Financial Stability Report
July 2011
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. Banks play a crucial role in financing the economy and settling payments. They also perform another important function, by providing products that allow other entities to manage their financial risk. Therefore, special emphasis is put on the analysis and assessment of banking system stability.

Financial system stability is of particular interest of the NBP 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. Financial system stability is closely related to the primary task of the central bank, i.e. maintaining price stability. The financial system plays a key role in the transmission of monetary impulses to the real economy. Financial system instability may hamper the efficient implementation of the monetary policy. 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 necessary conditions for the smooth operation of payment systems is the stable functioning of financial institutions that are integral components of these systems.

The "Financial Stability Report" is primarily addressed to financial market participants as well as to other persons and institutions interested in the subject. The aim of the Report is to present conclusions from analytical and research work on financial system stability, including the assessment of its resilience to potential disturbances. Disseminating this knowledge should support the maintenance of financial stability through, among others, better understanding of the scale and scope of risk in the financial system. This enhances the probability of a spontaneous adjustment of the behaviour of those market participants that undertake excessive risks, without the necessity of public entities’ intervention into market mechanisms. Thus, the information policy of the central bank is an important instrument for maintaining financial system stability.

From this year on the full versions of the "Financial Stability Report", covering end-of-year financial data for all major types of financial institutions, will be published once a year in July. Additionally, as a supplement to the Report, the National Bank of Poland will publish a shortened analysis of the current standing of the financial system and risks to its' stable functioning at the end of each calendar year.

The analysis conducted in this Report is based on data available up to 20 June 2011. The Report was approved by the Management Board of the National Bank of Poland at a meeting on 7 July 2010.
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Chapter 1.

Assessment of financial stability and risk outlook

Since the publication of the previous Financial Stability Report in December 2010, the current situation of the banking sector continued to improve. The acceleration of Poland’s economic growth rate, observed since the first quarter of 2009, has contributed to the improvement of banking sector earnings. In the first quarter of 2011 the earnings of banks were only slightly lower than in the period prior to the global economic and financial crisis. There was a decrease in the costs taken on by banks resulting from the materialisation of credit risk accumulated in times of favourable economic conditions. Competition for stable funding sources also declined, slowing the growth of banks’ funding costs and exerting a positive effect on net interest margins.

Due to the distinctive nature of financial services, including insurance, provided by non-bank financial institutions (NBFIs) and the relatively minor degree of connections with banks, the impact of NBFIs on the situation of the banking sector in Poland is limited. Furthermore, the situation of the NBFIs sector does not pose major threats to financial system stability and the sector remains resilient to a potential deterioration of the conditions in which it operates.

Macroeconomic developments, especially in countries that are Poland’s major trading partners, remain one of the main risk factors for financial system stability. The trends in the world economy point to continued economic recovery, however, the difficult fiscal situation of certain euro area countries remains a source of uncertainty with respect to the future economic climate and situation in financial markets. Concerns over the solvency of euro area countries implementing restructuring programmes have been temporarily mitigated by measures undertaken by the EU and international organisations. The implementation of fiscal consolidation plans in these countries, aimed at ensuring long-term solvency, involves a high degree of uncertainty. Failure to achieve the set goals could lead to financial market disruptions and increased risk aversion. Such a course of events may result in slowed economic growth and an outflow of capital from emerging economies, which in turn would cause a deterioration in the terms of bank funding, particularly for banks with large portfolios of foreign currency loans.
The loss absorption capacity of Polish banks has improved, thanks to higher capital levels and maintaining high capital adequacy ratios. No bank required recapitalisation with public funds. The soundness of banks’ capital levels is confirmed by the results of macroeconomic stress tests, which indicate that a significant majority of commercial banks possess sufficient capital to absorb the effects of a serious economic slowdown. Even during a major economic slowdown, the majority of banks will maintain the capacity to generate a net operating income that would limit the negative impact of potential provisions for impaired loans on the level of capital. Despite improved loss absorption capacity of banks, the significantly higher risk of deterioration of the operating conditions of the Polish financial system implies increased risk to their stable functioning.

If macroeconomic risk does not materialise and economic growth in Poland stabilises, an easing of banks’ lending policies and excessive credit growth may become a long-term risk factor. The risk refers mainly to loans to households, especially housing loans. This may lead to the re-accumulation of credit risk on banks’ balance sheets, which would increase their sensitivity to negative shocks. A rapid growth of loans to households would be an undesirable development if it were to be funded by an inflow of capital to Poland. In this context the renewed growth of housing loans denominated in foreign currencies would be particularly undesirable. The negative consequences of foreign currency lending include, inter alia, increased credit risk arising from exchange rate fluctuations, as well as increased refinancing risk. Foreign currency lending is also currently accompanied by an unwelcome increase in the concentration of foreign funding in those domestic banks that are subsidiaries of European banking groups. However, the risk of excessive acceleration of credit within the next few quarters is low at present and has decreased since the publication of the previous edition of the Report due to supervisory actions and increased uncertainty regarding the economic growth outlook for the EU.

**Table 1.1. Synthetic assessment of domestic financial system stability**

<table>
<thead>
<tr>
<th>Area of assessment</th>
<th>Change since the previous edition of the Report</th>
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<tbody>
<tr>
<td>Banks’ current financial standing</td>
<td>▲</td>
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<tr>
<td>Banks’ shock absorption capacity</td>
<td>▲</td>
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<tr>
<td>Non-bank financial institutions’ current financial standing</td>
<td>▼</td>
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<tr>
<td>Outlook for economic environment of domestic financial system</td>
<td>▼▼</td>
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<tr>
<td>Synthetic assessment of outlook for domestic financial system stability</td>
<td>▼</td>
</tr>
</tbody>
</table>

Notes: ▲▲ - significant improvement, ▲ - improvement, ▼ - no change, ▼▼ - deterioration, ▼▼▼ - significant deterioration.
Source: NBP expert assessment.
Table 1.2. Main risk factors for domestic financial system stability

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Change in importance since the previous edition of the Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of a renewed economic slowdown, which may be accompanied by an increase in risk aversion and outflow of capital from Poland</td>
<td>▲</td>
</tr>
<tr>
<td>Funding risk and FX swap rollover risk due to capital outflow from Poland</td>
<td>▲</td>
</tr>
<tr>
<td>Medium term risk: risk of renewed excessive credit growth in Poland, especially in housing loans portfolio</td>
<td>▼</td>
</tr>
</tbody>
</table>

Notes: ▲▲ - significant increase of risk, ▲ - increase of risk, ▲ - no change, ▼ - decrease of risk, ▼▼ - significant decrease of risk.
Source: NBP expert assessment.

The most important factor affecting Poland’s macroeconomic situation and the operating environment of the Polish financial system was the slow recovery of the global economy following the severe financial and economic crisis of 2008-2009. In the fourth quarter of 2010 and first quarter of 2011, most EU countries and other developed economies recorded positive economic growth. However, many of these countries face necessary reforms of their public finances, due to high public sector deficits resulting from recession, counter-cyclical fiscal policy and need to support financial institutions with public resources.

The scale of economic recovery varies greatly in individual countries. Emerging economies are recording high economic growth compared to developed economies, while poor economic conditions continue to prevail in a number of euro area countries most seriously affected by the private sector debt crisis and fiscal problems. By contrast, European countries that focus their exports on developing countries (mainly Asian markets), are experiencing high economic growth, as e.g. in the case of Germany and Switzerland.

In the first half of 2011 there was increased uncertainty concerning the ability of certain euro area countries to service their debt in the medium and long term. These countries are confronted with the need to reduce macroeconomic imbalances, particularly large deficits in public finances and high levels of public debt, as well as excessive private sector debt accumulated during periods of favourable economic conditions. Investor confidence towards these countries remains low, as in their assessment, during the last six months the probability of a restructuring of Greek debt has significantly risen and remains very high. This precludes the possibility of refinancing Greek public debt in the open market. The establishment of the European Financial Stability Facility and European Financial Stabilisation Mechanism and assistance granted within their framework initially reduced concerns over the long-term solvency of the troubled euro area countries. However, as a consequence of difficulties in implementation of fiscal austerity programmes by the governments, an increase in the risk aversion of investors and financial market volatility remain a possibility. The pessimistic market sentiment regarding the solvency of these countries makes it difficult or even impossible for banks from such countries to secure market funding. The outlook for the solvency of these countries and the impact of a possible debt restructuring for financial institutions is currently affected by a high degree of uncertainty. Therefore, the risk to the stability
of the global financial system remains elevated. The growth rate of the Polish economy has steadied at a lower level than in the years preceding the crisis – in the fourth quarter of 2010 and the first quarter of 2011 it amounted to 4.5.

Poland’s economic growth outlook is similar to the assessment presented six months ago in the December Financial Stability Report. The NBP macroeconomic projection of July 2011 points to a stabilisation of Poland’s economic growth rate in 2011 (4.0).

During the last six months global financial markets were affected by the sovereign debt crisis in the peripheral countries of the euro area, in particular Greece, Portugal and Ireland. CDS premia on sovereign debt indicate that investors have a pessimistic outlook only with regard to the solvency of these three countries, which suggests that potential contagion effects would be limited. The reduced tensions in global financial markets, as well as the continuation of expansionary monetary policy in the world’s largest economies were conducive to the inflow of capital to the financial markets of emerging market economies. As opposed to the period of market turmoil, investment decisions of market participants were determined to a greater degree by local factors, and their approach to CEE markets was varied, depending on the economic outlook of individual countries. Sound economic fundamentals in Poland and a stable zloty exchange rate contributed to the substantial inflow of foreign investment to the domestic capital market.

The situation in the domestic money market has slightly improved since the previous edition of the Report. Turnover stabilised in the interbank deposits market, while credit risk premia fell. Overnight transactions continued to display the greatest liquidity. Turnover in the domestic FX swaps market also rose, while the deviation of FX swaps valuation from interest rate parity decreased. However, both of these markets are still not functioning fully efficiently. The short-term liquidity position of the banking sector remains favourable, although surplus liquidity is still concentrated within a small group of banks and its redistribution through the interbank deposits market continues to be limited.

In 2010 and the first quarter of 2011, the earnings of the banking sector improved significantly compared to the previous year. In the first quarter of 2011 the net profit of the banking sector was approximately 54.

The improvement of net profits in the analysed period was the result of the falling cost of credit risk and increasing net interest income, due to a slower increase in value of loans in arrears. The cost of credit risk was concentrated in the consumer loans portfolio. There was also a deterioration in the quality of housing loans denominated both in zlotys and foreign currencies, however, this remains the top category of loans in terms of quality. The higher cost of credit risk, compared to the pre-crisis period, is a natural consequence of the economic slowdown, but also most notably in the segment of consumer loans, a reflection of the lenient lending policy of banks in times of rapid lending growth. Due to the cyclical character of credit risk, its cost may be expected to remain at an elevated level until the financial position of enterprises and the situation in the labour market improve sustainably. The recent NBP macroeconomic projection suggests that such conditions may appear in the upcoming quarters.

The intensity of competition among banks for stable funding sources, particularly for household deposits, subsided slightly compared to the period analysed in the previous edition of the Report. The average interest rate for new deposits continues to be lower than interbank market rates, however, it remains at a relatively higher level than in the period prior to the crisis. The stabilisation of funding costs and higher loan spreads compared to previous periods contributed to a slight improvement of net interest margin. In order to increase stability and the scope of diversification of funding sources, the development of the market for bank-issued securities appears necessary. In the opinion of the
NBP, banks should be allowed to issue covered bonds, provided that they fulfill conditions ensuring a high quality of these instruments.

In the fourth quarter of 2010 and first quarter of 2011, banks slightly eased their lending policy with regard to loans to enterprises. In the segment of consumer loans, in the first quarter of 2011 banks did not change their lending policy. During previous quarters banks had tightened their lending policy, which was in part due to the implementation of Recommendation T. In the segment of housing loans, a tightening of lending criteria was accompanied by an easing of lending conditions, particularly lower loan spreads. For the past several quarters – as was the case in the period prior to the crisis – competitive pressure has been a factor inducing banks to ease their lending policy with regard to housing loans.

Tighter lending policies compared to the pre-crisis period contributed to a stabilisation in the growth of loans at a level much lower than in previous years. Until March 2011 annual growth in loans to enterprises was negative, which was primarily the result of lower demand for loans. Enterprises are planning to limit their bank debt, while expecting to finance potential investment mainly from retained earnings.

Housing loans are currently the most stable category of loans in terms of growth. The demand for housing loans is relatively stable, despite loan spreads being higher by an average of 1.5% compared to the years 2007–2008. Most housing loans are currently denominated in zlotys. From the perspective of financial stability, a potential recurrence of growth of foreign currency loans would be an unfavourable development, in particular due to the possible recurrence of turmoil in international financial markets.

The value of consumer loan portfolios was falling since September 2010. The quality of this category of loans is the lowest, however, because of high loan spreads in the scale of the whole sector this is the most profitable loan segment. The value of these loan portfolios declined in the case of banks recording a profit on these products, as well as banks recording a loss due to the high cost of credit risk. An important factor most likely contributing to the declining value of consumer loan portfolios was more stringent regulation, forcing banks to tighten their lending policy.

Raising new capital through share issuance and retaining earnings in order to increase capital, in addition to the stabilisation of lending growth at low levels, have contributed to maintaining high capital adequacy ratios in the Polish banking sector. Simulations presented in this publication show that the capacity of banks to absorb the cost of credit risk that could arise from a stronger than expected deterioration in the quality of loan portfolios, has not changed significantly during the last two quarters. Most banks possess substantial capacity to absorb losses. Macro stress test simulations indicate that the majority of the banking sector is able to absorb higher than expected credit risk thanks to revenues and capital buffers without threatening its capital adequacy. This conclusion also holds true if we take into account the decline in net interest income, resulting from a deterioration in the quality of loan portfolios in the hypothetical scenarios analysed in the Report. The sensitivity of banks to a potential increase in credit spreads of Polish government bonds, caused by a recurrence of turmoil in financial markets, is low as a consequence of the relatively short duration of banks’ portfolios.

The situation of the sector of non-bank financial institutions does not pose major threats to financial system stability. As these institutions focus on providing conventional financial and insurance services, and the scale of relationships between these institutions and banks is relatively minor, the impact of non-bank financial institutions on the Polish banking sector is low. On the other hand, any substantial deterioration in the quality of mortgage loan portfolios may have an influence on the situation of certain entities in the insurance sector, as there is a high concentration of the portfolio of mortgage loan insurance among non-life insurance companies.
At the end of 2010, a considerable majority of insurance companies held sufficient capital to operate their business and there were no reports of developments that could threaten the stability of the sector. Claims and other benefits on damages caused by low temperatures and heavy snowfall in the first quarter of 2010, as well as floods and inundations in the second quarter of 2010 contributed to the deterioration in the technical result of the non-life insurance sector, but did not threaten the sector's solvency. In the non-life insurance sector, higher motor vehicle insurance rates will have a positive impact on the future financial condition of insurance companies. In previous years these rates had been lowered, due to intense competition for market share, to unsustainable levels that did not ensure the return of costs associated with such policies.

The improved situation in financial markets, particularly the increase in share prices, led to a growth in assets of open pension funds and investment funds in 2010. During this period, pension fund management companies reported a fall in their technical profit and net profit, compared to 2009, which was in part the result of lower contribution fees, effective from January 2010. Data indicate that in the first half of 2010, investment fund management companies reported an increase in revenue, due to a rise in the average value of net assets of investment funds, which is the basis for calculating management fees.

The analysis presented in this Report supports the view that economic developments, in line with the central path assumed in the July NBP projection, will not pose threats to the stable functioning of the financial system. The global economic outlook is still highly uncertain, however. Two mutually exclusive risk factors have been identified, which will impact the stability of the domestic financial system.

Macroeconomic developments in countries of the European Union and other developed economies are the first risk factor. As a result of the global financial and economic crisis, interdependence has grown between macroeconomic trends, the condition of financial institutions and the state of public finances in these countries. During the first stage of the crisis, the governments of many countries were forced to support systemically important financial institutions with public funds on account of concerns over their solvency. In addition, fiscal policy became more expansionary in response to the recession, which contributed to its suppression, but led to a very strong increase in the deficit of public finances in a number of countries. In 2010, the rising values of public finance deficits and public debt in a number of euro area countries raised fears regarding their long-term solvency. These fears have a negative influence on the position of banks, which are among the largest holders of government bonds, and also may undermine the credibility of state aid provided to financial institutions.

These countries received support from other member states (through the European Financial Stability Facility and European Financial Stabilisation Mechanism) as well as the International Monetary Fund. The support provided to these countries temporarily reduced the fears concerning their solvency, however, in order to ensure long-term solvency, large-scale fiscal consolidation will be required. It should be aimed at stabilising and then reducing the debt-to-GDP ratio. Should fiscal consolidation fail, this would generate the risk of negative feedback, in which mutually reinforcing concerns over the solvency of countries and financial institutions result in a recurrence of economic slowdown, shortages of liquidity in financial markets and difficulties with debt refinancing by financial institutions. The mechanism of such feedback would be similar to the situation that unfolded in the period following the collapse of Lehman Brothers in October 2008. Due to the very low level of interest rates in the world’s largest economies, the capacity to contend with this process by means of conventional monetary policy is limited.

If such a scenario were to occur, it would result in the materialisation of credit risk and financing risk in the banking sector. The recurrence of tur-
Assessment of financial stability and risk outlook

Turbulence in global financial markets would slow down economic growth in Poland. This would be primarily driven by a decrease in external demand, as well as by a forced pro-cyclical fiscal policy response (in order to preserve sovereign creditworthiness). The limited effect of past market turmoil on Polish government bond prices indicates that investor assessment of Poland’s solvency is positive, which supports the view that a possible increase in risk aversion may to a larger extent apply to other countries. In an environment of higher risk aversion, a number of banks may, however, encounter difficulties with rolling over swap transactions securing against the risk associated with FX loan portfolios, as well as rolling over other forms of market funding. The impact of a materialisation of funding risk for the banking sector is difficult to predict.

Due to the uncertainty arising from the implementation of fiscal consolidation plans in euro area countries, there is increased probability of an intensification of the debt crisis in these countries combined with increased volatility in financial markets. Polish banks do not hold Greek government bonds nor debt instruments issued by Greek banks in their balance sheets, therefore a potential increase in the cost of credit risk would be driven primarily by slower economic growth in Poland. The consequences of a materialisation of credit risk for the stability of the domestic financial system were the subject of macro stress test analysis. The results of these tests point to a sufficient resilience of the Polish banking sector.

The course of economic developments in recent months indicates that economic recovery in developed countries may be slow due to the need to reduce imbalances in public finances and private sector debt. In the long term, a prerequisite for a return to sustained growth of EU economies and financial system stability is the implementation of credible fiscal consolidation plans and structural reforms, particularly in countries currently experiencing severe fiscal problems. The present crisis should convince economic policymakers to direct serious attention to the long-term stability of public and private sector debt.

The second identified risk factor relates to the lending outlook. If concerns related to a significant deterioration of macroeconomic and market conditions do not materialise and economic growth remains steady, demand for loans may be expected to grow. Potentially excessive lending growth, most notably in the segment of housing loans, thus counts among risk factors. As economic growth accelerates, the growing number of households in the perspective of next dozen or more years may push up demand for housing loans. The risk of excessive lending growth during upcoming quarters is low, and as a result of the uncertain economic growth outlook for the EU, this risk has decreased since the previous edition of the Report was published. As the economic outlook improves, this risk will increase. At present, there has been a notable easing in the price of bank loans. Therefore, the measures undertaken by the Polish Financial Supervision Authority (KNF) aimed at strengthening credit risk management by banks should be assessed positively from the perspective of financial system stability in the future. In particular, the introduction by the KNF of Recommendation T and the raising of risk weights for housing loans denominated in foreign currencies will limit the accumulation of risk on banks' balance sheets.

An unfavourable development is the significant share of loans denominated in foreign currencies among new housing loans. In the view of the NBP, housing loans denominated in foreign currencies should be a niche product, offered to borrowers who receive income in the currency of the loan. The NBP supports measures aimed at significantly restricting the availability of this type of loan.

The rapid growth in lending would be particularly adverse if it were funded by an inflow of capital (increasing banks’ foreign liabilities). From the perspective of long-term, sustainable growth, foreign direct investment is the most favourable channel of capital inflows. The inflow of capi-
tal through the banking sector is associated with an elevated risk of the emergence of asset price bubbles. The probability of a significant inflow of capital to Poland is currently elevated, due to expansionary monetary policy in the world’s largest economies. A potentially effective tool of economic policy, which could be used for containing the inflow of capital through the banking sector, is the introduction of a tax on banks’ wholesale funding (including liabilities towards parent and affiliated entities).
Chapter 2.

Financial institutions’ economic environment

The rate of economic growth has been observed to accelerate in Poland since the first quarter of 2009. The trends in the world economy point to a continuation of slow economic recovery, however, the difficult fiscal situation experienced by some euro area countries remains a source of uncertainty over the future economic climate and situation in financial markets. Macroeconomic developments, especially with regard to the economic climate in the countries that are Poland’s main trading partners, remain key risk factors for economic growth and financial system stability.

In the first half of 2011, the situation in the financial markets in Poland continued to be affected by the sovereign debt crisis in peripheral countries of the euro area. According to market participant’s view, the rising probability of Greek debt restructuring had, however, a moderate impact on the yields on Polish government bonds. Poland’s relatively good economic fundamentals enhanced a strong increase in foreign investors’ interest in the capital market. Premia in the market for FX swaps and CIRS basis with the participation of the zloty declined, which implied an improvement in the hedging by domestic banks against foreign exchange-indexed loans. The depreciation of the zloty against the Swiss franc observed in June was a consequence of external factors and the related significant strengthening of the franc against the euro.

The situation in the property market did not pose any threats to financial system stability. In the last two quarters ask prices of flats in most large cities fell slightly. The situation in the office space market improved significantly: demand on the part of tenants increased and rent levels stabilised.
2.1. Macroeconomic developments

Since the publication of the previous Report a slow recovery has continued in the global economy. The central banks of most developed economies maintained an expansionary monetary policy. Interest rates in the United Kingdom and United States are at historically lowest levels while the European Central Bank raised interest rates in April 2011, following a nearly two-year period in which the rates were kept at the lowest historical level. On the other hand, monetary policy is tightened in a number of developing countries, which is dictated by concerns about a rise in economic imbalances in their economies.

A strong rise in commodity prices observed since the middle of 2010, including oil and food prices, contributed to a global rise in inflation. The rising inflationary pressure is present particularly in the developing countries, where it is additionally strengthened by the positive output gap. Core inflation developments in the developing countries point to the absence of a clear inflationary pressure.

The scale of recovery in the global economic situation is highly discrepant. Developing countries record high economic growth compared to developed countries. There is a large discrepancy of the growth rate among developed countries. A
poor economic situation has persisted in some euro area countries that have been most hit by the private sector debt crisis and the difficult fiscal situation. On the other hand, countries (inter alia Germany and Switzerland) with exports oriented towards developing countries, particularly in Asia, record high growth rates.

The economic situation in Poland’s main trading partners, particularly Germany, has a significant impact on its economic growth rate. In 2010, the share of Germany in Polish exports accounted for 26.0%. Due to the participation of Polish enterprises in the supply chain of German enterprises, particularly in the sector of investment goods and means of transport, a recovery in the German economy, including good export results of German enterprises, has a positive impact on Poland’s economic growth.

Although economic growth accelerated in 2010, the deficit of the public finance sector further increased in Poland. According to the ESA 95 standard which is in effect in the European Union, the deficit increased from 7.3% of GDP in 2009 to 7.9% of GDP in 2010. The public debt, calculated according to national methodology, increased from 49.9% of GDP in 2009 to 53.0% of GDP in 2010. As a result, the risk that the public debt will exceed prudent thresholds stipulated in the Act on Public Finance increased. In order to prevent this risk materialisation, the government adopted a plan of a public finance reform (Multiyear State Financial Plan). The plan includes proposals to limit the deficit of the public finance sector aimed at maintaining the debt below the threshold of 55.0% of GDP.

However, it should be emphasised that the ratio of general government debt to GDP in Poland is lower than in most EU countries. The Polish economy and the financial system have remained resilient to the effects of the mounting debt crisis in peripheral countries of the euro area (see Chapter 2.2.3.)

The Polish economy continued to recover. In real terms, GDP growth amounted to 4.4% in the first quarter of 2011 compared to 4.5% y/y in the fourth quarter of 2010, and 4.2% y/y in the third quarter of 2010. The factors that contributed to GDP growth were the growth rate of individual and public consumption as well as a continuation of inventory build-up by enterprises. A positive net exports contribution to GDP growth was only recorded in the first quarter of 2010. A return of a positive annual growth rate of investment outlays in the second half of 2010 is favourable from the point of view of economic growth outlook.

The economic revival was reflected in an increase in the number of persons employed, both in the sector of enterprises and in the economy as a whole. As employment was increasing, unemployment was declining. In the analysed period, wages growth remained at a moderate level. The financial condition of households and its impact on lending and the quality of banking sector assets is presented in detail in Chapter 3.3.3.

Following a significant improvement of the current and capital account balance in subsequent quarters of 2009, a gradual growth of the deficit has been observed since the beginning of 2010. In 2010, the current account deficit amounted to 4.5% of GDP against 3.9% of GDP in 2009. The most important factors that contributed to the current account deficit were the trade deficit and the worsening of the negative balance on income. In 2010 the aggregate current and capital account deficit amounted to -2.6% of GDP. The year 2010 saw a decline in the share of foreign direct investment (FDI) in financing the deficit (in 2010, the relation of the FDI balance to the aggregate current and capital account deficit amounted to 71%, compared to 134% in 2009.).

According to the central path of the projection presented in the July issue of Inflation Report, the real GDP growth rate in Poland will be 4.0% in 2011, 3.2% in 2012 and 2.9% in 2013. According to the European Commission projection of May 2011, Poland’s GDP growth will amount to 4.0% in 2011 and 3.7% in 2012. A continuing economic growth in line with these projections should contribute to strengthening the stability
of the financial system.

The economic situation in Poland will largely depend on economic developments abroad. The key question seems to be whether developing countries are capable of maintaining a high rate of economic growth in view of the global imbalances and a rise in inflationary pressures. The combined inflation and low economic growth caused, inter alia, by the need to reduce the private and government sector deficit in some developed countries, increase the risk of stagflation. The Polish economy is particularly exposed to the risk of deterioration in the macroeconomic situation of its main trading partners, especially Germany. A sudden outflow of foreign capital, arising from risk aversion caused by the public finance crisis in other countries, could be another risk factor.

2.2. Developments in financial markets

2.2.1. Global markets

From December 2010 to June 2011 the situation in financial markets in Poland has remained under the influence of developments in the world economy, with a particularly important role of signals from the euro area. The effects of the earthquake in Japan, conflicts in the MENA region, a strong rise in commodity prices and downgrading of the United States debt outlook had an insignificant and temporary impact on the zloty exchange rate and the prices of domestic securities.

Although austerity programmes aimed at reducing budget deficits were implemented, the credit risk of peripheral countries of the euro area, reflected in CDS premia on government bonds, remained high (see Figure 2.2). At the same time, since December 2010 the largest rating agencies have downgraded the credit ratings of most of peripheral countries of the euro area (see table 2.1). However, in the first months of 2011 a significant change was observed in the perception of credit risk of individual countries within this group. CDS premia on the bonds of Greece, Portugal and Ireland went up, while in the case of Spain and Italy the level of perceived credit risk went down markedly. A factor that mitigated the contagion effect among peripheral countries of the euro area was the March 2011 decision taken at the summit of the euro area Member States to raise the amount of funds effectively available under the EFSF from 250 billion euro to 440 billion euro and the confirmation of establishing a permanent ESM which has at its disposal 500 billion euro and is due to replace the temporary EFSF by mid-2013.

