December 2018

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

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

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

Financial system stability is an important precondition for the central bank to implement its primary task, i.e. maintaining price stability. The financial system plays a key role in the transmission of monetary impulses to the real economy. Financial system stability may hamper the efficient implementation of the monetary policy. The analysis of the financial system also constitutes a necessary element of an efficient regulatory and supervisory policy in the development of which NBP plays an important role, which together with the monetary policy, contributes to maintaining sustainable economic growth. Another reason for NBP’s actions supporting the stable functioning of the financial system is the implementation of its task to organise payments (Article 3(2)(1) of the Act on NBP). The stable functioning of financial institutions that are integral components of payment systems is a necessary condition for the smooth and safe operation of these systems.

The “Financial Stability Report” is addressed to financial market participants, other policymakers, as well as to other persons and institutions interested in the subject. 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 who undertake excessive risks, without the need of the intervention of public entities into market mechanisms. Thus, the communication policy of the central bank is an important in-
instrument for maintaining financial system stability. The Report is also submitted to the Financial Stability Committee, which is the macroprudential supervision body.

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

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

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

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

The analysis conducted in this Report is based on data available up to 30 September 2018 (cut-off date). Some high-frequency data, especially relating to financial markets and other particularly significant information, may go beyond the adopted cut-off date. The Report was approved by the Management Board of Narodowy Bank Polski at a meeting on 29th November 2018.

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## Contents

Executive summary 7

1. Financial institutions’ economic environment 10
   1.1. Macroeconomic developments 10
   1.2. Developments in the domestic financial market 12
   1.3. Developments in the real estate market 17
   1.4. Global factors influencing stability of the Polish banking system 22

2. Banking sector 29
   2.1. Lending 29
   2.2. Credit risk 35
   2.3. Market risk 48
   2.4. Funding structure and liquidity risk 50
   2.5. Earnings 56
   2.6. Banks’ capital position 62
   2.7. Market assessment of Polish banks 66
   2.8. Selected indicators of the condition of banking sector, domestic commercial banks and cooperative banks 69

3. Credit union sector 72
   3.1. Profile of the credit union sector 72
   3.2. Credit risk in the credit union sector 73
   3.3. Funding and liquidity risk 74
   3.4. Credit unions’ efficiency 75
   3.5. The capital position of credit unions 76

4. Non-credit financial institutions 78
   4.1. Insurance companies 78
   4.2. Investment funds 92
   4.3. Open pension funds 99

5. Assessment of systemic risk in the Polish financial system 104
   5.1. Risk areas 104
   5.2. Risk triggers 109
   5.3. Resilience of the banking sector to shocks 110
   5.4. Recommendations 116

Appendix I 119
Glossary 122
Abbreviations 127
List of Boxes

Box 1.1. Hard Brexit – risks to Poland’s financial system.................................................................25
Box 2.1. Consumer loans in Poland compared to EU countries........................................................32
Box 2.2. Credit risk assessment and changes to accounting and bank reporting rules................36
Box 2.3. The impact of a potential increase in domestic interest rates on credit risk of housing loans portfolio ..........................................................................................................................42
Box 2.4. NSFR at universal and mortgage banks................................................................................54
Box 2.5. Concentration of earnings of domestic commercial banks ..............................................57
Executive summary

Poland’s real economy and financial system remain balanced. The banking sector is of key importance for financial stability in Poland as banks are the main source of financing for the economy and banks’ deposits are the largest component of households’ financial assets. Systemic risk associated with non-credit financial institutions is limited due to their size and business models, which currently do not generate significant risk to the financial stability.

The rate of lending growth neither created imbalances in the economy and in the financial system, nor it impeded economic growth. Credit growth is financed by banks from stable funding sources. There are no signs of a significant easing of lending policies by banks and the analysis of the credit cycle in Poland shows that the risk of excessive lending is low. As a result, the countercyclical capital buffer remains at 0%.

Trends in certain credit categories need to be particularly monitored. Firstly, this applies to real estate loans granted in the low interest rates environment due to the phase of the real estate market cycle and robust activity in this market. Secondly, high-value consumer loans with long (several years) maturities are granted more often, amid a simultaneous high growth rate of this loan portfolio.

The risk associated with foreign currency mortgage loans is abating. The portfolio of mortgage loans still accounts for a significant portion of banks’ assets, but its value has steadily decreased, and the quality of the portfolio remains very good, as is the case with the financial situation of the majority of borrowers. However, this portfolio may still generate systemic risk in the context of certain proposed legal solutions, especially those that provide for the mandatory conversion of the loans at an exchange rate significantly different from the current market rate.

The capital position of Polish banking system is good and is accompanied by low leverage. In the analysed period, banks continued to increase their regulatory capital, maintaining its high quality. The average total capital ratio remains at 18%, whereas the average risk weight is higher than in most EU countries, what results in a relatively higher resilience of banks to shocks.

While the cooperative banking sector is functioning in a stable manner, it faces a number of short- and long-term challenges. Cooperative banks in most cases fulfil the supervisory capital and liquidity requirements. Nevertheless, the sector’s low efficiency associated with its business model and its low integration pose a challenge to the profitability of cooperative banks and to their capacity to expand in the medium term. The experience gained so far from the functioning of the institutional protection schemes (IPSs) is positive, therefore the fact that a number of cooperative banks remain outside the IPS structure is worrying, especially in view of expiring existing association agreements in 2018. The key role of associating banks in the IPSs and their strong deposit links with cooperative banks indicate that it is important to ensure a safe operation of associating banks via, among other things, high-quality risk management and adequate capital levels.
Executive summary

The condition of the credit union sector remains difficult and its restructuring continues. Although the sector itself is relatively small (0.5% of banking sector assets) and its assets continue to fall, it can still negatively impact the whole financial system when credit unions fail, as this leads to the need for replenishment of the deposit guarantee fund by banks, pushes up their costs, and reduces the possibility to increase capital. Supporting the takeover of insolvent credit unions by stronger ones or banks with the participation of the Bank Guarantee Fund (BFG) may have a positive influence on reducing the cost of the restructuring, because they help to avoid costlier payments of deposits.

The risks to the stability of the domestic financial system are mainly of an external nature. Despite positive current macroeconomic developments, uncertainty persisting in Poland’s external economic environment indicates that negative shocks may occur, which may slow Poland’s economic growth. While the Polish banking system’s direct foreign exposures are limited, foreign funding of the banking sector, the government sector, and enterprises remains important. The growth of the Polish economy is also significantly determined by economic conditions in the EU. Should the global economy and financial system be hit by shocks, this could also affect the Polish market. However, the results of the stress tests indicate that banks in Poland – due to consistent capital accumulation – remain relatively resilient. Only a small group of banks would report minor capital shortfalls in terms of Pillar 1 and 2 capital requirements. The remaining banks would still be solvent and could provide financing to the economy.

The capacity to accumulate capital in the future and meet the MREL requirement may pose a challenge for banks in the medium-term. The profitability of Polish banks continues to run above the EU average, but has fallen significantly in recent years and remains below the estimated cost of raising capital on the market.

The structural features of the domestic financial system support its stability. The level of concentration in Polish financial system remains moderate. The magnitude and nature of direct linkages between various types of financial institutions result in low likelihood of the contagion for individual institution. This observation is confirmed by the analyses of the possibility of a domino effect arising in the banking sector. The magnitude of cross-sectoral linkages has recently increased following the establishment of the PZU financial conglomerate controlled by the State Treasury. At the current juncture, it is difficult to estimate the impact of this development on systemic risk, therefore the capital group’s actions need to be closely monitored by financial safety net institutions.

The growing role of the government sector in the financial system is a new circumstance for financial safety net institutions. It manifests in a majority stake in a number of large financial entities, including in the banking and insurance sectors. In such a circumstance separating ownership and supervisory functions remains important.

Narodowy Bank Polski presents a number of recommendations aimed at preserving the stability of Poland’s financial system. The recommendations are elaborated in the last chapter of the Report. They pertain to the following:
• the conduct of a prudent lending policy by banks and monitoring of risk associated with:
  o high-value and long-term consumer loans, including the detailed verification of the purpose of the loans,
  o real estate loans, including ensuring that borrowers hold income buffers to protect them in the event of a significant interest rate increase,

• the restructuring of FX housing loans by way of voluntary agreements between banks and borrowers, in line with the Financial Stability Committee recommendation of 13 January 2017,

• the closer integration of the cooperative banking sector, and the broadest possible participation of cooperative banks in the IPSs,

• the need for non-IPS cooperative banks to take actions aimed at ensuring their operating compliance with the legislative requirements before the current association agreements expire this year,

• a continuation of the restructuring of the credit unions sector, while minimising public costs,

• the mitigation of reputational risk by financial institutions by tailoring their products to the client profile and by appropriate disclosures of risk associated with a given investment product,

• the gradual implementation of the MREL in order to avoid the cliff effect before the agreed deadline of 2023,

• the integration of financial supervision into the NBP structure.
1. Financial institutions’ economic environment

1.1. Macroeconomic developments

In the first half of 2018, the global economic conditions remained favourable, supported by rising consumer demand and investment growth. In the euro area, economic conditions also remain favourable, despite the decline in the annual GDP growth (to 2.4% and 2.2% y/y in the first and second quarters of 2018, respectively\(^2\)). Economic growth continues to be driven primarily by domestic demand, in particular private consumption. In the United States, GDP growth rose (to 2.6% and 2.9% y/y in the first and second quarters of 2018, respectively\(^3\)), mainly as a result of a slightly faster growth of private consumption and investment. In turn, GDP growth in China slowed down slightly (to 6.7% and 6.5% y/y in the second and third quarters of 2018, respectively).

The November NBP projection points to lower GDP growth in the environment of the Polish economy in the years to come, especially in the euro area, but also – albeit to a lesser extent – in the United States. At the same time, although inflation in Poland’s economic environment is going to rise somewhat, it will remain moderate. The major sources of risk for the economic situation in the external environment of the Polish economy remain the uncertainty of future trade policies of major world economies.

In the first half of 2018, the rate of GDP growth in Poland stood at a high level (5.2% y/y), and it mainly stemmed from consumer demand, supported by rising employment and wages as well as very good consumer sentiment. Despite high economic growth and wages rising faster than in previous year, consumer price growth in the first three quarters of 2018 remained moderate (in September 2018, CPI inflation reached 1.9% y/y).

The relatively high growth rate in Poland supported a further rise in employment (by 0.4% y/y in the second quarter of 2018, according to BAEL). This, with the decrease in the working age population, translated into a decline in the unemployment rates to a historically low level (3.7% in the second quarter of 2018, according to BAEL). This situation contributed to a stronger wage growth (the nominal wage growth in the economy reached 7.1% y/y in the second quarter of 2018, and 6.9% in the enterprise sector in the third quarter of 2018).

Continued good condition of the domestic economy, including in the labour market, translated into a further increase in household wealth. A rapid increase in household disposable income and very optimistic consumer sentiment contributed to growth in private consumption and retail sales. At the same time, the financial assets of households continued to grow (by 2.1% y/y in the second quarter of 2018), and households increased their exposure to safe forms of placing their savings with a

\(^2\) In the third quarter of 2018 GDP growth in the euro area amounted to 1.7% y/y (Eurostat flash estimates).

\(^3\) In the third quarter of 2018 GDP growth in the US amounted to 3.0% y/y (BEA estimates).
considerably high liquidity (cash and short-term deposits) and to housing investments. Households also increased their financial liabilities (by 4.8% y/y in the second quarter of 2018). Nevertheless, their debt-to-disposable income ratio remained moderate (60.2% in the second quarter of 2018). The growth rate of net financial assets of households slowed down markedly in the first half of 2018, and it amounted to 0.6% y/y at the end of the second quarter of 2018.

The condition of the non-financial corporate sector in the first half of 2018 was good, and domestic demand remained the main driver of sales growth. In the second quarter of 2018, sales revenue grew slightly faster (9.9% y/y) than operating costs (8.7% y/y), which caused the sales result to increase and the sales profitability ratio to stand at the level of 5.1%. The costs of sales were mostly pushed up by the growing prices of commodities, materials and goods, while increasing labour costs had a much lower impact. At the same time, the percentage of the profit-making enterprises rose to 74.4% compared to 73.4% in the corresponding period of 2017.

In the second quarter of 2018, the non-financial corporate sector was still characterised by high liquidity and high debt servicing capacity. This is confirmed by a substantial share of companies declaring timely settlement of liabilities towards banks (95% in the third quarter of 2018). The overall debt indicator expressed as the ratio of liabilities and provisions for liabilities to total assets reached a safe level of 50% in the second quarter of 2018. At the same time, despite a moderate growth of corporate debt towards financial institutions, its level to GDP remained low at approx. 41%. The good financial position of companies was accompanied by growth of fixed capital formation of large and medium-sized enterprises (to 13.9% y/y in the second quarter of 2018).

The condition of the general government sector in the first half of 2018 was very good. For the first time in the last twenty years there was a budget surplus (0.3% of GDP according to ESA2010), mainly owing to favourable economic conditions, increase in the growth rate of tax revenues and social insurance contributions (by 8.9% y/y), compared to a moderate increase in public expenditure (by 5.4% y/y).

According to the November NBP projection, the GDP growth in 2019-2020 is going to decline gradually (to 3.6% y/y in 2019 and 3.4% y/y in 2020). Private consumption will remain an important component of domestic demand growth. This will be driven by a further improvement in the labour market situation, which has a positive impact on household disposable income and consumer sentiment. The low level of interest rates and the resulting low cost of credit will also have a favourable impact on domestic demand. On the other hand, economic growth will be restricted by the projected growth in energy prices and the slowdown in GDP growth in the euro area. In accordance with the NBP projection’s central path, the CPI inflation will increase to 3.2% in 2019 and 2.9% in 2020. The main uncertainty for the projection stems – apart from the risk related to future GDP growth in the global economy – from price developments in the energy commodities market and the transmission of rising energy prices on the costs of enterprises and the prices of consumer goods and services.
1.2. Developments in the domestic financial market

1.2.1. Global markets

The growth in value of financial assets in the United States in the period of April-September 2018 and the decrease in their price volatility resulted mostly from good macroeconomic situation expectations, which – together with a tighter monetary policy by the Fed – led to a depreciation of the US dollar. The good financial performance of US companies and a share’s buyback by some of them translated into the record values of the S&P500 index (see Figure 1.1), which was accompanied by the decline in stock price volatility rates close to historical lows (see Figure 1.2). Spread between yields on corporate and government bonds remained very low. In June and September, the Fed raised interest rates by a total of 50 basis points in line with expectations and reduced the scale of re-investment of bonds purchased under quantitative easing programmes. However, concerns of some market participants regarding the sustainability of the economic recovery limited the impact of Fed’s actions to the long end of the yield curve of US Treasury bonds. These factors translated into a strong inflow of capital to the United States and in consequence to appreciation of the US dollar, both against currencies of developed and emerging economies (see Figure 1.3).

At the same time, investors’ exposure to the financial markets of many emerging economies has diminished markedly, especially countries indebted in foreign currencies (particularly in the US dollar) together with high external imbalance, which triggered strong falls in asset prices in these countries. The increase of Fed interest rates and US dollar appreciation substantially limited attractiveness of the rates of return on investments in developing countries. As a result of the search for yield, an inflow of capital to financial markets of these countries decreased in the second quarter of 2018. Furthermore, investors’ concerns related to the economic slowdown of emerging markets, especially China, increased on the back of the protectionist measures adopted by the United States. In case of Turkey and Argentina, growth in risk aversion was amplified by local factors – the economies’ significant indebtedness in foreign currencies against their foreign reserve assets and political tensions, thus led to a strong depreciation of their currencies (see Figure 1.3).

The European bond and share markets were negatively affected by the prospect of economic growth slowdown in the euro area, political uncertainty in some EU states as well as concerns regarding the financial condition of some European banks. The ECB confirmed termination of the asset purchase programme in 2018 and declared that interest rates would remain at the same level for a longer time. Uncertainty about the economic policy of the new Italian government (increase in the

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4 According to the median of projections of FOMC members of September 2018, interest rates will be increased four times until the beginning of 2020 (by total of 100 basis points). Summaries of economic projections from the Fed meetings are available on the website: https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.


