of 3.5%, but the process is to be gradual and last until 2014.

4.4. Investment fund management companies and investment funds

Changes in asset value and net inflow to investment funds

The turmoil in financial markets negatively influenced the asset value of investment funds (see Figure 4.12). The cumulative decline in funds' assets since the beginning of 2008 to the end of the first quarter of 2009 has amounted to almost 50%. The factors that contributed to the decline in funds' asset value were falls in prices of financial assets, mainly equities, and the related redemptions from investment funds (see Figure 4.13). A rise in the returns on alternative investments, particularly bank deposits, also contributed to the outflow of cash from investment funds in 2008.

Figure 4.12. Net assets of investment funds



Source: Anality Online.

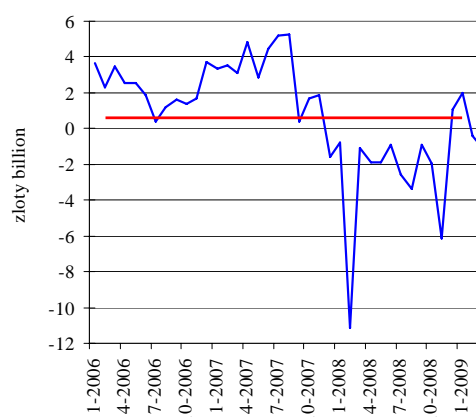
The redemptions in 2008 and at the beginning of 2009, were mainly the consequence of negative returns posted by funds. The largest losses were

⁸⁶ Source: Anality Online.

⁸⁷ Pursuant to art. 89 § 4 and 5 of the Investment Funds Act, a fund may suspend redemption of participation units for 2 weeks if in the period of the previous 2 weeks the total value of participation units redeemed by the fund and units the redemption of which has been required represents an amount exceeding 10% of the fund's asset value. KNF may prolong this period to a maximum of 2 months and the redemption may be carried through in instalments to be paid for the maximum period of 6 months.

recorded by equity and balanced funds. As at the end of the first quarter of 2009, the average fall in the value of participation units of Polish universal equity funds (not specialized in investments in shares of particular companies or companies from particular sector) in the period of the last 12 months amounted to -47%, and in the period of the past three years -35%. Average loss posted by customers of Polish universal balanced funds was 30% and 20%⁸⁶ respectively. Customers of a few bond and money market funds also recorded significant losses, which occurred due to a decline in the value of securities issued abroad and structured bonds.

Figure 4.13. Net inflow of cash to investment funds



Source: Anality Online.

At the beginning of 2009, valuation of units and redemptions in three open-end funds were suspended for the first time in the history of the Polish market. This resulted from the difficulties in valuation of structured bonds held by funds. Despite significant redemptions from investment funds, the option to suspend payments in case of large-scale redemptions from an open-end investment funds, provided for in the law on investment funds⁸⁷, was not used.

The decline in funds asset value resulted in winding up some of the funds. The management of funds whose assets under management are too low is unprofitable for investment fund management companies, as fixed costs, such as the cost of the custody and audit costs, have to be borne. Some investment fund management companies are considering mergers of smaller funds with other funds managed by the same fund manager.

Earnings of investment fund management companies

The decline in funds' assets was the main reason for a decrease in revenues and profits of investment fund management companies in the first half of 2008 (see Table 4.4). The fall in prices in the financial markets also had a negative impact on the amount of success fees for investment fund management companies provided for in the statutes of some funds. Notwithstanding a fall in the revenues of investment fund management companies in the first half of 2008, there was a small increase in return on operating activities (see Table 4.4), which was due to a simultaneous reduction in certain costs, such as advertisement and distribution costs. Advertisement expenses will probably rise only when there is a significant improvement in the situation in financial markets, particularly the situation on the equity market.

Prospects

The data currently available make it impossible to assess investment fund management companies earnings posted after June 2008 in an accurate manner. Market observation enables, however, to expect a continued fall in profits in the second half of 2008 and the beginning of 2009. It may be expected that investment fund manage-

ment companies will be forced to reduce costs. Among the sources of saving are, inter alia, marketing expenses and, to a smaller extent, personnel costs.

Due to the decline in fund asset value small investment fund management companies, which manage funds whose total asset value does not ensure reaching the break even point may face the most difficult financial situation. The share of funds managed by them in sector assets is, however, insignificant.

If the downturn in the financial markets persists, it may force consolidation or sale of smaller investment fund management companies. It is also possible that some small investment fund management companies will (in return for an adequate price) hand over the management of their funds to other investment fund management companies. If the extreme scenario materialises and some investment fund management companies are wound up or go bankrupt, their shareholders will suffer a loss. Such a situation should not, however, have a direct impact on the customers of funds managed by them (the finances of the fund and of the investment fund management company are separated and the maximum costs which are the burden of the fund, including the management fee for the investment fund management company, have to be laid down in its statutes). Pursuant to the Investment Funds Act, if an investment fund management company goes bankrupt or is wound up the management of its funds is first taken over by the custodian bank, and secondly – by the investment fund management company that has taken it over. If no investment fund management company is interested in taking over the management of the fund, the fund will be wound up and the proceeds from the sale of its assets will be distributed among customers.