Figure 2.2. CDS premia on Poland’s 5-year Eurobonds and government bonds of selected euro area countries

The strong increase in CDS premia on Greek bonds in the second quarter of 2011 was fuelled by problems with the implementation of the public finance deficit-reducing scheme, the related uncertainty about activating another tranche of the bailout programme approved in 2010 (the decision on payment was postponed until July) and the restructuring or repurposing of Greece’s indebtedness, which is perceived by market participants to be increasingly likely. Although it was decided during the March 2011 summit that

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1 This term refers to Portugal, Ireland, Italy, Greece and Spain.
the repayment period would be extended and interest rate on the loan granted to Greece would be lowered, investors have gradually come to the conclusion that the Greek economy would not be able to bear the burden of public debt servicing in the near future. In June political issues and social unrest related to the scheduled approval of a new austerity programme contributed to the significant deterioration of Greece’s credit risk perception, which was confirmed by further rating downgrades. A negative impact was also exerted by the protracting EU talks on the preparation of the second financial support programme, as well as the form and degree of the private sector’s potential participation in the programme.

As regards Portugal, the growth in CDS premia on bonds and the rating downgrades were affected by the resignation of Portugal’s government in response to the rejection by the parliament of the economic reform programme draft. As a consequence, on April 7 Portugal sought financial assistance from the EU and the IMF. The decision to grant 78 billion euro assistance was made in the second half of May. The funds will come in equal parts from three sources: EFSF, ESM and the IMF.

Table 2.1. Ratings of selected countries and dates of their revisions in the period from December 2010 to June 2011

<table>
<thead>
<tr>
<th>Country</th>
<th>Moody's</th>
<th>S&amp;P</th>
<th>Fitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>Caa1</td>
<td>CCC</td>
<td>B+</td>
</tr>
<tr>
<td>1 June 2011 (B1)</td>
<td>13 June 2011 (B)</td>
<td>20 May 2011 (BB+)</td>
<td></td>
</tr>
<tr>
<td>7 March 2011 (Ba1)</td>
<td>9 May 2011 (BB-)</td>
<td>14 January 2011 (BBB-)</td>
<td></td>
</tr>
<tr>
<td>29 March 2010 (BB+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>Baa3</td>
<td>BBB+</td>
<td>BBB+</td>
</tr>
<tr>
<td>15 April 2011 (Baa1)</td>
<td>1 April 2011 (A-)</td>
<td>9 December 2010 (A+)</td>
<td></td>
</tr>
<tr>
<td>17 December 2010 (Aa2)</td>
<td>2 February 2011 (A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Aa2</td>
<td>AA</td>
<td>AA+</td>
</tr>
<tr>
<td>10 March 2011 (Aa1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>Baa1</td>
<td>BBB-</td>
<td>BBB-</td>
</tr>
<tr>
<td>5 April 2011 (A3)</td>
<td>29 March 2011 (BBB)</td>
<td>1 April 2011 (A-)</td>
<td></td>
</tr>
<tr>
<td>23 December 2010 (AA-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Aa2</td>
<td>A+</td>
<td>AA-</td>
</tr>
<tr>
<td>Poland</td>
<td>A2</td>
<td>A-</td>
<td>A-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>A1</td>
<td>A</td>
<td>A+</td>
</tr>
<tr>
<td>Hungary</td>
<td>Baa3</td>
<td>BBB-</td>
<td>BBB-</td>
</tr>
<tr>
<td>6 December 2010 (Baa1)</td>
<td>23 December 2010 (BBB)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ratings pertain to long-term debt in foreign currencies; ratings revised in the period from December 2010 to June 2011 are marked in italics; the previous ratings are presented in brackets.
Source: Bloomberg.

2.2.2. Money market

In the analysed period the situation in the domestic money market was stable. Banks’ activity in this market continued to be insignificant and was concentrated in the segment of transactions with short maturities. In the period from December 2010 to May 2011, average daily net
turnover in the interbank unsecured deposit market amounted to approximately 6.6 billion zlotys and was similar to the turnover recorded in June-November 2010 (see Figure 2.3). Average daily value of overnight transactions, on which POLONIA money rate is based, declined from 3.7 billion zlotys to approximately 3.5 billion zlotys in this period. Banks continued to prefer operations with the shortest maturities for liquidity management purposes. As a result, O/N transactions dominated the term structure of the turnover in the interbank unsecured deposit market. Their share in the turnover in May 2011 amounted to 91.8%, against approximately 80% prior to the disturbances in the domestic money market in 2008.

**Figure 2.3.** Turnover in the interbank deposit market

![Graph showing turnover in the interbank deposit market over time](image)

Source: NBP.

Similarly as in 2010, at the start of reserve requirement maintenance periods banks held surplus funds in current accounts with the NBP above the required level. Owing to that they met the reserve requirement obligation earlier (frontloading). As a result, in the final days of reserve requirement maintenance period banks had cash surpluses at their disposal, which they deposited in O/N transactions in the interbank market, contributing to a fall in the POLONIA rate, which brought it closer to the NBP deposit rate. However, the scale of the above operations was smaller in 2011 than in the previous months (see Figure 2.4). At the end of May 2011 the NBP announced that on the last day of the June period of reserve requirement maintenance it would carry out an additional fine-tuning operation. Its aim would be to balance liquidity conditions in the banking sector, which should have an impact on bringing the POLONIA rate closer to the reference rate. According to the announcement, such operations may also be carried out in subsequent periods of reserve requirement maintenance.

**Figure 2.4.** Market interest rates against NBP rates

![Graph showing market interest rates against NBP rates](image)

Source: NBP, Thomson Reuters.

Liquidity conditions in the banking sector were another factor that may have affected the shortest interbank market interest rates. The observed further increase in operational liquidity surplus of the banking sector was related to the exchange of EU funds directly with the NBP. According to the press release published after the April 21 meeting of the Minister of Finance and the President of the NBP, the Minister of Finance considered it purposeful to start regularly selling some of the EU funds directly in the domestic spot market, which contributes to the decrease of the banking sector liquidity surplus growth.

In the analysed period the MPC raised the NBP reference rate to 4.50% at its meetings held on January 18-19, April 4-5, May 10-11 and June 7-8, 2011 (each time by 25 basis points). At the end of June market participants expected mone-
Financial institutions’ economic environment

Tight monetary policy would continue to be tightened in the coming months. The FRA rates indicated that as of the end of 2011 the NBP reference rate should stand at 4.75% (see Figure 2.5).

**Figure 2.5.** Current and expected WIBOR rates

![Figure 2.5](image)

Source: Bloomberg.

**Figure 2.6.** Risk premium in interbank deposit market

![Figure 2.6](image)

Source: NBP, Thomson Reuters.

From November 2010 to May 2010 there was an improvement in hedging conditions for domestic banks against the currency risk arising from granting loans denominated in foreign currencies. A marked decline in margins which domestic banks have to pay above the WIBOR rate in the CIRS basis market was a positive tendency, which translated into a decline in the costs of hedging. However, the margins rose again in June 2011, but remained at a lower level than in November 2010 (see Figure 2.7). In the analysed period banks increased their use of CIRS transactions, which led to the extension of the average maturity of operations hedging against currency risk. In the period from January 2011 to May 2011 the average daily value of FX swaps from a smaller increase of the WIBOR 3M rate than of the OIS 3M rate, as the latter responded to changes in NBP reference rate expectations more quickly than the former. This was a consequence of a higher liquidity of the OIS market than of the interbank deposit market with maturities exceeding two weeks.

**Figure 2.7.** Premia in the CIRS basis and FX swaps markets

![Figure 2.7](image)

Note: for CIRS basis transactions the premium is defined as the margin paid above the WIBOR rate in exchange for the EURIBOR rate; for FX swaps the premium is defined as the spread between the implied interest rate disparity from FX swap rates and interest rate disparity observed in the interbank deposit market.

Source: NBP calculations based on Bloomberg data.
Developments in financial markets

amounted to approximately 12.3 billion zlotys, i.e. over 5% more than in the second half of 2010. FX swap rates continued to deviate from their theoretical value resulting from the interest rate parity (this was due to i.a. the asymmetry in demand for the zloty FX swap transactions between foreign and domestic banks, as well as limited arbitrage between the interbank deposit market and the FX swap market). This difference declined gradually from mid-March 2011, but since May 2011 margins in the FX swap market have again been increasing.

2.2.3. Bond market

In the analysed period Poland’s credit risk was still perceived to be lower than the risk of most peripheral countries of the euro area (see Figure 2.2). CDS premia of Poland’s 5-year government bonds remained stable, similarly as CDS premia for Czech and Slovak bonds (see Figure 2.8). In the case of Hungary a decline was observed in perceived credit risk, which was related to the positive assessment by market participants of the government measures aimed at reducing the budget deficit.

**Figure 2.8.** CDS premia on 5-year Eurobonds of CEE countries

[Graph showing CDS premia for Poland, Slovakia, Hungary, and Czech Republic]

Source: Bloomberg.

In the period from December 2010 to March 2011 an increase in yields on Polish government bonds was observed across the yield curve, after which there was a decline in the subsequent months (see Figure 2.9). Stronger expectations of NBP interest rate increases and the actual MPC decisions on the increases, related to rising inflationary pressure, were the most important factor contributing to the decline in short- and medium-term government debt securities prices. In addition to that, analysts’ comments on Poland’s public finance condition - the budget deficit in 2010 (7.9% of GDP) and the opening by the European Commission of excessive deficit procedures against Poland and setting a deadline for reducing it to 3% of GDP by 2012 - may have also contributed to the fall in government bond prices. The statement by the Standard&Poor’s rating agency of April 2011 pointed to the need for Poland to carry out structural reforms of the public finances as a condition to maintaining the current country rating.

**Figure 2.9.** Yields on Polish government bonds and IRS to bonds spread

[Graph showing yields on 2-year and 10-year bonds and 10-year IRS to bonds spread]

Source: Bloomberg.

The renewed significant growth of non-residents investments in the domestic government bonds market, observed since the beginning of 2011, was an important factor contributing to the decline in yields on these securities in the period from March 2011 to June 2011 (see Figure 2.10). From the beginning of December 2010 to the end of May 2011 the portfolio of government bonds held by non-residents increased by almost 23 bil-
lion zlotys to 148 billion zlotys, as a result of which their share in the government bond holders structure accounted for almost 30%. Such strong interest in government debt securities implies that the Polish capital market was still perceived by foreign financial institutions as an attractive location for their investments. At the same time the average time to maturity of wholesale fixed-rate bond portfolio held by non-residents shortened.

**Figure 2.10.** The value of Polish government bonds held by non-residents

![Graph showing the value of Polish government bonds held by non-residents.](image)

Source: Ministry of Finance.

The decline in yields on Polish government bonds may have also been affected by Ministry of Finance officials’ comments (in February and April 2011) indicating that the Ministry was considering entering the 5- and 10-year IRS transactions market in order to stabilise the domestic debt market and that the intervention of BGK in the government bond market was possible, if there emerged pressures unrelated to the assessment of the Polish economy fundamentals. Moreover, in June the decline in bond yields was supported by data on favourable realisation of the state budget in the first months of 2011 and financing this year’s borrowing needs of the state to a large extent (approximately 70%), as well as the related announcement of reducing the supply of debt securities in the second half of the year.

Non-residents’ significant interest in purchasing Polish government bonds contributed to a change in the investor structure (see Figure 2.11). From the end of December 2010 to the end of May 2011 foreign banks’ investments, which are a group of investors quickly reacting to changes in the market situation, increased by more than 12 billion zlotys to approximately 34 billion zlotys, which resulted primarily from their considerable activity in the primary market. In the same period there was also a significant growth in investments by foreign non-bank financial institutions (by nearly 11 billion zlotys to 108 billion zlotys) and by domestic pension funds (by more than 4 billion zlotys to 121 billion zlotys).

The average daily value of outright transactions in the secondary market for government bonds amounted to approximately 18.5 billion zlotys in the period from January 2011 to April 2011, similarly as in the second half of 2010.

**Figure 2.11.** Structure of investors in the Polish government bond market

![Graph showing the structure of investors in the Polish government bond market.](image)

Source: Ministry of Finance.

### 2.2.4. Foreign exchange market

In the analysed period the zloty exchange rate remained relatively stable and its volatility decreased systematically (see Figure 2.12). The ex-

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\(^2\) In the period from the end of December 2010 to the end of February 2011 alone foreign banks’ investments in the domestic government bond market fluctuated between 21.9 billion zlotys and 35.7 billion zlotys.
Developments in financial markets

The exchange rate of the zloty was affected by factors of both global and local character. The appreciation of the zloty from the beginning of December 2010 to the mid-January 2011 was supported by the decrease of risk aversion in global financial markets and expectations of the start of a series of interest rate increases by the MPC. In addition to that, the behaviour of the domestic currency in the last days of the year may have been somewhat influenced by the sale of euro by BGK at the request of the Ministry of Finance. In subsequent months the zloty was slowly depreciating against the euro, which was triggered, inter alia, by market participants’ not very optimistic assessment of the public finances outlook in Poland, as well as growth in risk aversion arising from conflicts in the MENA region and the implications of the earthquake in Japan. Moreover, in March 2011, the EUR/PLN exchange rate increase may have been affected by a fall in expectations related to the size of NBP interest rate increases. The depreciation of the domestic currency in this period was the largest among currencies of the region (see Figure 2.13).

Figure 2.12. The zloty exchange rate and its volatility

![Exchange rate graph]

Source: Bloomberg.

Increased interest in investment in the financial markets of developing countries related to i.a., the release of positive macroeconomic data in these countries contributed to the appreciation of the zloty that was to be observed from mid-March 2011. The strengthening of the zloty was also supported by expectations of NBP reference rates increases and the MPC decisions to raise them.

Figure 2.13. Exchange rates of the zloty, the Czech koruna and the forint

![Exchange rates graph]

Note: data normalised to 100 as of 30 November 2010. Source: Bloomberg.

In mid-June 2011 the zloty started to depreciate against the euro, as risk aversion in global financial markets increased. The depreciation of the zloty against the Swiss franc, observed in this period, was due to external factors, primarily the purchase of currencies of countries perceived as safe havens by investors and the related appreciation of the Swiss franc against the euro.

2.2.5. Equity market

Since the publication of the previous Report stock indices on the Warsaw Stock Exchange have continued the move along the horizontal trend (see Figure 2.14). The correlations between the WIG20 index’ rates of return and the rates of return on the key global indices, including S&P500 and EURO STOXX 50, were lower than in the second half of 2010. This resulted from i.a. increased inflation expectations in developing countries and greater risk aversion related to the unstable political situation in the MENA region, as well as uncertainty about the...
Further sovereign debt crisis developments in peripheral countries of the euro area. The impact of the earthquake in Japan (March 11, 2011) on the Polish equity market was moderate, while in developed markets significant falls in securities prices were observed at that time. The later improvement in investor sentiment, reflected in increases of indices both in developed countries and on the WSE, was interrupted in early May. The factors that contributed to this situation were worse than expected macroeconomic data in the United States and an increase, in the opinion of market participants, of the likelihood of Greek debt restructuring.

***

The key external risk factor that may impact financial system stability in Poland through financial markets is credit risk materialisation related to government bonds of peripheral countries of the euro area. It may be expected that some market participants have already created provisions to cover potential losses arising from the likely announcement by Greece of its debt restructuring programme. Debt restructuring in Greece would, however, be followed with payments of the amounts due from hedging CDS transactions and limiting access to funding for Greek banks (a similar situation may occur in the case of this country's bonds' profiling). Therefore if losses of financial institutions in this respect turn out to be significantly larger than expected by analysts and other market participants, global risk aversion may rise and lead to a negative change in foreign investors perception of emerging markets, including Poland. A similar reaction could follow if the problems in public finances in Spain and Italy were exacerbated. A rise in global risk aversion and a fall in confidence among global financial markets participants could make it difficult for domestic banks to hedge against the risk related to housing loans denominated in foreign currencies, and, due to credit risk management at the level of banking groups, to reduce liquidity in the domestic money market. This would probably also contribute to a temporary rise in yields on Polish government bonds, i.a. as a result of the sale of these securities by investors willing to realise profits.

Other external threats include: potential reaching by the United States the federal debt ceiling, which would substantially hinder current debt servicing and make it impossible to raise debt,
as well as an abrupt decline in commodity prices. Such events may lead to a temporary increase in volatility in the global financial markets, which would have an impact on the zloty exchange rate and securities prices in the domestic capital market.

Among domestic factors, financial markets could be significantly affected by the situation in Poland’s public finances. A potential delay or incomplete implementation of the goals set in the budget deficit reducing plan may be an incentive for some investors to exit the domestic government bonds market, leading to a decline in the prices thereof. This in turn may translate into an increase in the cost of debt servicing and the deterioration of banks’ financial results. High involvement of non-residents, including foreign banks, in Poland’s bond market would strengthen the effects of the materialisation of such a scenario, especially in light of limited interest in investment in debt securities of countries with unstable public finances. The inflow of foreign investors to the government bond market, together with a relative depletion of the domestic investors base, generates greater risk of a rise in bond yields and the weakening of the zloty, as well as a rise in the volatility of its exchange rate, should the perception of Poland’s credit risk deteriorate.

2.3. Property market

Residential property market

Since the previous issue of the Report, the downward trend in prices of flats could be observed on the primary and secondary market in most large cities (see Figures 2.15 and 2.16). In the period from mid-2008 to the end of March 2011, the total fall in the prices of flats did not exceed 15-20%.

The fall in the prices of flats was mainly fuelled by the rise in the supply of new flats in 2010 and in the first quarter of 2011. The supply of new flats resulted primarily from the rise in the number of construction projects started and the resumption of the sale of flats that had been temporarily stopped because of the crisis. The number of construction projects started by developers in the first quarter of 2011 increased by 14.5% compared to the corresponding period in 2010, and the number of permits received - by 15.7%.

In the first quarter of 2011, the number of flats offered for sale in Poland’s six biggest residential property markets reached the level close to the pre-crisis figure and was higher by 36% than in the first quarter of 2010.

Figure 2.15. Growth in residential property ask prices on the primary market in the biggest cities (y/y)

![Graph showing growth in residential property ask prices on the primary market in the biggest cities (y/y)](image)

Source: NBP calculations based on PONT Info Nieruchomości data.

In terms of finish level, the structure of flats offered, which illustrates the imbalance between supply and demand for flats, slightly changed in the first quarter of 2011. The share of flats under construction increased and that of completed flats declined. The share of flats under construction accounted for 80%, of which com-

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4 According to Reas, the largest number of flats is built in Warsaw, Krakow, Wroclaw, Tri-City (Gdansk, Gdynia, Sopot), Poznan and Lodz urban areas, representing around 60% of the residential property market and around 75% in terms of value.

5 „Rynek mieszkaniowy w Polsce. I kwartał 2011 r.”, Reas, www.reas.pl
Completion of over 50% of them is scheduled for 2012, and of 10% in 2013. Completed flats accounted for approximately 20% of the offer in the primary market. In the periods of the largest imbalance between supply and demand and a quick rise in prices on the property markets, flats at an early construction phase prevailed in the offer. A relatively large share of completed flats in developers’ offer at a simultaneous rise in demand may also result from a mismatch between supply and demand, i.e. excess of large or high standard flats for which currently there are no buyers. This may be a factor supporting the persistence of a downward trend in the price of flats in 2011.

**Figure 2.16.** Growth in residential property ask prices on the secondary market in the biggest cities (y/y)

As a result of a slight fall in the prices of flats and wage growth, availability of flats (average size of a flat a household with average income in a given region can afford to buy) increased. However, due to the above tightening of lending standards for housing loans by banks, the rise in the availability of flats did not fully translate into an increase in households’ real purchasing opportunities.

A continuation of the decline of ask prices of flats may be expected in 2011. The continuation of the downward trend in prices in the residential

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6 In the second half of 2010, the share of entities planning to cut prices of flats increased among developers participating in a survey (from 4% in June to 32% in December 2010) and the share of entities planning to raise prices of flats decreased (from 36% in June to 20% in December 2010) See „Sondaż koniunktury na rynku deweloperskim w Polsce w 2011 r. “, Reas, www.reas.pl

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*Source: NBP calculations based on PONT Info Nieruchomości data.*
property market will be supported by a rise in supply of flats and a decline in the growth rate of demand, which will be fuelled by the government’s plan to phase out the “First family home” programme. An increase in interest rates, in line with market expectations, may also contribute to reducing demand.

**Office space market**

In the second half of 2010 and in the first quarter of 2011, a continuation of tendencies could be observed on the office space market that positively affected the stability of banks lending to this segment of the property market. It should be noted, however, that the value of loans for office space is low on banks’ balance sheets (see Chapter 3.3.2). The improvement in the office space market was reflected in rising demand for office space. Other factors reflecting the rise in demand for office space are, inter alia, a rise in the number of pre-let agreements, a decline in the number of renegotiations of the existing agreements, a stabilisation of rents and a decline in the office space vacancy ratio. As at the end of the first quarter of 2011, the office space vacancy rate decreased to 6.6% from 7.2% in December 2010 (the average office space vacancy rate in the last 5 years amounted to 5.3%).

In 2011, demand for office space may be expected to grow further, which, given a limited supply, should lead to a rise in rents.

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7 The analysis of the office space market draws on the report of the Warsaw Research Forum (composed of six advisory companies operating on the property market).
Chapter 3.

Banking sector stability

Since the publication of the previous "Financial Stability Report" in December 2010, the current situation of the banking sector has improved. The earnings of the banking sector posted in the first three months of 2011 were only slightly lower compared to the record-high years of 2007-2008.

Decrease in the cost of credit risk and - to a lesser extent - an increase of banks’ net interest income supported the improvement in earnings. As compared with the previous several quarters, the value of impaired loans was growing at a lower pace, particularly in the case of consumer loans. It seems that a significant portion of costs related to this portfolio, relevant part of which was extended during the period of banks’ lenient lending policy, had already been borne. The quality of corporate loans improved in the analysed period. In spite of these positive trends, credit risk cost may be expected to remain at an elevated level until the financial position of enterprises and situation in the labour market improve sustainably. The recent NBP macroeconomic projection suggests that such conditions may develop in the coming quarters.

In the period analysed in the Report, the liquidity position of the banking sector was stable. The average funding gap was relatively small and - on account of a similar growth rate of deposits and loans - has not changed considerably. The value of funds obtained by domestic banks from foreign financial institutions, of which funds obtained from their parent banks were their major part, also remained stable. Due to the significant importance of foreign liabilities as the funding source for some banks, the future liquidity position of these institutions will be impacted by the situation of their foreign parent entities, in particular those directly sensitive to the debt crisis in the peripheral states of the euro area.
Banks’ loss absorption capacity increased due to capital increase and maintaining capital adequacy ratios at high levels. No bank required recapitalisation with public funds. The favorable capital position of banks is confirmed by the results of macro stress tests which indicate that a firm majority of commercial banks hold sufficient capital to absorb the effects of a severe economic slowdown. Even during an economic slowdown, the majority of banks will maintain the capacity to generate a positive net operating income that would limit the negative impact of the potential provisions for impaired loans on the level of capital. Banks’ sensitivity to a potential increase of the credit spread of Polish government bonds resulting from renewed turmoil in the financial markets is low due a relatively short duration of banks’ portfolios. Should any of the macroeconomic scenarios materialise, this would not lead to the domino effect, i.e. the secondary bankruptcy of banks due to losses arising from unpaid unsecured interbank claims.

3.1. Earnings

In the period covered by the Report net earnings and profitability ratios of the banking sector were improving. These developments were primarily driven by the slowing down of the rate at which the loan portfolio was deteriorating and by the fall of burden of loan impairment charges on net income from banking activity. The heterogeneity of banks with regard to profitability of their activity remained at a relatively high level. Unless the risk related to a renewed slowdown in global economic growth materialises, banks’ net profits may be expected to improve further in the coming quarters.

In 2010 and in the first quarter of 2011, the earnings and profitability ratios of the banking sector were rapidly improving (see Tables 3.1 and 3.2). Attention should be paid to a particularly high sum of profits and a low sum of losses of banks in the first three months of 2011, which only insignificantly departed from their record results of 2007-2008 (see Figure 3.1).

Profitability of core capital of the domestic banking sector rose primarily on the back of the decrease of the burden of credit risk materialisation costs and operating costs on net income from banking activity (see Figure 3.2). In comparison with the period analysed in the previous edition of the Report, an improvement in profitability of assets (measured as the relation of net income from banking activity to risk-weighted assets) had a smaller impact on ROE growth.

The importance of decrease of financial leverage...
Banking sector stability

(measured as risk-weighted assets to core capital) as a factor limiting the growth in profitability of core capital also diminished.

**Figure 3.1.** Quarterly net earnings of the banking sector

At the end of March 2011, negative profitability ratios were reported by 22 entities (8 commercial banks, 11 branches of credit institutions and 3 cooperative banks) holding 8.3% of the banking sector’s assets (at the end of December 2010 – 20 entities with a 8.3% share, at the end of September 2010 – 23 entities with a 12.4% share). Among banks with negative profitability ratios there were still a few medium-sized institutions, of which some specialise in providing lending to households. Some medium-sized banks that had posted losses for the entire year 2010 due to high charges to loan impairment provisions generated a positive financial result in the first quarter of 2011, which may suggest that they had already sustained most costs related to the deterioration in the economic conditions.

Polish banks concentrated on traditional activity that consists in intermediation between savers and borrowers. Net interest income accounted for over half of net income from banking activity (see Table 3.2 and Figure 3.4). The bulk of non-interest income was generated by fees and commissions, whereas trading in securities as a source of banks’ income was of small importance. Therefore, the results of Polish banks is relatively more stable than those of global banks.

Further improvement in the earnings and profitability of the banking sector may be expected in the coming quarters. It may be expected that this improvement will be supported by a stabilisation or a further decrease in charges to provisions for impaired loans and an increase of net interest income related to expansion of lending and rise of interest rates (more on this issue in Chapters 3.2 and 3.3). This scenario might be jeopardised by fiscal risk materialisation in some EU countries, which would result in a fall of the pace of economic growth in Poland, growth in investor risk aversion and an outflow of capital from the market of Polish government bonds, which would push up their yields.

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11 Banks with assets above 30 billion zlotys.
12 The issue of the profitability of institutions that provide lending to households was analysed in detail in the previous edition of the *Report*. 

Source: NBP.
Figure 3.2. ROE of the domestic banking sector and decomposition of changes

Notes: annualised data, decomposition components – changes quarter on quarter.
The share of pre-tax earnings in net income from banking activity may be interpreted as part of net income from banking activity that was not used to cover operating costs and costs of credit risk materialisation.
Source: NBP.

Figure 3.3. Return on assets

Notes: annualised data.
Unless otherwise indicated, dispersion plots in Chapter 3 relate to domestic commercial banks and branches of credit institutions. At the end of March 2011, the assets of these entities accounted for around 93.9% of assets of the banking sector as a whole.
Source: NBP.