7 “Quarterly Review”, BIS, September 2018, the report is available at: https://www.bis.org/publ/qtrpdf/r_qt1809.htm.

budget deficit planned amid high indebtedness of the public sector) translated into a rise in the country’s government bonds yield and CDS premia on these instruments (see Figure 1.4). Investors’ concerns were also raised by the financial condition of some European banks, especially those with high impaired loan ratios, high exposure to emerging markets or Italian government bonds. This was reflected in the falling prices of these banks’ shares and bonds. Growth of price volatility on financial markets was also driven by protracted negotiations on the terms of Brexit.

**Figure 1.1.** Selected stock market indices

![Graph showing stock market indices](image1.jpg)

Note: Data normalised to 100 as of 31 March 2018.

*Source: Thomson Reuters.*

**Figure 1.2.** Volatility indices for selected segments of global financial markets

![Graph showing volatility indices](image2.jpg)

Note: Data normalised to 100 as of 31 March 2018. Indices refer to, respectively: VXEEM and VIX – equity market; JPM G7 and JPM EM – foreign exchange markets, MOVE – bond markets.

*Source: Bloomberg.*

**Figure 1.3.** US dollar exchange rates

![Graph showing exchange rates](image3.jpg)

Note: Data normalised to 100 as of 31 March 2018.

*Source: Thomson Reuters.*

**Figure 1.4.** Yields on 5-year government bonds of selected countries

![Graph showing bond yields](image4.jpg)

Note: Data pertain to bonds denominated in domestic currencies.

*Source: Thomson Reuters.*
1.2.2. Foreign exchange market

A depreciation of the zloty against the US dollar and a temporary increase in EUR/PLN and USD/PLN exchange rate volatility could limit the attractiveness of domestic securities for some foreign investor groups. Since the beginning of April until the end of September 2018, the EUR/PLN and USD/PLN exchange rates increased by, respectively, 2% and 8% (see Figure 1.5). The weakening of the zloty against euro resulted mainly from external factors but the relatively small scale of depreciation was a sign of more favourable, than in the case of emerging markets, perception of investors towards zloty. A substantially higher increase in the USD/PLN exchange rate comparing to EUR/PLN was caused by the aforementioned appreciation of the US dollar against euro. In the period of April-September 2018 the EUR/PLN CIRS basis premia, which allowed domestic banks to hedge open currency positions, remained negative9.

1.2.3. Money market

In the analysed period, market participants did not expect any substantial changes in NBP interest rates until the end of 2019, the domestic money market was stable with activity concentrated on operations with the shortest maturity. At the beginning of May, the publication of the higher-than-market-consensus inflation rate10 intensified expectations for an of increase in NBP interest rates (see Figure 1.6). The value and maturity structure of transactions on the domestic interbank deposit market did not change substantially when compared to the previous period. O/N transactions prevailed on the unsecured interbank deposit market as their share in the market turnover amounted to 95%. Operations with maturity up to 1 week accounted for 96% of turnover on the market of conditional transactions.

An important issue for the domestic financial system is the adjustment of WIBOR reference rates to the requirements of the Benchmarks Regulation11, including modification of the methodology for rate determination and submitting a complete application to the KNF for granting the relevant permit. Administrator of WIBOR rates, in cooperation with domestic banks, should make every effort to meet these requirements in a timely manner and thus ensure continuity of these benchmarks’ quotation after the transition period required by this regulation, i.e. after 31 December 2019.

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


1.2.4. Bond market

In the period of April-September 2018, the prices of domestic government bonds held steady, but their attractiveness for foreign investors diminished when compared to bonds of some developed countries. At the end of September, the yields of 2-, 5 and 10-year domestic Treasury debt securities were respectively: 1.6%, 2.6% and 3.2%, i.e. 0.1 percentage point higher than at the end of the first quarter of 2018 (see Figure 1.7). Their market prices were stable due to, among other factors, a slight expectations of NBP interest rate changes until the end of 2019 and a high economic growth rate having a beneficial impact on the fiscal situation. CDS premia on Polish government bonds increased a little in the analysed period. At the same time, spread of the Polish and US treasury securities’ yields was substantially lower than previously (see Figure 1.7), which encouraged global investors to look for debt securities with a more attractive, compared to the domestic government bonds, risk to return ratio.

The long-term deterioration of non-residents’ participation in the domestic government bond market continued amid a simultaneous rise of the share of domestic banks in the investor structure. At the end of August 2018, domestic banks held 261.2 billion zlotys worth of Polish government bonds, and their share in the structure of buyers of these securities was 41.1% against 29.7% four years earlier (see Figure 1.8). In the same period, the share of foreign investors fell from 40.5% to 29.6% (but involvement of foreign investment funds dropped by half). Despite these trends, the structure of government bond holders remains diverse, and non-residents with a long-term investment horizon (including central banks, public institutions, insurance companies and pension funds) are still of high relevance.
1.2.5. Equity market

Changes in share prices of the largest companies listed on the GPW were in line with the trends on European stock exchanges, while a substantial drop in the share prices of SMEs resulted from domestic factors. From the beginning of April to the end of September 2018, the WIG20 and Stoxx Europe 600 indices increased respectively by 3.4% and 3.3% (see Figure 1.1). The increase in the market valuation of the largest domestic companies was primarily supported by the favourable macroeconomic situation and a significant increase in commodity prices. At the same time, the mWIG40 and sWIG80 indices deteriorated by 8.5% and 19%, respectively. They were mostly driven by a high supply of shares from investment funds amid a low liquidity of the secondary market of these instruments.

The reclassification of Poland from Emerging Market to Developed Market category by FTSE Russell and Stoxx resulted in reorganisation of portfolios of global investors, but had a minor effect on price volatility of shares listed on the GPW. Switch in the indices published by these administrators took place on 24 September 2018. Consequently, passive investors wishing to reflect the structure of FTSE Russel and Stoxx indices as accurately as possible, adjusted their portfolios at the close of the session on 21 September 2018. This move resulted in the highest daily turnover in the entire history of the GPW, exceeding 5.4 billion zlotys, while from January to August 2018 its average value was 820.6 million zlotys. Change in the WIG and WIG20 indices on that day imply that the reclassification resulted in a minor outflow of passive investors’ capital from the GPW equity market.
1.3. Developments in the real estate market

The residential real estate market remained in a high-activity phase. High demand, including investment demand, was still observed in the largest cities. The growing demand was satisfied by an adequate level of supply, therefore no significant price tensions have been observed so far. However, tensions observed on the supply side indicate that this market is less balanced than in the past. The growth rate of lending is much lower compared to the previous expansion phase (in the years 2006-2008) and high demand is financed to a large extent with buyers’ own funds.

An oversupply of space persists in the most important segments of the commercial real estate market (office and retail). However, some symptoms of stabilisation on the office space market can be observed, where vacancies are concentrated in worse quality stock. This segment is characterised by intense construction and investment activity – new commercial projects are being launched.

1.3.1. Residential real estate market

The average transaction prices of dwellings in the primary and secondary markets grew in the first half of 2018 (see Figure 1.9). This growth, to a certain extent, stemmed from a change in the market structure, that is a large number of transactions in better locations. Prices per sqm determined using the hedonic price index (prices of dwellings with similar characteristics and quality) increased in six and ten largest cities by 9.8% and 7.5% y/y and 4.6% and 2.9% q/q, respectively. In Warsaw, hedonic prices increased by 5.6% y/y but fell by 0.6% q/q, similarly like in the second quarter of 2017. The level of transaction prices in nominal terms is still lower or comparable to the values from the end of the previous recovery phase, despite the much higher current income levels. The average rent rates were also rising (see Figure 1.10).

A further increase in housing demand, both consumer and investment demand, was observed in 2018. The estimated availability of housing loans remained at a stable level. The estimated loan-financed housing availability in Warsaw and the six cities decreased slightly. At the end of the second quarter of 2018, the average availability of housing in the largest cities stayed at the level of 0.84 square metres per average monthly wage in the corporate sector, i.e. it was 0.36 square m higher than the minimum observed in the third quarter of 2007.

The impact of regulatory factors on consumer demand has dwindled. The impact of the “Housing for the Young” scheme expired in early 2018. Currently, BGK Nieruchomości carries out investments under the commercial pillar of the Housing Plus Scheme on land owned by local government.

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12 For more information on the current situation in the real estate market in Poland, see “Information on home prices and the situation in the residential and commercial real estate market in Poland in 2018 Q2”, available on the bank’s website: https://www.nbp.pl/homen.aspx?f=/en/publikacje/inne/real_estate_market_q.html
13 Gdańsk, Gdynia, Kraków, Łódź, Poznań and Wrocław
14 Under the government “Housing for the Young” scheme supporting building of privately owned apartments, 104.7 thousand borrowers received subsidies in the amount of 2.75 billion zlotys, including 0.85 billion zlotys for apartments in the secondary market, in 2014-2018.
units and private entities. In July 2018, a new element of the scheme was launched – “Housing for the start”, to subsidise those renting new flats. The schemes have so far a minor impact on the housing market.

**Figure 1.9.** Transaction prices of dwellings in the primary and secondary markets in selected groups of Polish cities

![Graph showing transaction prices of dwellings in selected Polish cities.](image)

**Figure 1.10.** Average (offer and transaction) rent rates in selected average groups of cities in Poland

![Graph showing average rent rates in selected Polish cities.](image)

Note: 6 cities include Gdańsk, Gdynia, Kraków, Łódź, Poznań and Wrocław and 10 cities include Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin and Zielona Góra.

*Source: NBP*

Investment demand for housing is driven by the household expectations of higher rates of return from housing rental compared to the rate of return on financial assets. Low interest on deposits and Treasury bonds still make the investment in apartments, despite low liquidity and the applicable tenant protection rules, an attractive deposit (see Figure 1.11). As a result, a greater use of own funds of the population to buy dwellings for rent is observed.

No impact of speculative demand in the market has been observed so far as increases in housing prices are low and expectations for a major increase in the future are absent.

So far, the supply of dwellings has adjusted flexibly to demand, but there have recently been signs of the growing barriers to further supply growth. The increase in supply of dwellings was supported by a stable estimated profitability of developer projects in housing construction (see Figure 1.13), but it decreased to about 19% at the end of the second quarter of 2018 (from 21% in the second quarter of 2017 in Poland’s six largest cities). This was due to the increases in the prices of production factors, that is land, building materials and, especially, labour costs. Taking into account the current level of demand, the sale of the entire housing stock available on the primary market takes about one year (see Figure 1.14). Sales in the primary market are shifting towards earlier production stages, which means that the buffer absorbing some of the demand shocks is reduced.
The above phenomena indicate that the equilibrium in the housing market is becoming less stable. There is more likelihood than in recent years that possible supply or demand shocks could lead to imbalances. In particular, should there be a significant restriction to the supply of dwellings amid persistently strong demand, this could lead to higher dwellings’ prices.

Figure 1.11. Return on home rental (average in 7 cities) as compared with household deposits, housing loans, 10-year Treasury bonds and commercial real estate capitalisation rates (offices and retail space)

Figure 1.12. Newly commenced housing units, for sale or rent, per 1,000 citizens in selected groups of cities in Poland

Note: The chart presents the difference in the rate of return of individual assets in percentage points (in the case of Treasury bonds, the current yield to maturity was taken into account). This analysis does not take into account the high transaction costs in the housing market and the potentially long exit time for such an investment. 7 cities include Warszawa, Gdansk, Gdynia, Krakow, Lodz, Poznan and Wroclaw.

Source: Statistics Poland.

Source: Statistics Poland.
1.3.2. Commercial real estate market

The level of supply-demand imbalance was limited in the office real estate segment. Since two quarters, the dynamic increase in office space is accompanied with higher demand, which is facilitated by a favourable economic situation. According to market estimates, in the 2nd quarter of 2018, the stock of office space on nine largest office markets exceeded 10 million sq. m, and about 1.8 million sq. m were under construction. The vacancy rate on nine largest office markets at the end of the 2nd quarter of 2018 was 10.2%, whereas it was 10.8% at the end of 2017.

A slight oversupply of space is maintained on the retail market, and the vacancy rate in the entire country at the end of the 2nd quarter of 2018 remained at a low level of 3.2%.

High investment activity of foreign entities and maintained high availability of foreign funding will lead to further growth in office space. This phenomenon is mostly caused by a low level of interest rates, and thus low opportunity cost, in developed countries. The growth rate of new retail space has been slowing down in the recent years. This may indicate that this market segment, accord-
ing to investors, is saturated. Approx. 90% of investments concerning the sale of entire operating companies are carried out by foreign investors. The estimated value of investment transactions\(^{18}\) on the commercial real estate market in the 2nd quarter of 2018 was over EUR 3 billion, of which 60% of transaction value concerned retail space (see Figure 1.15). A single transaction of a portfolio of 28 retail premises had a substantial share in the volume\(^{19}\).

**Figure 1.15.** Value of investment transactions in the commercial real estate market (in billions of EUR).

![Graph showing the value of investment transactions in the commercial real estate market.](image)

Transaction rents for class A and B office space listed in EUR per sq. m remained stable (see Figure 1.16). The highest monthly rents in this class are in Warsaw, and they amounted to about 20 euro/sq. m/month. In the remaining analysed cities\(^{20}\) they ranged from 12 to 14 euro.

The vacancy rate in Warsaw increased (by 0.3 p.p.), and at the end of the 2nd quarter of 2018, it amounted to 11.1%\(^{21}\) which is considered a high level. On the basis of market information, it can be stated that the vacancy rate of office space depends on its age\(^{22}\) and, in particular, on the location of

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\(^{18}\) The above investments are related with the sale of an entire functioning company which lets a building and generates revenue from it. Such transactions take place between either: 1/ developer who commercialises the real estate and sells it to the investor, or 2/ two investors. However, it should be stressed that the data do not allow conclusions to be drawn regarding the share of foreign investors in possession of commercial real estate in Poland. There is a very large real estate stock which owners have built up for their own use, sometimes over many years. Additionally, some domestic investors create a developer company which builds and then manages for them real estate for rent. The above economic events are not recorded in the statistics on commercial investments.

\(^{19}\) See CBRE press release from 24.07.2018. “Pierwsze półrocze najaktywniejsze w historii inwestycji na polskim rynku nieruchomości. W 2018 może paść rekord” [The first half-year as the most active in the entire history of investments on the Polish real estate market. 2018 may be a record-breaking year.]

\(^{20}\) The division of the analysed cities is different for commercial real estates than for residential ones. The six cities are Katowice, Kraków, Łódź, Poznań, Tri-city Agglomeration of Gdańsk-Sopot-Gdynia and Wrocław. The nine cities include Białystok, Bydgoszcz, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin and Wrocław.

\(^{21}\) See the report of Colliers International: Market Insights, Q1 2018, Poland and the report of Colliers International: Market Insights, the 1st half of 2018, Poland.

\(^{22}\) See Cushman & Wakefield, Marketing jako jeden z kluczowych czynników wspierających proces modernizacji starszych budynków biurowych, 2018.
an office building\textsuperscript{23}. Intense upgrading of older office premises, which aims at keeping those customers already renting office space and attracting new ones, is lately observed on the office space market.

Transaction rents of space located in shopping centres in Warsaw have been growing slightly, while in other cities the rents are stable\textsuperscript{24} (see Figure 1.17). There are concerns that the developing e-commerce market can have a negative impact on the revenue of owners of shopping centres.

**Figure 1.16.** Rents for Class A office spaces (average values in euro/sq. m/month)

**Figure 1.17.** Rents for space rental in shopping centres (shopping malls) for units the size of approx. 100-500 square metres (euro/sq.m/month)

1.4. Global factors influencing stability of the Polish banking system

In Poland’s external environment persist vulnerabilities, materialisation of which could carry a risk to the stability of Poland’s economy and, as a result, to the stability of the domestic financial system. The most important of them include: (1) underpricing of risk premia in global financial markets, (2) high and growing indebtedness of major economies and (3) structural problems of banking sectors in some EU countries.