Table 4.4. Earnings (in million zloty) and key ratios of the investment fund management companies sector compared with the average net asset value of investment funds

| | I half of 2006 | I half of 2007 | I half of 2008 | Change in the I half of 2008 |
|--|-------------------|-------------------|-------------------|---------------------------------|
| Revenues on operational activity, of which: | 1 119.7 | 2 070.7 | 1 626 | -21.5% |
| - Management fees | 913.8 | 1 712.8 | 1 556 | -9.2% |
| - Handling charges | 184.3 | 353.4 | 54.9 | -84.5% |
| Costs of operational activity | 837.4 | 1 512.1 | 1 179.3 | -22.0% |
| Pre tax profit | 294.9 | 588.1 | 483.9 | -17.7% |
| Net profit | 241.1 | 475.9 | 390.3 | -18.0% |
| Average monthly value of net as- sets | 73 049.7 | 120 977.8 | 106 539.9 | -11.9% |
| Pre tax profit margin on opera- tional activity | 26.3% | 28.4% | 29.8% | 1.4 pp. |
| ROE | 56.0% | 78.3% | 75.1% | -3.2 pp. |

Source: GUS, Analizy Online.

Glossary

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

Adjusted net interest margin – ratio of net interest income less interest income on securities held and net charges to provisions for impaired loans to assets.

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

Balance on technical insurance account – difference between income from premiums as well as the so-called other technical income and damages paid out, benefits and changes to technical and insurance provisions, the costs of pursuing insurance activity (*inter alia*, administrative and canvassing costs and the cost of acquisition), the so-called other technical costs and a part of income from deposits.

Banking sector – all commercial and cooperative banks as well as branches of foreign credit institutions operating in Poland.

Buy-sell-back – the agreement, in which one of the party agrees to assign the securities to other participants in exchange of fixed amount of money and obliges to repurchase the securities for given price plus interest. Interest earned on underlying securities during transaction are kept by investing party. The value of interest earned by temporary owner is included in the price of repurchased securities (*dirty price*).

Call option – derivative financial instrument that gives the buyer a right, but not an obligation, to buy underlying asset under given conditions. The seller is obliged to sell underlying asset under these conditions on the request of the buyer.

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

Capitalisation rate – the ratio of income from a property to its purchase price.

Consumer loans – *inter alia*, overdraft facility, credit card lending, instalment loans.

Continued activity – the part of business activity, that enterprise plans to continue in foreseeable future in the same scale.

Core deposits – the stable part of deposits of the non-financial sector. For the purpose of NBP analyses it is assumed that the proportion of core to total deposits amounts to 70% of the value of deposits. This level is the minimum amount reported by eight banks questioned by the NBP on their estimation of the stable part of deposits placed by non-financial entities.

Cost/income ratio – the ratio of operating expense to net income from banking activity.

Coverage of liabilities and loans with cash flows – ratio of cash flows from operating activities to the value of liabilities and loans.

Coverage of loans with cash flows – ratio of cash flows from operating activities to the value of loans.

Credit Default Swap (CDS) – a credit derivative whose seller undertakes to pay the buyer the face value of a third party's contractually specified defaulted obligation in case of a credit event pertaining to a third party (reference entity) in exchange for a premium. A credit event may be the reference entity's declaration of bankruptcy, a contractually specified change to the credit rating of the entity or a change to the rating of a specified debt security.

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

Delta – the indicator describing the rate of change of the price of option in relation to the change in the price of the underlying asset, defined as the first derivative of option's price against the price of underlying asset.

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

Discontinued activity – the part of business activity, that enterprise does not plan to continue.

Domestic banking sector – commercial banks and cooperative banks functioning in Poland (without subsidiaries of foreign financial institutions).

Earning assets – assets directly generating income, mainly, claims (excluding interest accrued) and securities.

Effective interest – the ratio of interest income (cost) to average value of claims (liabilities) in given period.

European Economic Area – covers the EU countries, Norway, Iceland and Liechtenstein.

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

Financial leverage – the ratio of liabilities to shareholders equity.

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.

Gamma – the rate of change of delta with respect to the asset price, defined as second derivative of option's price against price of underlying asset.

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

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

Individual rating – a measure of a bank's probability of default and need for support from third parties, as assessed by Fitch. This measure reflects the exposure of the financial institution to risks. This measure assesses: risk appetite and risk management of the institution, balance sheet structure as well as size of the institution and diversification of activity.

Interquartile range – the difference between the value of the third quartile and the value of the first quartile in the distribution of a variable.

Interest Rate Swap – transaction, under which two parties are obliged to exchange interest payments from given nominal amount for fixed term. Payments are settled in the same currency and valued with interest rate defined for each party. IRS rates presented in the *Report* are the values of fixed interest rate paid in exchange for floating interest based on WIBOR.