Figure 3.4. Sources and allocation of net income from banking activity

Note: quarterly data.
Source: NBP.
### Table 3.1. Selected items of the profit and loss account of the banking sector (billion zlotys)

<table>
<thead>
<tr>
<th></th>
<th>3-2009</th>
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<th>3-2010</th>
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<th>3-2011</th>
<th>Change in 2010 (y/y in %)</th>
<th>Change in Q1 2011 (y/y in %)</th>
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<td>Interest income</td>
<td>14.8</td>
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<td>57.2</td>
<td>14.9</td>
<td>3.1</td>
<td>7.9</td>
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<td>29.1</td>
<td>6.6</td>
<td>26.3</td>
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<td>-9.6</td>
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<td>26.4</td>
<td>7.2</td>
<td>30.9</td>
<td>8.2</td>
<td>17.1</td>
<td>13.0</td>
</tr>
<tr>
<td>Net non-interest income</td>
<td>5.7</td>
<td>23.3</td>
<td>5.4</td>
<td>22.2</td>
<td>5.5</td>
<td>-4.6</td>
<td>1.9</td>
</tr>
<tr>
<td>- net fee income</td>
<td>2.9</td>
<td>12.5</td>
<td>3.4</td>
<td>13.8</td>
<td>3.4</td>
<td>10.2</td>
<td>0.8</td>
</tr>
<tr>
<td>- dividends received</td>
<td>0.3</td>
<td>1.4</td>
<td>0.1</td>
<td>1.0</td>
<td>0.2</td>
<td>-27.8</td>
<td>65.1</td>
</tr>
<tr>
<td>- gains/losses on valuation and trading activities</td>
<td>2.4</td>
<td>9.4</td>
<td>1.9</td>
<td>7.4</td>
<td>1.9</td>
<td>-20.7</td>
<td>-0.3</td>
</tr>
<tr>
<td>Net income from banking activity</td>
<td>12.0</td>
<td>49.6</td>
<td>12.6</td>
<td>53.1</td>
<td>13.7</td>
<td>7.0</td>
<td>8.2</td>
</tr>
<tr>
<td>General expense</td>
<td>6.2</td>
<td>24.7</td>
<td>6.0</td>
<td>25.4</td>
<td>6.4</td>
<td>2.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Depreciation</td>
<td>0.6</td>
<td>2.5</td>
<td>0.6</td>
<td>2.5</td>
<td>0.6</td>
<td>-0.4</td>
<td>-3.0</td>
</tr>
<tr>
<td>Net charges to provisions for impaired loans</td>
<td>2.5</td>
<td>11.5</td>
<td>2.7</td>
<td>10.5</td>
<td>1.8</td>
<td>-9.0</td>
<td>-34.8</td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>2.6</td>
<td>10.3</td>
<td>3.0</td>
<td>14.3</td>
<td>4.7</td>
<td>30.0</td>
<td>54.3</td>
</tr>
<tr>
<td>Net earnings</td>
<td>2.1</td>
<td>8.4</td>
<td>2.5</td>
<td>11.5</td>
<td>3.8</td>
<td>37.2</td>
<td>51.5</td>
</tr>
</tbody>
</table>

1 This item comprises gains/losses on assets and financial liabilities of the portfolios "held for trading" and "designated at fair value through profit and loss account", realised gains/losses on financial assets and liabilities from other portfolios and gains/losses on foreign exchange rate movements.

Source: NBP.
Table 3.2. Selected operating indicators of the banking sector

<table>
<thead>
<tr>
<th></th>
<th>2009 Q4</th>
<th>2009 Q1</th>
<th>2010 Q2</th>
<th>2010 Q3</th>
<th>2010 Q4</th>
<th>2011 Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>As % of average assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net interest income</td>
<td>2.51</td>
<td>2.58</td>
<td>2.70</td>
<td>2.74</td>
<td>2.78</td>
<td>2.79</td>
</tr>
<tr>
<td>Net non-interest income</td>
<td>2.21</td>
<td>2.17</td>
<td>2.07</td>
<td>2.07</td>
<td>1.99</td>
<td>1.95</td>
</tr>
<tr>
<td>Net income from banking activity</td>
<td>4.72</td>
<td>4.74</td>
<td>4.77</td>
<td>4.81</td>
<td>4.77</td>
<td>4.74</td>
</tr>
<tr>
<td>Operating costs¹</td>
<td>2.59</td>
<td>2.56</td>
<td>2.55</td>
<td>2.55</td>
<td>2.51</td>
<td>2.48</td>
</tr>
<tr>
<td>Net charges to provisions for impaired loans</td>
<td>1.09</td>
<td>1.11</td>
<td>1.11</td>
<td>1.11</td>
<td>0.94</td>
<td>0.83</td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>0.98</td>
<td>1.01</td>
<td>1.06</td>
<td>1.13</td>
<td>1.29</td>
<td>1.40</td>
</tr>
<tr>
<td>Net earnings</td>
<td>0.80</td>
<td>0.83</td>
<td>0.88</td>
<td>0.92</td>
<td>1.04</td>
<td>1.12</td>
</tr>
</tbody>
</table>

As % of net income from banking activity

<table>
<thead>
<tr>
<th></th>
<th>2009 Q4</th>
<th>2009 Q1</th>
<th>2010 Q2</th>
<th>2010 Q3</th>
<th>2010 Q4</th>
<th>2011 Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net interest income</td>
<td>53.2</td>
<td>54.3</td>
<td>56.6</td>
<td>57.0</td>
<td>58.2</td>
<td>58.8</td>
</tr>
<tr>
<td>Net non-interest income</td>
<td>46.8</td>
<td>45.7</td>
<td>43.4</td>
<td>43.0</td>
<td>41.8</td>
<td>41.2</td>
</tr>
<tr>
<td>Net income from banking activity</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Operating costs¹</td>
<td>54.9</td>
<td>53.9</td>
<td>53.5</td>
<td>53.0</td>
<td>52.6</td>
<td>52.2</td>
</tr>
<tr>
<td>Net charges to provisions for impaired loans</td>
<td>23.2</td>
<td>23.3</td>
<td>23.2</td>
<td>23.2</td>
<td>19.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>20.7</td>
<td>21.2</td>
<td>22.3</td>
<td>23.6</td>
<td>27.0</td>
<td>29.5</td>
</tr>
<tr>
<td>Net earnings</td>
<td>16.9</td>
<td>17.4</td>
<td>18.4</td>
<td>19.2</td>
<td>21.7</td>
<td>23.7</td>
</tr>
</tbody>
</table>

As % of core capital²

<table>
<thead>
<tr>
<th></th>
<th>2009 Q4</th>
<th>2009 Q1</th>
<th>2010 Q2</th>
<th>2010 Q3</th>
<th>2010 Q4</th>
<th>2011 Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-tax earnings</td>
<td>12.8</td>
<td>12.8</td>
<td>13.3</td>
<td>13.8</td>
<td>15.4</td>
<td>16.6</td>
</tr>
<tr>
<td>Net earnings</td>
<td>10.5</td>
<td>10.5</td>
<td>10.9</td>
<td>11.2</td>
<td>12.5</td>
<td>13.4</td>
</tr>
</tbody>
</table>

¹ Operating costs = general expense + depreciation.
² Core capital without deductions by the shortfall of specific provisions and other so-called regulatory deductions; profits of branches of foreign banks subtracted from the numerator.
Note: annualised data.
Source: NBP.
3.2. Lending

Since the release of the previous Report, the growth rate of lending to the non-financial sector has stabilised, however differences between particular loan categories have increased further.

The growth rate of lending may be expected to steadily rise in the next few quarters, with housing loans likely to exhibit the largest growth rate. In the longer term, fast credit expansion, considerably exceeding the pace of economic growth may return, which would negatively affect financial and macroeconomic stability in the longer term.

Annual growth of lending to the non-financial sector has not changed significantly as compared with the period analysed in the previous Report and ranged from 6% to 7% (see Figure 3.5). The pace at which particular loan categories were changing continued to differ significantly.

Annual changes in the value of corporate loans were negative for a larger part of the surveyed period, until February 2011 (see Figure 3.6). It seems that low demand for loans was the major reason behind low lending in this market segment. The results of surveys among enterprises show that the share of companies applying for loans remained in the long-term downward trend, and in the fourth quarter of 2010 it amounted to 21.5%, reaching its' record-low. In the first quarter of 2011, this percentage rose to 24%, however more companies continued to reduce rather than increase their indebtedness at banks. These enterprises indicated a relatively low demand for their products, which did not encourage investment and loan taking.

Figure 3.5. Growth rate of lending (y/y)

Notes: data after excluding the impact of foreign exchange rate changes.
Data on lending referred to in the Report relate to residents’ debt (at the end of March 2011, loans to households-residents accounted for 99.6% of total loans to households, loans to corporates-residents - 98.1% of total loans to corporates).
Source: NBP.

The relatively higher importance of demand-driven factors behind low lending is also supported by a rising - as assessed by entrepreneurs - availability of loans (the growing percentage of approved loan applications) and a slight easing of standards and terms of granting loans in the last two quarters. The banks surveyed by the NBP continued to reduce loan spreads, increased maximum loan size and extended somewhat maximum loan maturity.

Enterprises also did not increase debt in foreign banks. However, the value of debt towards direct investors - excluding trade credits - increased by about 12 billion euros in 2010 reaching 40 billion euros.

\[13\] Changes in the value and growth of loans referred to in Chapter 3.2 relate to data adjusted for exchange rate changes.

\[14\] All references to surveys of enterprises refer to "Informacja o kondycji sektora przedsiębiorstw ze szczególnym uwzględnieniem stanu koniunktury w I kwartale 2011 r. oraz prognoz koniunktury na II kwartał 2011 r.", NBP, 2011 r. [Information on the condition of the enterprise sector, including the economic climate in 2011 Q1 and forecasts for 2011 Q2]

\[15\] More on changes in banks’ lending policy in: "Senior loan officer opinion survey - on lending practices and loan conditions", NBP, editions from the first and second quarter of 2011.
Consumer loans was the loan category that recorded a fall in the period of last six months. Particularly large falls in the value of these loans were registered in the first quarter of 2011 (see Figure 3.7).

On average, in the banking sector the quality of consumer loans is the poorest, and charges to provisions for impaired consumer loans are many fold higher than charges to provisions for other loan types. Nevertheless, due to spreads charged by banks, the profitability of this portfolio remains on average the highest (see Figure 3.16). The value of the portfolio of consumer loans fell both in some banks whose estimated profitability on this product was positive in the last 12 months and in some banks whose portfolios exhibited a negative value. Therefore, it seems that the fall in the value of consumer loans was largely driven by regulatory factors, i.e. implementation of supervisory recommendations on lending policies, which resulted in a significant tightening of banks’ lending policies.

The supervisory recommendations introduced in 2010 set the standards the borrower should meet, including, inter alia, the maximum burden of loan instalments on the borrower’s income. Some recommendations also concerned qualitative guidelines with regard to lending policy, inter alia, banks were recommended to verify the value of prospective borrowers’ income, monitor the customer’s loan servicing performance towards other banks etc. Implementation of the Recommendation made some customers who had been previously able to obtain a loan after meeting low formal requirements (for instance without having their income verified) ineligible for this loan. The need to more accurately evaluate the creditworthiness of prospective customers could also have made some banks reduce their lending on account of their organisational constraints. In the second half of 2010, two thirds of the banks surveyed

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16 After the outbreak of the crisis in global markets and the decline in housing loan growth resulting from problems with closing foreign exchange positions in balance sheets, some banks shifted their activity to the market of consumer loans. In some cases, this action involved excessive easing of the standards of granting these loans, which in the subsequent quarters led to a noticeable deterioration of portfolio quality, particularly visible in 2010.

17 Banks had until the end of 2010, to fully implement the provisions of Recommendation T on good practices with regard to risk management of retail credit exposures.
Banking sector stability

by the NBP tightened the standards of granting consumer loans.

**Figure 3.8.** Structure of loan portfolio to the non-financial sector

Housing loans are the most rapidly growing loan category (13.2% y/y in April 2011) being at the same time the largest part of the loan portfolio in the banking sector (nearly 39%) (see Figure 3.8). Data show a gradual recovery of the growth rate of housing loans. In 2010, the average monthly increase in the value of housing loans was higher by around 25% than in 2009, nevertheless it was still lower than at the peak of lending activity in 2008 (see Figure 3.9). Housing loan growth accelerates despite tighter lending standards and a fall in demand some banks experienced in the fourth quarter of 2010 and in the first quarter of 2011. At the same time, however, intensified competition in this market segment resulted in the lowering of loan spreads by the majority of banks (net percentage in the first quarter of 2011 was over 80%\(^\text{18}\)).

\(^{18}\)Net percentage indicates the difference between banks responses "have been eased" and "have been tightened" to the question on changes in lending policy. A positive value of net percentage means that the policy has been eased.

**Figure 3.9.** Changes (m/m) in the value of housing loans to households

Note: data after excluding the impact of foreign exchange rate changes.
Source: NBP.

**Figure 3.10.** Loans granted as part of "Rodzina na swoim" government support program

Throughout 2010, demand was rising for housing loans extended under the government-subsidised programme to support families who buy their first dwellings "Rodzina na swoim" [First family home] (see Figure 3.10). As compared with 2009, the value of the loans rose by around 50%, and the number of extended loans increased by around 40%. The rising interest in the pro-

Source: BGK.
gramme was sparked by the debate over the planned amendments to the scheme and the phasing out plan.

Figure 3.11. Currency structure of new housing loans to households

Notes: data based on a sample of 20 banks reporting information on interest rates and value of new loan agreements to the NBP. As at the end of March 2011, the share of these banks in the whole portfolio of zloty-denominated housing loans was around 81%, and of foreign currency-denominated loans housing loans - around 67%.

Since June 2010, loans in USD have not been included in interest rate statistics. Source: NBP.

The currency structure of new housing loans remained unchanged in the period analysed in the Report. Unlike in the period prior to the global financial crisis, in the last six months banks were primarily extending zloty-denominated loans (see figure 3.11). However, zloty-denominated loans account for only little over one third (38%), and Swiss franc-denominated loans - around 53% of the portfolio’s currency structure. Such a currency structure of the portfolio exposes banks to additional credit risk arising out of households’ sensitivities with respect to foreign exchange rate shocks (borrowers do not to hedge their FX positions) and to the risk related to the need to roll over their own open FX position (see Chapter 3.4).

Given the improvement in economic conditions, a gradual increase in the growth rate of lending may be expected in some market segments over the next few quarters. The directions of changes in the lending policies expected by banks may be a factor contributing to acceleration of lending. Some banks surveyed by the NBP plan to ease the standards of granting housing and consumer loans (net percentages of around 20%, respectively) in the second quarter of 2011. Due to growing competition, further decreases of loan spreads and non-price terms on housing loans also cannot be excluded. Some banks also expect easing their lending policies with respect to corporate loans, particularly towards small and medium-sized enterprises (net percentage of around 20% and 60%, respectively).

The NBP surveys conducted among enterprises indicate their satisfactory liquidity position and weak willingness to start new investment projects in the value exceeding their own funds. This might imply that in the nearest quarters the corporate sector’s demand for loans, especially investment loans, will be low despite banks’ declarations to start programmes to attract customers, especially from the sector of small and medium-sized enterprises. The percentage of companies that use loans to finance fixed investment has been rising for four quarters, but remains relatively low (just below 20%). A firm majority of enterprises (over 60%) use loans to finance inventories and working capital.

The NBP estimates based on qualitative data from bank lending surveys\(^1\) suggest that the growth rate of corporate and housing loans will gradually accelerate, with the latter reaching the level above 20% over 2-3 years. Consumer loans can be expected to grow not earlier than towards the end of 2011.

In the longer horizon, both demand for loans and the growth rate of lending can be expected

\(^1\) The preliminary estimates of the growth rates for particular loan categories were prepared on the assumption that changes in banks’ lending policies in the second quarter of 2011 would coincide with banks’ declarations from April 2011, and remain unchanged afterwards.
Banking sector stability

to rise. The good outlook for growth of the Polish economy shows that corporate demand for investment loans should be gradually rising. Higher demand for loans will also be related to the implementation of projects co-financed with EU funds.

**Figure 3.12.** Annual changes in the number of households in Poland – forecast

![Graph showing annual changes in the number of households in Poland.](image)

Source: GUS.

Demand for housing loans should remain high and the growth rate of lending in this market segment may continue to rise. These developments will be supported by fundamental factors, especially by an increase in the number of households over the next 7 years (see Figure 3.12) resulting in growing demand for homes. It cannot also be ruled out that on account of interest rate disparity and lower FX loan instalment burden on household income (assuming no zloty exchange rate changes) demand for housing loans denominated in foreign currency will hold up. On the other hand, the supply effect of tightening of the minimum standards of granting foreign currency-denominated loans, recommended to banks by the KNF (the January amendment of Recommendation S on good practices with regard to management of credit exposures that finance property and are mortgage-secured envisages that foreign currency-denominated housing loan repayment burden on retail borrower’s net income should not exceed 42%) and raising risk weights to 100% for foreign currency-denominated retail exposures remains yet unclear. It cannot be ruled out that banks will take advantage of the time left to the full implementation of the provisions of this recommendation (end of 2011) to keep extending foreign currency-denominated loans under the existing terms.

In the medium term, excessive expansion of lending may pose a risk to financial system stability. This risk may materialise if the economy would return to a high growth path. If lending growth is excessive and leads to property price rises on a scale not founded by fundamental factors, this will generate risk to domestic financial and macroeconomic stability.

20 Resolution of 7 June 2011 of the Polish Financial Supervision Authority (KNF) amending Resolution No. 76/2010 of KNF on the scope and detailed principles for determining capital requirements on particular types of risk. The Resolution is to come into force as of 30 June 2012.
### Box 1. Identifying credit booms - evidence from lending to households

Excessive credit growth is a serious threat to the stability of the financial system and economy. Banks whose loan portfolios grow too rapidly not only increase their exposure to credit risk, but may also contribute to the creation of macroeconomic imbalances. The scale of banks’ lending indirectly affects major macroeconomic variables, such as consumption, investment and components of the balance of payments. In turn, increased macroeconomic imbalances enhance the probability of a sudden correction and materialisation of credit risk.

In economic literature, a credit boom is defined as an episode of excessive credit growth leading to imbalances in the financial system and real economy. Equilibrium in the credit market for enterprises and households is analysed in terms of various factors affecting the volume and growth of lending to both segments. A substantial positive deviation from equilibrium level for any type of loan is interpreted as an occurrence of a credit boom.

Figure 1. Credit to households in relation to GDP and its long-term trends (left panel), deviations of credit to households from the trend (middle panel) and comparison of deviations of credit from the HP trend and from the cointegrating relation (right panel)

Notes: long-term trends were identified using the Hodrick-Prescott filter. The value of the smoothing parameter $\lambda$ equal to 1600 is typical for analyses of economic cycles using quarterly data, while the value of 400 000 is used in accordance with the recommendation of the Basel Committee. Deviations from trend are presented in relation to the level of the trend (in percentage terms).

Source: NBP.

In contemporary research four methods of calculating the equilibrium level for lending and the identification of credit booms are used:

1. Identifying long-term lending trends, using e.g. the Hodrick-Prescott (HP) filter with a high-value smoothing parameter. A similar method is the calculation of the level of lending in relation to GDP and estimating the long-term trend for this relation.

Figure 1 in the box (in the left panel) presents the level of lending to households in relation to GDP, and two long-term trend curves generated using the HP filter with a smoothing parameter $\lambda$ of 1600 and 400 000, respectively. Depending on the selected value of the parameter $\lambda$, lending to households in early 2011 was near the equilibrium level or since the
end of 2008 exceeded the equilibrium level by approximately 16% (see figure 1 in the box, middle panel). The positive deviation from equilibrium may be interpreted as an occurrence of a credit boom.

However, the method described above has significant shortcomings, as it does not use any economic theory or knowledge to calculate the equilibrium level, and the value of deviation of lending from the long-term trend depends on the selected sample length and parametrisation of the trend’s function. Identified lending trends in countries such as Poland, experiencing rapid development of the financial system in recent years, may be too steep, resulting in understating the risk of a credit boom. On the other hand, increased lending may in certain periods be interpreted as an occurrence of a credit boom, while in reality it could be an example of the process of catching up more developed economies by the country in question.

2. Constructing a macroeconomic dynamic general equilibrium model, taking into account the banking sector and heterogeneous entities (households or enterprises). In such a model, the level of lending in relation to GDP is constant and depends on exogenous parameters, e.g. determining the preferences of economic entities. These parameters are calibrated on the basis of empirical research or statistical data, so that the model can explain as precisely as possible the real functioning of the economy.²

The basic deficiency of this approach is the fact that current theoretical models do not take into account many factors that affect the volume of lending. Furthermore, in these models there are parameters whose values are difficult to estimate. However, thanks to theoretical models it is possible to identify the type of correlation between lending and basic macroeconomic variables. Therefore, these models serve as the basis for selecting appropriate variables to econometric models used in the methods of calculating equilibrium level in the credit market, described below.

3. Constructing a macroeconomic model, which identifies the long-term relation (the cointegrating relation) between the level of lending and other macroeconomic variables, e.g. per capita GDP, real interest rate, unemployment rate. An econometric error correction model is constructed, which explains short-term changes in lending and deviations from equilibrium level. Excessive lending is identified as the deviation of lending from the long-term equilibrium level identified in the model or as the deviation from the lending path returning to equilibrium level following a possible shock.

Figure 1 in the box (right panel) presents the deviation of lending for households from the level identified by the cointegrating relation. In the analysed sample this deviation was correlated with the deviation of lending identified using the HP filter (with parameter \( \lambda \) equal to 1600), however, at the end of 2010 it was lower and amounted to approximately -23%. According to this result, in late 2010 and early 2011, a credit boom with respect to households did not occur.

4. The use of multi-regime threshold error correction models makes it possible to identify the occurrence of various states of the credit market, credit booms and periods of stagnation or rapid development of the financial system in a sample (e.g. as a result of catching up developed economies).
Unlike the previously described models, threshold models do not calculate the deviation of lending from the equilibrium level in order to identify a boom. In this case credit booms are identified as regimes, in which lending increasingly moves away from the long-run equilibrium. In a normal market state (regime), lending returns to the equilibrium level following possible deviations from that level.

Research conducted by the NBP has demonstrated that the following variables are appropriate for the description of changing regimes in the credit market for households: credit growth in relation to GDP during the previous period, and the growth of housing prices during the previous period. In addition, the results of calculations indicate that a positive difference between the nominal rate of credit growth and nominal rate of GDP growth exceeding 2 percentage points may be sufficient to cause increasing deviation from equilibrium in the credit market, i.e. a credit boom. In turn, a difference exceeding 10 percentage points or a rapid increase in housing prices (above 12% per annum) may in successive periods generate a rapid return of lending to the equilibrium level, observed as a slump in the credit market.

According to the fourth method, the analysis of the risk of a possible credit boom in the Polish financial system should primarily take into account the current rate of growth of various types of lending in relation to GDP and the growth of asset prices, in particular the rate of change of real estate prices. In the long term, when data from several successive credit cycles becomes available, a more precise identification of credit booms will be possible with the use of the other three methods.

2 The model of credit to households has been described in the paper of M. Rubaszek and D. Serwa "Determinants of credit to households in a life-cycle model", NBP Working Paper, to be published shortly.
3 D. Serwa "Identifying multiple regimes in the model of credit to households", National Bank of Poland, research paper presented during a seminar of the NBP Economic Institute on 11 March 2011.
3.3. Credit risk

The quality of banks’ loan portfolio was worsening albeit at a slower pace than in the period covered by the previous issue of the Report. This development contributed to an increase in the profitability of intermediation between savers and borrowers. In the coming quarters, the rate at which the quality of the loan portfolio is worsening may be expected to grow smaller, unless the risk related to another slowdown of world economic growth materialises. This will lead either to a stabilisation or a decrease in the value of charges to provisions for impaired loans.

3.3.1. Banks’ credit risk premium and cost

The quality of loans to the non-financial sector measured by the share of impaired loans improved as compared with the period described in the previous issue of the Report (see Table 3.3). The value of impaired loans to households continued to grow albeit at a slower pace than in previous quarters, as the value of impaired loans to enterprises fell (see Figure 3.13). These developments resulted from better economic situation which helped improve the financial condition of debtors, but also from writing off uncollectible loans from balance sheet, sale of impaired loans and from changes in the accounting rules. This last factor contributed significantly to the fall of value of impaired loans in the first quarter of 2011. Hence, the improvement in the quality of corporate loans in this quarter should not be treated as a signal of a significant upswing in the borrowers’ financial standing.

The slowing down of deterioration of loan portfolio quality was reflected in the decrease of the burden of loan impairment charges on the financial results of banks (see Table 3.2). In the analysed period, the amounts of credit risk materialisation cost diminished, especially with regard to consumer loans and loans to enterprises (see Figure 3.4).

The decrease of the ratio of loan impairment charges to assets, coupled with interest income increase and interest expense decrease resulted in improvement in the profitability of intermediation between savers and borrowers, measured by the adjusted net interest margin (see Figures

\[ \text{Note: data after excluding the impact of foreign exchange rate changes.} \]
\[ \text{Source: NBP.} \]

\[ \text{21 The value of impaired loans in banks using IFRS and the value of irregular loans in banks using the Polish Accounting Standards will be described collectively by the terms "impaired loans".} \]

\[ \text{22 The estimated value of debt sold in 2010 amounted to 4.6 billion zlotys, of which 3 billion zlotys were for retail debt (bank loans have an around 80% share in the market of debt sale). In 2011, the value of retail portfolios offered for sale amounted to no less than 3.3 billion zlotys. Source: Presentation of Q1 2011 Results http://www.krukza.pl/pl/dlainwestora/raporty/raporty-okresowe/} \]

\[ \text{23 In the first quarter of 2011, bank PKO BP "reclassified premises for individual impairment that involves ceasing a recognition of the premise »deterioration in the client’s financial standing « in relation to a selected group of clients who have so far been in this group and who are characterised by a relatively low likelihood of defaulting on the liability" (source: Komentarz Zarządu Banku do wyników Grupy Kapitałowej PKO Banku Polskiego SA za I kwartał 2011 r., p. 12, footnote 1).} \]
Both the accelerating growth rate of lending (especially in the segment of housing loans) and the rise of effective interest on consumer loans led to the increase of interest income. On the other hand, the decrease of interest expense arose from less intense competition for household deposits as well as from the growing importance of inexpensive current deposits in the maturity structure of deposits (see Chapter 3.5).

### Figure 3.14. Adjusted net interest margin and share of impaired loans in loan portfolio

Profitability of loan extension was strongly dependent on the product and the borrower (see Figure 3.16). Although the burden of credit risk materialisation cost was very high, consumer loans displayed the highest profitability. However, adjusted net interest margin on these loans was strongly discrepant among banks. Throughout 2010, the percentage of banks displaying negative profitability of consumer loans was higher than for other categories of loans (see Figure 3.17). In the case of loans to corporates, this share was rapidly diminishing after recording the maximum value in the fourth quarter of 2009. These factors may have had an impact on lending growth (for more details on this issue, see Chapter 3.2).

### Figure 3.15. Net interest margin

[Graph showing net interest margin over time]

Notes: annualised data.
The upper edge of the area in the Figure corresponds to the net interest margin (NIM). This margin is partially composed of interest income on debt securities (not classified in the „Loans and other receivables“ portfolio), issued mostly by the government, and therefore carrying low credit risk. Part of the remaining interest margin is used to cover the cost of credit risk materialisation. Adjusted net interest margin, as a residual value, measures the net profitability of intermediation between savers and borrowers.

Source: NBP.

In the coming quarters, profitability of intermediation between savers and borrowers may be expected to improve further. The burden of loan impairment charges on net income from banking activity should continue to drop as a result of the slower pace of the deterioration in the quality of loan portfolio (especially in the case of corporate and consumer loans). Net interest income may also be expected to grow on account of banks’ lending growth in the segment of hous-

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24 The decrease of the ratio of interest income on debt instruments to assets in the first quarter of 2010 is related to a change in the way interest income on debt instruments classified as „held for trading“ and „designated at fair value through profit and loss account“ is presented. In the past, this income was recognised as interest income, and currently it is recognised jointly with price changes of these instruments (see item „gains/losses on valuation and trading activities“ in Table 3.1). In 2009, this part of interest income accounted for 27.7% of total interest income on debt instruments.
Banking sector stability

ing loans and of loans to small and medium-sized enterprises as well as interest rate increases, with the latter being reflected in banks’ income earlier.

Figure 3.16. Estimated profitability of consumer loans (left-hand panel), housing loans (central panel) and corporate loans (right-hand panel)

Notes: annualised data.
Values presented here should only be regarded as a proxy of the actual profitability of particular credit products. Identical funding costs (effective interest rate on liabilities) were assumed for each credit category. Estimated profitability takes no account of profit earned on foreign currency-denominated loans due to the difference between the bid and offer price of currencies (FX spread).

"Result of closing open currency position" for housing loans are the estimated net gains/losses on closing of an open FX position by banks (related to origination of Swiss franc-denominated housing loans) by 3-month FX swaps CHF/USD and USD/PLN. NBP data show (see Chapter 3.4) that the open FX position of Polish banks is very low, but the balance sheet value of Swiss franc-denominated loans in the majority of banks that provide such loans significantly exceeds the value of liabilities valued at amortised cost in this currency (for euro-denominated loans, this only applies to few banks and on a small scale). This means that banks close this position using off-balance sheet transactions. The result of this closing was estimated as the product of the sum of banks’ long balance sheet positions (positive differences between the value of Swiss franc-denominated loans and value of financial liabilities) and the average quarterly difference between WIBOR 3M rate and LIBOR CHF 3M rate adjusted for implied spread on FX swaps.
Source: NBP.