1.4.1. Risks

Global financial markets seem, for a longer time, to underestimate the price of risk in the environment of low market volatility and liquidity. The historically low interest rates maintained by major central banks since several years, which caused the investors’ search for yield behaviour, supported this process. Price volatility indices for financial instruments are low (see Figure 1.2), as are

\textsuperscript{23}See Knight Frank, Commercial market in Poland - H1 2018.

\textsuperscript{24}The analysis focuses on units with the surface area between 100 and 500 sq. m in shopping centres located in economically important parts of cities.
high yield bond spreads. Moreover – especially in the USA – there is an increase in lending to enterprises with lower rating and high leverage, with lighter covenants, and also growing importance of less regulated non-bank sector in granting such loans.

**A sudden increase in risk premia for financial instruments can lead to a decrease in valuation of financial institutions’ assets.** The effects of materialisation of such risk could be significant, e.g. for banks with high exposure to instruments, the valuation of which is linked to market price, including treasury securities. The increase in risk premia may also be accompanied by a decrease in liquidity of markets which, in case of the assets’ fire sales, may lead to a downward spiral of prices, negatively impacting the availability and cost of market funding of financial institutions. Moreover, under such scenario, there would be capital outflows and depreciations of emerging economies exchange rates, leading to losses in banks with high exposures to these countries.

**Indebtedness of main economies is steadily increasing, both in nominal terms, and in relation to GDP.** The advanced economies’ debt has stabilised at a high level, while the indebtedness of many emerging market economies is growing – mostly due to growing indebtedness of Chinese non-financial companies and households (see Figure 1.18). Public sector debt in the US is increasing, as well as the corporate sector’s debt in the euro area.

**Figure 1.18.** Nonfinancial sector debt (in USD trillions, LHS; %GDP, RHS)

![Nonfinancial sector debt graph](image)


**High level of debt increases the risk of its repayment in case of macroeconomic shocks, e.g. increase in interest rates or weakening of economic growth.** This may pose a threat, in particular to emerging market economies with high foreign currency debt, especially in US dollar. Exit of major central banks from quantitative easing programmes will increase the costs of refinancing for highly indebted countries, and the possible slowdown of economic growth will constrain the ability of governments and private sector to timely service debts.
Some EU countries still face structural problems in their banking sectors, and these problems reduce resilience to shocks of some European banks. The problems are following: high level of non-performing loans (mostly in countries like Greece, Cyprus, Portugal and Italy), high level of market-based financing of banks (e.g. in Denmark and Sweden), considerable share of treasury bonds in assets when the public debt of a given country is high (e.g. Italy) and substantial exposure to vulnerable emerging market economies (this applies to, for example, Spanish, British, Dutch and French banks).

Given the low profitability of banks in the EU, materialisation of banking sector risks could lead to a limited availability of credit to the EU economy and a slow-down of economic growth. A still high stock of non-performing loans reduces lending growth possibilities, while large scale of market-based bank financing (mostly from interbank deposits and debt securities) increases their vulnerability to liquidity and market risk. Banks can also be impacted by losses caused by a turmoil on treasury bond markets. Also exposures (for example from securities held) to the largest emerging economies may become the source of loss if the ability of these economies to service debt deteriorates. These turmoil may contribute to the increase of bank financing costs.

1.4.2. Triggers which could lead to the materialisation of the risks.

There is a number of scenarios which could lead to the materialisation of the risks. They are as follows: (1) a faster than expected by financial markets tightening of the monetary policy by major central banks (Fed/ECB) (2) a sudden deterioration of market participants’ expectations regarding the global economic outlook which, if combined with, for example, heightened geopolitical tensions or escalation of trade protectionism, may lead to a change in risk appetite in global financial markets; (3) events and political declarations in the EU (e.g. connected with fiscal policy of some countries or uncertain outcome of negotiation process concerning Brexit) which may lead to tensions on European treasury bond markets; (4) an increase in global macroeconomic imbalances or higher threats to the financial stability of emerging market countries, especially those with high external debt, in the event of US dollar’s appreciation. Materialisation of one of the triggers may lead to a chain reaction and materialisation of the other triggers.

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### Table 1.1. External risks and their potential effects on the Polish financial system

<table>
<thead>
<tr>
<th>Risk</th>
<th>Sudden repricing of risk on financial markets</th>
<th>Deterioration of debt servicing capacity of major economies</th>
<th>Accumulation of the EU banking sector vulnerabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk triggers</td>
<td>• faster than expected by the financial markets tightening of the monetary policy by Fed/ECB</td>
<td>• lower economic growth/lower growth expectations for the EU and its trade partners</td>
<td>• growing geopolitical tensions and “trade wars”</td>
</tr>
<tr>
<td></td>
<td>• accumulating the EU banking sector vulnerabilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Potential effects of risk materialisation for Poland

<table>
<thead>
<tr>
<th>Credit channel</th>
<th>• increase in NPLs due to the economic slowdown caused indirectly by the economic downturn in the EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market channel</td>
<td>• weakening of PLN and increase in cost of foreign currency debt service</td>
</tr>
<tr>
<td></td>
<td>• increase in banks’ cost of market-based financing and cost of hedging</td>
</tr>
<tr>
<td></td>
<td>• higher capital requirement for banks with foreign currency loan portfolio</td>
</tr>
<tr>
<td></td>
<td>• decrease in value of debt instruments in banks’ balance sheets</td>
</tr>
</tbody>
</table>

*Source: NBP*

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**Box 1.1. Hard Brexit – risks to Poland’s financial system**

**The United Kingdom will leave**

the European Union on 30 March 2019. This means that the European Union law will cease to apply to the UK and the UK will become the so called “third country” within the meaning of European provisions governing functioning of the financial system, including CRD/CRR. Lack of progress in negotiations increases the risk that the conditions for UK’s leaving the EU and framework for future relations between the UK and the Union would not be agreed before 29 March 2019, leading to the so-called hard Brexit.

**Hard Brexit is the source of uncertainty and threats to financial stability.** The European Commission prepared an analysis of legal effects of leaving the EU by the UK on the provision of services in individual sectors of the financial system. From Poland’s perspective, it is crucial to: (1) limit – or substantially change – access of financial institutions from the EU to the market infrastructure in London, especially to CCP clearing houses and trade repositories; (2) change the rules of cross-border

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26 A different withdrawal date may be established in the ratified withdrawal agreement. Furthermore, the European Council, in agreement with the United Kingdom, may unanimously decide that the European law would cease to apply at a later date.

activities of banks and insurance companies between the UK and EU member states; (3) hard Brexit may lead to increased price volatility of financial instruments, resulting in losses to investors with high exposure to the UK; (4) credit risk may increase in banks if Brexit’s macroeconomic consequences were serious and had negative impact on economic situation of the EU.

The most important challenges resulting from possible hard Brexit for the Polish financial institutions relate to their activity on derivatives market. On the other hand, the impact on banking and insurance sectors through direct balance sheet and off-balance sheet credit exposures to the UK may be assessed as marginal. It is hard to assess the indirect impact due to uncertainty about Brexit’s influence on macroeconomic risk in the European Union.

The effect on the derivatives market

Hard Brexit without any transitional arrangements would restrict access of the EU entities to services provided by the UK-based CCPs and trade repositories. Domestic banks currently conclude approximately 80% of their OTC interest rate derivative transactions denominated in the Polish zloty with non-residents, mainly London banks. Out of those transactions, almost all which are subject to the clearing obligation are cleared by the UK-based CCPs. As a result of hard Brexit, ESMA would not recognise the legal regime of those CCPs (as third-country CCPs) as equivalent. This would give rise to legal risk and operational challenges for the OTC derivatives market participants – especially those subject to the clearing obligation. First, the EU entities would not be able to clear any new transactions in the UK-based CCPs. Second, CCPs located in London could be forced to terminate participation agreements with the EU clearing members, as they might not be able to fulfil all their obligations towards those CCPs in the case of a hard Brexit without any transitional arrangements, for example participate in auctions of a defaulting clearing member’s position. In such case, entities from the EU using the UK-based CCPs, including domestic banks which are usually indirect participants, would probably be forced to close their transactions before maturity, and conclude new ones that would need to be cleared either in the EU-based CCPs, or in the recognised third-country CCPs. Moreover, these entities probably would not be able to report data on concluded transactions to repositories located in the UK (they would not be recognised under EMIR). This would make it necessary to establish relations with other repositories registered by ESMA and, possibly, to transfer thereto of huge numbers of reports on the existing stock of transactions.

Market fragmentation, likely resulting from hard Brexit, would translate into higher costs of engaging in OTC derivative transactions and would hinder hedging against market risk. For certain classes of OTC derivatives subject to the clearing obligation including, among others, FRA and IRS denominated in PLN, only one CCP authorised or recognised under EMIR, other than the UK-based CCPs, is currently allowed to clear them. The number of entities with direct or indirect access to that CCP’s services is substantially lower than in the case of the UK-based CCPs. As a result, hard Brexit would mean a substantial limiting of the scope of potential counterparties to transactions subject to the clearing obligation, increase in demand for collateral (due to restricted effect multilateral netting), shifting of activities towards classes of instruments which are not covered by the clearing obligation, and the related maintaining of higher capital requirements. In the case of domestic banks, the above mentioned changes in functioning of the market would lead to higher costs and lower effectiveness of hedging against interest rate risk.
**Impact on the banking sector**

A major issue in the context of hard Brexit is a relatively high value of off-balance sheet positions of domestic banks resulting from derivative transactions with entities from the London market, both the instruments not covered by the clearing obligation (e.g. CIRS), and covered by that obligation (e.g. FRA, IRS). Hard Brexit may result in the transfer of activities in the market of OTC derivatives market from London banks to the EU-based entities from their capital groups. Consequently, domestic banks willing to enter into OTC derivative transactions with a wide range of foreign financial institutions would have to, in a short period of time, sign master agreements (in the case of transactions cleared bilaterally – together with credit support annexes) with new counterparties, and set credit exposure limits to those counterparties.

The share of the UK capital in the banking sector is marginal (0.4% of assets at the end of the 1st half of 2018). Also, credit exposures (both balance-sheet and off balance-sheet) of domestic banks to the UK entities are marginal (0.8% of total banking sector’s exposures at the end of the first half of 2018). These exposures are dispersed among many banks, and in most cases they do not exceed 3% of assets of individual banks.

**Impact on the insurance sector**

Direct influence of hard Brexit on solvency of the domestic insurance sector seems to be insignificant. Due to small exposure of insurance companies on the UK entities, the possible drop of the SCR coverage ratio of the would not exceed several percent and would pose no risk to financial stability. What is more, the share of the UK capital in the insurance sector is marginal (7.8% of assets at the end of the first half of 2018).

The aforementioned slight drop in the coverage ratio may result from recognising the UK solvency regime as non-equivalent with the Solvency II regime. In such case, derivative transactions with counterparties from the UK could not be considered as risk-mitigation techniques. In the spread risk and concentration risk submodules, exposures to the UK’s government and central bank would not have a zero risk factor; and the highest risk weight would be applied to exposures to the UK financial institutions when concerning the concentration risk submodule and default risk module.

**Impact on resolution**

Hard Brexit will lead to the situation that the decisions of the Bank Guarantee Fund (BGF, as the Polish resolution authority) regarding the legal relations governed by the UK law will not be legally binding. This will be especially important for derivative transactions, as it will hinder the possibility to exercise BGF’s powers to limit the creditors’ rights to early terminate agreements or enforce collaterals (the so-called resolution stays) covered by the UK law.

Hard Brexit will not have significant influence on meeting the MREL requirement by the Polish banks and the application of BGF’s bail-in powers.

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28 The reported values express total exposures in bank assets related to loans and other liabilities, debt and capital instruments, valuation of derivatives, and also off-balance sheet exposures related to the provided credit lines, guarantees and other off-balance sheet liabilities related to financing.

29 The only exception was one small commercial bank, which in recent years substantially limited the scale of its operations on the Polish market, and one very small branch of credit institution.

30 Among others, writing down or conversion of liabilities (bail-in) of an institution covered by compulsory restructuring, transfer of copyright of liabilities to another entity, and also the so-called resolution stays.
by the UK law in the structure of financing of the Polish banking sector is marginal. Second, there is a statutory requirement for banks in Poland to introduce a stipulation in the terms of issue (or other agreements related to the issuance of liabilities) allowing for the application of the bail-in tool and forcing the banks to obtain creditor’s consent to recognise the effects of such a power.
2. Banking sector

2.1. Lending

The growth rate of lending to the non-financial sector has remained moderate, thus neither led to the build-up of imbalances jeopardising financial stability nor impeded economic development. Lending to the non-financial sector (5.3%)\textsuperscript{31} y/y at the end of June 2018 – see Figure 2.1) grew at a slightly slower pace than the nominal GDP. Loan growth remained supported by, among others, the low interest rate environment, banking sector’s ample capital levels, high economic growth and favourable developments in the labour market. The ratio of non-financial sector credit to GDP has not changed and remained at a low level (about 50%, see Figure 2.2) compared to the EU average (about 80%).

Figure 2.1. Growth rate of nominal GDP (left-hand panel) and selected categories of loans to the non-financial sector (right-hand panel), y/y

![Graph showing growth rate of nominal GDP and loans](image)

Note: Loans* – annual growth rate, 3-month moving average; Loans** – annual growth rate after adjusting for foreign exchange rate changes, 3-month moving average.

Source: Statistics Poland, NBP.

Although increments of housing loans have been rising since 2016 (see Figure 2.4), it has not been accompanied by a hike in the risk level. An increase in the value of new loans did not result from an easing of lending policy by banks and remained close to the GDP growth (see Figure 2.3). Higher lending ensued, among others, from continued high demand for loans underpinned by a favourable financial situation of households. Housing demand was primarily driven by buyers cover-
ing their residential needs. At the same time, the scale of purchases for investment purposes has increased, but these were mainly financed from own funds, not loans. The growing demand was accompanied by a tightening of credit standards and terms (e.g. regarding downpayment and collateral requirements). Although average value of a newly extended loan was still increasing, the structure of new loans was dominated by smaller amount loans and the share of loans with high LtV kept decreasing (the share of new loans with the LtV above 80% dropped from about 53% in 2013 to 42% in the first half of 2018).

**Figure 2.2.** Value of selected loan categories to cumulated nominal GDP

**Figure 2.3.** Value of new consumer and housing loans to nominal GDP and wage bill

*Note: The ratio of stock of selected loan categories to cumulated nominal GDP from the last four quarters. Source: NBP.*

*Note: Loans/GDP – the ratio of new consumer/housing loans originated in a given quarter to quarterly nominal GDP; Loans/wage bill – the ratio of new consumer/housing loans originated in a given quarter to total value of remuneration in the national economy in a given quarter; Data on the value of new consumer loans are provided from interest rates reporting – data available since 2015. Source: NBP calculations based on Statistics Poland, NBP and ZBP data.*

FX housing loans are being systematically amortised (see Figure 2.4), however still constitute a significant part of the non-financial sector loans portfolio (approx. 13%). CHF-denominated loans account for about 80% of the FX housing loans portfolio. Value of these loans, expressed in the cur-

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32 See “Information on home prices and the situation in the residential and commercial real estate market in Poland – first quarter of 2018”, June 2018, NBP.

33 For more information on the factors influencing changes in lending policy and its developments, see: “Senior loan officer opinion survey on bank lending practices and credit conditions. 2nd quarter 2018”, April 2018 and “Senior loan officer opinion survey on bank lending practices and credit conditions. 3rd quarter 2018”, July 2018, NBP.

34 Before amending the Recommendation S on good practices with regard to managing mortgage-secured credit exposures, which introduced maximum LTV limits.

35 See “Raport AMRON-SARFiN 2/2018. Ogólnopolski raport o kredytach mieszkaniowych i cenach transakcyjnych nieruchomości” (Nationwide report on housing loans and property transaction prices), August 2018, ZBP.
The growth rate of consumer loans increased. Consumer loans rising at a higher pace were mainly a consequence of the business cycle phase and reflected the structure of economic growth in which private consumption prevailed. Consumer confidence level remained historically high and demand for loans was increasing in parallel to growing wages. At the same time, due to increased public burdens weighing on the long-term profitability, banks were inclined to increase their exposure to high-margin products, especially consumer loans.