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

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

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

Loss ratio – the ratio of gross (i.e. before taking reinsurance into account) insurance claims paid, taking into account the changes in the stock of reserves for unpaid gross claims, to premiums earned.

Net charges / Net movements in provisions and valuation allowances – net charges to provisions less releases of provisions.

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

Net interest margin – the difference between interest income and interest expenses, divided by average assets in a given period.

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

Operating cashflow – the value of cashflow from operating activity. The value of operating cashflow was based on financial reports F-01, according to indirect method which adjusts net income as follows: net income + amortisation + change in the value of reserves - change in the value of stocks - change in the value of claims + change in the value of short-term liabilities + change in the value of accruals - change in the value of accrued liabilities - profit from sold investments + loss from sold investments - interest received (financial income) - dividends + interest paid (financial costs) - exchange gain + exchange loss.

Operating costs – the sum of bank's operating costs and amortisation

Overnight Index Swap – transaction, under which two parties are obliged to exchange interest payments from given nominal amount for fixed term. Payments are settled in the same currency and valued with interest rate defined for each party. OIS rates presented in the *Report* are the values of fixed interest rate paid in exchange for interest based on average O/N rate for the duration of the contract.

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

Price-to-book value – ratio of the price of one share of a company to accounting value of capital per share.

Put option – derivative financial instrument that gives the buyer right, but not an obligation, to sell underlying asset under given conditions. The seller is obliged to buy underlying asset under these conditions on the request of the buyer.

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

Sell-buy-back – the agreement, in which one of the party agrees to assign the securities to other participants in exchange of fixed amount of money and obliges to repurchase the securities for given price plus interest. Interest earned on underlying securities during transaction are kept by investing party. The value of interest earned by temporary owner is included in the price of repurchased securities (*dirty price*).

Support rating – measure of ability and willingness of parent entities and home country government to financially support the analysed institution.

Technical profit – 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.

Technical profit/loss of PTE from the management of OFE – difference between revenues from managing OFE (*inter alia*, fees from premiums paid-in and remuneration for OFE manage-

ment) and the costs of OFE management (*inter alia*, commissions for ZUS on premiums paid-in, the costs of acquisition, PTE general costs).

Value-at-risk –maximal loss that can be incurred in a given time horizon with given confidence level, estimated on the basis of historical data

Vega – the indicator describing the rate of change of the price of option in relation to the change in the volatility of price of the underlying asset, defined as the first derivative of option's price against the volatility of the price of underlying asset.

Abbreviations

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| BIK | Biuro Informacji Kredytowej |
| BSB | Buy-sell-back |
| CRD | Capital Requirements Directive |
| DEV | "Developing" rating outlook (conditional on certain events) |
| DNG | Rating under review for possible downgrade |
| ECB | European Central Bank |
| EEA | European Economic Area |
| EURO | Index of 50 large eurozone companies calculated by Stoxx Ltd – joint |
| STOXX 50 | venture of German and Swiss stock exchanges and Dow Jones & Co. |
| FI | Investment funds |
| GPW | Warsaw Stock Exchange |
| GUS | Central Statistical Office |
| IFRS/IAS | International Financial Reporting Standards / International Accounting Standards |
| IRS | Interest Rate Swap. |
| KDPW | National Depository for Securities |
| KNB | Commission for Banking Supervision |
| KNF | Polish Financial Supervision Authority |
| KSF | Financial Stability Committee |
| LtV | Loan-to-value ratio. Ratio of the amount of loan to the value of property on which security is established |
| MRRR | Minimum required rate of return |
| MSCI EM | Index of companies from 26 emerging markets calculated by MSCI Barra – a subsidiary of Morgan Stanley |
| mWIG40 | Index of 40 medium-cap companies listed on the Warsaw Stock Exchange |
| NBFI | Non-bank financial institutions |
| NBP | National Bank of Poland |
| NEG | Negative rating outlook – expected downgrade |
| OFE | Open Pension Funds |
| POS | Positive rating outlook – expected upgrad. |
| PTE | Pension fund management companies |
| ROA | Return on assets. Profit of an entity expressed as percentage of the average value of its assets |

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| ROE | Return on equity. Profit of an entity expressed as a percentage of the average value of its equity (in the case of banks, defined as regulatory capital) |
| ROEA | Return on earning assets. Profit of a bank expressed as a percentage of the average value of its earning assets. |
| RUR | Rating under review |
| RWR | Rating withdrawn |
| SBB | Sell-buy-back |
| STA | Stable rating outlook |
| sWIG80 | Index of 80 small-cap companies listed on the Warsaw Stock Exchange |
| TFI | Investment fund management company |
| UPG | Rating under review by agency for a possible upgrade |
| VaR | Value at Risk |
| WIG | Main index of the Warsaw Stock Exchange |
| WIG20 | Index of 20 large-cap companies listed on the Warsaw Stock Exchange |
| WIG-Banki | Index of banks listed on the Warsaw Stock Exchange |
| ZU | Insurance companies |