25 Around 94% of the loan portfolio of banks are variable interest-bearing loans. In turn, around 30% of interest-bearing liabilities in zloty of Polish banks are liabilities bearing so-called bank-managed interest rate. The majority of these liabilities are current deposits of households. The hitherto prevailing practice of banks with regard to interest rate changes shows that it may be expected that interest on these deposits will not follow interest rate growth.
Figure 3.17. Share of banks with a certain profitability of loans in the total consumer loans, housing loans and corporate loans granted by the banking sector.

Notes: annualised data.
For description of estimated profitability measurement, see comments to the figure 3.16.
Source: NBP.

Table 3.3. Impaired loans and impairment provisions

<table>
<thead>
<tr>
<th></th>
<th>12-2009</th>
<th>3-2010</th>
<th>6-2010</th>
<th>9-2010</th>
<th>12-2010</th>
<th>3-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonfinancial sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- impaired loans (zloty billion)</td>
<td>50.5</td>
<td>52.1</td>
<td>57.6</td>
<td>60.0</td>
<td>61.2</td>
<td>61.3</td>
</tr>
<tr>
<td>- impaired loan ratio (in %)</td>
<td>7.9</td>
<td>8.1</td>
<td>8.5</td>
<td>8.8</td>
<td>8.8</td>
<td>8.7</td>
</tr>
<tr>
<td>- impairment (zloty billion)</td>
<td>26.3</td>
<td>28.4</td>
<td>30.8</td>
<td>32.5</td>
<td>33.2</td>
<td>34.4</td>
</tr>
<tr>
<td>- impaired loans coverage ratio (in %)</td>
<td>52.0</td>
<td>54.6</td>
<td>53.4</td>
<td>54.2</td>
<td>54.2</td>
<td>56.1</td>
</tr>
<tr>
<td><strong>Households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- impaired loans (zloty billion)</td>
<td>24.9</td>
<td>27.6</td>
<td>30.4</td>
<td>32.9</td>
<td>34.0</td>
<td>35.4</td>
</tr>
<tr>
<td>- impaired loan ratio (in %)</td>
<td>6.0</td>
<td>6.6</td>
<td>6.7</td>
<td>7.2</td>
<td>7.2</td>
<td>7.4</td>
</tr>
<tr>
<td>- impairment (zloty billion)</td>
<td>16.6</td>
<td>18.7</td>
<td>20.8</td>
<td>22.3</td>
<td>23.0</td>
<td>24.0</td>
</tr>
<tr>
<td>- impaired loans coverage ratio (in %)</td>
<td>66.7</td>
<td>68.0</td>
<td>68.4</td>
<td>67.9</td>
<td>67.7</td>
<td>68.0</td>
</tr>
<tr>
<td><strong>Corporates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- impaired loans (zloty billion)</td>
<td>25.6</td>
<td>24.4</td>
<td>27.1</td>
<td>27.0</td>
<td>27.1</td>
<td>25.8</td>
</tr>
<tr>
<td>- impaired loan ratio (in %)</td>
<td>11.5</td>
<td>11.2</td>
<td>12.2</td>
<td>12.2</td>
<td>12.4</td>
<td>11.5</td>
</tr>
<tr>
<td>- impairment (zloty billion)</td>
<td>9.6</td>
<td>9.7</td>
<td>10.0</td>
<td>10.2</td>
<td>10.1</td>
<td>10.3</td>
</tr>
<tr>
<td>- impaired loans coverage ratio (in %)</td>
<td>37.6</td>
<td>39.6</td>
<td>36.8</td>
<td>37.6</td>
<td>37.4</td>
<td>39.9</td>
</tr>
<tr>
<td><strong>Loans written off from balance sheet</strong></td>
<td>2.6</td>
<td>0.4</td>
<td>1.2</td>
<td>2.1</td>
<td>3.4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: NBP.
3.3.2. Credit risk of corporate loans

The quality of loans to enterprises has improved in the previous six months. The value of impaired corporate loans in the banking system has fallen by 4.4% since September 2010. The average impaired loan ratio was falling from the start of 2011 to reach 11.5% in March 2011 (see Figure 3.18). The impaired loan ratios improved both for small and medium-sized enterprises (SME) and large ones. The quality of foreign currency-denominated loans to enterprises remains better than that of zloty-denominated loans.

Changes in the structure of impaired loans by NACE-2007 sections of the economy against values from September 2010 were small (see Table 3.5). The quality of banks’ loan portfolios slightly improved for the majority of sections (including the largest one – manufacturing).

Table 3.4. Impaired loan ratios for enterprises(%)

<table>
<thead>
<tr>
<th>Enterprises</th>
<th>12-2009</th>
<th>12-2010</th>
<th>3-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large, of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– zloty loans</td>
<td>10.5</td>
<td>10.8</td>
<td>9.9</td>
</tr>
<tr>
<td>– FX loans</td>
<td>6.0</td>
<td>6.4</td>
<td>5.8</td>
</tr>
<tr>
<td>SME, of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– zloty loans</td>
<td>15.7</td>
<td>16.7</td>
<td>15.4</td>
</tr>
<tr>
<td>– FX loans</td>
<td>5.3</td>
<td>6.6</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Note: large enterprises defined as employing at least 250 persons, SMEs - fewer than 250 persons. Source: NBP.

Figure 3.18. Impaired loan ratios for enterprises

Source: NBP.

Figure 3.19. Structure and quality of real estate loans for enterprises

Source: NBP.

Corporate real estate loans

Corporate real estate loans account for a relatively large portion of corporate loan portfolio (around 20%, aggregate value over 45 billion zlotys). Around 30% of these loans are housing loans, and 10% - – loans for office space purchase (see Figure 3.19). The largest portion are so-called other real estate loans (nearly 60%), i.e., inter alia, loans for other buildings, structures, proprietary right to apartments, land. Real estate loans were mainly extended to the

Note: data excluding BGK.

26Housing loans are taken out by enterprises that implement residential property construction projects or purchase residential property for sale or lease.
Table 3.5. Quality of large exposures by sections of the economy (%)

<table>
<thead>
<tr>
<th>Section</th>
<th>Structure of total loans by section</th>
<th>Structure of impaired loans by section</th>
<th>Impaired loan ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Agriculture</td>
<td>1.6 (1.6)</td>
<td>1.4 (1.6)</td>
<td>9.4 (9.0)</td>
</tr>
<tr>
<td>B - Mining</td>
<td>0.9 (0.9)</td>
<td>2.1 (2.1)</td>
<td>19.6 (22.1)</td>
</tr>
<tr>
<td>C - Manufacturing</td>
<td>28.5 (28.7)</td>
<td>30.7 (32.3)</td>
<td>9.4 (10.4)</td>
</tr>
<tr>
<td>- Food processing</td>
<td>4.9 (5.5)</td>
<td>7.1 (7.7)</td>
<td>12.6 (12.9)</td>
</tr>
<tr>
<td>- Manufacture of coke and refined petroleum</td>
<td>3.0 (3.2)</td>
<td>0.1 (0.8)</td>
<td>0.2 (2.2)</td>
</tr>
<tr>
<td>products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Manufacture of rubber and plastic products</td>
<td>1.6 (1.7)</td>
<td>1.4 (1.5)</td>
<td>7.6 (8.3)</td>
</tr>
<tr>
<td>- Manufacture of other non-metallic products</td>
<td>1.5 (1.6)</td>
<td>1.8 (1.8)</td>
<td>7.4 (10.6)</td>
</tr>
<tr>
<td>- Manufacture of metal products (excluding</td>
<td>2.6 (2.5)</td>
<td>2.6 (2.7)</td>
<td>8.8 (9.9)</td>
</tr>
<tr>
<td>machinery and equipment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D - Electricity, gas and steam supply</td>
<td>4.0 (3.3)</td>
<td>0.7 (0.6)</td>
<td>1.4 (1.6)</td>
</tr>
<tr>
<td>E - Water supply, sewerage, waste</td>
<td>1.3 (1.5)</td>
<td>0.7 (0.7)</td>
<td>4.8 (4.5)</td>
</tr>
<tr>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F - Construction</td>
<td>15.6 (15.9)</td>
<td>16.6 (16.6)</td>
<td>9.2 (9.6)</td>
</tr>
<tr>
<td>G - Retail trade and repairs</td>
<td>19.8 (20.5)</td>
<td>17.0 (17.0)</td>
<td>7.4 (7.6)</td>
</tr>
<tr>
<td>H - Transportation and storage</td>
<td>2.8 (2.9)</td>
<td>3.4 (3.3)</td>
<td>10.6 (10.5)</td>
</tr>
<tr>
<td>I - Hotels and restaurants</td>
<td>2.1 (2.1)</td>
<td>4.1 (3.9)</td>
<td>16.9 (17.3)</td>
</tr>
<tr>
<td>J - Information and communication</td>
<td>3.4 (3.4)</td>
<td>0.9 (0.8)</td>
<td>2.2 (2.2)</td>
</tr>
<tr>
<td>K - Financial and insurance activities</td>
<td>10.9 (11.8)</td>
<td>1.4 (1.1)</td>
<td>1.1 (0.9)</td>
</tr>
<tr>
<td>L - Real estate activities</td>
<td>11.6 (11.4)</td>
<td>15.5 (15.3)</td>
<td>11.6 (12.4)</td>
</tr>
<tr>
<td>M - Professional, scientific and technical</td>
<td>3.2 (2.7)</td>
<td>5.0 (3.9)</td>
<td>13.6 (13.1)</td>
</tr>
<tr>
<td>activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N - Administrative activities</td>
<td>3.0 (3.1)</td>
<td>0.4 (0.4)</td>
<td>1.3 (1.3)</td>
</tr>
<tr>
<td>O - Public administration</td>
<td>9.9 (10.7)</td>
<td>0.6 (0.3)</td>
<td>0.5 (0.3)</td>
</tr>
<tr>
<td>P - Education</td>
<td>0.4 (0.4)</td>
<td>0.3 (0.3)</td>
<td>7.6 (7.7)</td>
</tr>
<tr>
<td>Q - Health care</td>
<td>1.2 (1.2)</td>
<td>0.6 (0.3)</td>
<td>4.0 (2.7)</td>
</tr>
<tr>
<td>R - Arts, entertainment and recreation</td>
<td>0.3 (0.3)</td>
<td>0.6 (0.6)</td>
<td>17.6 (19.0)</td>
</tr>
<tr>
<td>S - Other services</td>
<td>0.3 (0.3)</td>
<td>0.1 (0.2)</td>
<td>4.0 (4.7)</td>
</tr>
<tr>
<td>Total (excluding sections K and O)</td>
<td>82.8 (81.7)</td>
<td>98.0 (98.6)</td>
<td>8.7 (9.2)</td>
</tr>
<tr>
<td>Total value (excluding sections K and O), (zł billion)</td>
<td>300.5 (338.2)</td>
<td>–</td>
<td>31.3 (31.2)</td>
</tr>
</tbody>
</table>

Notes: data for March 2011, in brackets - data for September 2010; by NACE-2007 sections of the economy; credit exposures include claims arising from advances and loans, debt purchased, cheques and bills of exchange, guarantees realised, other similar claims and off-balance sheet debt and financial guarantees; large exposures – for a bank in the form of a joint stock company, state-run bank and a non-associated cooperative bank an exposure towards one enterprise in excess of 500,000 złoty; for an associated cooperative bank an exposure towards one enterprise in excess of 50,000 złoty; in section C manufacturing data on five sub-sections with the largest share in total claims are presented.

Source: NBP.
sector of small and medium-sized enterprises (around 80%).

**Figure 3.20.** Impaired real estate loans ratios for enterprises

![Graph showing impaired real estate loans ratios for enterprises](image)

Note: data excluding BGK. Source: NBP.

The average quality of the portfolio of real estate loans to corporates does not deviate from the average quality of loans to corporates. Following a small increase in December 2010, the impaired loan ratio for this portfolio remains at the level of around 10.4%. The quality of loans for office space and other real estate is relatively high. On the other hand, it is much poorer for housing loans (see Figure 3.20).  

The ratio of impaired real estate loans to corporates started to grow strongly in the fourth quarter of 2008 (from 3.0% and from the value of impaired loans amounting to 380 million zlotys) during the property market downturn and price falls, reaching its highs in January 2011 (22.4% and value of 2.3 billion zlotys). The high levels of impaired loan ratios in this segment result from the poor financial condition of small developers who commenced some of their residential projects when price growth peaked, having assumed overoptimistic economic assumptions. Although these ratios are not favourable, it should be noted that the risk related to this type of loan affects a small number of banks, and the share of housing loan portfolios in the total loan portfolio (whose quality is good) of the banks is insignificant.

**Financial condition of enterprises**

In the period covered by the Report, the financial condition of enterprises continued to improve. Their increased capacity to settle bank liabilities resulted from continued improvement in the economic climate. The net profit and profitability of the corporate sector (see Figure 3.21) has been steadily improving since the first quarter of 2009. Continuing improvement in the conditions in which enterprises operated was also evidenced by a further increase of industrial output growth and sales in industry.

**Figure 3.21.** Earnings (y/y) and profitability of the corporate sector

![Graph showing earnings and profitability](image)

Note: data presented cumulatively. Source: GUS.

The degree to which the sector’s average liquidity ratios in 2010 and early 2011 improved is smaller than in 2009 (see Figure 3.22). It should be noted, however, that the values of the ratios are historically high. The analysis of the liquidity ratios by sectors of the economy fails to iden-

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27 Values of the ratios after excluding Bank Gospodarstwa Krajowego. BGK, a state-owned bank, was not included due to its specific activities that consist, inter alia, in extending subsidised loans for residential construction under the state-provided funds.
tify the industries whose liquidity position would jeopardize loan quality.

Figure 3.22. Financial liquidity ratios of enterprises

Source: GUS.

Figure 3.23. Financial leverage

Note: ratios calculated for all enterprises with employment over 49. Data include domestic and external debt.
Source: NBP calculations based on GUS data.

In 2010 and in the first quarter of 2011, the decrease of financial leverage ratios of enterprises and the improved net profit at the end of 2010 supported better loan servicing (see Figure 3.23) (the interest to net operating income ratio decreased compared to the corresponding period of the previous year).

Outlook

Should economic climate continue and given the improving liquidity position of enterprises in the majority of sections of the economy, and the decrease of financial leverage, the average quality of corporate loan portfolio may be expected to steadily improve.

However, it seems that the quality of corporate housing loans, taken out mainly by developers, will not improve in the near future. In some regions, some problems have arisen with selling residential investments started when both demand for real estate and real estate prices were high. This may aggravate liquidity problems in the sections of construction and real estate activities as a whole, for which the quality of loans to date has been relatively good.

In addition to a potential slowdown of economic growth in highly developed economies, continuation of commodity price growth in global markets remains the main source of risk for the standing of enterprises and subsequently for the quality of corporate loan portfolios as it would push up costs and contribute to the worsening of the profitability of enterprises’ operations.

3.3.3. Credit risk of the portfolio of loans to households

In the fourth quarter of 2010 and in the first quarter of 2011, the quality of loans to households continued to worsen albeit at a lower pace than in the periods analysed in several previous issues of the Report (see Figures 3.13 and 3.24). The value of impaired loans in the past six months rose by 7.3%, and in the past 12 months - by 27.0%\textsuperscript{28}. At the end of March 2011, the impaired loan ratio rose to 7.4%.

\textsuperscript{28} Data after excluding the impact of foreign exchange rate changes.
Table 3.6. Impaired loan ratios for households (%)

<table>
<thead>
<tr>
<th>Type of loans</th>
<th>12-2009</th>
<th>12-2010</th>
<th>3-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing loans</td>
<td>1.5</td>
<td>1.8</td>
<td>2.0</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- złoty loans</td>
<td>2.3</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>- FX loans</td>
<td>1.1</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Consumer loans</td>
<td>13.0</td>
<td>17.3</td>
<td>18.2</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- złoty loans</td>
<td>13.6</td>
<td>18.0</td>
<td>18.9</td>
</tr>
<tr>
<td>- FX loans</td>
<td>4.3</td>
<td>6.0</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Source: NBP.

Figure 3.24. Impaired loan ratios for households

![Impaired loan ratios for households](image)

Note: number of working persons according to BAEL and total employment - quarterly data; employment in the enterprise sector - monthly data. Source: GUS.

Differently than in previous quarters, while the number of working persons and employment were rising in the period covered by the Report (see Figure 3.25), the number of the jobless and the unemployment rate according to BAEL were falling (see Figure 3.26).

The structure of flows in the labour markets contributed to the mitigation of the negative impact of the rise in unemployment in 2010 on loan quality. Differently than in the previous year, in 2010 the estimated balance of flows from unemployment to employment was positive. The flows from inactivity to unemployment were the main reason for unemployment growth. As persons active in the labour market dominate among borrowers, especially in the case of mortgage loans, the negative impact of unemployment growth on loan quality was mitigated.

Condition of the household sector

In the period covered by the Report the income of the household sector rose at a relatively high pace. In the fourth quarter of 2010, households' pre-tax disposable income increased, in real terms, more than 5% year-on-year, mostly on the back of a rise in income from employment as well as an increase in natural persons' business income.

29 All comments in this paragraph relate to seasonally adjusted data. The effect of seasonality is particularly strong in the first quarter of a year, when the number of working persons and unemployment tend to fall considerably and grow, respectively.

30 On the basis of results of the GUS-conducted "Household Budget Surveys in 2009", in can be estimated that in 2009 the share of households, for which economic activities such as employment, self-employment or working on a farm constitute the major source of income, in total loans to households amounted to 83%, and in the case of mortgage loans to 94%.
Housing loans

In the fourth quarter of 2010 and in the first quarter of 2011 the quality of housing loans was deteriorating at relatively high pace (see Figure 3.27). The value of impaired housing loans in the last 6 and 12 months increased, respectively, by 18.7% and 55.6%. However, the quality of housing loans is still much better than the quality of other types of loans to households (see Figure 3.28).

The natural process of deterioration in the quality of housing loans in the first years following their origination led to a relatively high increase of impaired loan values. As BIK data show, the process of deterioration in housing loan quality in the first years after loan origination is so strong that it also occurred in favourable macroeconomic conditions (see Figure 3.30). The impact of the process on the quality of housing loan portfolio can be enhanced by its structure. The majority of the portfolio is composed of loans extended during a lenient lending policy of the years 2006 – 2008 (see Figure 3.29).

Note: data after excluding the impact of foreign exchange rate changes.

Source: NBP.

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31 Data after excluding the impact of foreign exchange rate changes.
The deterioration in the condition of some households related, inter alia, to unemployment growth during the recent economic slowdown, may continue to exert the negative influence on loan quality. This deterioration may have a lagged effect on housing loan quality on account of borrowers’ use of their savings and other sources to finance loan servicing when facing either decrease in income or loss of the source of income and because of priority in settling housing loan repayments against other payments\(^{32}\).

In the period analysed in the Report, discrepancies remained between the quality of zloty-denominated and foreign currency-denominated housing loans (see Table 3.6). Information from banks suggests, however, that the discrepancies are largely the result of conversion of foreign currency-denominated loans into zloty after the occurrence of significant arrears in loan repayment or of other signs of its impairment. This is indirectly reflected in BIK data that indicate that the share of loans in arrears (albeit not submitted for collection or execution) in zloty-denominated housing loans is just slightly higher than this share in the case of foreign currency-denominated loans (see Table 3.7). On the other hand, the main source of differences in the quality of these loans is the considerably higher share of loans submitted for collection or execution in case of zloty-denominated loans.

### Table 3.7. Percentage of housing loans in arrears or submitted for collection or execution, as at the end of 2010 (%)\(^{34}\)

<table>
<thead>
<tr>
<th>Loan status</th>
<th>Zloty</th>
<th>FX</th>
</tr>
</thead>
<tbody>
<tr>
<td>In arrears of 31-90 days</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>In arrears of more than 90 days</td>
<td>1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Submitted for collection or execution</td>
<td>1.4</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Source: NBP estimates based on BIK data.

The appreciation of the Swiss franc against the zloty has had an adverse impact on foreign currency-denominated loan repayment burden\(^{33}\).
Credit risk of households\textsuperscript{33}, although the impact remains limited by low interest rates in this currency. Growth of servicing cost of foreign currency-denominated loans in CHF relative to cost on loan origination date is largely dependent on the way loans are repaid. At present, loan servicing cost repaid in accordance with the method of constant instalments\textsuperscript{34} is higher than cost on loan origination date, although due to a low level of interest rates in Swiss franc in the case of the majority of monthly cohorts of loans (i.e. loans taken out in a given month) this growth is moderate\textsuperscript{35} (see Figure 3.31). If the assumed method was loan repayment in decreasing instalments (constant principal instalments) the average cost of servicing Swiss franc-denominated loans would now be higher than in loan origination month for monthly cohorts of loans with a 52% share in loans granted in the surveyed period.

The appreciation of the Swiss franc also resulted in an increase in the zloty value of loans denominated in this currency. This increases the relation of the value of loan to the value of real property (decreases the extent to which the loan is collateralised) and reduces the possibilities of early repayment. The issue applies primarily to loans extended during the 2007–2008 credit boom (see Figure 3.31). In this period, the CHF/PLN exchange rate recorded its lowest level in the past 15 years. In the case of quarterly cohorts of Swiss franc-denominated loans, the average LTV now exceeds 90% for cohorts with a 49% share in loans taken out in the surveyed period\textsuperscript{36}. In the case of two cohorts: from the fourth quarter of 2007 and the third quarter of 2008 (with a total share of 25%) the average LTV now exceeds 100%\textsuperscript{37}.

Assumptions: Swiss franc-denominated housing loan with maturity of 25 years, repaid in constant total instalments or constant principal instalments (decreasing total instalments), current instalment calculated on the basis of Swiss franc exchange rate and LIBOR 3M rate of 27 May 2011 and the average spread on Swiss franc-denominated loans on loan origination date. Points on the horizontal axis denote the month of loan origination.

Source: NBP, BIK (loan value).

\textsuperscript{34} Information from banks indicates that the estimated share of foreign currency-denominated loans repaid in this method amounts to around 90%, and the prevailing method for adjusting an amount of instalment after interest rate change, is re-calculation of the whole loan repayment plan.

\textsuperscript{35} For this loan repayment method, for monthly cohorts of loans with an around 85% share in loans taken out in 2005-2010 their average servicing cost would now exceed the cost in the loan origination month by over 10%. However, only for cohorts with an 18% share this cost would be over 20% higher, and the highest increase of average loan servicing cost for monthly cohorts of loans taken out in the surveyed period would amount to 24%.

\textsuperscript{36} Estimates were made for loans taken out from the third quarter of 2006 to the fourth quarter of 2010.

\textsuperscript{37} The assumption was made for these estimates that loans were repaid in constant instalments. Information from banks suggests that the method is applied for vast majority of loans.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure_3.31.png}
\caption{The ratio of loan instalment calculated on the basis of current market data to the instalment at loan origination against current values of Swiss-franc-denominated housing loans taken out in successive months of the period 2005–2010}
\end{figure}
Banking sector stability

Figure 3.32. Average values of LTV for Swiss franc-denominated housing loans originated in successive quarters

Assumptions: estimates of the current average value of LTV were made on the basis of average CHF exchange rates, average LTV at loan origination date, average maturity of loans by quarters and changes in average transactions prices of flats in the surveyed period. Value of loan translated into zloty at the CHF exchange rate as of 27 May 2011. It was assumed that loans are repaid in constant instalments and that average value of Swiss franc-denominated loans is the same for all foreign currency-denominated loans. Source: NBP estimates based on data from an additional question to the senior loan officer opinion survey.

Consumer loans

In line with expectations from the previous issue of the Report, the pace at which the quality of consumer loans was deteriorating decreased considerably (see Figure 3.33). Growth in the value of impaired loans in the last 6 months was 3.9%, and in previous 12 months - 20.9%.38

The recognition in banks’ balance sheets in earlier periods of a significant portion of impaired consumer loans extended during a period of a lenient lending policy contributed to the slower pace of deterioration in the quality of consumer loans. This observation is confirmed by data derived from BIK which show that the quality of loans extended in 2007 – 2008 and in the first quarter of 2009 was deteriorating at a gradually slower pace (see Figure 3.35). Loans extended after the first half of 2009, i.e. after banks considerable tightened their lending policies, are characterised by a relatively good quality.

Figure 3.33. Quarterly changes in the value of impaired consumer loans

Note: data after excluding the impact of foreign exchange rate changes. Source: NBP.

Figure 3.34. Impaired loan ratio in consumer loans for various types of banks

Source: NBP.

38 Data after excluding the impact of foreign exchange rate changes.
39 It was assumed that banks that specialise in loans to households were commercial banks and branches of credit institutions in which loans to households accounted for over 80% of loans to the non-financial sector.
As banks specialising in loans to households made big losses on consumer loans extended during the period of a lenient lending policy\textsuperscript{39}, the quality of consumer loans in this group of banks is currently much lower than in other banks\textsuperscript{40} (see Figure 3.34). In response to the worsening quality of consumer loans, banks that specialise in providing loans to households reduced their lending in the segment of consumer loans (a 6.8% y/y decrease in value of consumer loans as the end of 2011, compared with a 4.0% increase y/y in other banks).

Figure 3.35. Share of loans in arrears of more than 90 days 6, 12, 24, 30 and 36 months from loan origination for loans extended in successive months of the period December 2006–June 2010

Note: points on horizontal axis denote a month of loan origination. The smaller the distance between particular lines for a given month, the slower the pace the quality of loans extended in a given month is worsening in the course of time.
Source: BIK.

Also in case of credit card lending the pace at which loan quality is deteriorating has slowed (see Figure 3.36). This decrease has been accompanied by greater decrease in loan growth rate than in the case of other consumer loans. At the end of the first quarter of 2011, annual decrease in the value of credit card lending to natural persons amounted to 6.0%, compared with a 0.6% fall for other consumer loans.

The decrease in the value of credit card lending coincides with the process of more and more widespread use of credit cards to make payments. The value of credit card transactions has continued rose\textsuperscript{41}. At the same time, the average value of a single transaction has been decreasing for a long time, which shows that credit cards are more and more commonly used to make smaller payments.

Figure 3.36. Quarterly changes in the value of impaired credit card loans

Note: loans to natural persons
Source: NBP.

Loan quality outlook

Projected macroeconomic developments are likely to be favourable from the point of view of the quality of loans to households. In line with the July 2011 projection of inflation and GDP\textsuperscript{42} the decrease in the growth rate of the number of

\textsuperscript{39} In the group of banks other than specialising in loans to households, large universal banks have a dominant share.

\textsuperscript{40} The value of credit card transactions has risen despite a simultaneous, relatively large (by 18% y/y in the fourth quarter of 2010) decrease in the number of issued credit cards. This fall is related to a tightening of lending policies by banks (tighter new card issuing standards, more frequent refusals to extend their validity and withdrawal of inactive cards). You can find out more on developments in the credit card market in „Informacja o kartach płatniczych, IV kwartał 2010 r.”, NBP, Warszawa, 2011.

\textsuperscript{41} See „Inflation Report - July 2011”, NBP, Monetary Policy Council, Warsaw, 2011
working persons is forecasted within the projection horizon, however it will be coupled with stabilisation of the labour market participation rate. As a result, the unemployment rate should fall. A gradual increase of the rate of wage growth is also foreseen within the projection horizon.

Although changes in the macroeconomic environment are favourable from the credit risk point of view, in the coming quarters the quality of loans to households will probably continue to deteriorate. Materialisation of credit risk accumulated on the balance sheets of banks in past periods will exert an influence on this development. However, the pace at which the quality of loans to households will deteriorate should be lower than in 2009–2010, mainly on account of the materialisation in this period of a significant portion of risk on consumer loans extended in the period of a lenient lending policy. The quality of consumer loans extended after the first half of 2009 should deteriorate at significantly slower pace due to strong tightening of lending policy in this market segment. Implementing by banks of all the provisions of Recommendation T should also exert positive influence on the quality of loans extended since 2011.