The heightened growth rate of high-value loans with longer maturities adds to an increase in risk of the consumer loan portfolio, however an absence of pronounced credit standards easing proves to be a risk-mitigating factor. In the first half of 2018, banks loosened lending standards and some credit terms relating to consumer loans only slightly, however increased the charged interest rates. At the same time, for several quarters, banks have been granting loans in higher amounts and with correspondingly longer maturities. The growth rate of loans with original maturity over 5 years was significantly higher than the others, therefore their share in the consumer loans portfolio continued to rise and at the end of June 2018 amounted to 63% (see Figure 2.6). A continuation of above-described trends in the consumer loans structure may impact the entire portfolio’s risk level as the quality of high-value loans is slightly lower in comparison to other loans categories in this portfolio.
Box 2.1. Consumer loans in Poland compared to EU countries

**High share of consumer loans in total loans**

When compared to other EU countries, the value of consumer loans is relatively high in Poland. Poland is among the countries with the highest share of consumer loans in total loans (17%; see Figure 2.8). Moreover, at the end of June 2018, consumer loans in Poland accounted for 8.7% of GDP, that is more than in the euro area (5.9% on average36), and less only when compared to Bulgaria (9.5%), Greece (11.7%) and Cyprus (11.7%). It means that the development of value and quality of this loan portfolio has a relatively higher impact on the condition of Polish banks than in other EU countries, therefore it requires special attention.

**Historical outline**

Already 1990s and in the early 2000s, consumer loans constituted a significant part of the loan portfolio of banks in Poland. However, with growing popularity of mortgage loans, the share of consumer loans in the household loan portfolio has decreased, but it still amounts to approx. 26%, while in the euro area it is about 12%.

However, the relatively high value of consumer loans in real terms (that is in relation to GDP) is a new phenomenon. Before the global financial crisis, due to low overall level of household debt, even a high share of consumer loans in the banking book did not result in a large percentage of debt in GDP. The value of these loans increased markedly between 2005 and 2009. In subsequent years, however, lending of banks in this segment was reduced. This happened due to the more restrictive lending policy of banks in response to the increase in the portfolio’s loss ratio and introduction of Re-

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36 Weighted average value with weighting based on the share of a given country’s GDP in the euro area GDP.
commendation T by the KNF, which led to a decrease in the value of the entire portfolio between 2011 and 2012. As a consequence of these multidirectional trends, the value of consumer loans in Poland after the crisis was still not much different from the situation in other countries (Poland remained in the range of 20-80 centile of the debt value distribution (see Figure 2.9).

**Figure 2.8.** Consumer loans in Poland compared to EU countries

The portfolio of consumer loans in Poland started to increase again after 2013 and it mostly resulted from the increase in high-value loans (see Figure 2.10). The currently available data does not allow to clearly explain the causes of the phenomenon. It coincided with the amendment of Recommendation T and the introduction of down-payment for mortgage loans in Recommendation S. Instead of using the mortgage loan for the entire value of a dwelling as previously, borrowers could take consumer loan to finance the needs related to finishing of the dwelling. On the supply side, a stimulating factor for banks to offer consumer loans was the introduction of a tax on certain financial institutions. In a bid to increase the percentage of high-margin products on their balance sheets, banks started to grant consumer loans to households more willingly. On the demand side, the increase of consumer loans was stimulated by the improving labour market situation and growing income of households in recent years.

**The need to carefully monitor the risk of the loan portfolio**

As a result, since 2014 Poland has been among the countries with the highest ratio of consumer loans to total loans and to GDP. At that time, banks started providing consumer loans with long maturities (over 5 years) and high-value loans on a larger scale. The longer maturity of a consumer loan, the greater the possibility that interest rates or income would change during the repayment period, therefore banks should take a more prudent approach to creditworthiness assessment. Moreover, the quality of high-value consumer loans was historically lower than that of other loans in the portfolio.

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Substantial consumer loan debt levels of households in Poland and changes in the characteristics of these loans indicate that careful risk monitoring and analysis of this part of loan portfolio, both by banks and financial safety net institutions, is required.

**Figure 2.9.** Consumer loan to GDP ratio in Poland compared to other countries in the region and EU countries

![Graph showing consumer loan to GDP ratio](image)

Note: Central and Eastern European countries (CEE countries excluding Poland) include 10 countries – Estonia, Lithuania, Latvia, Slovenia, Slovakia, Hungary, Romania, Croatia, the Czech Republic and Bulgaria.

*Source: ECB, Eurostat, NBP.*

**Figure 2.10.** The existing consumer loan portfolio broken down by nominal value at loan origination

![Graph showing consumer loan portfolio by nominal value](image)

*Source: UKNF surveys.*

As regards to lending to enterprises, no risk-altering developments were observed (see Figure 2.11). Favourable economic conditions barely translated into increased loan demand from enterprises. Despite absence of major changes in lending policy, the annual growth rate of loans to enterprises decreased in the analysed period. Guarantees provided by the Bank Gospodarstwa Krajowego continued to limit the risk related to lending to small and medium-sized enterprises (SMEs). Loans covered by the *de minimis*38 guarantees accounted for approx. 14% of total loans granted to enterprises in the first half of 2018 (similarly to previous quarters).

**Lending developments in the cooperative banking sector differed from those identified at the aggregated banking sector level.** No increase in the consumer loans growth was observed in cooperative banks. The annual growth rate of housing loans remained at a higher level than in commercial banks (see Figure 2.7). This, however, does not influence the risk level in the entire banking sector as

38 The programme of *de minimis* guarantees is carried out within the framework of the government programme “Wspieranie przedsiębiorczości z wykorzystaniem poręczeń i gwarancji Banku Gospodarstwa Krajowego” (Supporting private enterprises with guarantees of the Bank Gospodarstwa Krajowego). *De minimis* guarantee can cover both working capital loans and investment loans to SMEs. The guarantee can amount to 60% of loan value, but remains limited to 3.5 million zlotys.
these loans constitute a relatively small percentage of cooperative banks’ balance sheet (about 8%) and about 3% of total housing loans granted by the banking sector.

**Figure 2.11.** Cumulated index of changes in banks’ credit standards - loans to households (left-hand panel) and loans to enterprises (right-hand panel)

Note: Positive slope of the index indicates an easing in credit standards in a given period, negative slope indicates a tightening.

*Source: NBP*

**Macroeconomic forecasts and structural factors indicate that the risk of an excessive increase in total lending is low.** The GDP projection point to a slowdown in the pace of economic growth within the 2020 horizon, which should have a limiting effect on the loan demand. Survey data indicates that both the ratios of enterprises relying on loans and enterprises applying for loans is falling, and there are no premises suggesting a change in these trends in the medium term. Furthermore, the lending outlook still remains subject to the uncertainty relating to conclusions on some legislative proposals regarding obligatory conversion in particular, although the probability of its implementation has decreased.

### 2.2. Credit risk

**Improved situation of the real sector entities, especially households, and an earlier tightening by banks of lending policy contributed to a reduction of the credit risk.** Assessment of the scale of economic factor impact on the loan portfolio’s quality is made more difficult due to changes in accounting rules associated mostly with implementing a new International Financial Reporting Standard, IFRS 9 from 2018 (see Box 2.2).
Box 2.2. Credit risk assessment and changes to accounting and bank reporting rules

Indicators used for credit risk analysis

The following indicators sourced from bank reporting are used for credit risk assessment: (1) impaired loan ratio, (2) credit losses, (3) share of loans in arrears in the loan portfolio. The current economic trends, banks’ lending policy and its changes in the past as well as the condition of borrowers should be taken in the account while interpreting the levels of these indicators and their changes. If loans were granted at a time when lending policy was too lenient (e.g. loans to customers with unstable income or low income buffers), they can be serviced in a timely manner during favourable economic condition despite their higher risk levels.

The impaired loan ratio is often used for credit risk assessment. However, in many cases it does not properly reflect the actual risk level. It is due to the fact that the ratio’s value also depends on factors which are not related to borrowers’ financial situation. It is influenced, for example, by how fast impaired loans are removed from banks’ balance sheets through the sale of debt, their dismissal or write offs to the off-balance-sheets. Consequently, the ratios’ numerator may have a high share of loans which no longer generate risk – they were impaired in quite a distant past and are to a large extent covered by provisions. Moreover, the ratio is largely influenced by lending growth (change in the value of the denominator).

Credit losses (net charges to provisions for expected credit losses and their ratio to net loans better reflect credit risk changes than changes in the impaired loan ratio. The value of losses is less distorted by debt sale transactions and transfers to the off-balance-sheets, because these operations concern, as a rule, loans which were previously, in full or in large portion, provisioned.

In most cases, the ratio of loan losses to (net) value of the loan portfolio is used for credit risk assessment because of the higher resilience to changes in lending growth and intuitive interpretation (its value can be compared to credit spread).

Also, the shares of loans with short arrears (of less than 1 year) in the loan portfolio better reflect the changes in credit risk than the impaired loan ratio. Similarly, as in the case of the loan losses/value of loans ratio, changes in these shares are to a lesser extent distorted by debt sale transactions, transfer to the off-balance-sheets and lending growth. A major advantage of the share of loans in arrears, which grew in importance after the IFRS 9 entered into force, is that its value is not influenced by changes in accounting rules, which is in contrast to the impaired loan ratio or loan losses. However, no arrears does not mean that credit risk cannot be elevated. This applies to situations where a loan impairment is identified on the basis of borrower’s financial situation analysis, before arrears occur or where contractual payments are postponed due to the difficult financial situation of the borrower (loan restructuring).

40 Transfer to the off-balance takes place when a loan is completely covered by provisions and a bank does not expect any cash flows (repayments or recoveries from collateral) from a loan.

41 Until the end of 2017 - the result on net charges to provisions for impaired loans.
Interpretation of credit risk indicators after recent changes in accounting rules

The introduction of a new International Financial Reporting Standard (IFRS 9) resulted in the change in the values of some credit risk indicators, but these changes did not stem from worsened financial situation of borrowers.

- In 2018, the impaired loan ratio surged. It was caused mainly by including in the gross value of impaired loans (Stage 3) total unpaid interest on the loans, and also by classifying as impaired loans which meet the conditions for recognising impairment but do not generate loss to the bank because of over-collateralisation.\(^2\)

- Currently reported credit losses are also not fully comparable to the values prior to the entry into force of IFRS 9, as the way of estimating provisions changed (expected credit losses instead of incurred losses). As a result, they are created earlier than according to IAS 39.

- Changes in bank reporting to NBP in comparison to the period when IAS 39 was in force, make the assessment of credit loss trends more difficult. Until the end of 2017, the changes in loan losses on impaired loans (equivalent of Stage 3 in IFRS 9) had been presented in the profit and loss account by type of credit. On the other hand, changes in provisions for incurred but not reported losses had been presented in the total amount for all loans and other assets, therefore they were omitted in quality and risk analysis of individual types of credit. Implementation of IFRS 9 resulted in eliminating the IBNR provisions and expected loan losses in the profit and loss account are currently presented for loans in all stages and in all types of credit (see Figure 2.12). As a result, elimination of IBNR may result in an increase in reported credit losses for individual types of credit, especially if the value of the loan portfolio increases.

- Implementation of IFRS 9 also results in an additional slight increase in the ratio of loan losses to net loans. It results from a lower, compared to IAS 39, net loan value in the ratio’s denominator. When calculating a net loan, not only provisions on Stage 3 loans (similar to impaired loans in IAS 39) is deducted from the gross loan value, but also provisions on Stage 1 and 2 loans.

In the case of banks applying the Polish accounting standards (e.g. in cooperative banks) accounting changes, which also impacted the interpretation of loan losses, were introduced. The amendment of regulations regarding the special accounting rules for banks and the principles for creating provisions for the risk of banking activity\(^3\) resulted in including total unpaid interests on impaired loans in interest revenue. At the same time, provisions can be created for part or all of the interest (previously provisions for the interest were not made). In consequence, since 2017 loan losses reported by banks applying the Polish accounting standards are higher than if they were calculated in accordance with the earlier rules. Nevertheless, it does not have any negative impact on the bank’s earnings as, at the same time, interest revenue is higher.

\(^2\) A full list of changes to obligatory bank’s reports due to changes in accounting rules is published by UKNF: https://www.knf.gov.pl/?articleId=56224&p_id=18

\(^3\) See The Regulation of Minister of Development and Finance of 23 June 2017 amending the regulation on special accounting rules for banks (Journal of Laws 2017, item 1271) and Regulation of the Minister of Development and Finance of 12 October 2017 amending the regulation regarding principles for creating provisions for the risk of banking activity (Journal of Laws 2017, item 1965).
2.2.1. Credit risk of loans to households

The decline in housing loan losses (see Figure 2.13) and arrears (see Figure 2.15) indicate a minor decrease of this portfolio’s risk. This occurred at a time when the situation in the labour market improved substantially and borrowers’ income rose strongly (see Figure 2.14). The decrease in risk was also caused by a gradual tightening of banks’ lending policy in this market segment in recent years, especially a substantial increase of minimum expenses assumed by banks for creditworthiness assessment and reduction of the share of loans with high LTV ratios.\textsuperscript{44}

Changes in the risk of consumer loans and loans to individual entrepreneurs\textsuperscript{45}, including those resulting from structural changes of consumer loans, were not significant. Although the ratio of loan losses to the value of portfolios increased, it was not accompanied by a deterioration of their repayment performance. Changes in lending policy in the segment of consumer loans were small in recent quarters, which explains the stabilisation of the rate at which subsequent cohorts of consumer loans deteriorate.\textsuperscript{46}

A further stabilisation of the ratio of loan losses to loans to households at the current, historically low level can be expected in the forthcoming quarters. This will be supported by good situation on the labour market and forecasted further growth in household income.

\textsuperscript{44} For more information on changes in lending policy in the housing loans segment, please see Box 3 in “Financial Stability Report. June 2018”, NBP.

\textsuperscript{45} Loans to farmers and individual entrepreneurs presented in this Chapter concern loans for other purposes than housing.

\textsuperscript{46} See “Kredyt Trendy. Rok 2018 I półrocze” (Credit trends. The first half of 2018), Biuro Informacji Kredytowej, Warsaw, 2018, pp. 19-21.
In a longer perspective, an increase of high-value consumer loans granted for longer periods, which has been observed since some time, may have a negative impact on the risk of the consumer loan portfolio (see Chapter 2.1). The quality of these loans is currently a bit lower than of other consumer loans, and the economic downturn may deepen the phenomenon. It requires further monitoring and more analyses.

Impaired loan ratios both in the case of housing loans, consumer loans and loans to individual entrepreneurs grew slightly in the first quarter of 2018 (see Figure 2.16), which however is not evidence of growing credit risk. The ratio’s change was largely caused by factors which were unrelated to the change of borrowers’ financial situation; the most important ones are entry into force of IFRS 9 and the transfer of loans to off-balance-sheet in the second quarter of 2018. The impaired loan ratios are quite high for some types of credit, but due to a considerably high average coverage of impaired loans by provisions (63% on average), the risk of further losses incurred by banks in connection with these loans (due to the increase in provisions) is limited.

Figure 2.13. Loan losses and their relations to net value of household loans

Figure 2.14. The average equivalent income per household member after repaying loan installments

Notes: Loans to entrepreneurs and individual farmers for purposes other than housing. The ratio of loan losses to net loans – annualised data.

Source: NBP.

Note: The OECD-modified equivalence scale has been applied.

Source: NBP estimates based on Statistics Poland.
A substantial portion of Swiss franc-denominated housing loans is characterised by low collateral levels. This could pose a risk for banks in the event of a deterioration in loan quality if large-scale debt collection was necessary. At the end of 2017, the estimated share of loans with LTV ratios above 100% and 120% amounted to 34% and 22%, respectively. However, as the quality of these loan portfolios was good, the impact of high LTV ratios on banks’ earnings was low. The drop of the LTV ratio in the first half of 2018 was driven by the loan repayments and a rise in real-estate prices while, at the
same time, the increase in the value of zloty loans (and thus the increase of the ratio) was caused by a depreciation of the zloty.\textsuperscript{47}

The impaired loan ratios and the share of loans in arrears in loans to individual farmers has increased in recent quarters, thus indicating increased risk of this portfolio. Nevertheless, it is still characterised by good quality and repayment performance when compared to other types of credit. The portfolio of loans to individual farmers constitutes a significant part of loans in cooperative banks, which caused a slight deterioration in the quality of the entire loan portfolio of these banks. Apart from large cooperative banks, the quality of loans to households in higher in cooperative banks than in commercial banks (see Figure 2.17).