In the case of housing loans, the value of impaired loan and impaired loan ratios may be expected to continue to grow further. Continuation of the process of loan portfolio quality due to its ageing will have an impact on the further worsening. This process will be supported by the present composition of banks’ housing loan portfolios that largely consist of loans extended during the previous credit boom.

In the long-term perspective, implementation by banks of all provisions of the amended Recommendation S will also positively influence the quality of newly extended housing loans. It is laid down in the Recommendation, inter alia, that when assessing borrower's creditworthiness banks will not be allowed to assume loan maturity over 25 years, which should reduce the loan repayment burden of households taking out long term housing loans. At the same time, the reduction of the maximum ratio of loan repayment expenditures to borrower's net income to 42% in the case of foreign currency-denominated housing loans will help mitigate the sensitivity of households taking out such loans to depreciation of the zloty and to foreign interest rate increases.

Materialisation of the worse-than-expected macroeconomic scenario, especially characterised by the deterioration of the labour market situation, is the basic risk factor for the quality of loans to households. The impact of an isolated shock of unemployment growth on the quality of loans to households was analysed on the basis of the macroeconomic scenario presented in Chapter 3.6. Under this scenario, a rise of the unemployment rate would amount to 1.6 percentage points. This analysis was performed on data derived from the GUS-conducted Household Budget Survey (BGD). The simulations indicate that the scenario-assumed rise in unemployment would have a relatively small impact on the quality of loans to households. The percentage of household-borrowers with a negative income buffer would grow in this scenario by 1.1 p.p. and the estimated increase of the share of loans extended to these households would be of 1.4 p.p.

Other risk factors for loan portfolio quality include an occurrence of a longer period of strong depreciation of the zloty or an increase of domestic or foreign interest rates. These factors would be of special importance for housing loans on account of a high share of foreign currency-denominated loans and a relatively bigger impact of interest rate changes in loan servicing cost. The BGD-based estimates of a rise in the percentage of household-borrowers with a negative income buffer and in their share in mortgage loans to households should the shock of 30% de-

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43 A negative income buffer means that the household is not capable both to repay loans and to cover basic living costs from its current income. It was assumed that the job-losing persons are not provided with unemployment benefits.
preciation of the zloty occur would amount to 1.2 p.p. and 1.7 p.p., respectively. On the other hand, if the interest rate on loans is assumed to grow by 400 basis points, an increase of the percentage of households with a negative income buffer and increase in their share in mortgage loans to households would amount to 2.7 p.p. and 3.4 p.p., respectively. Analyses of threats to the quality of loans to households, related to shocks of the depreciation of the zloty and of an interest rate increase, were also performed on BIK data (see Box 2).

Box 2. Simulations of the impact of zloty depreciation and interest rate increase shocks on the quality of loans to households, based on BIK data

The impact of shocks related to the depreciation of the zloty and increases in interest rates on the quality of credit can be estimated i.a. on the basis of micro data (concerning individual households) collected by the Credit Information Bureau (BIK). The data base managed by BIK contains, apart from detailed information concerning the amount of debt and credit history, in the case of some borrowers also information on their income and number of dependents. This makes it possible to estimate the income buffer, and on its basis, to make inferences concerning the impact of zloty depreciation and interest rate shocks on the quality of credit.

Data held by BIK concerning loan delinquencies enables a more detailed analysis of the impact of financial shocks on credit quality than in the case of data from the Households Budget Survey (BGD). In the case of BGD data, the sensitivity to shocks related to the depreciation of the zloty and increases in interest rates can only be measured by using the increase in share of loans granted to households with a negative income buffer as a result of the shock. However, the share of loans granted to households with a negative income buffer is significantly higher than the share of impaired loans or loans serviced irregularly. One of the reasons is that the repayment of loans may be financed from sources other than current income, such as savings, the sale of assets or obtaining new loans.

The method of assessing the sensitivity of borrowers to financial shocks on the basis of BIK data is based on the assumption that for a given level of income buffer, the probability of serious delinquency (i.e. the probability that loan is irregular) is constant. Therefore this probability depends exclusively on the amount of the income buffer. The probabilities of serious delinquencies for various intervals of the income buffer level were estimated on the basis of a random sample of loans from BIK. The depreciation of the zloty or an increase in interest rates results in a reduction of the borrowers’ income buffer (due to higher costs of servicing a loan), which in turn leads to a higher probability of cessation of servicing a loan. Based on new values of the buffers following a shock and the resulting probabilities of serious delinquency, it is possible to estimate the expected value of irregular loans and the increase in the share of such loans following a shock.

Given the assumed level of shocks, an increase in interest rates has a greater impact on the quality of household loans than a depreciation of the zloty (see table 1). Households repaying housing loans are the most sensitive to financial shocks. Because this group includes a significant majority (approximately 80% in terms of value as of March 2011) of loans of the whole households sector, it is the main source of threats to the quality of loan portfolios, resulting from shocks related to the depreciation of the zloty or increases in interest rates.

\[44^4\] The parameters of the shocks of depreciation of the zloty and of an interest rate increase, such as the minimum parameters of stress tests specified in Recommendation S and Recommendation T.
Table 1: Increase in share of irregular loans following a shock related to the depreciation of the zloty or increases in interest rates, according to various groups of households (in percentage points, data as of end of March 2011).

<table>
<thead>
<tr>
<th></th>
<th>The depreciation of zloty by 30%</th>
<th>Interest rate increase by 4 pp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All households, of which:</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>- households repaying housing loans</td>
<td>0.4</td>
<td>1.3</td>
</tr>
<tr>
<td>- other households</td>
<td>0.0</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Note: the table presents the increase in share of irregular loans - the part resulting from the increased cost of servicing loans following a shock (without taking into account the effect of an increase in value of all loans denominated foreign currencies, resulting from a depreciation of the zloty).

Source: NBP estimates based on a representative sample from BIK of loans taken out by borrowers, for whom information concerning income is available.

It should be noted that the above estimates may involve non-random errors chiefly related to the quality of data concerning income and the non-representativeness of the sample of borrowers, for whom BIK provides data on income. This data is updated irregularly by BIK, frequently only once in several years. Consequently, the study assumes that since the last update of data concerning borrowers’ income, this income increased at a rate equal to the average wage increase reported by the Central Statistical Office (GUS) for the period in question. Furthermore, in the sample of loans from BIK used in the simulation, only the income earned by one borrower was available, even if the number of persons obliged to repay the loan was greater. Therefore in the case of multi-person households, the income of the whole household is estimated in a simplified manner, as the twofold amount of the borrower’s income. Another source of non-random errors may be related to the fact that information concerning income is available only for a small percentage of borrowers listed in BIK. Thus the results of the above simulation may not be representative for the whole banking sector.

1 For the purpose of this text, irregular loans are defined as loans with a delay in payments exceeding 90 days, loans being collected or subject to enforcement proceedings.

2 Source: NBP estimates based on a representative sample of loans from BIK.
3.4. Market risk

Market risk taken by Polish banks remains low. Exposures sensitive to changes in foreign exchange and interest rates are mostly hedged by off-balance sheet transactions. However, in case of major turmoil in the market of government bonds, banks may be exposed to risk related to potential considerable fluctuations of the spread between the underlying bond yields and the interest rates of hedging instruments.

In the period analysed in this Report, market risk taken by Polish banks has not changed considerably and remained low. The average capital requirement for market risk does not exceed 1.5% of banks’ regulatory capital, and for most banks it remains below this value (see Figure 3.37). FX risk and interest rate risk are the main components of market risk.

![Figure 3.37. Capital requirement for market risk to regulatory capital of commercial banks](image)

Notes: VaR at confidence level of 99% over a 10-day horizon, calculated for commercial banks and expressed as % of regulatory capital.
Source: NBP.

Direct FX risk banks take is low. The long FX balance sheet position arising primarily from the portfolio of foreign currency-denominated housing loans is hedged by off-balance sheet transactions. In consequence, the open FX position is low and amounts to around 1.2% of the regulatory capital of commercial banks. In addition, VaR for FX risk shows that in the period analysed in the Report the risk that substantial losses might arise as a result of a change in the valuation of the open FX position was not large, and would amount for almost all banks to less than 0.1% of their regulatory capital (see Figure 3.38).

![Figure 3.38. Value at Risk for FX risk](image)

Notes: VaR at confidence level of 99% over a 10-day horizon, calculated for commercial banks and expressed as % of regulatory capital.
Source: NBP.

Keeping an open balance-sheet position hedged with off-balance sheet transactions may pose a hypothetical risk related to potential incapability of rolling over maturing hedges. Materialisation of this risk - which would indicate opening of net FX position - could lead to an increase of capital requirements and a decrease of banks’ capital adequacy ratios. However, simulations performed to assess the impact of this kind of risk show that approximately 92% banks (in terms of assets) would meet the required capital requirement even in the extreme case of the impossibility of rolling over all FX hedges. It should be noted that the simulation is performed under the assumption that the situation of banks is not simultaneously affected by other market shocks, e.g. depreciation of the foreign exchange rate.

Of more importance is credit risk arising from the portfolio of foreign currency-denominated loans extended to unhedged borrowers who are exposed to FX risk. For more details on credit risk, see Chapter 3.3.
Banks may also be exposed to risk related to the liquidity of the market of hedging instruments through the cost of hedging against FX risk. A rise of the cost may pose a threat to the profitability of a portfolio of FX assets, when the cost of concluding a hedging transaction is higher than a bank’s credit spread on a loan denominated in foreign currency (after adjusting for credit risk cost). This risk is particularly significant for some banks that in the period when competition was at its height extended housing loans denominated in foreign currency at very low spreads (of approximately 100-150 basis points).

Interest rate risk in Poland’s banking sector relates primarily to the portfolio of fixed-rate securities. The portfolio mostly comprises domestic government bonds and NBP bills. Around 80% of Treasury securities are held in portfolios whose value is sensitive to changes in market valuation (see Table 3.14). However, they are mostly hedged by derivatives. In consequence, the estimated VaR for interest rate risk in banks’ trading books was low and did not exceed 0.3% of banks’ regulatory capital.

### Table 3.8. Balance sheet value of debt instruments in banks’ portfolios by issuer (zloty billion)

<table>
<thead>
<tr>
<th>Issuer</th>
<th>Resident</th>
<th>Non-resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central banks (money bills)</td>
<td>97.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Central governments</td>
<td>153.2</td>
<td>0.4</td>
</tr>
<tr>
<td>-treasury bills</td>
<td>19.4</td>
<td>0.0</td>
</tr>
<tr>
<td>-treasury bonds</td>
<td>133.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Local governments</td>
<td>9.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Financial institutions</td>
<td>5.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Non-financial institutions</td>
<td>6.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>271.3</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Notes: VaR at confidence level of 99% over a 10-day horizon, calculated for commercial banks and expressed as % of regulatory capital determined jointly for the banking and trading books. Source: NBP.

It should be pointed out that over 99% of debt instruments held in banks’ portfolios were issued by residents. Therefore, Polish banks are not directly exposed to risk related to the fiscal position of some highly indebted euro area countries.

Even if the portfolio of debt instruments is fully hedged, banks may be exposed to the so-called basis risk which involves volatility of the spread between government bond yields and interest rate on swaps that hedge bond portfolios. In such a situation, the bond portfolio is not effectively hedged. This risk is not included in VaR calculations presented earlier in the text, however, it was taken into account in the stress scenario of macro stress tests (see Chapter 3.6). Results of these simulations show that this risk is not high, which largely results from the short duration of portfolios of Treasury debt securities held by Polish banks.

Banks’ total VaR for FX and interest rate risk was also estimated. To make this estimate, VaR analysis was conducted jointly for the banking...
and trading portfolios of banks. Taking into account the banking portfolio (for which changes in market interest rate do not generate changes in the current balance sheet value of financial instruments) in this analysis is designed to present the hypothetical impact of interest rate changes on the economic value of a bank. Average VaR calculated for total FX and interest rate risk increased slightly in comparison with the period analysed in the previous Report and amounted to 2.1% of banks’ regulatory capital (see Figure 3.39).

3.5. Liquidity risk

Since the publication of the previous Report, the funding position of Polish banks remained stable. Their funding structure, including the share of foreign funding, did not change significantly.

The short-term liquidity position of the banking sector has improved. However, it remains considerably diversified among individual banks.

In the coming period, further potential interest rate increase may have an impact on the liquidity position of banks. The liquidity position of Polish banks may also be influenced by the situation of their foreign parent entities, especially those directly sensitive to the debt crisis in some euro area countries. Should the debt crisis intensify, a market turmoil, similar to the response to bankruptcy of the Lehman Brothers, may occur. This would translate into potential FX liquidity problems, especially for some banks that cannot expect support from their parent entities.

3.5.1. Funding liquidity

In the period analysed in the Report, the average funding gap in the sector of commercial banks did not change significantly (see Figure 3.40) due to a similar growth rate of deposits and loans. The relatively high growth of deposits of the non-financial sector was accompanied by the increase in bank debt of the general government sector, including the value of debt securities issued by the sector’s entities and held by domestic banks.*

![Figure 3.40. Funding gap](image)

Note: for variable mean (fixed exchange rate) values of foreign currency claims and liabilities were converted into zlotys at a fixed exchange rate as at the end of March 2008 in order to eliminate the impact of exchange rate movements on the value of the funding gap.

Source: NBP.

In the surveyed period, average amounts of new term deposits of enterprises remained at a relatively high level (see Figure 3.41). On the other hand, the value of new term deposits of households was gradually falling. It should be noted, however, that the share of current accounts (including savings accounts) in the structure of liabilities towards households is rising. Banks’ competition for household funds has recently concerned mostly this kind of deposits.

*Debt securities issued by local government and classified by banks as “Loans and receivables” are included in the calculation of the funding gap due to their low liquidity.
Due to weaker competition for new term deposits, the cost of this funding source has diminished in comparison to market funding. At the end of March 2011, the average spread between the WIBOR 3M rate and interest on new term deposits of households rose to around 42 basis points (a year earlier it was close to zero). On the basis of interest on the stock of current deposits, it can be said that their interest has increased in comparison to interbank market rates.

Apart from deposits of the non-financial and government sectors, funds obtained from foreign financial institutions remain the second largest, in term of value, source of funding for domestic banks. These liabilities include mainly deposits and loans obtained from foreign parent entities of Polish banks. Their value, after excluding the impact of foreign exchange rate changes, remains stable (see Figure 3.42), which proves that foreign banks are rolling over deposits and loans originated on a large scale towards the end of 2008. However, the average maturity of these funds decreased in the past six months, which may enhance the rollover risk.

The share of domestic banks' liabilities towards foreign financial institutions grew slightly to around 17% of the balance sheet total of the banking sector. It is, however, very diversified among banks. In the case of banks that apply...

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**Figure 3.41.** Households’ and enterprises’ zloty term deposits - amount of new business in a given month

![Figure 3.41](image)

Note: data based on a sample of 20 banks reporting information on interest rates to the NBP. Methodology of interest rate statistics is available on the NBP website.

Source: NBP.

**Figure 3.42.** Loans and deposits from foreign banks

![Figure 3.42](image)

Notes: dotted lines denote values of liabilities after translation at fixed foreign exchange rate as of the end of December 2007.

Source: NBP.

**Figure 3.43.** Loans and deposits from domestic banks and branches of credit institutions

![Figure 3.43](image)

Notes: dotted lines denote values of liabilities after translation at a fixed foreign exchange rate as of the end of 2007.

Source: NBP.

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49 For more details of the specific funding strategies of Polish banks, see Chapter 3.4.1. in "Financial Stability Report"
a foreign funding strategy\footnote{Lehman Brothers, the share of such banks in the total assets of the banking sector has markedly grown (see Figure 3.45).} it amounts to over 45% on average (see Figure 3.47). The share of banks that follow this strategy has grown slightly in the recent period (see Figure 3.44). It should also be noted that banks applying a mixed funding strategy are increasingly financed by foreign funds, and to a lesser extent, by deposits. Moreover, some banks that have recently increased the value of their foreign funding pursue a relatively expansive lending policy.

Figure 3.44. Share of banks following each funding strategy in the assets of the commercial banks’ sector

![Figure 3.44](image)

Notes: banks were classified into particular groups on the basis of their funding structure at the end of each presented period
Source: NBP.

It should be pointed out that banks whose activities rely heavily on funding from their parent banks may be exposed to increased rollover and debt concentration risk. In the event of an abrupt withdrawal of funding from a parent bank, some banks might not hold a sufficient value of liquid assets to cover their liabilities. As at the end of April 2011, in the case of around one fourth of banks the value of foreign liabilities exceeded the level of their liquidity reserve. Compared to the period prior to the failure of Lehman Brothers, the share of such banks in the total assets of the banking sector has markedly grown (see Figure 3.45).

Figure 3.45. Assets of domestic commercial banks by the ratio of coverage of foreign liabilities with liquidity reserve

![Figure 3.45](image)

Notes: the ratio of coverage of foreign liabilities with liquidity reserve is determined as the difference between liquidity reserve and liabilities towards foreign financial institutions as % of assets, where liquidity reserve is the sum of core and supplementary liquidity reserve in accordance with Resolution No. 386/2008 of the Polish Financial Supervision Authority on defining liquidity standards binding for banks (for definitions see Glossary). As liquidity reserve also includes received unconditional off-balance sheet commitments, in the case of some banks the difference between liquidity reserve and liabilities towards foreign financial institutions may exceed the total balance sheet of a bank.
Source: NBP.

The share of funding raised by banks through the issue of debt instruments is insignificant, and in the analysed period remained at 2.3% of assets of the sector of commercial banks\footnote{The value of Eurobonds issued by PKO BP (800 million euro in October 2010 and 250 million CHF in June 2011) is not taken into account in the statistics on own issues of the banking sector, because the Eurobonds were issued by a foreign subsidiary, which subsequently granted PKO BP a loan in the amount of the issue.} Moreover, around 60% of the value of debt securities issued by banks are the infrastructure bonds issued by Bank Gospodarstwa Krajowego for the National Road Fund.
Average effective funding cost in the banking sector slightly decreased. Effective interest on liabilities towards the financial sector recorded the strongest decrease (see Figure 3.46). This was mainly driven by low interest rates in Poland and in foreign markets throughout the past 12 months. It is worth noting that although competition for household deposits declined, effective interest on liabilities towards the non-financial sector has been declining at a lower pace than towards the financial sector. This results in a broader negative spread between effective interest on liabilities towards the financial sector and non-financial sector, which exhibited a positive value in the pre-crisis period.

In the past six months, the average supervisory long-term liquidity ratio $M_4^{51}$ remained stable. The increase of assets of limited liquidity (mostly loans) was close to the increase of stable external funds.

**Figure 3.46.** Effective interest on liabilities

![Graph showing effective interest on liabilities](image)

Note: effective interest rate means the ratio of annualised interest expense to annual average balance sheet value of liabilities.

Source: NBP.

**Figure 3.47.** Structure of funding in banks applying deposit strategy (left-hand panel), foreign funding strategy (central panel) and mixed strategy (right-hand panel)

![Graphs showing structure of funding](image)

Legend: A - deposits of non-financial and general government sectors, B - liabilities towards financial entities-residents, C - liabilities towards financial entities-nonresidents, D - liabilities on repo operations with the NBP, E - capital, F - other liabilities.

Notes: banks were classified to particular groups on the basis of their funding structure at the end of March 2011.

Source: NBP.

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51 More on supervisory liquidity standards of KNF in Box 2 in „Financial Stability Report - December 2009“.
3.5.2. Short-term liquidity

Since the release of the previous Report, the average mismatch between banks’ short-term assets and liabilities has decreased, leading to a decline of the short-term and adjusted liquidity gap (see Figure 3.48).

**Figure 3.48.** Ratio of adjusted liquidity gap to assets with maturity of up to one month

![Graph showing ratio of adjusted liquidity gap to assets with maturity of up to one month]

Source: NBP.

The decrease of the short-term liquidity gap was largely driven by a gradual growth in domestic banks’ portfolio of NBP bills. The substantial increase of issues of NBP bills (see Figure 3.49) was related to the growth of NBP’s official reserve assets, supported in turn by inflows of EU funds. However, the liquidity position of individual banks is strongly diversified, and the portfolio of bills (as well as Treasury securities) is concentrated in several medium-sized and large banks.

**Figure 3.49.** Balance of NBP’s open market operations

![Graph showing balance of NBP’s open market operations]

Note: balance of positions means a sum of NBP bills and FX swaps less repo operations.

Source: NBP.

In the analysed period, the share of Treasury securities in banks’ balance sheets declined further. However, on account of a simultaneous decrease of short-term liquidity gap this had not contributed to a decrease of coverage of the gap with Treasury securities (see Figure 3.50). Nearly 80% banks (in terms of assets) hold a portfolio of Treasury securities either equal to or exceeding potential needs related to repayment of liabilities maturing in the short-term.

**Figure 3.50.** Structure commercial banks assets by the ratio of coverage of adjusted liquidity gap with Treasury securities

![Graph showing structure of commercial banks assets by ratio of coverage of adjusted liquidity gap with Treasury securities]

Source: NBP.

The situation of foreign parent entities is one of the major risk factors for banks’ liquidity position. This refers especially to banks from countries whose fiscal position may be subject to further intensified tensions or banks with large exposures towards these countries. If parent banks withdrew their funding, Polish banks that do not...
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hold adequate portfolios of liquid assets would be particularly affected.

So far, it has been possible to assess that the likelihood of an abrupt withdrawal of funding by parent entities has not been high. This was due to the experience following the failure of Lehman Brothers, when foreign parent entities did not withdraw from the Polish market, and even increased funding provided to Polish subsidiaries. It should also be noted that the propensity of foreign banks to fund their subsidiaries hinges not only on their own liquidity position but also on the level of profits generated by these subsidiaries. The high profitability of Polish subsidiaries and high growth potential of the domestic banking market reduced the risk that foreign parent banks would withdraw their operations from Poland.

Currently, it may be said, however, that the risk of halting funding obtained from parent banks has grown. This is related to the intensifying debt crisis in some euro area countries and the risk that it will escalate further. It is worth pointing out that according to the ECB$^{52}$, risk related to the fiscal situation of some euro area states and its impact on the operations of European banks, including funding risk, has recently risen and poses a major risk for financial system stability in the euro area.

Taking into account the rise in risk related to foreign funding, it seems rational to lower the dependence of Polish banks on this form of funding, in particular when it is short-term and finances long-term mortgage lending. The move would contribute to reduction in the rollover risk and funding concentration of banks, and in broader terms, it would facilitate mitigating the risk related to an excessive inflow of unstable foreign capital to the economy. In this context, developing the market of bank securities would seem to be favourable. In particular, in the NBP’s view it would be justified to allow banks other than mortgage ones to issue covered bonds provided that they would comply with the requirements ensuring high quality of these instruments. Allowing universal banks to issue mortgage bonds would have a positive impact on the stability and diversification of funding sources and would also stimulate funding of long-term residential investments.

In the longer term, the situation of banks will be influenced by new European liquidity risk regulations. In line with the Decision of the Basel Committee, so-called observation periods for the Liquidity Coverage Requirement (LCR) and for the Net Stable Funding Requirement (NSFR) were to begin in 2011 and 2012, respectively.$^{53}$

Box 3. Risk in the payment system

Operational risk

Operational risk in payment systems is defined as a human error risk, interruption in the operation of the system due to failure of equipment, software, IT systems of vital importance for the payment system or to a terrorist attack. The materialisation of this risk may lead, in particular, to the failure of system participants to meet their obligations, which may eventually generate unexpected losses for them. As nowadays almost every commercial transaction is settled through the payment system, disruptions in their settlement may even result in severe disruptions in the operation of the financial system as a whole. Therefore, it is essential for the system operator to minimise this

$^{53}$ More on the impact of international liquidity risk regulations in Box 4 of „Financial Stability Report - December 2010”.

risk by using proper solutions and safeguards.

According to the NBP, the likelihood of operational risk materialisation in the Polish payment system is low. Although it is not possible to fully protect the technical infrastructure of the payment system against technical risk, effects of its materialisation are reduced by the business continuity plan, developed and operating in the NBP in case of incidents leading to disruptions in the proper functioning of NBP infrastructure.

The NBP business continuity plan also protects the banking sector as a whole against negative effects of the materialisation of operational risk and the related liquidity risk. In addition, the hitherto very low failure rate and the accessibility ratios of the systems operated by the NBP (SORBNET and SORBNET-EURO), and KIR SA (ELIXIR and EuroELIXIR) amounting from 99.96% to 100% in the fourth quarter of 2010, and 100% in the first quarter of 2011 reflect very high level of technical reliability of payment systems functioning in the Polish payment system.

The system of safeguards against operational and liquidity risks

The NBP has put in place procedures and tools that protect the NBP-operated systems against operational risk materialisation. Under these procedures, descriptions of safeguards related to identified potential threats have been developed. However, it is not possible to fully protect the systems against all risks. On the one hand, this is due to the lack of full knowledge about existing risks. On the other hand, it results from the need to maintain a balance between the likelihood of a given threat and its potential effects, and investments on the development, maintenance and continuous development of a proper system of safeguards (technical safeguards, in particular).

In a bid to minimise technical risk in the payment systems operated by the NBP, it has decided to gradually abandon the technology based on Ingres’ Database Management System and develop new systems that settle payments in new technological environment. The new systems are developed on the basis of state-of-the-art tools and information technologies, in particular, on the basis of a new data management system that will substantially enhance their security and reliability. Completion of the work related to the development of the NBP-PHA internal application that will cooperate with the TARGET2-NBP system is in sight. The SORBNET-EURO system, operated since 2005, will be replaced by the NBP-PHA application in January 2012.

To mitigate liquidity risk, the NBP provides the participants of payment systems it operates with the following tools that enable them to manage liquidity:

- order queuing mechanism – in case of insufficient funds for the settlement of payment, it is placed in a central queue until sufficient funds are accumulated; the queue is periodically netted in order to be "discharged"; the queued payments are automatically settled when funds are available, according to the order-issuing party’s priority and the order number; payment orders that remain in the queue at the end of the day are automatically rejected, and the payment originator is notified of this fact; it is possible to revoke payments from the queue and re-introduce them in a different order, which is also an element enabling liquidity management,

- live access, both by banks and the NBP, to information about the balance of the bank’s account (monitoring) and about payments awaiting execution in the queue,
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- access to liquidity via intraday usage of the minimum reserve account balance,
- access, during the whole operating day, to interest-free funds (collateralised by adequate securities) within intraday credit facility in PLN (in SORBNET) and intraday credit (in SORBNET-EURO); outstanding intraday credit facility is automatically transformed into overnight credit, repaid on the next operating day, that carries interest at the marginal lending facility rate,
- access, during the whole operating day, to overnight credit facility collateralised by securities,
- possibility to book liquidity/funds for a specific purpose – in particular for the needs of ancillary system settlement (net balances arising from the settlement of ELIXIR, EuroELIXIR and kdpw_stream systems.

In addition, specific prioritisation of orders was introduced to mitigate liquidity risk of participants of these systems. The payments of KIR SA are executed first, followed by orders of the NBP, KDPW SA and banks.

3.6. Banks’ capital position and loss absorption capacity

In the period from September 2010 to April 2011, banks strengthened their capital base, thus increasing their average capacity to absorb potential losses.

In the period from September 2010 to April 2011, the regulatory capital of the domestic banking sector increased slightly. The structure of regulatory capital was favourable in terms of the capacity to absorb potential losses, as it was largely composed of core capital (see Table 3.9).

The regulatory capital of the domestic banking sector grew by 4.5 billion zlotys, i.e. by 4.5%. This was mainly due to issue of new shares of a total value of 0.4 billion zlotys by five commercial banks and retention of 2010 profits (to date around 4 billion zlotys) (see Figure 3.51). The analysis of the dividend pay-out plans of banks provides reasons to expect a further growth in regulatory capital of the domestic banking sector, which will have a positive influence on its stability.

Figure 3.51. Changes (y/y) of selected items of regulatory capital

Note: data for 2007 do not take into account the share issue of Pekao SA related to a take over of part of the BPH bank. Data for 2009 do not take into account of 3.9 billion zlotys in funding provided by the Government to the state-owned Bank Gospodarstwa Krajowego.

Source: NBP.