Despite the growing number of consumer insolvencies, after amending the Bankruptcy Law Act in 2014\textsuperscript{48}, impact of this institution on banks’ credit risk seems to be limited.\textsuperscript{49} BIK and BIG data indicate a relatively high value of bank loans of natural persons who declare bankruptcy (about 451 million zlotys in 2018). However, it seems that the facilitating measures regarding consumer insolvency introduced by the amendment do not lead to a considerable increase in banks’ credit risk – if a given borrower was not able to repay a loan, the credit risk would be materialised both in the case of the declaration of consumer insolvency and without filing for it. On the other hand, the increase in risk could result from a misuse of consumer insolvency by debtors, who are declaring it despite being in a good financial condition in order to avoid repayment of part of liabilities.

\textsuperscript{47} In the first half of 2018, the zloty weakened 5.7% against the Swiss franc and 4.6% against euro.

\textsuperscript{48} See the Act of 28 February 2003 Bankruptcy Law (Journal of Laws 2017, item 2344).

\textsuperscript{49} For more information on legislative changes influencing the effectiveness of debt enforcement by banks, see Box 1 in “Financial Stability Report. February 2016”, NBP.
**Figure 2.18.** Increase in the value of CHF housing loan instalment compared to the instalment in the month of loan origination against the values of these loans and wage growth in the corporate sector from the month of loan origination

Note: A Swiss franc-denominated housing loans with maturity of 25 years, repaid in constant total instalments or constant principal instalments; the instalment calculated on the basis of the Swiss franc exchange rate and the LIBOR 3M rate of 30 June 2018 and average spread on Swiss franc-denominated loans and loan origination. Points on a horizontal axis mark the month of loan origination. Bars present the zloty value (at the end of June 2018) of Swiss franc-denominated housing loans taken out in a given month marked in the horizontal axis.

Source: NBP estimates based on NBP, Thomson Reuters, Statistics Poland and BIK.

**Box 2.3. The impact of a potential increase in domestic interest rates on credit risk of housing loans portfolio**

The portfolio of housing loans in Poland covers mainly variable interest rate loans. Long maturity of such loans means that the probability of an increase in interest rates is high during the period of average loan’s life. As loan instalments have a substantial share in borrowers’ income, and an interest instalment has a high share in the total loan instalment, the interest rate has a major influence on borrowers’ ability to service the loan.

The box presents the estimated impact of a potential increase of zloty interest rates on the borrowers’ ability to service housing loans and on the situation of banks.

The impact of an increase in zloty loan instalments on the borrowers’ situation and quality of housing loans may be approximated on the basis of data from Household Budget Surveys (HBS) carried out
by Statistics Poland\textsuperscript{50}, as well as data on loans granted by banks. The starting point for the assessment is the estimation of household ability to service loans on the basis of the size of the so-called income buffer. The buffer is defined as a difference between disposable income and expenses for repayment of loans and basic living costs.\textsuperscript{51} The negative income buffer indicates a significant risk to the ability to service a loan, as the household cannot simultaneously finance loan instalments and basic costs of living from its current income.

**Figure 2.20.** The estimated average increase of zloty housing loan installment in consecutive loan vintages after interest rate increase against the current value of loans

**Figure 2.21.** The increase in the share of zloty mortgage loans to households with negative income buffer and impaired loan ratio for zloty housing loans after interest rate increase

\textit{Note:} The estimates are based on the average value of loans (at the end of 2017) from particular loan vintages. The original 25-year repayment period, repayment in constant instalments and average spread arising from banking statistics were assumed.

\textit{Source: NBP estimates based on statistics for particular loan vintages.}

\textit{Source: NBP estimates based on KNF data.}

\textsuperscript{50} The survey for 2017 was carried out on a sample of about 37 thousand households, of which 2,591 declared having a zloty mortgage loan.

\textsuperscript{51} The basic costs of living were estimated as the product of relative poverty limit according to Statistics Poland (799 zlotys in 2017) and the equivalence scale of the household according to the original OECD equivalence scale.
The estimated percentage of loans to households with a negative income buffer at the end of the first half of 2018 was 3.3% (see Figure 2.20). After the increase in interest rates, the share grows due to a decrease in the income buffer caused by higher loan servicing costs. The increased share of loans to households with a negative income buffer is translated into the increase of impaired loans in the banking sector52, and the resulting losses are recognised in profit and loss accounts and in capital of commercial banks.53

Occurrence of an isolated shock of interest rate increase, that is without a simultaneous occurrence of other events influencing the ability to service loans, was assumed. The adopted maximum WIBOR 3M rate growth (of 5 p.p., i.e. to the level of 6.7%) corresponds approximately to its increase from the current level to the highest monthly level in the last 10 years.

On the basis of the current value of zloty housing loans, taken out in subsequent years starting from 2005, and of characteristics of an average loan from particular vintages, it can be stated that for interest rates increase by 0 to 3 p.p. the rise in loan servicing costs would not be significant (see Figure 2.20). Given such scale of an interest rate increase, the share of households with a negative buffer would grow moderately (see Figure 2.21). As a result, the impact on the capital adequacy and on the share of banks with negative profit would not also be significant (see Figure 2.22 and Figure 2.23). Only after an increase of interest rates between 3 p.p. and 5 p.p., the share of banks with negative gross profit would increase significantly, that is from the current value of about 7% to about 12%. Pillar 1 and Pillar 2 capital requirements would not be met by one small commercial bank, and the combined buffer requirement would not be met by 6 banks with the share of 14.5% in the overall banking sector assets (an increase of about 3 p.p. when compared to June 2018).

The relatively small impact of increased interest rates on credit risk of the housing loans portfolio may result from the good income situation of borrowers and lending policy of banks. The scale of a real wage increase from loan origination indicates that a large portion of borrowers could offset the effects of an increased loan instalment54 by increased income. This applies, in particular, to older co-

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52 The share of loans to households with a negative buffer in mortgage loans in the HBS database is higher than impaired loan ratio from bank reports. This may result from some limitations of HBS data (no data on assets, including financial assets, possible non-random errors resulting from sensitivity of obtained information (income), only partial representativeness of the sample due to refusals to take part in the survey and seasonality and volatility of income – the declared income comes from the month of the survey), and also from the priority given by households to mortgage loan servicing. In order to limit the error from income seasonality and volatility, households of farmers and households with negative income, which have a very low share in housing loans, are excluded from the sample. In order to convert the increase of the share of households with a negative income buffer into the increase of impaired loans, it was assumed that the probability of loan impairment for a given value of income buffer is 0 with a non-negative income buffer, 1 – for some specific value of buffer below zero and grows linearly from 0 to 1 for the buffer value between 0 and this specific value. The specific value was determined in such a way that the ratio of expected value of impaired mortgages calculate on the basis of HBS data to the total value of mortgages in the database equals the average value of the impaired housing loan ratio in the banking sector. It was assumed that after the shock, the probability of impairment of a loan to a household with a certain income buffer remains at the same level. However, as the income buffer drops (due to increased loan servicing costs), the probability of loan impairment grows. The increase of the value of impaired loans is estimated on the basis of the expected value of impaired loans after the increase of interest rates.

53 The calculation, estimated on the basis of HBS data, of the aggregated increase of the expected value of impaired loans in the banking sector per individual commercial banks was carried out on the basis of the size of their loan portfolios and average loan losses in the last five years. Loan losses for a given bank were calculated assuming that the coverage ratio of newly impaired loans equals the average coverage in the portfolio. The impact on capital was assessed with the assumption that losses at first reduce the gross profit from the last 12 months, and they start reducing regulatory capital only after the gross profit value is exceeded.

54 The average cumulated growth of real wages amounted to 12.4% in the last 3 years and 19.6% in the last 5 years (on the basis of average monthly wages in the economy and an increase in prices of consumer goods and services in the years 2012-2017).
horts of loans with a lower average value and, as a result, lower instalments. Moreover, a substantial part of loan principal has been repaid since loan origination. On the other hand, when it comes to borrowers who have taken housing loans within the last three years, the increased resilience to higher interest rates was influenced by a tightening of lending policy by banks, also due to financial supervisory authority activities. An increase was observed in the case of, among others, minimum expenses assumed for creditworthiness assessment and buffers against the increase of interest rates. This should increase total income buffers of borrowers.

Figure 2.22. Estimated shares of banks with negative gross profit and banks not meeting regulatory capital requirements in banking sector assets after interest rate increase

Figure 2.23. Estimated shortages of regulatory capital after interest rate increase

The relatively high resilience of the housing loan portfolio to a moderate increase of interest rates could be also caused by regulatory requirements. Pursuant to Recommendation S, when granting mortgage loans, banks are obliged to take into consideration the impact of interest rate risk on creditworthiness of their customers and also to carry out stress tests of the impact of a 4 p.p. increase of interest rates on the loan portfolio’s quality. Furthermore, when presenting a loan offer to customers, they should be informed about the amount of an instalment after a 4 p.p. interest rate increase and after increase by the difference between their maximum and minimum level within the last 12 months. The necessity for the borrowers to have proper income buffers against the risks of interest rate hike at loan origination in the environment of historically low interest rates has been included in NBP recommendations, published for the last few years in Financial Stability Reports.

It seems that the greatest sensitivity to the rise of interest rates may concern borrowers who have taken recently high value loans when interest rates were low, and whose wage increase was small.

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2.2.2. Credit risk of corporate loans portfolio

The risk of the corporate loans portfolio did not change in a material way. Although the ratio of loan losses to loans (see Figure 2.24) and the inflow ratio of impaired loans\textsuperscript{56} (see Figure 2.27) increased, this was not caused by deterioration in repayment performance (see Figure 2.25) but mostly by changes in accounting regulations and regulations concerning creating provisions.

Loan restructuring has not resulted in increased credit risk in the recent quarters. Impaired loans constituted over 70% of restructured loans in enterprises, and their share did not change much\textsuperscript{57}. In most cases (about 90%) the restructuring involved change of loan agreement conditions rather than refinancing of entities in difficult financial situation which could be used to hide loan losses.

In the incoming quarters we can expect stabilisation or a slight increase in the ratio of loan losses to the value of corporate loans. This will be caused by the projected gradual reduction of GDP growth rate. Results of surveys of companies\textsuperscript{58} indicate a possibility of slight deterioration of their situation in the incoming year. They expect a rise of costs, including costs of salaries.

The impaired corporate loan ratio in commercial banks increased slightly in the first half of 2018 (see Figure 2.28) but, just like in case of loans to households, the change was caused by factors unrelated to loan risk changes – entry into force of IFRS 9 and large transfers of loans to off-balance-sheet in the second quarter of 2018. Deterioration of quality concerned mainly some industries with minor share in the loan portfolio, while the ratio for industries with the greatest share in the portfolio did not change significantly (see Figure 2.26).


\textsuperscript{57} High share of non-impaired loans in restructured loans could indicate that banks hide loan losses – the so called evergreening (see “Financial Stability Report. June 2018”, NBP, Box 5, p. 61).

\textsuperscript{58} See “Szybki monitoring NBP. Analiza sytuacji sektora przedsiębiorstw” [NBP Quick Monitoring. Analysis of the situation in the enterprises sector], July 2018, NBP.
**Figure 2.24.** Loan losses and their relation to net value of corporate loans

![Loan losses and their relation to net value of corporate loans](image1)

Note: relation – annualised data.

*Source: NBP.*

**Figure 2.25.** Shares of corporate loans in consecutive arrears classes up to 1 year

![Shares of corporate loans in consecutive arrears classes up to 1 year](image2)

*Source: NBP.*

**Figure 2.26.** Impaired loan ratio in particular sections of the national economy and their shares in the loan portfolio

![Impaired loan ratio in particular sections of the national economy and their shares in the loan portfolio](image3)

Note: Data are based on the so-called large exposure reporting. Changes in June 2017-June 2018: Green colour – a decline in the impaired loan ratio, red colour – a rise of more than 1 percentage point, yellow colour – a rise of less than 1 percentage point. Sections: A – Agriculture, B – Mining, C – Manufacturing, D – Electricity, gas and heating supply, E – Water supply, sewage and waste management, F – Construction, G – Trade and repairs, H – Transportation and storage, I – Hotels and restaurants, J – Information and communication, L – Real estate activities, M – Professional, scientific and technical activities, N – Administrative activities, P – Education, Q – Health care, R – Arts, entertainment and recreation, S – Other services.

*Source: NBP.*

**Figure 2.27.** Inflow ratios of impaired corporate loans

![Inflow ratios of impaired corporate loans](image4)

Note: average for the last 4 quarters.

*Source: NBP.*
The risk of the corporate loans portfolio in cooperative banks has increased. This is indicated by both deterioration of the quality (see Figure 2.28) and increase in arrears. The quality of loans is particularly low in some large cooperative banks. The source of further loan losses in these banks may be increase in provisions for impaired loans due to low coverage ratio (see Figure 2.29).

Figure 2.28. Impaired corporate loan ratios, by type of banks

Note: data excluding SK Bank.
Source: NBP.

Figure 2.29. Coverage of impaired corporate loans by provisions, by type of banks

Note: data excluding SK Bank. The increase of coverage ratio in 2017 in cooperative banks was influenced by changes in accounting regulations. Up to September 2017 coverage ratios in cooperative banks calculated on the basis of nominal values of loans.
Source: NBP.

2.3. Market risk

Banks’ exposure to market risk is low and does not generate any significant risk to the national banking system. The market risk to which domestic banks are exposed stems from the mismatch of the currency structure and repricing dates of the interest rate on assets and liabilities as well as the valuation of the debt instruments’ portfolio. The scale of the trading activities of banks remains limited and steadily diminishes.

The risk of losses arising directly from foreign exchange rate fluctuations is low, as banks maintain a closed FX position (see Figure 2.30). However, the need to close the open on-balance sheet FX position by derivative transactions (fx swap and CIRS) involves the risk of their roll over, additional margin requirement and a rise in the banks’ funding cost in the event of financial market turmoil.
Banks’ net interest income is sensitive to interest rate falls due to the mismatch of the repricing dates of the interest bearing assets and liabilities (a positive interest rate gap). However, as there are no market expectations for an interest rate decrease in the coming quarters (see Chapter 0), it can be said that the risk will remain limited. Additionally, a high share of bank-managed interest rate liabilities (see Figure 2.31), allows banks to set the interest margin partially independently of market interest rate changes. However, the room for further decrease of interest rate of liabilities is limited by the competition for deposits and very low interest rates of funds on current accounts.

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

Debt securities portfolio, consisting mostly of government bonds, is a significant part of banks’ assets exposed to the risk of market price changes. Banks reduce the risk by maintaining a relatively short duration of government bonds and by the manner of accounting classification. Entry into force of IFRS 9 and the new accounting classification of financial instruments in assets of banks had no influence on the channel through which the change in valuation impacts banks’ results. Fair value valuation of most government bonds is still reflected directly in capital, not through the profit and

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59 Bank-managed rate refers to those categories of assets and liabilities which interest rate is variable, dependent on the bank’s decision (there is no direct contractual relationship to the level of market interest rates) and no nearest repricing date has been set.
loss account (see Table 2.1). Moreover, about 20% of the bond portfolio is valued at amortised cost and is not marked-to-market.

**The portfolio of government bonds may also be a major source of concentration risk.** These bonds accounted for approx. 16% of the banking sector’s assets. Due to a moderate level of public debt and its decreasing ratio to GDP, the risk of a negative feedback loop between the public and banking sector should be currently deemed as low.