The importance of subordinated debt as a source of capital raising was stable in the analysed period. In April 2011, subordinated debt of the domestic banking sector amounted to 9.1% of their regulatory capital (no change as compared to September 2010).
The debt securities issued by banks till the end of 2010 and included in their core capital under the Resolution of the Polish Financial Supervision Authority are not a significant part of banks’ regulatory capital. The cooperative banks and two joint stock banks took the opportunity to increase their core capital through issue of long-term debt securities. The maturity of these securities did not exceed 15 years and their total value amounted to around 200 million zlotys. In the course of time, the significance of this item will grow smaller⁵⁴.

The growth of the regulatory capital contributed to a slight rise of the capital adequacy ratio of the domestic banking sector - to 14% in April 2011. The value of assets held by banks with high capital adequacy ratios also increased. In April 2011, the capital adequacy ratios of banks holding around 90% of assets of domestic commercial banks was higher than 11% (see Figure 3.52).

**Figure 3.52.** Assets of domestic commercial banks by the capital adequacy ratio

Source: NBP.

<table>
<thead>
<tr>
<th>Table 3.9.</th>
<th>Regulatory capital, capital requirements for selected types of risk, and the capital adequacy ratio of domestic banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
</tr>
<tr>
<td>Regulatory capital¹ (zloty billion)</td>
<td>77.6</td>
</tr>
<tr>
<td>- of which: core capital</td>
<td>70.2</td>
</tr>
<tr>
<td>Sum of capital requirements, of which:</td>
<td>55.5</td>
</tr>
<tr>
<td>- against credit risk</td>
<td>48.5</td>
</tr>
<tr>
<td>- against market risk</td>
<td>1.1</td>
</tr>
<tr>
<td>- against operational risk</td>
<td>5.7</td>
</tr>
<tr>
<td>Capital adequacy ratio (in %)</td>
<td>11.2</td>
</tr>
<tr>
<td>Capital adequacy ratio taking core capital into account (in %)</td>
<td>10.1</td>
</tr>
</tbody>
</table>

¹ regulatory capital - core capital and supplementary capital less any shortfall of specific provisions and other so-called regulatory deductions, plus trading book ancillary capital.

Source: NBP.

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⁵⁴ In December 2010, under Resolution No. 434/2010 of the Polish Financial Supervision Authority of 20 December 2010, Resolution No. 314/2009 of the Polish Financial Supervision Authority of 14 October 2009 on other items of the bank’s balance sheet included in bank’s core capital, its value, scope and terms of including it in bank’s core capital. After 31 December 2040, bonds issued by banks will not be included in the bank’s core capital.
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Table 3.10. Changes (y/y) in the value of selected items of assets, the capital requirement for credit risk and changes in regulatory capital of domestic banks

<table>
<thead>
<tr>
<th></th>
<th>2009 (zloty billion)</th>
<th>2010 (zloty billion)</th>
<th>4-2011 (zloty billion)</th>
<th>2009 (in %)</th>
<th>2010 (in %)</th>
<th>4-2011 (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets, of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- non-financial sector</td>
<td>22.7</td>
<td>101.3</td>
<td>100.8</td>
<td>2.3</td>
<td>10.1</td>
<td>9.8</td>
</tr>
<tr>
<td>- financial sector</td>
<td>-17.7</td>
<td>6.7</td>
<td>-6.2</td>
<td>-18.4</td>
<td>8.6</td>
<td>-7.2</td>
</tr>
<tr>
<td>- securities (^1)</td>
<td>16.5</td>
<td>31.6</td>
<td>17.0</td>
<td>9.4</td>
<td>16.5</td>
<td>7.4</td>
</tr>
<tr>
<td>Capital requirement for credit risk</td>
<td>-1.3</td>
<td>3.5</td>
<td>4.5</td>
<td>-2.6</td>
<td>7.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Regulatory capital</td>
<td>12.6</td>
<td>10.5</td>
<td>8.0</td>
<td>16.2</td>
<td>11.7</td>
<td>8.3</td>
</tr>
</tbody>
</table>

\(^1\) Debt securities of the State Treasury and the NBP account for around 95% of the securities portfolio of domestic banks. Source: NBP.

The change in the structure of assets of the banking sector did not support the growth of the capital adequacy ratio (see Table 3.10). The higher growth rate of lending to the non-financial sector was accompanied by a smaller increase of items that do not generate the capital requirement for credit risk, i.e. NBP bills, and a decrease of Treasury securities.

Figure 3.53. The financial leverage ratio in commercial banks

![Graph showing financial leverage ratio]

Note: The leverage ratio is calculated as the ratio of assets to core capital without regulatory deductions. Source: NBP.

The average level of the capital adequacy ratio in the banking sector is high and substantially exceeds the regulatory minimum. However, simulations show that there is a group of banks with a low capacity to absorb potential losses arising from possible further deterioration in loan portfolio quality.

The financial leverage ratio is an additional measure indicating capital position of banks without taking into account the assets’ risk. The average financial leverage ratio in banking sector is stable (see Figure 3.53). Moreover, it is lower than in most banking sectors in well-developed economies, which means the necessity of deleveraging in Polish banking sector is low.

**Simulations of loan absorption capacity**

Four simulations were performed\(^ {55}\) to determine whether banks’ capital is sufficient to absorb potential losses arising from credit risk materialisation. The results of the first simulation (see Figure 3.54) show the scale of the deterioration in the quality of performing loans that individual banks may absorb without their capital adequacy ratios falling below 8%. These results permit ranking these banks by their resilience to the de-

\(^ {55}\) The simulations were performed only on data of commercial and affiliating banks with an around 89% share in the assets of the banking sector. Branches of credit institutions and cooperative banks were not included in these simulations.  

terioration in the quality of their loan portfolios.

**Figure 3.54.** Assets of commercial banks by percentage of performing loans whose deterioration in quality would lower the capital adequacy ratio to 8%

Assumptions of the simulation:
1. Deterioration in loan quality means that 50% impairment is recorded for these loans.
2. Hypothetical charges to impairment provisions fully decrease the bank’s regulatory capital.
3. Impaired loans carry a 100% risk weight.
4. No release of impairment provisions.
Source: NBP.

The simulation performed on March 2011 data indicates a modest rise of the significance of a group of banks that are able to absorb only a relatively minor deterioration in quality loan quality. According to end-of-March 2011 data, deterioration in the quality of 5% of loans would result in the fall of the capital adequacy ratio below 8% in banks having an 8% share in assets of commercial banks. In September 2010, an identical shock would have caused the capital adequacy ratio to fall below 8% in banks with a 6% share in assets of commercial banks.

The purpose of the second simulation was to determine the level of the capital adequacy ratio in the event of an abrupt deterioration in the quality of impaired loans and of a decrease in the value of their collateral. The results of this simulation may indicate whether the present portfolio of impaired loans poses a threat to banks’ capital adequacy.

**Figure 3.55.** Average capital adequacy ratio of commercial banks in scenarios that assume deterioration in the quality of impaired loans

Assumption of the simulations:
1. In all scenarios, banks sustain losses (that decrease the bank’s regulatory capital) equal to the value of unsecured portion of impaired loans.
2. Portfolio of loans without identified impairment remains unchanged.
3. In Scenarios 2 and 3, charges to impairment provisions are increased by the value of a decrease of collateral value (25% of collateral value in Scenario 2 and 50% in Scenario 3). Source: NBP.

**Figure 3.56.** Distribution of assets of commercial banks in scenarios of the deterioration in the quality of impaired loans according to data as at March 2011

Note: the scenarios are defined in explanatory notes below the figure 3.55.
Source: NBP.

The results of the simulation show that through-
out 2010, the importance of the portfolio of impaired loans for banks' capital adequacy remained stable - the scale of the fall of the capital adequacy ratio in particular scenarios at the end of the first quarter of 2011 was comparable to that from September 2010 (see Figure 3.55). Banks, that register a fall of their capital adequacy ratios below 8%, may be regarded as exhibiting a relatively high - as compared to capital - value of impaired loans. This group of banks has an around 18% share in the assets of commercial banks. However, all members of the group posted a positive 2011 Q1 net profit, which allows them to increase their regulatory capital in the future.

The comparison of the results of the first two simulations permits isolating a small group of banks that concentrate on the provision of loans to households (with a total share in the assets of commercial banks close to 7%), whose capital buffers are low. The situation of these banks deserves attention due to their relatively high sensitivity to the deterioration in their loan quality and the rapidly deteriorating quality of their loan portfolio in 2010-2011.

The third simulation was designed to examine the significance of the concentration risk of loan exposures in the banking sector. The simulation assessed the impact of a simultaneous bankruptcy of three largest non-financial borrowers on (in the sector as a whole). These are enterprises from the fuel industry and the retail distribution sector. Claims on these enterprises are held in the portfolios of 17 banks. The simulation assumed impairment at 100% in the case of all loans extended to these enterprises and the fact that the cost of provisions reduce banks' regulatory capital, which results in a drop of the capital adequacy ratio. The effects of a hypothetical bankruptcy of three largest financial (non-bank) borrowers were examined in a similar way. These simulations did not take into account exposures towards subsidiaries and affiliates. The results of the two variants of the simulation are shown in Table 3.11.

Table 3.11. Impact of the hypothetical bankruptcy of three largest borrowers on the banking sector

<table>
<thead>
<tr>
<th>Sector of the borrowers</th>
<th>nonfinancial</th>
<th>financial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of banks lending to investigated companies</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Share of these banks in assets of commercial and cooperative banks</td>
<td>70.1%</td>
<td>54.4%</td>
</tr>
<tr>
<td>Credit risk cost (złoty billion)</td>
<td>6.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Number of banks where capital adequacy ratio falls below 8%</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Share of these banks in assets of commercial and cooperative banks</td>
<td>0.8%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: NBP.

56 The calculations take into account data available on loan collateral accepted by banks.
<table>
<thead>
<tr>
<th>Simulation results</th>
<th>Credit risk cost (zloty billion)</th>
<th>13.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of banks where capital adequacy ratio falls below 8%</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Share of these banks in assets of commercial and cooperative banks</td>
<td>5.4%</td>
<td></td>
</tr>
</tbody>
</table>

Source: NBP.

The fourth simulation examined the concentration of loan exposures in individual commercial banks by the impact assessment of the hypothetical bankruptcy of three largest non-financial borrowers of each bank. Results of the simulation are presented in Table 3.12. For the majority of banks, exposures towards largest borrowers are not high enough for the bankruptcy of these entities to jeopardise bank's solvency.

Results of the simulations discussed above point to a persistent diversity of capital buffers among banks. Owing to the increase of capital adequacy ratios in the past two years, the majority of banks hold sufficient capital to absorb potential further deterioration in loan portfolio quality. However, there is a small group of banks with lower resilience and they should pursue a prudent dividend policy.

**Box 4. The domino effect in the banking system**

One of the potential channels of emergence of systemic risk in the banking sector are the linkages between banks resulting from mutual exposures in the interbank unsecured deposit market. A collapse of one bank may cause a "domino effect", i.e. the successive collapse of other banks as a consequence of losses due to unpaid debt owed by the originally insolvent bank.

In the scale of the whole banking sector, debt arising from interbank deposits constitutes a relatively small share of assets. The significance of this market has diminished following the collapse of Lehman Brothers, subsequent reduced mutual confidence among banks and lower transaction limits. This leads to the conclusion that for most banks, the risk related to the domino effect is insignificant. However, there is a group of banks for which the level of interbank exposures in relation to own funds is relatively high (see figure 1) and may constitute a risk to solvency in the case of materialisation of counterparty risk.

**Figure 1. Distribution of assets of commercial banks according to the relation of interbank liabilities to own funds**

Source: NBP.
In order to assess the risk of a domino effect occurring in the domestic banking sector, detailed data concerning interbank claims and liabilities reported by banks in the FINREP reporting system has been used. Using this data one may identify each counterparty of a given bank together with the value of interbank loans and deposits granted and received from that counterparty. Banks are also required to report transactions (including the names of counterparties) with non-resident banks (including parent entities).

The study assumes the netting of mutual assets and liabilities. This means that should a troubled bank fail to repay its debt to another bank, then the latter, in order to minimise its losses, will likewise fail to repay its debt to the troubled bank. The study takes into account all types of loans and interbank deposits, regardless of their maturity.

An analysis was conducted in order to test the impact of the primary insolvency of each commercial bank. Secondary insolvency of a counterparty bank occurs when the resulting losses would cause a fall in the capital adequacy ratio to below 4%. Similarly, a secondary collapse of the counterparty bank may lead to the insolvency of further banks.

The study included an analysis of the impact of the insolvency of commercial banks on the condition of cooperative banks. The primary insolvency of cooperative banks was not tested, however. In addition, the impact of the insolvency of foreign banks on the condition of domestic bank was examined, while an opposite scenario was not tested.

Figure 2. Secondary insolvencies of commercial and cooperative banks resulting from the primary insolvency of commercial banks

Note: The size of the circle represents the size of banks’ assets. Below the horizontal line 12 banks are presented, whose primary insolvency would cause a domino effect. Secondary insolvencies are presented above the horizontal line.
Source: NBP.

The study confirms that the risk of a domino effect occurring in the Polish banking sector is insignificant. A domino effect resulting in secondary insolvencies would be caused by the primary insolvency of twelve commercial banks (see figure 2). In the case of their bankruptcy, secondary insolvency would occur in between 1 to 8 commercial and cooperative banks. In none of these cases the assets of insolvent banks would exceed 2.3% of the total banking sector assets. Cooperative banks are relatively more susceptible to the risk of a domino effect, due to the fact that they hold surplus liquidity with affiliating banks.2
The hypothetical collapse of foreign parent entities would not lead to the secondary insolvency of any domestic bank. This is due to the fact that Polish banks are net recipients of liquidity from their parent entities. Total receivables of Polish banks from foreign parent entities amount to approximately 7 billion zlotys, while liabilities amount to approximately 105 billion zlotys. It should be noted that even without the assumed netting of receivables and liabilities between counterparties, the failure to repay liabilities by foreign parent entities would not result in the bankruptcy of Polish subsidiaries.

1 Determining the bankruptcy threshold of a bank is problematic. The Polish Financial Supervision Authority (KNF) may give its approval for a bank to continue operating if its capital adequacy ratio falls below 4%. However, the choice of a 4% capital adequacy ratio threshold for banks’ bankruptcy may indirectly follow from the Polish banking law. The banking law provides that if after 6 months following the extraordinary general meeting of shareholders, a bank’s loss exceeds half of its own funds, KNF may decide on taking over the bank by another entity or initiate liquidation proceedings. The study applies a bankruptcy threshold amounting to half of the value of the required minimum capital adequacy ratio –, rather than half of the absolute value of own funds – in order to take into account the difference between banks with low and high capital buffers above the regulatory minimum. Due to the lack of a clear bankruptcy threshold, secondary insolvencies projected in the study should only be treated as an elevated risk of insolvency, caused by significant interbank exposure compared to the capital level which could be used to cover the loss.

2 Linkages between individual cooperative banks were not examined in the study, but it is safe to assume that the insolvency of individual cooperative banks would have a limited impact on other cooperative banks. Cooperative banks hold funds mainly in affiliating banks, and the share of deposits held with other cooperative banks as of April 2011 amounted to only 1% of total interbank claims of cooperative banks.

**Macro stress tests**

Besides the simulations discussed above, macro stress tests were used to assess banks’ capacity to absorb potential loan losses that might arise from the deterioration in economic conditions. The purpose of these tests is to analyse the effects of hypothetical negative shocks rather than present most likely developments in the banking sector.

Macro stress tests performed by the NBP consist of five stages. In the first one, macroeconomic scenarios were generated to form the basis of a simulation to be performed. Two scenarios developed by NBP economists were considered - a baseline scenario consistent with the central path of the NBP macroeconomic projection from “Inflation Report – June 2011” and a shock scenario. The shock scenario assumed that world economic growth would slow again in 2011-2012 as a result of the waning effects of the stimulus measures in the world’s most developed economies and of the tightening of fiscal policies aimed to limit the growing debt of the public sector.

In the shock scenario, a recurrence of the slowdown in economic growth in highly developed economies would result in a fall of Poland’s real GDP growth, further increased by a hypothetical pro-cyclical response of fiscal policy. Fiscal policy tightening could stem from the risk of exceeding the prudential thresholds of the public debt to GDP ratio. Under such a scenario, a further tightening of lending policy would also contribute to a decline in GDP growth. The deterioration in asset quality and a fall in the value of financial instruments on banks’ balance sheets could trigger such a tightening of lending policy. In turn, tightening of lending policy, coupled with absence of prospects for the economy to return to economic growth swiftly and for the financial standing of the non-financial sector to improve would lead to a collapse of credit growth.
This would translate into a further weakening of demand and the emergence of a self-reinforcing negative feedback loop between declines in credit and GDP growth, inter alia, through a decline in the growth of productivity factors.

### Table 3.13. Major economic indicators in macro stress test scenarios

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP growth y/y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline scenario</td>
<td>4.0%</td>
<td>3.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>2.3%</td>
<td>-0.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>LFS unemployment rate, yearly average</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline scenario</td>
<td>8.4%</td>
<td>7.9%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>10.2%</td>
<td>11.3%</td>
<td>11.7%</td>
</tr>
<tr>
<td><strong>CPI inflation y/y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline scenario</td>
<td>4.0%</td>
<td>2.7%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>3.2%</td>
<td>2.8%</td>
<td>1.6%</td>
</tr>
<tr>
<td><strong>WIBOR3M</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline scenario</td>
<td>4.52%</td>
<td>4.75%</td>
<td>4.75%</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>4.27%</td>
<td>4.29%</td>
<td>2.69%</td>
</tr>
</tbody>
</table>

Source: NBP.

In the shock scenario, apart from factors mentioned above a fall in foreign investor confidence - leading to an outflow of capital from the Polish market of government bonds - would be an additional shock for the Polish economy. This outflow would prompt an increase in bond yields (the simulation assumed a 300 basis point yield increase, lasting one year), and also force further fiscal adjustments aimed at regaining the creditworthiness of the Polish government.

The NECMOD model was used to assess the impact of analysed developments on Poland’s economic condition.57 A comparison of the path of GDP growth in the shock scenario with the fan chart of the GDP growth rate, presented in „Inflation Report – July 2011“ (see Figure 3.57) shows that the likelihood of a stronger slowdown of the GDP growth rate than that arising out of the shock scenario amounts to below 5% in 2012 and is in the range of 5% to 20% in 2013.

![Figure 3.57. Shock macroeconomic scenario against the fan chart of GDP from „Inflation Report – July 2011“](image)

The paths of macroeconomic variables in the baseline scenario and the shock scenario formed the basis for the preparation of conditional forecasts of the impact of macroeconomic conditions on credit risk costs. For this purpose, panel models explaining the development of net charges to provisions for impaired loans at the level of individual commercial banks were used. In these models, provisions are explained by macroeconomic variables (changes in real WIBOR 3M rate, GDP growth rate, changes in household real disposable income) and by an autoregressive component. Provisions relating to the portfolios of corporate loans, housing loans and other loans extended to households are modelled with separate equations.

In the next stage of the simulation, banks’ hypothetical earnings were calculated in both scenarios. The forecast of banks’ net interest income was performed by means of a panel model that

57NECMOD, the multi-equation macroeconomic model of the Polish economy, has been developed for monetary purposes in Poland. The current specification of the model is available on the NBP website. The NECMOD model is used in the preparation of the NBP macroeconomic projections presented in „Inflation Reports“.

58Probability estimation based on uncertainty factors presented in the fan chart, i.e. relating to the assumptions and specification of the model, errors in estimation of variables and the residual error.
describes the development of interest income. This model explains the development of interest income on the basis of paths of macroeconomic variables in individual scenarios and of bank-specific variables, including loan portfolio quality. It was assumed that interest expense in the baseline scenario rises by 10% compared to the value attained in the 12-month period ending in March 2011. In the shock scenario, interest expense remains constant. For the shock scenario, this means a decrease of net interest income by around 66% compared to data for the 12-month period ending in March 2011. It was assumed that gains/losses on valuation and trading activities decrease by 20%, and other components of net operating income before provision for impaired loans do not change in relation to the value attained in the 12-month period ending in March 2011.

In the shock scenario, the fall in value of Polish Treasury debt securities held by banks was taken into account. Banks’ exposure to interest rate risk arising from the portfolio of these securities is hedged by derivatives, such as IRS. This implies that the rise of government bond yields and a simultaneous parallel change of the IRS curve has no impact on banks’ earnings. The shock scenario assumed that although the yields on government bonds rose, the IRS curve did not change, so a change in yields fully reflected a change in credit risk premium and had a direct impact on banks’ earnings.

The structure of Treasury securities held by banks is shown in Table 3.14.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Balance sheet value (zloty bn)</th>
<th>Share in total</th>
<th>Treatment in stress tests – influence on banks’ financial position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Held for trading</td>
<td>17.5</td>
<td>12.1%</td>
<td>Through the profit and loss account – lower pre-tax profit</td>
</tr>
<tr>
<td>Valued at fair value</td>
<td>10.4</td>
<td>7.1%</td>
<td>Through the profit and loss account – lower pre-tax profit</td>
</tr>
<tr>
<td>through profit and loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>account</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available for sale</td>
<td>87.3</td>
<td>60.1%</td>
<td>Through capital – lower revaluation reserve, when the reserve is exhausted through the profit and loss account</td>
</tr>
<tr>
<td>Loans and receivables</td>
<td>3.2</td>
<td>2.2%</td>
<td>Not included – a fall in market value is not reflected in the books of banks if a credit event did not take place</td>
</tr>
<tr>
<td>Held to maturity</td>
<td>26.8</td>
<td>18.4%</td>
<td>Not included – a fall in market value is not reflected in the books of banks if a credit event did not take place</td>
</tr>
<tr>
<td>Total</td>
<td>145.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: data for 48 analysed commercial banks. Source: NBP.

59 In this panel model, the variable to be explained is interest income less interest income on securities and increased with fees and commissions on loans extended.

60 Net operating income before provisions for impaired loans is net income from banking activity less general expense and depreciation.

61 In the case of instruments included in the portfolio „available for sale” - on banks’ capital.
The analysis of the impact of a potential failure of a bank, in both scenarios, on the situation of the remaining banks through the so-called domino effect\textsuperscript{62} was an additional element of the simulation. It was assumed that the bank whose capital adequacy ratio would fall below 4\% as a result of the materialisation of adopted macroeconomic scenarios, would not settle its liabilities on the market of unsecured interbank deposits. The value of its unpaid deposits would fully affect the earnings of creditor banks, which could also lead to the secondary insolvency of the remaining banks.

A marked fall of net interest income which, in annual average terms, would decrease over three times compared to the figure attained in the past 12 months would be the main channel of the impact of the shock scenario on the situation of banks. On the other hand, materialisation of none of the macroeconomic scenarios would not result in an emergence of the domino effect, i.e. secondary insolvency of banks.

In the baseline scenario, three small banks (with a total share of 0.6\% in the assets of 48 analysed commercial banks) would need to increase their capital to keep capital adequacy ratio above 8\% (by a total of around 360 million zlotys). All these banks have already posted negative earnings. In the shock scenario, 14 small and medium-sized banks with a 10\% share in the assets of the analysed group would need to increase capital (by a total of 2.0 billion zlotys). In addition, due to losses on exposures in the interbank market, capital needs of the banks would rise by an additional 0.2 billion zlotys. The majority of banks that need to increase capital in the shock scenario posted a positive net profit in the first quarter of 2011, however, even if these profits were earmarked for capital increase, this move would not ensure they would have a sufficient buffer to absorb potential losses.

However, the results of the simulations indicate that a firm majority of the sector of commercial banks hold sufficient capital to safely operate even in the event of a - currently highly unlikely - strong slowdown in economic growth.

On account of persistent uncertainty over the future quality of the loan portfolio of banks, it is vital for banks to maintain high levels of capital. Economic growth slowed after a period of rapid lending growth in 2006-2008 accompanied by the loosening of lending policy, which makes loan quality highly uncertain. This uncertainty is further enhanced by the absence of data on the repayment performance of some loan categories across a full business cycle, including housing loans, in particular.

Under the most probable scenario, the outlook for economic growth will stabilise and credit risk cost will be reduced. However, elevated uncertainty remains over the macroeconomic prospects and banks’ earnings. On this account, it is desirable that banks pursue a cautious dividend policy, at least until macroeconomic prospects stabilise, to ensure their stable operation in the longer term.

\textsuperscript{62} See Box 4 for more information on an analysis of the domino effect.
Table 3.15. Results of macro stress tests - baseline and shock scenarios (billion zlotys)

<table>
<thead>
<tr>
<th></th>
<th>Historical data for the period 4-2010 - 3-2011</th>
<th>Simulation results for the period 4-2011 - 12-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sum</td>
<td>per year</td>
</tr>
<tr>
<td>Impairment charges(^1) for loans</td>
<td>6.6</td>
<td>6.0</td>
</tr>
<tr>
<td>- of which for loans to enterprises</td>
<td>0.6</td>
<td>1.3</td>
</tr>
<tr>
<td>- of which for loans to households</td>
<td>6.0</td>
<td>4.6</td>
</tr>
<tr>
<td>Impairment charges(^1) for loans (as % of loans)</td>
<td>1.41 %</td>
<td>n/d</td>
</tr>
<tr>
<td>Impairment charges(^1) for loans (as % of assets)</td>
<td>0.83 %</td>
<td>n/d</td>
</tr>
<tr>
<td>Net interest income(^2)</td>
<td>19.7</td>
<td>52.3</td>
</tr>
<tr>
<td>Other income and expense(^3)</td>
<td>3.6</td>
<td>6.8</td>
</tr>
<tr>
<td>Fall in bond value recognized in the profit and loss account</td>
<td>n/a</td>
<td>n/d</td>
</tr>
<tr>
<td>Pre-tax profit</td>
<td>14.9</td>
<td>53.1</td>
</tr>
<tr>
<td>After-tax profit</td>
<td>12.0</td>
<td>42.7</td>
</tr>
<tr>
<td>Fall in bond value recognized in capital</td>
<td>n/a</td>
<td>n/d</td>
</tr>
<tr>
<td><strong>Capital needs(^4)</strong></td>
<td>n/a</td>
<td>0.4</td>
</tr>
<tr>
<td>Additional losses due to domino effects</td>
<td>n/a</td>
<td>0.7</td>
</tr>
<tr>
<td>Additional capital needs(^4) due to domino effects</td>
<td>n/a</td>
<td>0.00</td>
</tr>
</tbody>
</table>

1. In this table, the term „impairment charges” is understood as the difference in the stock of provisions between the start and end of a given period.
2. „Net interest income” includes fees and commissions on extended loans, but does not include interest income on securities.
3. „Other income and expense” includes, inter alia, fees and commission income excluding fees and commission on extended loans, gains/losses on valuation and trading activities, dividends received, general expense and depreciation.
4. Value of capital injection necessary to ensure that capital adequacy ratios exceed 8% at the end of a period.

Notes: a fixed value of loan portfolio and bank assets in the simulation horizon and earmarking all generated albeit undistributed profit for increasing banks’ capital were assumed. Data for 48 analysed commercial banks.

Source: NBP.
3.7. Market assessment of Polish banks and their parent entities

*Investors positively assess the current position and future results of Polish banks. Market valuation of Polish banks is better than that of their parent entities, which in turn is strongly tied with the assessment of the macroeconomic situation in their countries of origin.*

**Share prices**

The share prices of listed Polish banks have risen since the release of the previous edition of the Report. Since October 2010, the WIG-Banki index has risen 4%. The share prices of Polish banks have continued to trade below their record highs since the second quarter of 2007, however the upward trend has been uninterrupted since February 2009, with short-lived downward corrections (see Figure 3.58).\(^\text{63}\)

The share prices of the parent entities of Polish banks fell in the surveyed period, by 12% on average, with falls heavily diversified among banks. The share prices hold up at a much lower level compared with their record levels.\(^\text{64}\) In the first half of 2011, the share prices of some of the parent entities from euro area states remained under the strong negative influence of information about the possible restructuring of Greek public debt.

The share prices of the parent entities from the euro area countries facing debt crisis or exposed to the risk of contagion from these countries were much lower. The share prices of the parent entities of Polish banks did not deviate, on average, from the share prices of Europe’s largest banks (compared with EURO STOXX Banks index) (see Figure 3.59).