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

<table>
<thead>
<tr>
<th></th>
<th>Held for Trading</th>
<th>Fair Value through Profit and Loss</th>
<th>Fair Value through Other Comprehensive Income</th>
<th>Amortized Cost</th>
<th>Total</th>
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</thead>
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<tr>
<td>Central banks</td>
<td>0.9</td>
<td>0.2</td>
<td>83.3</td>
<td>14.3</td>
<td>98.7</td>
</tr>
<tr>
<td>Central government</td>
<td>17.1</td>
<td>1.4</td>
<td>212.5</td>
<td>61.3</td>
<td>292.3</td>
</tr>
<tr>
<td>Municipalities</td>
<td>0.0</td>
<td>0.1</td>
<td>10.1</td>
<td>8.5</td>
<td>18.7</td>
</tr>
<tr>
<td>Financial sector</td>
<td>1.2</td>
<td>0.3</td>
<td>9.7</td>
<td>8.6</td>
<td>19.8</td>
</tr>
<tr>
<td>Non-financial sector</td>
<td>0.3</td>
<td>0.4</td>
<td>8.3</td>
<td>13.5</td>
<td>22.5</td>
</tr>
<tr>
<td>Total</td>
<td>19.5</td>
<td>2.4</td>
<td>323.9</td>
<td>106.2</td>
<td>452.0</td>
</tr>
</tbody>
</table>

Note: Balance as of end of June 2018.  
*Source: NBP.*

**2.4. Funding structure and liquidity risk**

The banking sector was characterised by a stable financing structure with a dominant share of deposits of the non-financial entities. The role of other funding sources, including own issues of debt instruments, was still limited (see Figure 2.32). As a result, the risk concerning funding of banks was mostly associated with the maturity mismatch of assets and liabilities (see Figure 2.33) and the need to renew a deposit base, especially in cooperative banks characterised by a significantly higher share of deposits in the balance sheet total (about 80%).

The risk related to the contractual mismatch of assets and liabilities is limited by the highly stable deposit base. This is facilitated by a high share of retail funds in the non-financial sector’s deposits. The household deposits (about 70% of the non-financial sector’s deposits) are highly fragmented, making them invulnerable to mass outflows due to the deposit guarantee mechanism (most retail deposits are below 100 thousand euros – see Figure 2.34). However, in a longer-term perspective, maintaining of low interest rates on deposits may weaken the propensity to deposit money with banks. Some depositors are looking for alternative, more profitable forms of saving money and investment⁶¹ (e.g. on the real estate and capital markets). Consequently, the growth rate of the household deposits is lower than in previous years.

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⁶¹ Demand on the residential real estate market remained high in the first half of 2018, when the prices and sale of dwellings grew rapidly (with a high share of own funds, see NBP’s periodical publications “Information on home prices and the situation in the residential and commercial real estate market in Poland”, for the years 2017-2018”). Similarly high demand was on the capital mar-
The continuation of changes of the term structure of deposits of the non-financial sector towards an increased share of current deposits does not have a substantial impact on liquidity risk in the banking sector. The probability of an outflow of current and term deposits is similar as the majority of term deposits can be withdrawn on demand. The only cost of withdrawing a term deposit is a loss of interest, which is currently low due to the low level of interest rates and optimisation of the net interest margin by banks.

**Figure 2.32.** The structure of the banking sector liabilities

![Diagram showing the structure of banking sector liabilities]

**Figure 2.33.** The term structure of the banking sector assets and liabilities

![Diagram showing the term structure of banking sector assets and liabilities]

Despite the slowdown in the growth pace of deposits (see Figure 2.35) it was very close to the loan growth, therefore the funding gap at the level of the whole sector remained closed. The cooperative banks were traditionally characterised by a big negative funding gap (see Figure 2.36). The surplus funds in relation of loans was mainly invested in associating banks and in safe debt instruments (among others, in government bonds and NBP bills).

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62 The category of “current deposits” includes all funds payable on demand, accumulated both on saving and settlement accounts and saving accounts. Part of the shift of funds to current deposits may result from “replacing” short-term deposits with more flexible and higher liquidity saving accounts bearing a similar interest rate, while at the same time offering the possibility to withdraw funds without a loss of interest. These accounts are treated as a substitute for term deposits.
The average value of the net stable funding ratio (NSFR)\(^63\) for the commercial banks was clearly above 100%. This was supported by the structure of the standard which assigns high stable funding weights to retail deposits, irrespective of their maturity. Since June 2017, the number of banks with NSFR below 100% has steadily dropped – at the end of June 2018, only one bank did not meet the standard (see ). In a longer perspective, the risk arising from the maturity mismatch of assets and liabilities should decrease together with the increasing value of covered bonds issues. The legal changes introduced in 2016 removed some barriers to growth for this market. Consequently, new mortgage banks were set up under the existing capital groups, and universal banks moved their own housing loans portfolios to these banks.

The liquidity position of the banking sector remained favourable. The share of liquid assets in the balance-sheet total rose and resulted mostly from an increasing of the portfolio of government bonds and NBP bills. The increase in the value of government bonds concerned mostly the banks which pay the tax on certain financial institutions and which can deduct the value of these bonds from their tax base. At the same time, liquid assets in their balance sheets remained highly concentrated and banks differed in this respect (see Figure 2.37). All commercial banks complied with the LCR standard. Banks with an LCR above the required minimum accounted for 98% of the banking sector’s assets (see Figure 2.38). Only a portion of cooperative banks did not meet the required standard at the unit

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\(^{63}\) NSFR is expected to be implemented at the EU level as part of CRR2, but there is still uncertainty regarding final provisions on the ratio. It is possible that weights for, among others, covered bonds, liquidity facilities within the group and institutional protection schemes will be changed.
level. However, they were members of the IPS and had KNF’s approval to apply the group LCR standard which was complied with.

**Figure 2.36.** Funding gap at commercial banks and cooperative banks

**Figure 2.37.** Share of domestic Treasury securities and NBP bills in commercial banks’ assets

**Figure 2.38.** Number and assets of banks in particular LCR ranges – commercial banks (left-hand panel) and cooperative banks (right-hand panel)

Note: Data at the end of June 2018.

Source: NBP.

Cooperative banks participating in the Institutional Protection Scheme (IPS) may be exempted, upon KNF’s consent, from the obligation to comply with the standard on an individual basis. Then, they apply the consolidated ratio for the whole group, pursuant to Article 8 of the CRR.
Complying with the MREL requirement\(^6\) will pose a challenge for banks in a several years’ time. The MREL requirement aims at ensuring feasibility of bank’s resolution plans, and thus limiting the contagion risk in the banking sector and the necessity for state intervention. At the same time, meeting the requirement by issuing debt will result in an increase in the share of long-term funding sources in the liabilities structure, which will have a positive effect on reduction of the structural liquidity risk. However, an issue of eligible liabilities on an adequate scale may be hampered by, among others, a relatively low extent of development of the domestic market for debt securities, restricted access to international markets, higher funding cost due to greater expectations of investors (whose debt could be bailed in) and by the existing legal framework.

Box 2.4. NSFR at universal and mortgage banks

The aim of the scheduled implementation of the NFSR standard in the EU is to limit the funding risk by promoting the use of more stable sources of funding among banks. The introduction of the NFSR standard should, in particular, contribute to reducing banks’ dependence on wholesale funding (especially short-term funding) whose availability and cost hinge on market conditions and is characterised by high volatility in the case of market tensions.

Adequate weights are assigned to individual balance sheet items:

- to assets – weights for items requiring stable funding (RSF) dependent, for example, on their liquidity profile, maturity and credit quality;
- to liabilities – weights for the available stable funding (ASF) dependent, for example, on its degree of stability, i.e. maturity, type of funding and counterparty.

The NSFR ratio is the ratio of the available funding (own funds and external funds weighted by ASF weights) to an asset requiring funding (weighted by RSF weights).

Variation in NSFR ratio at commercial banks in Poland

At the end of June 2018, the average level of the NSFR ratio for commercial banks in Poland was approx. 119%. However, there were substantial differences among individual types of banks. Some specialist banks, especially mortgage banks, had the lowest NSFR levels (see ).

The structure of the NSFR ratio in its current form does not take sufficient account of the specificities of mortgage banks’ activity. The basic activity of these banks involves granting of loans collateralised by mortgage and issuing mortgage bonds on their basis. As a result, they are characterised by very concentrated structure of assets and liabilities with dominance of, respectively, housing loans and covered bonds. Consequently, mortgage banks have a high, much higher than in the case of universal banks, average weight for items requiring stable funding due to the high ratio of homogeneous long-term assets (see Table 2.3).
The NSFR standard assigns high RSF weights to the main items of assets in mortgage banks (see Figure 2.39). Long-term housing loans, to which the risk weight of 35% is assigned, have preferential RSF weight but only in the case of the so-called unencumbered loans. In the case of mortgage banks, where these loans are the base for issuance of covered bonds, the RSF weight equals 1. Such an approach means “discrimination” of the business model of mortgage banks based on funding of long-term housing loans with covered bonds.

From the point of view of the NSFR standard, funding by covered bonds is beneficial only if the bonds have long maturity (over one year). In turn, issues of bonds which mature within a year have low ASF weights (especially zero for the issues which mature within half a year). At the same time, the ASF weight assigned to long-term covered bonds is only partially higher than for short-term deposits. The average weight for the available stable funding of mortgage banks is slightly higher than for universal banks, however it does not balance the disproportions on the asset side, and mortgage banks struggle to achieve the 100% NSFR ratio.
Earnings and profitability ratios of the banking sector improved. Growth of the sector’s ratios was mainly attributable to large and most profitable banks (see Box 2.5). On the other hand, average profitability ratios in the group of cooperative banks (especially large and medium-sized ones) worsened (see Figure 2.40), which may hinder raising of capital. A vast majority of institutions achieved positive financial results. The number of banks with negative profitability and their share in the sector’s assets remained low similarly as the amounts of losses incurred by these institutions (see Figure 2.42).

Therefore, the case of mortgage banks indicates that the current structure of the NSFR standard is not optimal from the point of view of funding risk mitigation and adjustment of the term structure of the bank’s assets and liabilities. Funding of long-term mortgage loans with current deposits is much better for meeting the standard. In such a case, the universal bank can apply a preferential RSF weight to an unencumbered loan, and the weight of ASF for current deposits is only marginally lower than for a long-term covered bond.

It seems rational for the final version of the standard developed in the EU to take into account the aforementioned conditions. With the current structure of the NSFR ratio, mortgage banks could better meet the requirement mainly by extending the average maturity of issued covered bonds.

2.5. Earnings

Earnings and profitability ratios of the banking sector improved. Growth of the sector’s ratios was mainly attributable to large and most profitable banks (see Box 2.5). On the other hand, average profitability ratios in the group of cooperative banks (especially large and medium-sized ones) worsened (see Figure 2.40), which may hinder raising of capital. A vast majority of institutions achieved positive financial results. The number of banks with negative profitability and their share in the sector’s assets remained low similarly as the amounts of losses incurred by these institutions (see Figure 2.42).

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66 Retained profits are the main source of regulatory capital at cooperative banks, far more important than in commercial banks, due to, inter alia, difficulties which cooperative banks have with attracting new members and with outflow of the existing ones (see Box 4.1.3 in: “Rozwój systemu finansowego w Polsce w 2017 r.” [“Financial System in Poland in 2017”], November 2018, NBP, p. 115, and also Box 4 in “Financial Stability Report. February 2016”, NBP, p. 69).
Figure 2.40. ROA at domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel)

Note: Annualised data.

Source: NBP.

Box 2.5. Concentration of earnings of domestic commercial banks

A large portion of the domestic banking sector’s profits was generated by the group of few biggest entities. Concentration of commercial banks in terms of reported earnings is much higher than in terms of controlled assets. The five largest entities with total assets exceeding 100 billion zlotys, controlling about 50% of commercial banks’ assets, regularly report an over 70% share in profits. The gap between ROE of large banks and other banks remains at a stable level despite the overall decline of the sector’s profitability ratios, which is evidence of an increase of relative advantage of large banks (see Figure 2.41, left-hand panel).

The causes of higher profitability of the largest institutions vary and may indicate the existence of economies of scale in various areas of banking activity. Some of the causes are as follows (see Figure 2.41, right-hand panel):

- higher fee and commission margin and its contribution to the net income from banking activity, combined with quite-high levels of interest margin and the ratio of other components of net income from banking activity to assets (“trade margin”),
- better operational efficiency (reflected, among others, in the ratio of costs to assets, profit per employee or assets per employee), thus the burden on earnings is lower despite relatively larger tax burden than in other groups of banks,
- a relatively high quality of assets ensuring that the burden of credit risk provisions on earnings is lower.

67 The analysis presented in the box covers domestic commercial banks excluding BGK.
Notes: annualised data. In the left-hand panel „m” stands for ROE median for domestic commercial banks, „4” – of 5 largest banks, „3” – of other banks with assets above median, „2” – of other banks with assets above first quartile, „1” – of other banks. In the right-hand panel groups of banks defined by their balance sheet total as in the left-hand panel. „Operating costs” diminished by the cost of tax on certain financial institutions („Asset tax”).

Source: NBP, KNF.

Higher profitability of the largest banks may incentivise owners of smaller entities either to increase the scale of activities by acquisitions and mergers in order to tap economies of scale or to dispose of their Polish subsidiaries. Fiscal burdens, that diminish return on equity, may be a further impulse for such actions. This factor may be of particular importance in case of banks with lower capital.

The improvement in the banking sector’s profitability remained mainly driven by a rise in net interest margin (see Figure 2.43). It was a consequence of changes in the composition of loan portfolios and deposits, mostly due to replacing gradually repaid FX housing loans with zloty loans carrying higher margins, including consumer loans. On the liability side, bank customers continued to give up term deposits for the benefit of current accounts (with lower interest rates). When compared to the end of 2017, the interest rates of deposits and individual types of credit have not changed significantly. As there are no expectations for growth of market interest rates, further growth of interest margin depends on the banks’ ability to continue changing the balance sheet structure towards loans with higher interest and liabilities with lower interest.

Figure 2.42. Quarterly net earnings of the banking sector

Note: an empty marker is used to show banks’ net earnings adjusted for the estimated impact of one-off large scale events.

Source: NBP.

Figure 2.43. Interest income and expenses and net interest margin

Note: annualised data (except WIBOR 3M).

Source: NBP.

Figure 2.44. RORC of domestic banking sector and decomposition of changes

Notes: RORC – annualised data, decomposition – semiannual changes (calculated as logarithm of the fractions of ratios at the end of the given period and preceding period) of annualised ratios.

Source: NBP.

The reduction of the burden of operating costs on earnings had a beneficial effect on banks’ profitability ratios (see Table 2.4). This reduction resulted from further cuts in the number of bank units and employees and also from leaving the total amount of BFG contributions unchanged from 2017.
The scale of the sector’s profitability improvement was limited by a minor decrease in leverage and a small increase in the burden of charges to provisions for expected credit losses on earnings (see Figure 2.44). The increased burden of provisions concerned virtually all types of credit, excluding housing loans (see Figure 2.45). The provisions rose stronger at cooperative banks than at commercial banks, especially in the corporate loan portfolio. A stabilisation or a modest rise in the burden of charges to provisions for expected credit losses on earnings due to the forecasted slower pace of economic growth can be expected in the forthcoming quarters.

Table 2.4. Selected operating indicators of the banking sector

<table>
<thead>
<tr>
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<td></td>
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<tr>
<td>Net interest income</td>
<td>2.38</td>
<td>2.41</td>
<td>2.44</td>
<td>2.47</td>
<td>2.49</td>
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<tr>
<td>Net non-interest income</td>
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<td>1.10</td>
<td>1.11</td>
<td>1.09</td>
<td>1.09</td>
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<td>Net income from bankingactivity</td>
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<td>3.51</td>
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<td>2.09</td>
<td>2.06</td>
<td>2.07</td>
<td>2.06</td>
</tr>
<tr>
<td>Net charges to credit risk provisions</td>
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<td>0.48</td>
<td>0.47</td>
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<td>Pre-tax earnings</td>
<td>0.96</td>
<td>1.01</td>
<td>1.06</td>
<td>1.09</td>
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<td>Net earnings</td>
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<td>0.76</td>
<td>0.79</td>
<td>0.81</td>
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<tr>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Net interest income</td>
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<td>68.6</td>
<td>68.7</td>
<td>69.4</td>
<td>69.6</td>
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<tr>
<td>Net non-interest income</td>
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<td>31.4</td>
<td>31.3</td>
<td>30.6</td>
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<td>Net income from banking activity</td>
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<td>100.0</td>
<td>100.0</td>
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<td>100.0</td>
</tr>
<tr>
<td>Operating costs</td>
<td>60.8</td>
<td>59.5</td>
<td>57.9</td>
<td>58.0</td>
<td>57.8</td>
</tr>
<tr>
<td>Net charges to credit risk provisions</td>
<td>13.3</td>
<td>13.6</td>
<td>13.5</td>
<td>13.3</td>
<td>13.7</td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>27.6</td>
<td>28.8</td>
<td>29.7</td>
<td>30.6</td>
<td>30.4</td>
</tr>
<tr>
<td>Net earnings</td>
<td>20.7</td>
<td>21.5</td>
<td>22.1</td>
<td>22.8</td>
<td>22.8</td>
</tr>
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<td><strong>As % of Tier 1 capital (RORC)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>10.4</td>
<td>10.9</td>
<td>11.2</td>
<td>11.4</td>
<td>11.3</td>
</tr>
<tr>
<td>Net earnings</td>
<td>7.8</td>
<td>8.1</td>
<td>8.2</td>
<td>8.5</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>As % of accounting capital (ROE)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-tax earnings</td>
<td>9.0</td>
<td>9.5</td>
<td>9.8</td>
<td>10.1</td>
<td>10.1</td>
</tr>
<tr>
<td>Net earnings</td>
<td>6.7</td>
<td>7.0</td>
<td>7.2</td>
<td>7.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Notes: annualised data. Ratios based on Tier 1 capital or accounting capital do not cover BGK and branches of credit institutions operating in Poland. „Net charges to credit risk provisions” before 2018 r. include both charges to impairment provisions and to IBNR provisions.

Source: NBP.

Assessment of banks’ profitability prospects is highly uncertain. Effects of the possible adoption of laws on FX housing loans, submitted to the Parliament, may pose a major financial challenge for banks with large portfolios of such loans. Also, the need may arise to create provisions for litigations on FX housing loans, which would have a negative impact on earnings.

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66 See Box 2.2.
**Figure 2.45.** Estimated profitability of consumer loans (upper left-hand panel), housing loans (upper right-hand panel), other loans to households (lower left-hand panel) and corporate loans (lower right-hand panel)

Notes: annualised data.

The values of the adjusted net interest margin shown in this figure should be regarded only as an approximation of the actual profitability of particular credit products. Identical funding costs (effective interest on funding) were assumed for each credit category. This calculation takes no account of operating costs, the cost of capital to cover the capital requirements, fee and commission income (including income related to cross-selling) and profits earned on foreign currency loans due to the difference between the bid and offer prices of currencies (FX spread).

The “Result of closing open currency position” for housing loans are the estimated net gains/losses on closing an open on-balance FX position (related to granting Swiss franc-denominated housing loans), assuming that rolled-over 3-month CHF/USD and USD/PLN swaps are used.

“The adjusted margin after subtracting the tax” was calculated by subtracting the nominal rate of the tax on certain financial institutions of 0.44% (re-scaled to factor in the term of the tax) from the adjusted net interest margin.

**Source:** NBP.

In a longer perspective, the expected issuance of debt by banks, among other things in order to gain additional Tier 1 (AT1) and Tier 2 capital, may have a negative impact on banks’ funding costs and profitability. The relatively marginal, so far, domestic issuance of Polish banks[^70] indicates that issuance of debt securities is substantially more expensive than deposit funding, especially household

[^70]: For more information on the scale of issuance of Polish banks, see „Rozwój sektora finansowego w Polsce w 2017 r.” [“Financial System in Poland in 2017”], 2018, NBP, p. 223 and 268-271.
deposit funding. The announced withdrawal of the ECB from TLTRO II from mid-2020 will result in an increased demand of European banks for investors’ funds, and it may additionally push up costs borne by Polish banks, which so far have not been actively present on foreign markets.

2.6. Banks’ capital position

Capital position of domestic banks\footnote{The analysis includes data from non-consolidated statements of commercial banks with their foreign branches and cooperative banks (foreign branches’ assets account for approx. 0.3% of the banking sector’s assets and slightly below 1% of the three banks that have foreign branches). The analysis excludes branches of credit institutions (their total share in the sector’s assets is below 2.5%) and BGK, as it is not subject to the CRDIV/CRR regulatory package to the same extent as other banks.} remains good. The capital levels of most Polish banks allowed them to meet the existing pillar 1 and pillar 2 capital requirements as well as complying with the existing capital buffers requirement.

Excess of capital, albeit lower than in 2017 (see Figure 2.46), allowed banks to continue lending growth and constituted a good safeguard against an unexpected increase in credit losses. Growth of the conservation buffer (to 1.875%) and the imposition on banks of a systemic risk buffer (3% of the domestic risk exposure) caused a drop of excess of Common Equity Tier 1 capital since December 2017. At the end of June 2018, the combined buffer requirement was not met by 27 banks, including 5 commercial banks\footnote{The consequences of non-compliance with the capital requirements and combined buffer requirement are specified in Box 4 in “Financial Stability Report. June 2017”, NBP, p. 122.} (see Figure 2.47). Only 3 banks with a total share in banking sector’s assets below 0.02% did not meet the pillar 1 and pillar 2 capital requirements. Estimates show that an increase of conservation buffer in 2019 (other things held constant) may cause deficit of Common Equity Tier 1 capital for the combined buffer requirement in 61 banks, including 6 commercial banks, and it may total 3.8 billion zlotys.

The growth of capital originated from realized gains and issuance of debt instruments classified as Tier 2 capital. Several commercial banks issued shares and subordinated debt classified as Tier 2 capital (see Figure 2.48). Entry into force of the accounting standard IFRS 9 had no material impact on the level of regulatory capital (see Figure 2.49). The first application of the new standard limited (by around 5.6 billion zlotys) the amount of undistributed profit from previous periods which could be included in Common Equity Tier 1 capital.\footnote{Entry into force of IFRS 9 changed, among others, the manner of classification and valuation of financial assets and liabilities, and when the new standard was first applied the effects of these changes were recognised mainly in profits from previous periods.} On the other hand, most banks decided to use transitional provisions mitigating the impact of the new standard\footnote{Regulation (EU) 2017/2395 of the European Parliament and of the Council of 12 December 2017 amending Regulation (EU) No 575/2013 as regards transitional arrangements for mitigating the impact of the introduction of IFRS 9 on own funds and for the large exposures treatment of certain exposures to public sector denominated in the domestic currency of any Member State.}, and increased their regulatory capital by the amount of new adjustment (4.6 billion zlotys) which will be decreasing in the agreed proportion and disappear in 2023.
Figure 2.46. Excess of Common Equity Tier 1 capital

Notes: The figure takes into account all banks with a surplus of Common Equity Tier 1 capital. The total deficit of Common Equity capital at the end of June 2018 was around 2 billion zlotys.

Source: NBP.

Figure 2.47. Distribution of assets of domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel) by the ratio of excess of Common Equity Tier 1 after fulfilling the combined buffer requirement to total risk exposures amount

Source: NBP.
There are no indications that banks optimise their total risk exposure amount on a large scale. The value of credit risk exposure has grown a bit faster since mid-2017 (see Figure 2.49). No worrying changes in capital adequacy measures based on risk (capital requirements) or leverage ratio (see Figure 2.50) were observed. Changes in the distribution of credit exposures by risk classes or credit risk weights were not significant (see Figure 2.51). Increase of coverage ratio of exposures with the Internal Ratings Based (IRB) approach, which could be evidence of the optimisation of capital requirements, also did not occur. It cannot be ruled out that in future, for the purpose of meeting capital requirements and MREL, banks will be considering more extensive implementation of IRB methods for calculating the capital requirement for credit risk and use of securitisation on a larger scale. Currently, the most popular credit protection instruments used for lowering the capital requirement were guarantees provided by BGK under the *de minimis* programme. At the end of June 2018, the value of exposures covered by the guarantee was approx. 40 billion zlotys (approx. 2.5% of assets).

Entry into force of IFRS 9 in January 2018 had a minor impact on a decline in the value of exposures. It can be estimated that if banks had not applied the provisions mitigating the impact of entry into force of IFRS 9, then the TCR ratio as of 1 January 2018 would be lower by about 0.5 p.p.

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75 Exposures protected by the *de minimis* guarantee can be assigned a risk weight of 0% in the standardized approach for determining the capital requirement.

76 The drop in the value of assets as of the first day of use of the new standard can be estimated at slightly above 5 billion zlotys. Banks using the provisions mitigating the effect of the new standard must adjust upward the exposure value in order to not to achieve any unjustifiable benefit.
Figure 2.50. Leverage ratio at commercial banks (left-hand panel) and cooperative banks (right-hand panel)

Note: The leverage ratio prior to 2014 is based on estimates.
Source: NBP.

Figure 2.51. Distribution of credit exposures by credit risk weight in the group of domestic commercial banks (left-hand panel) and cooperative banks (right-hand panel)

Notes: Values of exposures after risk mitigation techniques and credit conversion factors were used, before risk weighting and the use of the SME supporting factor. The figure does not include exposures assigned by banks in supervisory reporting to category of exposures under standardized approach with other weights. The value of these exposures at the end of June 2018 was around 1 billion zlotys and their share in the sum of exposures did not exceed 1%
Source: NBP.

Banks may find it challenging to continue to increase capital in the forthcoming years. Increased capital is indispensable for expanding business and can also be used to meet MREL. Retained earnings will probably remain the main source of increase in own funds but, due to lower profitability in recent years, they may be insufficient. The possibility of raising capital externally may be hindered by the fact that profitability is below the estimated implied cost of capital (see Figure 2.52), and in the
case of issuance of instruments classified as additional Tier 1 (AT1) and Tier 2 capital – statutory restrictions.\textsuperscript{77}

**Figure 2.52. Cost of capital compared to return on equity**

![Graph showing cost of equity capital, ROE, and RORC over time.](image)

Notes: Banks listed on the GPW which at the same time form part of the WIG-banki index were considered. The assets of selected banks at the end of June 2018 accounted for approx. 75% of the banking sector under analysis. Return on Regulatory Capital (RORC) based on Tier 1 capital and ROE after eliminating one-off events. Values of the indices shown in this figure are weighted average values.

Source: NBP calculations based on Bloomberg data.

2.7. Market assessment of Polish banks

**Polish banking sector remains positively assessed by investors.** Stock indices of Polish banks changed in line with the prevailing trends in the global stock exchange markets and their values, after short-term period of increased volatility, returned to levels from the end of March 2018 (see Figure 2.53). The price-to-book value ratio stabilised at the level close to 1.4 but remained below the long-term average (see Figure 2.54). However, the ratio is much higher for Polish banks when compared to other European banks. This suggests that investors are still of the opinion that Polish banks have a greater potential to generate profits.

In addition to global factors, the continued positive valuation of banks was also significantly influenced by favourable assessment of the economic situation in Poland. High economic activity and consumer confidence indicators made an increase in lending to the non-financial sector and growth in bank profits more likely. However, market analysts raised their concerns that banks’ earnings may worsen due to, among others, increased regulatory burdens imposed on banks in the form

\textsuperscript{77} A restriction to the issuance of instruments classified as additional Tier 1 (AT1) and Tier 2 capital is that the Bonds Act lacks solutions which would allow to cancel individual obligations resulting from an issued instrument without causing issuer’s default. Another restriction is that a contractual conversion of the issued instrument to shares or reduction of instrument’s nominal value (write-off) is not possible. Unfavourable tax solutions regarding withholding tax are a mutual constraint for the issuance of foreign bonds classified as Tier 2 capital and as additional Tier 1 capital.
of higher capital buffers, and the necessity to issue MREL eligible debt instruments. The fall in stock prices of some banks was driven by negative financial results and expectations of additional costs related to the consolidation processes, increase in credit risk provisions and creation of provisions for client claims.

**Figure 2.53.** Prices of WIG-banki and EURO STOXX Banks indices (left-hand panel) and of shares of Polish banks (right-hand panel)

Notes: Prices of indices and bank shares re-scaled to 100 at the start of the financial crisis of 15 September 2008.

*Source: NBP calculations based on Thomson Reuters.*

**Figure 2.54.** The price-to-book ratio for WIG-banki and EURO STOXX Banks indices (left-hand panel) and Polish banks (right-hand panel)

Notes: Average value calculated out of indices’ values from 2008-2018.

*Source: NBP calculations based on Thomson Reuters and Bloomberg.*
The good condition of the Polish banking sector was also confirmed by rating agencies, who did not change the ratings of reviewed banks (see Table 2.5). This resulted, among others, from a good situation in banks’ economic environment, and also from banks’ high liquidity, cheap deposit funding from the non-financial sector as well as from good asset quality.

Table 2.5. Ratings of Polish banks assessed between 31 March 2018 and 30 September 2018

<table>
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<tr>
<th>Moody’s</th>
<th>Baseline credit assessment</th>
<th>Long-term deposit rating</th>
<th>Short-term deposit rating</th>
<th>Outlook</th>
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</thead>
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<tr>
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<td>Ba3 (Ba3)</td>
<td>NP (NP)</td>
<td>NEG (NEG)</td>
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<td>Fitch</td>
<td>Viability rating</td>
<td>Long-term rating</td>
<td>Short-term rating</td>
<td>Outlook</td>
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<td>BBB (BBB)</td>
<td>F2 (F2)</td>
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Notes: In brackets – as of the end of March 2018, N/A – not available. The banks whose ratings were not assigned in the period under analysis are available in “Financial Stability Report. June 2018”, NBP, p. 85.

2.8. Selected indicators of the condition of banking sector, domestic commercial banks and cooperative banks

Table 2.6. Banking sector

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Loan growth rates (y/y)

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Impaired loan ratios

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Net charges to credit risk provisions to net value of loans

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Funding gap

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Total capital ratio

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Tier 1 capital ratio

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Core Equity Tier 1 capital ratio

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Financial leverage

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Note: ROA, RORC, ROE, NIM, CTI and net income on provisions for expected credit losses to net loans/net income from banking activity – annualized data. Capital ratios and ROE/RORC calculated for domestic banks excluding BGK. The rate of lending growth after eliminating foreign exchange rate changes.

Source: NBP.
### Table 2.7. Domestic commercial banks

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Note: ROA, RORC, ROE, NIM, CTI and net income on provisions for expected credit losses to net loans/net income from banking activity – annualized data. Capital ratios and ROE/RORC calculated for domestic banks excluding BGK. The rate of lending growth after eliminating foreign exchange rate changes.

Source: NBP.
Table 2.8. Cooperative banks

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</tr>
<tr>
<td>- enterprises</td>
<td>1.60</td>
<td>1.68</td>
<td>2.25</td>
<td>2.36</td>
<td>2.36</td>
</tr>
<tr>
<td>Funding gap</td>
<td>-55.3</td>
<td>-55.4</td>
<td>-62.1</td>
<td>-55.9</td>
<td>-54.3</td>
</tr>
<tr>
<td>Total capital ratio</td>
<td>17.5</td>
<td>17.2</td>
<td>17.1</td>
<td>17.1</td>
<td>17.8</td>
</tr>
<tr>
<td>Tier 1 capital ratio</td>
<td>16.5</td>
<td>16.3</td>
<td>16.2</td>
<td>16.1</td>
<td>16.9</td>
</tr>
<tr>
<td>Core Equity Tier 1 capital ratio</td>
<td>16.4</td>
<td>16.2</td>
<td>16.1</td>
<td>16.1</td>
<td>16.8</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>11.4</td>
<td>11.5</td>
<td>12.0</td>
<td>12.0</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Note: ROA, RORC, ROE, NIM, CTI and net income on provisions for expected credit losses to net loans/net income from banking activity – annualized data. The rate of lending growth after eliminating foreign exchange rate changes.