**Fundamental ratios**

The analysis of fundamental ratios points to the rising investor assessment of Polish banks. The value of the price-to-book ratio for all Polish banks remains above 1, and the ratio’s median is close to its long-term average.\(^\text{65}\) The high value of the price-to-book value ratio shows that investor assessment of Polish banks is positive and their earnings are expected to improve (see Figure 3.60).

Similar conclusions can be drawn from the analysis of the P/E ratio for Polish banks.\(^\text{66}\) The present value of this ratio is close to its long-term average (see Figure 3.62). For the majority of parent entities, the price-to-book value ratio remains below 1,\(^\text{67}\) and the median of this ratio is below its long-term average (see Figure 3.61). Also, the P/E ratio points to a persistently low valuation of the parent entities of Polish banks, compared with the ratio’s long-term average.\(^\text{68}\) (see Figure 3.63).

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\(^{63}\)From November 2010 to February 2011, lasted the WIG-Banki index downward correction, however, it did not halt the upward trend to which the shares of Polish banks returned in March 2011.

\(^{64}\)The share prices of the parent entities of Polish banks recorded their highs in the second quarter of 2007; for better comparability with the share prices of Polish banks, in Figure 3.59 the share prices are normalised at the end of September 2007.

\(^{65}\)For all fundamental ratios, the long term average is calculated from the period of January 2005 to April 2011. Maximum values of the price-to-book value ratio for Polish banks amounted to around 5.

\(^{66}\)This ratio is based on the average earnings from the last four years. Such a design of the ratio permits to present a de-seasoned and long-term valuation of Polish banks. The period since the IPO of PKO BP has been adopted.

\(^{67}\)Maximum values of the ratio for Polish banks were around 30.

\(^{68}\)In the analysed group of banks, values of this ratio were above 1 only for Nordea bank and GE Group.

\(^{69}\)An abnormal increase of the P/E ratio in January 2011 results from the design of this ratio which is based on average earnings of the last four years when the parent entities registered low or negative earnings.
Figure 3.58. Share prices of Polish banks

![Graph showing share prices of Polish banks]

Notes: Share prices rescaled to 100 at the end of September 2007.
Source: Bloomberg.

Figure 3.59. Share prices of parent entities of Polish banks

![Graph showing share prices of parent entities of Polish banks]

Note: Share prices rescaled to 100 at the end of September 2007. In the figures 3.59, 3.61, 3.63 the following parent entities were included: BCP, BNP Paribas, Citigroup, Commerzbank, Credit Agricole, Deutsche Bank, EFG, GE, ING, KBC, Nordea, Raiffeisen, Santander, Societe General, Unicredit.
Source: NBP calculations based on Bloomberg.

Figure 3.60. Price-to-book value ratio of Polish banks

![Graph showing price-to-book value ratio of Polish banks]

Note: The ratio based on data of banks included in the WIG-Banki index.
Source: NBP calculations based on Bloomberg.

Figure 3.61. Price-to-book value ratio of parent entities of Polish banks

![Graph showing price-to-book value ratio of parent entities of Polish banks]

Source: NBP calculations based on Bloomberg.
Reports on the large exposures of the parent entities of Polish banks in the public debt market of euro area countries facing a financial crisis had an impact on their low valuation.

The comparison of the above discussed fundamental ratios for Polish banks and their parent entities shows that investor assessment of Polish banks is better than that of parent entities. Financial market participants also expect the net profit of Polish banks to grow faster than their parent banks.\(^\text{70}\)

**Ratings**

Ratings of the majority of Polish banks remained unchanged. In the case of some Polish banks, their high long-term deposit ratings are supported by very likely assistance from their parent entities or the State Treasury should any problems with meeting their financial obligations occur.

In the discussed period, the rating agencies of Moody’s and Fitch downgraded their ratings of Bank Millennium and the downgrade followed a change of ratings of its parent entity, the Portuguese bank BCP. Moody's downgraded the deposit rating of BGŻ on account of a partial sale by the State Treasury of its participating interest in the bank. The two agencies upgraded their ratings of BZ WBK due to a change of its parent entity (AIB for Banco Santander). The individual rating of Pekao (see Table 3.16) was upgraded by the Fitch rating agency.

The ratings of the parent entities of Polish banks remain low, especially when compared with a period prior to the outbreak of the financial crisis. The financial crisis-triggered downgrades of the financial strength ratings (Moody’s) and individual ratings (Fitch) of the parent entities make the difference between ratings of Polish banks and their parent banks insignificant.

\(^\text{70}\)Bank analysts forecast the net profit of banks listed on the Warsaw Stock Exchange to rise by 11%, on average. Data based on Thomson Reuters.
## Table 3.16. Ratings of Polish banks by Moody’s and Fitch

<table>
<thead>
<tr>
<th>Moody’s</th>
<th>Financial strength rating</th>
<th>Long-term deposit rating</th>
<th>Short-term deposit rating</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKO BP</td>
<td>C- (C-)</td>
<td>A2 (A2)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
</tr>
<tr>
<td>Pekao</td>
<td>C- (C-)</td>
<td>A2 (A2)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
</tr>
<tr>
<td>ING Bank Śląski</td>
<td>D+ (D+)</td>
<td>A2 (A2)</td>
<td>P-1 (P-1)</td>
<td>NEG (NEG)</td>
</tr>
<tr>
<td>BRE Bank</td>
<td>D (D)</td>
<td>Baa1 (Baa1)</td>
<td>P-2 (P-2)</td>
<td>STA (STA)</td>
</tr>
<tr>
<td>BZ WBK</td>
<td>D+ (D+)</td>
<td>Baa1 (Baa2)</td>
<td>P-2 (P-2)</td>
<td>STA (RUR)</td>
</tr>
<tr>
<td>Bank Millennium</td>
<td>D (D)</td>
<td>Baa3 (Baa2)</td>
<td>P-3 (P-3)</td>
<td>NEG (NEG)</td>
</tr>
<tr>
<td>Bank Handlowy</td>
<td>D+ (D+)</td>
<td>Baa1 (Baa1)</td>
<td>P-2 (P-2)</td>
<td>NEG (NEG)</td>
</tr>
<tr>
<td>BGZ</td>
<td>D (D)</td>
<td>Baa1 (A3)</td>
<td>P-2 (P-2)</td>
<td>STA (STA)</td>
</tr>
<tr>
<td>BPH</td>
<td>D (D)</td>
<td>Baa2 (Baa2)</td>
<td>P-2 (P-2)</td>
<td>STA (STA)</td>
</tr>
<tr>
<td>Łukas Bank</td>
<td>D+ (D+)</td>
<td>A3 (A3)</td>
<td>P-2 (P-2)</td>
<td>NEG (NEG)</td>
</tr>
<tr>
<td>BRE Bank Hipoteczny</td>
<td>E+ (E+)</td>
<td>Baa3 (Baa3)</td>
<td>P-3 (P-3)</td>
<td>STA (STA)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fitch Individual rating</th>
<th>Long-term rating</th>
<th>Short-term rating</th>
<th>Outlook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pekao</td>
<td>B/C (C)</td>
<td>A- (A-)</td>
<td>F2 (F2)</td>
</tr>
<tr>
<td>ING Bank Śląski</td>
<td>C (C)</td>
<td>A (A)</td>
<td>F1 (F1)</td>
</tr>
<tr>
<td>BRE Bank</td>
<td>C/D (C/D)</td>
<td>A (A)</td>
<td>F1 (F1)</td>
</tr>
<tr>
<td>BZ WBK</td>
<td>C (C)</td>
<td>A+ (BBB+)</td>
<td>F1 (F2)</td>
</tr>
<tr>
<td>Getin Noble Bank</td>
<td>C/D (C/D)</td>
<td>BBB- (BBB)</td>
<td>F3 (F2)</td>
</tr>
<tr>
<td>BOS</td>
<td>D (D)</td>
<td>BBB (BBB)</td>
<td>F3 (F3)</td>
</tr>
</tbody>
</table>

Notes: in brackets - as of end of November 2010. The banks are listed according to total assets. Ratings by Standard & Poor’s have not been included, as the agency assigns ratings only to two Polish banks on the basis of publicly available data.


The high deposit ratings of some parent entities arises from the high probability of support to be provided by the State Treasury of the country of origin of these parent entities in the event of any threat of their insolvency.

In the analysed period, the ratings of BCP and EFG Eurobank Ergasias were downgraded as a result of the deteriorating economic situation in their home countries (see Table 3.17 and Table 3.18). Moody’s downgraded the long-term deposit rating of Commerzbank and Credit Agricole after the results of their subsidiaries had worsened.
Table 3.17. Ratings of parent-entities of Polish banks by Moody’s

<table>
<thead>
<tr>
<th>Parent-entity</th>
<th>Financial strength rating</th>
<th>Long-term deposit rating</th>
<th>Short-term deposit rating</th>
<th>Outlook</th>
<th>Polish subsidiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unicredit</td>
<td>C (C)</td>
<td>Aa3 (Aa3)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>Pekao</td>
</tr>
<tr>
<td>ING Bank</td>
<td>C+ (C+)</td>
<td>Aa3 (Aa3)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>ING Bank Śląski</td>
</tr>
<tr>
<td>Commerzbank</td>
<td>C- (C-)</td>
<td>A2 (Aa3)</td>
<td>P-1 (P-1)</td>
<td>STA (NEG)</td>
<td>BRE Bank</td>
</tr>
<tr>
<td>Banco Santander</td>
<td>B- (B-)</td>
<td>Aa2 (Aa2)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>BZ WBK, Santander Consumer Bank</td>
</tr>
<tr>
<td>BCP</td>
<td>D (D+)</td>
<td>Baa3 (A3)</td>
<td>P-3 (P-2)</td>
<td>RUR (NEG)</td>
<td>Bank Millennium</td>
</tr>
<tr>
<td>Citigroup</td>
<td>C- (C-)</td>
<td>A3 (A3)</td>
<td>P-1 (P-1)</td>
<td>NEG (STA)</td>
<td>Bank Handlowy</td>
</tr>
<tr>
<td>KBC</td>
<td>C+ (C+)</td>
<td>Aa3 (Aa3)</td>
<td>P-1 (P-1)</td>
<td>NEG (NEG)</td>
<td>Kredyt Bank</td>
</tr>
<tr>
<td>Raiffeisen Bank</td>
<td>D+ (D+)</td>
<td>A1 (A1)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>Raiffeisen Bank Polska</td>
</tr>
<tr>
<td>Rabobank</td>
<td>B+ (B+)</td>
<td>Aaa (Aaa)</td>
<td>P-1 (P-1)</td>
<td>NEG (NEG)</td>
<td>BGZ, Rabobank Polska</td>
</tr>
<tr>
<td>GE</td>
<td>brak (brak)</td>
<td>Aa2 (Aa2)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>BPH</td>
</tr>
<tr>
<td>EFG Eurobank Ergasias</td>
<td>E (D)</td>
<td>B3 (Ba1)</td>
<td>NP (NP)</td>
<td>NEG (NEG)</td>
<td>EFG Eurobank Ergasias Oddział w Polsce (operating under Polbank brand)</td>
</tr>
<tr>
<td>BNP Paribas</td>
<td>B- (B)</td>
<td>Aa2 (Aa1)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>Fortis Bank Polska (operating under BNP Paribas Fortis brand)</td>
</tr>
<tr>
<td>Nordea</td>
<td>C+ (C+)</td>
<td>Aa2 (Aa2)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>Nordén Bank</td>
</tr>
<tr>
<td>Deutsche Bank</td>
<td>C+ (C+)</td>
<td>Aa3 (Aa1)</td>
<td>P-1 (P-1)</td>
<td>STA (STA)</td>
<td>Deutsche Bank PBC, Deutsche Bank Polska</td>
</tr>
<tr>
<td>Credit Agricole</td>
<td>C+ (B-)</td>
<td>Aa1 (Aa1)</td>
<td>P-1 (P-1)</td>
<td>STA (NEG)</td>
<td>Lukas Bank, Calyon Bank</td>
</tr>
</tbody>
</table>

Table 3.18. Ratings of parent entities of Polish banks by Fitch

<table>
<thead>
<tr>
<th>Parent entity</th>
<th>Individual rating</th>
<th>Long-term rating</th>
<th>Short-term rating</th>
<th>Outlook</th>
<th>Polish subsidiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unicredit</td>
<td>B/C (C)</td>
<td>A (A)</td>
<td>F1 (F1)</td>
<td>STA (STA)</td>
<td>Pekao</td>
</tr>
<tr>
<td>ING Bank</td>
<td>C (C)</td>
<td>A+ (A+)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>ING Bank Śląski</td>
</tr>
<tr>
<td>Commerzbank</td>
<td>D (D)</td>
<td>A+ (A+)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>BRE Bank</td>
</tr>
<tr>
<td>Banco Santander</td>
<td>A/B (A/B)</td>
<td>AA (AA)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>BZ WBK, Santander Consumer Bank</td>
</tr>
<tr>
<td>BCP</td>
<td>C/D (C)</td>
<td>BBB- (BBB+)</td>
<td>F3 (F2)</td>
<td>NEG (NEG)</td>
<td>Bank Millennium</td>
</tr>
<tr>
<td>Citigroup</td>
<td>B/C (C)</td>
<td>A+ (A+)</td>
<td>F1+ (F1+)</td>
<td>NEG (NEG)</td>
<td>Bank Handlowy</td>
</tr>
<tr>
<td>KBC</td>
<td>D (D)</td>
<td>A (A)</td>
<td>F1 (F1)</td>
<td>STA (STA)</td>
<td>Kredyt Bank</td>
</tr>
<tr>
<td>Raiffeisen Bank</td>
<td>C/D (C/D)</td>
<td>A (A)</td>
<td>F1 (F1)</td>
<td>STA (STA)</td>
<td>Raiffeisen Bank Polska</td>
</tr>
<tr>
<td>Rabobank</td>
<td>A/B (A/B)</td>
<td>AA+ (AA+)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>BGŻ, Rabobank Polska</td>
</tr>
<tr>
<td>EFG Eurobank Ergasias</td>
<td>D (D)</td>
<td>BB+ (BBB-)</td>
<td>B (F3)</td>
<td>NEG (NEG)</td>
<td>EFG Eurobank Ergasias Oddział w Polsce (operating under Polbank brand)</td>
</tr>
<tr>
<td>BNP Paribas</td>
<td>B (B)</td>
<td>AA- (AA-)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>Fortis Bank Polska (operating under BNP Paribas Fortis brand)</td>
</tr>
<tr>
<td>Nordea</td>
<td>B (B)</td>
<td>AA- (AA-)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>Nordea Bank</td>
</tr>
<tr>
<td>Deutsche Bank</td>
<td>B/C (B/C)</td>
<td>AA- (AA-)</td>
<td>F1+ (F1+)</td>
<td>NEG (NEG)</td>
<td>Deutsche Bank PBC, Deutsche Bank Polska</td>
</tr>
<tr>
<td>Credit Agricole</td>
<td>- (-)</td>
<td>AA- (AA-)</td>
<td>F1+ (F1+)</td>
<td>STA (STA)</td>
<td>Lukas Bank, Calyon Bank</td>
</tr>
</tbody>
</table>

**Banking sector stability**

**Figure 3.64.** CDS premia for bonds of parent entities of selected Polish banks

Source: Bloomberg, Thomson Reuters.

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**CDS premia**

CDS premia of the parent entities are strongly tied with the CDS premia for public debt of their home countries. In the case of banks headquartered in countries not facing a debt crisis or not having large exposures to these countries CDS premia decreased below 100 basis points. In the remaining parent entities, CDS premia remain above 100 basis points. In the analysed period, very high CDS premia for BCP bonds and EFG Eurobank Ergasias bonds were recorded due to rising concerns over the solvency of Greece and Portugal (see Figure 3.64). The scheduled release of results of the European stress testing exercise by the EBA and ESRB may have an impact on CDS premia of the parent entities in the future.

Any renewed rise of concerns over the solvency of euro area countries may result in lowering the market assessment of financial sector companies, which would deteriorate the conditions in which both parent entities and their subsidiaries operate.
Chapter 4.

Non-bank financial institutions

The impact of non-bank financial institutions (NBFI) on the situation of the banking sector in Poland is limited due to the specific character of financial services, including insurance services, provided by NBFI, and a relatively small scale of relationships with banks. Therefore, the sector of non-bank financial institutions poses no major threats to financial system stability.

Non-bank financial institutions may become the source of threats to financial system stability to a much lesser extent than the banking sector.

In mutual fund institutions investment risk is transferred to fund participants rather than to fund management companies. The insurance sector may, however, play a greater role in financial system stability due to the involvement of insurance companies in the financial markets and, due to the fact that insurance companies are exposed to market risk to a much larger degree than to insurance risk.

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

<table>
<thead>
<tr>
<th>Year</th>
<th>NBFI</th>
<th>Banks</th>
<th>NBFI/Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OFE</td>
<td>ZU</td>
<td>FI</td>
</tr>
<tr>
<td>2008</td>
<td>138.3</td>
<td>137.9</td>
<td>73.9</td>
</tr>
<tr>
<td>2009</td>
<td>178.6</td>
<td>139.0</td>
<td>93.4</td>
</tr>
<tr>
<td>2010</td>
<td>221.3</td>
<td>145.1</td>
<td>116.5</td>
</tr>
</tbody>
</table>

Note: for OFE and FI net assets.
Source: NBP.

The scale of relationships between the insurance sector and the banking sector is insignificant.

The deposits of insurance companies are of minor significance in the financing of banks. The mutual impact of these sectors through the capital (ownership) channel is also small. As at the end of 2010, domestic banks’ share in the core subscribed capital of insurance companies amounted to 3.6%.

The impact of PTE/OFE on the banking sector through the credit, funding and capital channel is small. Pursuant to the regulations in force, loans and credits taken out by a pension fund may not exceed 1.5% of its asset value\(^1\). Five banks have a direct share in the shareholding of

\(^{11}\) Art. 154 section 1 of the Act on the organization and operation of pension funds of 28 August 2007 (Journal of Laws of 2010, no. 34, item 189).
In one PTE operating in the Polish market, the sole owner is a domestic bank (PKO BP Bankowy). In 2010, the share of deposits in OFE investment portfolio was at the average level of 4.2%. In subsequent years, the share of deposits may rise along with the growth in old-age pension benefits paid to pensioners.

Table 4.2. Exposure of pension funds (FE), insurance companies (ZU), investment funds (FI) to banks (in bn zloty)

<table>
<thead>
<tr>
<th>Loans and other banks receivables from insurance companies (ZU), pension funds (FE) and investment funds (FI)</th>
<th>ZU</th>
<th>FE</th>
<th>FI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.1</td>
<td>0.1</td>
<td>2.7</td>
</tr>
<tr>
<td>2009</td>
<td>1.6</td>
<td>0.6</td>
<td>4.2</td>
</tr>
<tr>
<td>2010</td>
<td>0.2</td>
<td>0.4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deposits and banks liabilities to insurance companies (ZU), pension funds (FE) and investment funds (FI)</th>
<th>ZU</th>
<th>FE</th>
<th>FI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>23.7</td>
<td>2.3</td>
<td>4.7</td>
</tr>
<tr>
<td>2009</td>
<td>18.2</td>
<td>4.1</td>
<td>5.6</td>
</tr>
<tr>
<td>2010</td>
<td>18.8</td>
<td>9.3</td>
<td>7.7</td>
</tr>
</tbody>
</table>

Source: Analyzy Online, UKNF, NBP.

The scale of relationships between investment funds and the banking sector is limited. The deposits of investment funds are of minor significance in financing banks - as at the end of 2010 they represented only around 0.7% of the banking sector liabilities. The ratio of credits extended to funds to banks’ assets was on a similar level.

The impact of TFI on the banking sector through the capital (ownership) channel is also small. Banks are direct shareholders of only three TFI. Capital links between TFI and banks are often of an indirect nature, i.e. through the participation in the same capital group.

At the end of March 2011, assets of funds managed by TFI tied with the banking sector accounted for nearly 70% of investment funds’ total assets. In the fourth quarter of 2010 and the first quarter of 2011, the inflow of funds was primarily directed to TFI lacking capital ties with banks and the growth rate of their assets was three times larger than that of funds managed by TFI tied with banks.

4.1. Insurance companies

Insurance premium

In 2010, a growth was recorded in the gross written premium (hereinafter called: premium) in both insurance sectors (see figure 4.1).

Figure 4.1. Growth rate of gross written premium in the insurance sector

Source: UKNF.

The largest share in the premium structure of the life insurance sector in 2010 was that of group insurance (employee insurance - around 30%) and unit-linked insurance (28.5%). In addition, insurance premium of the unit-linked insurance grew at a faster rate than the premium in the whole sector (in 2010, growth by 25.7% compared to 2009). In 2010, there was a decline in the share of the so-called anti-tax insurance (evading tax on savings).

The largest impact on the premium in the non-life insurance sector was that of automobile third party liability insurance OC (33.9%) and auto
casco insurance AC (23.7%). As a result of strong price competition observed for a few quarters between insurance companies the insurance premium declined and the the growth rate of automobile insurance premium in 2010 was lower than the growth rate in the whole subsector. Automobile insurance-related losses incurred by insurance companies in the previous few quarters prompted them to verify the price policy in this market segment and embark on the process of increasing automobile insurance rates. The increase in insurance rates will impact the size of premiums and earnings of insurance companies in the subsequent reporting periods.

**Earnings**

In 2010, the earnings of life insurance companies declined to 3.6 billion zlotys and of non-life insurance companies increased to 3.1 billion zlotys (see table 4.3).

In the life insurance sector, the biggest impact on the technical results in 2010 was that of profit posted on investments, which was higher than in 2009.

In the non-life insurance sector, the technical result was mostly driven by the growth in the value of claims paid as a result of damages caused by unfavourable weather conditions, including damages caused by floods and unfavourable results of automobile insurance.

The value of bad weather claims in 2010 amounted to 1.7 billion zlotys, of which only 0.5 billion zlotys pertained to claims paid net of reinsurance by individual insurance companies. The high participation of reinsurers (71%) was conducive to a technical loss of this group of insurance in the amount of 0.57 billion zlotys.

Claims paid under automobile third party liability insurance OC amounted to 5.3 billion zlotys and auto casco insurance AC - 3.9 billion zlotys (a total of 7.7 billion zlotys net of OC and AC reinsurance). Technical loss in automobile insurance OC amounted to 0.86 billion zlotys, in automobile insurance AC - 0.47 billion zlotys.

The increase in the loss ratio had an adverse impact on earnings in these market segments. In 2010, the loss ratio for subsector II increased from 66.8% to 76.7%.

The earnings of the insurance sector in Poland are determined, to a great extent, by earnings of insurance companies of the PZU Group, whose market share measured by the gross written premium amounted to 43.4% (PZU Życie) and 34.9% (PZU).

Despite the technical loss posted by the whole non-life subsector the positive profit was possible due to the high profit on investments and the dividend paid to PZU by PZU Życie.

**Investments of insurance companies**

As insurance companies are required to maintain the asset structure matching the maturity and currency structure of liabilities, the structure of investments of insurance companies in 2010 did not change as compared to 2009 (see figure 4.2).

Investments where investment risk is borne by life insurance companies increased to 50.5 billion zlotys. Debt securities had the largest, amounting to a 64%, share in these investments. The share of other than government bonds issued or guaranteed by the State Treasury, including corporate bonds, stood at 2.5%.

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Table 4.3. Earnings of insurance companies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life Insurance sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross premiums written</td>
<td>38 986</td>
<td>30 283</td>
<td>31 423</td>
<td>3.8</td>
</tr>
<tr>
<td>Net investment income (technical account)</td>
<td>-5 485</td>
<td>7 426</td>
<td>5 936</td>
<td>-20.1</td>
</tr>
<tr>
<td>Technical result</td>
<td>3 438</td>
<td>4 291</td>
<td>3 567</td>
<td>-16.9</td>
</tr>
<tr>
<td>Net investment income (profit and loss account)</td>
<td>- 347</td>
<td>648</td>
<td>856</td>
<td>32.1</td>
</tr>
<tr>
<td>Net profit</td>
<td>2 506</td>
<td>4 000</td>
<td>3 633</td>
<td>-9.2</td>
</tr>
<tr>
<td><strong>Non-life Insurance sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross premiums written</td>
<td>20 306</td>
<td>21 060</td>
<td>22 741</td>
<td>8.0</td>
</tr>
<tr>
<td>Net investment income (technical account)</td>
<td>303</td>
<td>351</td>
<td>363</td>
<td>3.4</td>
</tr>
<tr>
<td>Technical result</td>
<td>716</td>
<td>-287</td>
<td>-1 263</td>
<td>-</td>
</tr>
<tr>
<td>- technical result without PZU</td>
<td>-2</td>
<td>-453</td>
<td>-1 011</td>
<td>-</td>
</tr>
<tr>
<td>Net investment income (profit and loss account)</td>
<td>2 806</td>
<td>3 236</td>
<td>4 493</td>
<td>38.8</td>
</tr>
<tr>
<td>- dividend paid out by PZU Życie to PZU</td>
<td>1 920</td>
<td>1 419</td>
<td>3 120</td>
<td>-</td>
</tr>
<tr>
<td>Net profit</td>
<td>3 277</td>
<td>2 631</td>
<td>3 100</td>
<td>18.2</td>
</tr>
<tr>
<td>- net profit without PZU</td>
<td>250</td>
<td>121</td>
<td>592</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: UKNF, PZU.

Debt securities also had the largest share in the investment portfolio (62%) of the non-life insurance sector. The share of corporate shares quoted on the regulated market as well as investment funds’ participation units and certificates (8.5%) and term deposits earmarked for payment of claims on a current basis (4.8%) was significantly lower.

In 2010, the rise in the premium of unit-linked insurance investments led to a rise, from 32.8 billion zlotys as at the end of 2009 to 39.2 billion zlotys at the end of 2010, in the value of investments earmarked for covering liabilities arising from insurance contracts. This had no impact, however, on the stability of the insurance sector as the risk in this insurance group is borne by the insured. Investment funds’ participation units and certificates had the largest share in investments (around 69.9%).

**Figure 4.2. Structure of investments of insurance companies**

Note: the share is calculated without taking into account investment where investment risk is borne by clients.
Source: UKNF.

Solvency and capital position of insurance companies
Insurance companies are required to have their own capital exceeding the level of the required statutory solvency margin\textsuperscript{74}.

The ratio of own capital of insurance companies to solvency margin and the guarantee capital (whichever is higher) is reflected by the activity monitoring ratio and the ratio of assets to gross technical and insurance provisions by provision coverage with assets ratio (see table 4.4).

In the life insurance sector, the average activity monitoring ratio was over three times higher and in the non-life insurance sector – nearly four times higher than the statutory solvency margin.

It may be concluded from the aggregate financial statements as at the end of 2010 that the insurance sector has sufficient own capital to cover the statutory solvency margin and sufficient assets to cover provisions arising from insurance contracts\textsuperscript{75}.

| Table 4.4. Selected insurance sector indicators (in %) |
|------------------|------------------|
|                  | 2009  | 2010  |
| Life insurance sector |      |       |
| Activity monitoring ratio | 346  | 317   |
| Provisions cover ratio     | 109   | 109   |
| Non-life insurance sector |      |       |
| Activity monitoring ratio | 364  | 300   |
| Provisions cover ratio     | 116   | 123   |

Source: UKNF.

In 2010, there was a decline in the share of insurance companies with a relatively low activity monitoring ratio (in the range of 100%-150%). Life insurance companies whose activity monitoring ratio approached the lower threshold level required by law collected 31.5% of the of the aggregate premium whereas non-life insurance companies collected 27.4% of the of the aggregate premium (see figure 4.3 and 4.4).

Non-life insurance companies that did not meet the statutory solvency criteria (i.e. their own capital was lower than required by law) collected 2% of the aggregate premium and due to their insignificant share these companies are not likely to influence the solvency of the insurance sector as a whole.

The decrease in activity monitoring ratios resulted, in the majority of companies, from the

\textsuperscript{74} Art. 146, Section 1 of the Act on insurance activity of 22 May 2003 (Journal of Laws of 2010, no. 11, item 66).

worsening in loss history and thus a deterioration in technical results. Preliminary results for the first quarter of 2011 (published by some insurance companies) show that the rise in insurance rates for automobile insurance and insurance of corporations has contributed to the improvement in current results and solvency ratios. It may be expected that this process involved majority of companies operating in Poland. Unless unexpected fortuitous events occur, the revision of price policy should contribute to the improvement in solvency ratios, in particular in those domestic insurance companies whose own capital was on the border (or below) of the statutory threshold.

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In the non-life insurance sector the rise in automobile insurance rates will have a decisive impact on the improvement of financial results. Some of the companies have already raised automobile insurance rates, however the improvement can only be expected in the next half-year period.

The portfolio of financial insurance (credit insurance and suretyships) continues to have an insignificant share in the premium of non-life insurance sector (3.5% in 2010). However, should the quality of credit insurance portfolio deteriorate significantly a worsening could follow in the financial situation of smaller companies for which financial insurance is the basic activity.

The most important risk that insurance companies are exposed to is market risk rather than insurance risk. Due to the structure of insurance companies’ investments the largest losses may trigger the occurrence of equity price risk and interest rate risk. As some part of debt securities is held until maturity, these securities (as well as unit-linked insurance investments where investment risk is borne by clients) need not be taken into account in stress tests. Therefore, it is difficult to determine explicitly whether the interest rate risk is greater than the equity price risk.

Other risks, such as cat risk, higher cost-lower rate risk (lapses), operational risk and demographic risk pose a smaller threat to the system than the market risk.

If a rise in the costs of insurance activities is assumed in stress tests at the level of 10%, the increase in these costs in both sectors would have amounted to around 1.2 billion zlotys in 2010, i.e. at the level of the cat risk.

The analysis of available studies may indicate that the cat risk, estimated on the basis of flood damages in the years 1997-2009 is lower than the market risk. In 2010, flood damages in Poland estimated by the Ministry of the Interior and Administration amounted to 12.5 billion zlotys while insurance companies’ liabilities in this respect – 1.7 billion zlotys, with only 0.5 billion zlotys paid net of reinsurance.

The level of risk due to cat damages in 2010 may be regarded as comparable (in terms of scale) to damages caused by single fortuitous events such as the failure in Turów power station in 1998 or a fire in Lyse processing plant in 2009.

4.2. Pension fund management companies and open pension funds

**Financial results of pension fund management companies**

Financial results of pension fund management companies (PTE) are tied with the value of contributions paid to open pension funds (OFE) by their participants. Pursuant to the law, the maximum fee on the contribution was reduced as of January 2010 from 7% to 3.5%76. On account

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of the above mentioned amendments there was a significant decline in PTE revenues from OFE contribution fees which led to a decline in technical profit and technical profitability of PTE. On the other hand, there was an increase in revenues from OFE management fee as a result of rise in the value of net assets. Consequently, the share of management fee in the revenue structure increased from 31% in 2009 to 49% in 2010 (see figure 4.5). It should be noted that in 2010 three pension fund management companies incurred a negative financial result and negative technical profitability on OFE management.

**Figure 4.5.** Technical profitability of pension fund management companies versus the value of open pension funds’ assets

![Figure 4.5](image)

Note: data as at the end of 2010.
Source: NBP calculations based on UKNF data.

<table>
<thead>
<tr>
<th>Table 4.5. Financial results and technical profitability of pension fund management companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues from OFE management</td>
</tr>
<tr>
<td>- contribution fee</td>
</tr>
<tr>
<td>- management fee</td>
</tr>
<tr>
<td>OFE management costs</td>
</tr>
<tr>
<td>- obligatory costs</td>
</tr>
<tr>
<td>- costs of acquisition</td>
</tr>
<tr>
<td>- other costs</td>
</tr>
<tr>
<td>Technical profit on OFE management</td>
</tr>
<tr>
<td>PTE net profit</td>
</tr>
<tr>
<td>Technical profitability on OFE management (in %)</td>
</tr>
</tbody>
</table>

Note: technical profit margin - ratio of technical profit to revenues from OFE management.
Source: GUS, UKNF.
“Minimum required rate of return of open pension funds”

At the end of March 2011, all pension funds generated positive 36-month returns which were higher than the minimum required rate of return (MWSZ).

At the end of March 2011, the weighted average rate of return for the period from 31 March 2008 until 31 March 2011 amounted to 15.2% while in the same period the WIG index increased by 1.5%. The significant investment results was driven by the price rise of securities held in the funds’ investment portfolios. As of September 2010, the spread between minimum required rate of return and the lowest rate of return posted by funds started to grow (see figure 4.6).

Figure 4.6. Rates of return of open pension funds

![Graph showing rates of return of open pension funds]

Note: MWSZ/SWSZ/MXSZ/MNSZ - minimum required/weighted average/maximum/minimum rate of return of open pension funds.
Source: UKNF.

The capital requirements for pension fund management companies have an impact on the stability of the second pillar of the pension system. This is due to the fact that PTE capital may be used to cover shortfall arising from a lower rate of return attained by a pension fund than MWSZ. PTE are obliged to hold equity capital at the level not lower than 2.5 million euros\(^77\). The fact that the required capital is not determined in relation to the asset value may generate a risk for PTE, in case of occurring shortfall. Although these matters are not subject to regulatory requirements, some PTE increase their capitals when their assets go up.

At present, all pension fund management companies hold equity capital above the level of statutory requirement. A consistent tendency to increase equity capital is being observed in PTE in Poland. In 2010, the PTE equity capital have continued to grow. On average, the value of equity capital increased by 7% in 2010 compared to 2009. In seven PTE, however, equity capital declined in spite of the increase in the value of assets of pension funds they manage.

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

![Graph showing ratio of pension fund management companies’ capital to the value of open pension funds’ assets they manage]

Source: NBP calculations based on UKNF data.

The increase in equity capital of the sector as a whole was the consequence of the increase of capital equity of ING PTE which resulted from the fact that dividend for 2009 had not been paid out. Moreover, two PTE (AXA and Nordea) have been recapitalized. Two pension fund man-

\(^77\) Art. 33 section 1 of the Act on the organisation and operation of pension funds of 28 August 1997 (Journal of Laws of 2010 no. 34, item 189). PTE are obliged to hold equity capital at the level not lower than half of the minimum share capital representing the equivalent in PLN of 5 million euros.
Non-bank financial institutions with the largest asset value in the sector had relatively low equity capital. Nevertheless, these funds have a significant impact on the MWSZ value which reduces the materialisation of shortfall risk considerably.

**Figure 4.8.** Ratio of pension fund management companies’ capital to the value of open pension funds’ net assets they manage versus OFE net assets

![Graph showing the ratio of pension fund management companies' capital to the value of open pension funds' net assets versus OFE net assets]

Note: data as at the end of 2010. Source: NBP calculations based on UKNF data.

**Figure 4.9.** Structure of investment portfolios of open pension funds

![Graph showing the structure of investment portfolios of open pension funds]

Source: UKNF.

The main drawback of the internal benchmark currently used is that it imitates the weighted average investment portfolio for the OFE sector without referring to actual rates of return that may be attained in a given period in the financial market. As a result, OFE underperform the market without negative consequences for PTE.

It should be possible to compare funds’ investment performance with external benchmarks based on equity index and security index. The new benchmark for OFE should be replicable. Moreover, the index that will form the basis for determining the benchmark for OFE should be set by the entity that may guarantee that this index will be determined on a continuous basis.

**Structure of OFE investments**

In 2010, PTE have continued their investment strategy of investing the majority of OFE assets in domestic government securities and equities of companies listed on the GPW. The share of equities in OFE investment portfolio increased compared to the end of September 2010, mainly due to a decline in the share of government securities, which accounted for 52% of OFE investment portfolio at the end of March 2011. There was an increase in share of domestic non-Treasury debt securities that at the end of March 2011 accounted for 7% of the investment portfolio. The main component of non-Treasury debt securities in OFE portfolios are bonds issued by Bank Gospodarstwa Krajowego (BGK) according to the principles laid down in the Toll Motorways and National Road Fund Act.

**Table 4.6.** Investment portfolio of open pension funds (in bn zloty)

<table>
<thead>
<tr>
<th></th>
<th>12-2009</th>
<th>12-2010</th>
<th>Change (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury securities</td>
<td>110.3</td>
<td>115.9</td>
<td>5.1</td>
</tr>
<tr>
<td>Equities</td>
<td>53.8</td>
<td>79.7</td>
<td>48.1</td>
</tr>
<tr>
<td>Foreign investments</td>
<td>1.3</td>
<td>1.5</td>
<td>14.1</td>
</tr>
<tr>
<td>Other</td>
<td>13.6</td>
<td>24.3</td>
<td>78.5</td>
</tr>
<tr>
<td>Total investment portfolio</td>
<td>179.0</td>
<td>221.5</td>
<td>23.7</td>
</tr>
</tbody>
</table>

Source: UKNF.

In May 2011, modifications were introduced to the pension system in Poland which will have
a significant impact on PTE financial situation and OFE investment policy. The contribution transferred to OFE was reduced from 7.3% of base remuneration to 2.3%\(^{78}\). The limit for investment in equities of companies quoted on the regulated market and in preemptive rights, allotment certificates to shares and bonds convertible to shares of these companies, quoted on the regulated market will be increased steadily. A larger share of equity instruments in OFE portfolio, that display a significant price volatility, may imply increased risk and higher probability of shortfall occurrence.

As a result of a reduction in the percentage of the contribution transferred to pension funds there will be a decline in PTE revenues from contribution fee which used to be one of the two main sources of PTE revenues. In addition, the growth rate of the management fee is expected to decline. Regarding to prohibition of acquisition services that will be effective from 2012, the cost related to these operations will also decrease. There is a risk, however, that PTE will increase advertisement expenses. Since May 2011, system of payments to the Supervisory Authority and the Insurance Ombudsman has been modified. \(^{79}\) Previously, pension fund management companies used to pay a fee to the Supervisory Authority amounting to 0.14% of the contribution received and 0.01% of the contribution to the Insurance Ombudsman. Pursuant to the new regulations, PTE are obliged to transfer to the Supervisory Authority 0.016% of the average annual asset value of OFE managed by a given PTE and 0.0015% to the Insurance Ombudsman. In view of the fact that pension funds’ assets have been increasing faster than the contribution, a rise in PTE costs in favour of the above mentioned institutions may be expected.

4.3. Investment fund management companies and investment funds

Changes in asset value and net inflow to investment funds

Figure 4.10. Net assets of investment funds

Investment funds’ assets continued to increase and at the end of first quarter of 2011 their asset value amounted to 118.9 billion zlotys (see figure 4.10). The increase in asset value was primarily related to the net inflow of cash. From October 2010 to March 2011, the inflow of cash exceeded 5 billion zlotys (see figure 4.11). As in the first three quarters of 2010, funds were mainly directed to money market funds\(^{80}\). These funds were particularly popular among corporate clients. Legal entities often treated investments in money market funds as an alternative to bank deposits. The significant interest in participation titles of these funds was driven by low interest rates. Including corporate bonds into the

\(^{78}\) Art. 21 of the Act on amending certain acts on the operations of the social security system of 25 March 2011 (Journal of Laws of 2011, no. 75, item 398).

\(^{79}\) Act on amending certain acts relating to the operations of the social security system of 25 March 2011 Journal of Laws of 2011, no. 75, item 398).

\(^{80}\) Money market funds are all the funds that mainly invest in money market instruments rather than only the funds defined in art. 178 of the Act on investment funds of 27 May 2004 (Journal of Laws of 2004, no. 146, item 1546, as amended). Only two money market funds that comply with the statutory requirements operate in the Polish market.
investment portfolios of these funds, among other factors, allowed them to achieve higher rates of return. The inflow of cash to money market funds was also related to the persisting investors’ high risk aversion. The significant interest in participation titles of non-public asset funds, with limited exposure to the equity market, and of absolute return funds also indicated investors’ uncertainty about the trends in equity price developments.

**Figure 4.11.** Monthly net inflows to investment funds

![Graph showing monthly net inflows to investment funds from 2008 to 2011.](image)

Source: Analizy Online.

**Financial results of investment fund management companies**

In the first half of 2010, TFI financial results improved compared to the first half of 2009. TFI revenues on operational activities increased significantly (see table 4.7) driven by the increase in investment funds’ assets and the related higher amount of management fee. The main position in costs were participation titles distribution costs. As at the end of the first half of 2010, profit was posted by 30 TFI and loss – by 16.

Financial results recorded by TFI in the future will depend on the developments in financial instrument prices. The improvement in the situation on Warsaw Stock Exchange may arouse greater interest of investors in funds that invest their assets, in whole or in part, in equities. The inflow of cash to equity funds would contribute to an increase in TFI revenues as management fees in funds subject to greater investment risk are significantly higher than management fees in funds that invest in safer financial instruments.

Management fees charged by domestic investment fund management companies continue to be significantly higher than the fees charged by foreign fund management companies that distribute their products in Poland in line with the single passport principle (UCITS passport). However, foreign funds are no real competition for domestic funds as their participation titles are offered to a limited number of buyers, mainly clients of the private banking sector. This is the reason why the amount of management fees in domestic and foreign funds is not being levelled.

As at the end of the first half of 2010, the value of TFI own capital amounted to 954.1 million zlotys and was slightly higher than at the end of the first quarter of 2009. The increase in own capital resulted mainly from an improvement in financial results. Higher profits posted by TFI at the end of the first half of 2010 had a positive impact on the aggregate ROE of these entities.

As at the end of the first half of 2010, the surplus of TFI own capital over the statutory threshold increased by 19.8 million zlotys compared to the surplus as at the end of the first half of 2009. The reason was primarily a reduction in the requirements related to own capitals enhanced by the reduction in TFI costs in 2009.

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81 As at the date of drawing up the report, only data for the first half of 2010 were available.
82 GUS data.
83 Pursuant to art. 50 section 1 of the act on investment funds of 27 May 2004 (Journal of Laws of 2004, no. 146, item 1546, as amended.) TFI is obliged to hold own capital at the level not lower than 25% of the difference between the value of general costs and the value of variable costs pertaining to distribution borne in the previous financial year.
In February 2011, the second case of suspending sale and repurchase of participation units occurred in the history of the investment funds domestic market. This case related to Noble Fund Africa subfund, created through a spinoff from Noble Funds SFIO that invests in North Africa through the participation titles of Luxembourg Julius Baer Multistock – JB EF Northern Africa Fund.

The suspension of sale and repurchase of participation units stemmed from the suspension of trading on the Egyptian stock exchange where the Luxembourg fund had invested around 40% of its assets. This made it impossible to assess the fund’s assets in a credible way and set the value of its participation units. KNF agreed to prolong the assessment process suspension of Noble Fund Africa two times. Its trading was resumed at the end of March 2011.

Table 4.7. Financial results and key ratios of the investment fund management companies sector compared with the average monthly net asset value of investment funds

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues on operational activity</td>
<td>1 626.0</td>
<td>804.1</td>
<td>1 090.7</td>
<td>35.6</td>
</tr>
<tr>
<td>- management fee</td>
<td>1 556.0</td>
<td>773.0</td>
<td>1 038.0</td>
<td>34.3</td>
</tr>
<tr>
<td>Costs of operational activity</td>
<td>1 179.3</td>
<td>642.2</td>
<td>851.4</td>
<td>32.6</td>
</tr>
<tr>
<td>Pre-tax profit</td>
<td>483.9</td>
<td>210.4</td>
<td>259.8</td>
<td>23.5</td>
</tr>
<tr>
<td>Net profit</td>
<td>390.3</td>
<td>170.7</td>
<td>200.1</td>
<td>22.5</td>
</tr>
<tr>
<td>Average monthly value of net assets</td>
<td>106 539.9</td>
<td>72 680.3</td>
<td>105 015.5</td>
<td>44.5</td>
</tr>
<tr>
<td>Pre-tax profit margin on operational activity (in %)</td>
<td>29.8</td>
<td>26.2</td>
<td>23.8</td>
<td>-2.4 pp.</td>
</tr>
<tr>
<td>ROE (in %)</td>
<td>75.1</td>
<td>32.0</td>
<td>40.6</td>
<td>-8.6 pp.</td>
</tr>
</tbody>
</table>

Note: Pre-tax profit margin on operational activity - quotient of gross financial result and revenues on operational activity. ROE annualised.
Source: GUS, Analizy Online.

84 Pursuant to art. 84 of the Act on investment funds of 27 May 2004 (Journal of Laws of 2004, no. 146, item 1546, as amended) a fund may suspend the sale of participation units for two weeks if it is not able to make a credible assessment of the essential part of its assets for reasons independent of the fund. The sale of participation units may be suspended for a period longer than two weeks but not exceeding two months only with the consent of KNF and according to the conditions set by it.
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 posted in a given period less interest income on securities held and net charges to provisions for impaired loans to assets in this period.

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.

Annualised data – in the case of cash flow data - the value of cash flow in a year; in the case of data about balance (stock) - average value of balance in a year.

Assets of limited liquidity – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, assets resulting from banking activities outside the wholesale financial market.

Auto casco insurance AC – comprehensive auto insurance of land vehicles, excluding track vehicles, covering damage in automobiles or land vehicles lacking own drive - subsector no. 3 of non-life insurance sector according to the Law on insurance activity.

Automobile third party liability insurance OC – third party liability insurance for land vehicles with own drive - subsector no. 10 of non-life insurance sector according to the Law on insurance activity.

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

Basis risk – the risk that the change in the value of a hedge may not move in line with the value of its underlying hedged position.

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).

Commercial banks – all domestically incorporated commercial banks and branches of foreign credit institutions.

Consumer loans – credit card lending, consumer instalment loans and other consumer loans to natural persons.
Core capital – according to the Polish Banking Act of 27 August 1997 (Journal of Laws of 2002 No. 72, item 665) consists of paid-up and registered capital (in cooperative banks paid-up members share fund), capital surplus (resource fund), reserve capital (reserve fund), general risk reserve, undistributed profit from previous years, profit under authorisation and net profit from current period reduced by expected dividends and other burdens. Core capital is diminished through deduction of own shares in possession of bank, intangible assets, prior period losses, loss pending confirmation and current period net loss. Other balance sheet positions added to core capital are specified by the KNF Resolution No. 434/2010 of 20 December 2010 on other bank’s balance sheet items that are included in the original own funds, their amount, scope and conditions for their inclusion in the bank’s additional own funds. Other regulatory deductions are defined by the KNF Resolution No. 381/2008 of 17 December 2008 on other deductions from original own funds, their amount, scope and conditions for the deduction of these items from the original own funds of a bank, other bank’s balance sheet items that are included in the additional own funds, their amount, scope and conditions for their inclusion in the bank’s additional own funds, deductions from the additional own funds, their amount, scope and conditions for the deduction of these items from the bank’s additional own funds and the scope and manner of inclusion of banks’ operations in holdings in calculation of own funds.

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.

Core liquidity reserve – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, cash, receivables and other assets in the amount obtainable within 7 days.

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.

Cross Currency Interest Rate Swap (CIRS) – instrument hedging interest rate risk and FX risk simultaneously for a series of interest payments of a fixed maturity, calculated from nominal amounts in two different currencies.

Cross Currency Interest Rate Swap (CIRS) basis – CIRS transaction, for which interest rates set for both counterparts are floating and one of them is adjusted with an agreed margin, so-called basis.

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.

Domestic banking sector – domestically incorporated commercial banks and cooperative banks functioning in Poland (without branches of credit institutions from other EU countries).
Effective interest rate – the ratio of interest income (cost) to average value of claims (liabilities) in a given period.

European Financial Stability Facility (EFSF) – a special purpose vehicle founded on 7 June 2010 (decision on establishing it was made in May 2010) aimed at raising funds through bonds issue on behalf of eurozone states in economic difficulty who cannot obtain funding on the markets. Bonds issued by the EFSF are guaranteed by the eurozone member states.

European Financial Stability Mechanism (EFSM) – mechanism established in May 2010 enabling EU member states applying for financial support in times of stress to their financial liquidity. The EFSM funds are at European Commission’s disposal.

European Stability Mechanism (ESM) – mechanism, whose establishment has been announced in March 2011. It is supposed to replace the current mechanism of financing eurozone member states which is to expire in June 2013.

European Stabilisation Mechanism – mechanism established on 9 May 2010 by the EU Council aimed at ensuring financial stability in member states in troubled financial standing by extending financial support guarantees. The mechanism comprises European Financial Stability Facility (EFSF) and European Financial Stability Mechanism (EFSM).

Financial leverage – for the banking sector the ratio of assets (or risk weighted assets) to core capital before regulatory deductions.

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.

Forward Rate Agreement (FRA) – transaction under which the parties are obliged to pay interest on an agreed nominal amount for a defined period beginning in the future. The interest is accrued according to the interest rate set on the contract date.

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

Gross loss ratio – the ratio of gross (i.e. before taking reinsurance into account) insurance claims and benefits paid, taking into account the changes in the amount of provisions for unpaid gross claims, to premiums earned, in percentages.

Gross written premium – 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.

Illiquid assets – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, assets not resulting from banking activities.
**Impaired loan ratio** – the ratio of loans with identified impairment to total loans.

**Income buffer** – the difference between households’ disposable income and loan servicing costs and basic living costs.

**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.

**Interest Rate Swap (IRS)** – transaction under which two parties are obliged to exchange interest payments from given nominal amount for a 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 fixed interest rates paid in exchange for floating interest based on WIBOR.

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

**Loans with identified impairment** – loans from portfolio B for which objective evidence of impairment and decrease in the value of expected cash flows have been recognised (in banks applying IFRS) or loans classified as irregular pursuant to the ordinance of the Finance Minister regarding principles for creating provisions for the risk of banking activity (in banks applying Polish accounting standards).

**Net charges / Net movements in provisions and valuation allowances** – 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.

**Net percentage** – measure aggregating qualitative survey results; in the NBP senior loan officer opinion survey, the net percentage is calculated as the difference between the percentage of asset-weighted banks which eased credit policies (or observed a growth in loan demand) and the percentage of asset-weighted banks which tightened credit policies (or observed a decline in loan demand). Negative values of the net percentage reflect the tightening of credit policy (decline in loan demand) in net terms.

**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 costs** – the sum of bank's general expense and amortisation.

**Overnight Index Swap (OIS)** – transaction under which two parties are obliged to exchange interest payments from given nominal amount for a 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 fixed rates paid in exchange for interest based on average O/N rate for the duration of the contract.
**Portfolio B** – a portfolio of assets separated in banks’ prudential reporting, comprising claims classified as available for sale or held to maturity, as well as all financial instruments (including debt securities) classified as loans and receivables.

**Pre-tax profit margin** – the quotient of gross profit and sales revenues.

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

**Profit margin** – the quotient of net profit and sales revenues.

**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).

**Sales profitability rate** – the quotient of profit from sales of products, goods and materials and net revenues from sales of products, goods and materials.

**Stable external funds** – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, funds that the bank includes in stable funding sources, in particular core deposits, own securities issued that are not included in regulatory capital, other liabilities with the original maturity over 1 year, which the bank intends to renew and other liabilities resulting from banking activities, whose plan of obtaining and renewing has been approved by the supervisory board.

**Supplementary liquidity reserve** – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, receivables and other assets in the amount obtainable within 7–30 days.

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

**Technical profit** – the difference between income from premiums as well as the so-called other technical income and claims and benefits paid, changes in insurance provisions, the costs of conducting insurance activity (inter alia, administrative and acquisition expenses), the so-called other technical costs and a part of income from investments.

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

**Unstable external funds** – according to KNF Resolution No. 386/2008 defining liquidity standards binding for banks, approximately, funds not included in the stable external funds.

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

**VIX Index** – stock market volatility index introduced in 1993 by the CBOE (Chicago Board Option Exchange) measuring implied volatility on the basis of options for S&P 500 index, one of the major benchmarks in the U.S stock exchange market. High value of the index indicates increased risk aversion.
Abbreviations

BAEL  Labour Force Survey  
BGK  Bank Gospodarstwa Krajowego  
BIK  Credit Information Bureau  
CDS  Credit Default Swap  
CEBS  Committee of European Banking Supervisors  
CEE–3  Group of countries comprising Czech Republic, Hungary and Poland  
CIRS  Cross Currency Interest Rate Swap  
COREP  Common Reporting (CEBS standard on bank's capital adequacy  
        reporting for supervisory needs)  
CRD IV  Capital Requirements Directive IV (Directive relating to the taking up  
        and pursuit of the business by credit institutions)  
EC  European Commission  
ECB  European Central Bank  
EFSF  European Financial Stability Facility  
EFSM  European Financial Stability Mechanism  
ESM  European Stability Mechanism  
EU  European Union  
EURIBOR  Euro Interbank Offered Rate  
EURO  Index of 50 large companies from the Eurozone provided by Stoxx Ltd  
STOXX 50  joint venture of German and Swiss stock exchange and  
        Dow Jones & Co.  
FI  Investment funds  
FINREP  Financial Reporting (CEBS standard on bank's financial situation  
        reporting for supervisory needs)  
FRA  Forward Rate Agreement  
GPW  Warsaw Stock Exchange  
GUS  Central Statistical Office  
IFRS/IAS  International Financial Reporting Standards / International  
        Accounting Standards  
IMF  International Monetary Fund  
IRS  Interest Rate Swap  
KDPW  National Depository for Securities  
KNF  Polish Financial Supervision Authority  
LCR  Liquidity Coverage Ratio  
LIBOR  London Interbank Offered Rate
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>LTV</td>
<td>Loan-to-value ratio</td>
</tr>
<tr>
<td>MENA</td>
<td>Middle East and North Africa</td>
</tr>
<tr>
<td>MF</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>MWSZ</td>
<td>Minimum required rate of return</td>
</tr>
<tr>
<td>NBP</td>
<td>National Bank of Poland</td>
</tr>
<tr>
<td>NBFI</td>
<td>Non-bank financial institutions</td>
</tr>
<tr>
<td>NEG</td>
<td>Negative rating outlook - expected downgrade</td>
</tr>
<tr>
<td>NSFR</td>
<td>Net Stable Funding Ratio</td>
</tr>
<tr>
<td>O/N</td>
<td>Overnight</td>
</tr>
<tr>
<td>OFE</td>
<td>Open Pension Funds</td>
</tr>
<tr>
<td>OIS</td>
<td>Overnight Index Swap</td>
</tr>
<tr>
<td>PAS</td>
<td>Polish Accounting Standards</td>
</tr>
<tr>
<td>POLONIA</td>
<td>Polish Overnight Index Average</td>
</tr>
<tr>
<td>PTE</td>
<td>Pension fund management companies</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
</tr>
<tr>
<td>ROE</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>RPP</td>
<td>Monetary Policy Council</td>
</tr>
<tr>
<td>RUR</td>
<td>Rating Under Review</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>Standard &amp; Poor’s 500</td>
</tr>
<tr>
<td>SME</td>
<td>Small and medium-sized enterprises</td>
</tr>
<tr>
<td>STA</td>
<td>Stable rating outlook</td>
</tr>
<tr>
<td>TFI</td>
<td>Investment fund management companies</td>
</tr>
<tr>
<td>UFK</td>
<td>Insurance investment fund</td>
</tr>
<tr>
<td>UKNF</td>
<td>Office of the Polish Financial Supervision Authority</td>
</tr>
<tr>
<td>VaR</td>
<td>Value at Risk</td>
</tr>
<tr>
<td>VIX</td>
<td>Chicago Board Options Exchange Market Volatility Index</td>
</tr>
<tr>
<td>WIBOR</td>
<td>Warsaw Interbank Offered Rate</td>
</tr>
<tr>
<td>WIG</td>
<td>Main index of the Warsaw Stock Exchange</td>
</tr>
<tr>
<td>WIG20</td>
<td>Index of the 20 biggest and most liquid companies listed on the Warsaw Stock Exchange</td>
</tr>
<tr>
<td>WIG–Banki</td>
<td>Index of banks listed on the Warsaw Stock Exchange</td>
</tr>
<tr>
<td>ZU</td>
<td>Insurance companies</td>
</tr>
<tr>
<td>ZUS</td>
<td>Social Insurance Institution</td>
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