Source: NBP.
3. Credit union sector

3.1. Profile of the credit union sector

The credit union sector continued to reduce its activity, which did not affect the stability of the financial system. In the first half of 2018, the value of assets of credit unions decreased further to 9.9 billion zlotys (by 4.4%) at the end of June. The fall of the sector’s balance-sheet total mainly resulted from the decrease in the value of deposits in the 32 credit unions continuing their operation – the credit unions’ assets dropped by 3.4% (see Figure 3.1). In the same period, the value of the portfolio of loans to the non-financial sector increased by 1.5% to over 6 billion zlotys. The growth in lending amid a simultaneous fall of the balance-sheet total resulted in a change in the structure of credit unions’ assets and a rise by 3 percentage points to over 61% in the share of loan receivables in the balance sheet (see Figure 3.2). At the same time, the share of cash and loans from the financial sector in the assets of credit unions diminished.

The reduction in activity leads to a further decrease in the share of the credit union sector in the financial system. At the end of the first half of 2018, credit unions’ assets accounted for only 0.5% of assets of the banking sector, and the extent of linkages of the credit union sector with the banking system remains insignificant. Liabilities to banks are not recorded on credit unions’ balance sheets, while the value of deposits in the banking sector accounted for 3.7% of their assets. The deposit guarantee and resolution system is an indirect channel of credit unions’ impact on the banking sector.

The decrease in the number of active credit unions led to a rise in concentration in the sector and also its further stratification. At the end of June, there were 32 active credit unions in the sector – their number dropped by two, which contributed to a rise in the sector’s concentration index to 0.48. Two active credit unions had assets more than 0.5 billion zlotys, and their share in assets of the whole sector exceeded 78%. On the other hand, over half of credit unions are entities with assets below 50 million zlotys and their share in the sector’s assets shrank to 3.5% (see Table 3.1).

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78 The analysis of the situation of the credit union sector was based on reporting data provided from the KNF and its quarterly release of Informacje o sytuacji spółdzielczych kas oszczędnościowo-kredytowych. The reporting data do not fully take account of all the reservations reported by the KNF under its supervision mandate. The differences between data presented in the previous editions of the Report result from the adjustments gradually implemented by specific credit unions and from the change in the number of credit unions in the group under analysis. Moreover, due to the entry into force as of 1 January 2018 of the new reporting rules for the credit unions sector, data for 2017 and 2018 are not fully comparable.

79 For the purposes of the report, the group of credit unions that continued to operate, i.e. credit unions that carried on operating at the end of June 2018, was separated to eliminate the statistical impact of the credit unions that discontinued operation (i.e. credit unions taken over by banks and credit unions which were suspended).

80 Upon the decision of the Polish Financial Supervision Authority, as of 30 May 2018 SKOK Rafineria was acquired by BGŻ BNP Paribas, and as of 30 June 2018 SKOK Bogdanka was acquired by SKOK Kozienice (the credit unions were formally merged on 1 July 2018).
Figure 3.1. Assets of credit unions and the sector’s concentration index (HHI) (PLN bn)

![Graph showing assets and concentration index](image)

Note: HHI concentration index calculated for credit unions active at the end of the given reporting period.

Source: KNF.

Table 3.1. The credit unions sector by groups according to asset value (end of June 2018)

<table>
<thead>
<tr>
<th>Credit unions sector, therein:</th>
<th>Number of credit unions in the group</th>
<th>Assets (PLN mn)</th>
<th>Share in sector’s assets</th>
<th>Net income (PLN mn)</th>
<th>Regulatory capital (PLN mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>credit unions with assets of up to 50 mn PLN</td>
<td>32,00</td>
<td>9,884,20</td>
<td>100,00%</td>
<td>-4,36</td>
<td>384,00</td>
</tr>
<tr>
<td>incl. small credit unions (assets below 20 mn PLN)</td>
<td>16,00</td>
<td>341,40</td>
<td>3,50%</td>
<td>0,34</td>
<td>29,03</td>
</tr>
<tr>
<td>credit unions with assets from at least 50 mn PLN to 200 mn PLN</td>
<td>11,00</td>
<td>1,040,60</td>
<td>10,50%</td>
<td>2,86</td>
<td>79,95</td>
</tr>
<tr>
<td>credit unions with assets from at least 200 mn PLN</td>
<td>5,00</td>
<td>8,502,20</td>
<td>86,00%</td>
<td>-7,56</td>
<td>275,03</td>
</tr>
</tbody>
</table>

Source: KNF.

3.2. Credit risk in the credit union sector

The quality of the loan portfolio has deteriorated since the start of 2018. The ratio of overdue loans in loans of credit union members is growing, despite the increase in the total value of the loan portfolio and the sale of impaired debt by some credit unions.⁸¹ At the end of the second quarter of 2018, this ratio amounted to almost 15% and was by 2.3 percentage points higher than towards the end of 2017 (see Figure 3.3). Uncollateralised consumer loans prevail in the structure of the loan portfolio. The fact that their quality deteriorates makes it necessary to create additional provisions, which negatively affects the financial position of credit unions.

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⁸¹ At the end of June 2018, the gross value of all debt sold by credit unions was 3.9 billion zlotys (since the start of the inclusion of credit unions within the scope of KNF supervision), of which debt valued at 0.2 billion zlotys was sold in 2018. Over 75% of debts are loans in arrears of more than 12 months.
3.3. Funding and liquidity risk

The decline in the value of liquid assets of credit unions did not cause the liquidity position of the sector to deteriorate. A steady decline in the value of deposits of the non-financial sector has been observed in the credit union sector since the third quarter of 2017 (see Figure 3.4). At the end of June 2018, the value of deposits was 9.3 billion zlotys, down 3.3% on the end of 2017 (by 6.3% y/y). The decreasing value of deposits of credit union members made it necessary to finance the increasing portfolio of loans with funds kept in previous periods on accounts at banks and the National Association of Credit Unions. This move lead to a decline in value of liquid assets to 2.2 billion zlotys, i.e. by almost 0.5 billion zlotys (18.7%) against the end of 2017 figure. Nevertheless, the assets cover over 20% of deposits accumulated in the credit union sector. At the same time, the fall in the value of deposits resulted in the growth in the sector’s liquid reserve ratio to over 12%, compared to the statutory minimum of 10% (Figure 3.5).
3.4. Credit unions’ efficiency

The persisting low efficiency of credit unions’ core operations poses a risk to the sector’s development in the future. The credit union sector has posted a loss, which at the end of June 2018 amounted to (\textasciitilde)4.4 million zlotys.\textsuperscript{82} Over half of credit unions reported a positive financial result (see Figure 3.6); however, their share in the sector’s assets was less than 22%. General expenses and the cost of credit risk remain a significant burden on credit union’s earnings as they both account for approximately 98% of the result earned on core operations (see Figure 3.7). The low efficiency of credit unions reduces the possibility of supplying their regulatory capital and scaling up their activities.

\textsuperscript{82} The detailed data on earnings for the particular quarters of 2017 and 2018 are incomparable due to the entry into force as of 1 January 2018 of the new reporting rules for the credit union sector.
3.5. The capital position of credit unions

The structure of regulatory capital provides no possibility of fully absorbing credit unions’ losses. At the end of the first half of 2018, the regulatory capital of the credit union sector totalled 384 million zlotys, which represented a 47 million zloty increase since the end of 2017 (Figure 3.8). The growth in regulatory capital was driven by the fact that some credit unions classified earnings for 2017 and the amount of additional responsibility of credit union members as regulatory capital as well as by the decrease in previous years’ losses. The revaluation fund, which cannot be used to cover losses, prevails (106%) in the capital structure of credit unions (see Figure 3.8). Balance-sheet losses can be covered from the share fund and resource fund, whose value at the end of June 2018 accounted for 91% of the value of previous years’ losses.83

Despite a gradual rise, the level of the sector’s capital remained inadequate to the scale of risk borne by credit unions. The sector’s capital adequacy ratio remained below the regulatory minimum of 5% and at the end of June 2018 amounted to 4.4% (see Figure 3.9), as the capital shortfall of the entire sector amounted to approximately 52 million zlotys.84 At the same time, 24 out of the 32 credit unions active in the period under consideration met the regulatory capital adequacy requirement; however, their assets accounted for only 15% of the sector’s assets. As the efficiency of some credit unions is low, the potential for an increase in funds from the sector’s internal sources remains limited.

83 Optional participations (purchased mainly by the National Association of Credit Unions) account for 86% of the share fund. Without optional participations, the ratio of the sum of the share fund and resource fund to previous years’ losses was 24%.

84 After all credit unions take full account of the results of inspections and current analytical oversight, the value of the sector’s regulatory capital would amount to 378 million zlotys, and its shortfall would be 57 million zlotys. This would lead to the decline of the sector’s capital adequacy ratio to 4.3%.
Figure 3.8. Structure of regulatory capital of credit unions (credit unions continuing operation) (PLN mn)

Note: "Other items" include subordinated debt and the amount of additional responsibility of CUs’ members.

Source: KNF

Figure 3.9. Regulatory capital and capital adequacy ratio (credit unions continuing operation) (PLN mn)

Notes: “Capital shortage” means the lack of capital to reach a regulatory capital adequacy ratio of at least 5%.

Source: KNF
4. Non-credit financial institutions

Assets of non-credit financial institutions (NIF)\(^6\) have decreased since the end of 2017. The greatest drop was observed in the open pension funds sector. The sector of non-credit financial institutions still does not play such an important role in the domestic financial system as in more developed European Union countries (see Figure 4.1). The ratio of NIF assets to banking sector assets was 36%, close to the lowest level since 2011, and was almost two times lower than the EU average.

Figure 4.1. Assets of non-credit financial institutions

![Graph showing assets of non-credit financial institutions over time.](image)

Source: UKNF and NBP.

4.1. Insurance companies

4.1.1. Maturity structure of assets and liabilities

In the first half of 2018, various trends of change in the value of technical provisions were observed in both of the insurance sectors. While non-life insurance companies recorded an increase in the value of provisions, the entities from the life insurance sector recorded their decrease (see Figure 4.2 and Figure 4.3). The provisions decrease of the life-insurance was mainly attributable to the decrease of unit-linked assets. The provisions of insurance with profit participations also declined, which could result from limiting the product offer of this business line. However, the increase in non-life insurance liabilities was associated with a higher value of claims provisions relating to obligatory motor insurance.

The average maturity of liabilities of insurance companies increased slightly.\(^6\) Life insurance entities were still characterised by a longer maturity of liabilities than assets. Liabilities for other life in-

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\(^6\) This chapter is devoted to domestic insurance companies, investment funds, investment fund management companies, open pension funds and pension fund management companies.

\(^6\) Annual data from the end of 2016 and 2017 were compared.
insurance had the longest duration as this category included individually continued insurance (see Figure 4.4). On the other hand, insurance in which the risk was borne by the insurer had the shortest duration. Unit-linked insurance is the long-term contract but clients can withdraw their funds earlier. In the non-life insurance sector, the assets duration were higher than the liabilities duration. The only type of provisions of a long-term nature in non-life insurance were annuities stemming from motor insurance contracts but their share in liabilities remained moderate (see Figure 4.5).

**Figure 4.2.** Technical provisions – life-insurance sector

**Figure 4.3.** Technical provisions – non-life insurance sector

The maturity of Treasury debt securities owned by the insurance sector did not change significantly. Life insurance companies purchased debt securities with longer maturities than non-life insurance.
entities. However, no significant link between the flows relating to bond redemption and the flows resulting from the possible payment of claims was observed.

**At the end of June 2018, insurance companies reported one of the lowest capital requirement for interest rate risk in the Solvency II regime** (see Figure 4.6 and Figure 4.7). In the life insurance, the aggregated value of the requirement for interest rate risk at the end of the first half of 2018 decreased to 1 billion zlotys, and in the non-life insurance this requirement slightly increased to 1.1 billion zlotys. Despite the different maturity structure of asset and liability in both insurance sectors, the interest rate risk submodule, in nominal terms, was similar. Both sectors recorded large surplus of assets sensitive to interest rate risk over liabilities.

**Figure 4.6.** Capital requirement for interest rate risk – life insurance sector

**Figure 4.7.** Capital requirement for interest rate risk – non-life-insurance sector

**Source: UKNF.**

**Interest rate risk has a limited influence on the Solvency Capital Requirement.** In the first half of 2018, the share of this risk requirement in the capital requirement for market risk rose slightly to 17.2%, and the share in the solvency requirement dropped to 8.5%. Comparing with the insurance companies in many other EU countries, changes in interest rates were not the source of risk for domestic entities.

**The insurance sector continued to be more sensitive to an increase than to a decrease in interest rates.** When compared with the end of 2017, the number of insurance companies for which interest rate hikes was linked with a decrease in own funds, was higher. In the life insurance sector, all companies became sensitive to this scenario. In non-life insurance, however, there were several entities for which a decline in interest rates would mean reducing the surplus of assets over liabilities, despite the fact that the entire sector was characterised by definitely longer maturities of assets than liabilities. Therefore, the sensitivity of domestic life insurance companies to changes in interest rates differed from that of life-insurance companies in most EU countries. Such situation in the Polish insurance
sector may be influenced by the methodology of calculating the interest rate risk submodule by entities.

4.1.2. Market risk and financing of the economy

The investments structure of the insurance sector did not change and Treasury securities were the most important category. Along with debt instruments issued by local governments, they constituted approx. 70% of the life sector investments (without UFK) and almost half of the non-life (see Figure 4.8 and Figure 4.9). Banks’ shares were also a significant asset of the non-life insurance sector. Insurance companies purchased investment fund shares as well, especially domestic funds. Those instruments constituted also the main category of unit-linked investments. Insurance companies independently managed only about one fifth of unit-linked assets (see Figure 4.10).

**Figure 4.8. Structure of insurance investments – life insurance sector**

![Graph showing the structure of insurance investments for life insurance sector]

**Figure 4.9. Structure of insurance investments – non-life insurance sector**

![Graph showing the structure of insurance investments for non-life insurance sector]

*Note:* Investments of insurance companies also include loans, real estate used for own purposes and cash.

*Source: UKNF.*

**Note:** Investments of insurance companies also include loans, real estate used for own purposes and cash.

*Source: UKNF.*

**FX risk related to the activity of insurance companies remained low.** In the structure of insurance companies’ investments, items denominated in domestic currency accounted for 93.6%. Liabilities in foreign currencies had less than 2% share in total liabilities, of which approx. 40% were technical provisions, mainly of the non-life insurance sector.

**Insurance companies were important investors in the domestic Treasury bond market, but they had a small share in the Warsaw Stock Exchange capitalisation.** In the first half of 2018, insurance companies increased the asset class of these debt securities by over 2 billion zlotys. This growth corresponded to an insignificant increase in the insurance companies share in this market. On the other hand, insurance sector entities’ exposure to the bank debt instruments decreased. At the end of the
first half of 2018, it dropped to 2.1 billion zlotys (see Figure 4.11). The share of insurance companies in the Warsaw Stock Exchange capitalisation at the end of June 2018 did not change, and its main component was a bank’s controlling stake in the portfolio of one of insurance companies. The share of the companies in the Warsaw Stock Exchange turnover was insignificant and it was consistently falling (see Figure 4.12).

**Figure 4.10. Structure of unit-linked net assets**

**Figure 4.11. Share of insurance companies in domestic debt securities market**

Source: UKNF.

Source: UKNF and Ministry of Finance.

The insurance sector played a minor role in financing of the economy. At the end of June 2018, granted loans and non-Treasury debt securities still accounted for a small part of the sector’s assets (see Figure 4.13). The largest part (over 40%) of loans were mortgage-backed loans. The level of insurance companies exposure to the corporate bond market remained very low.

The capital requirement for equity risk decreased, especially in the life insurance. At the end of June 2018, the Solvency Capital Requirement for equity risk was 1.9 billion zlotys for life insurance (see Figure 4.14) and 6.4 billion zlotys for non-life insurance (see Figure 4.15). In this submodule structure prevailed the requirement for unlisted shares and those assets for which the insurance company did not use look-through approach. The equity risk submodule was the most significant component of the market risk module for both life and non-life insurance. Its share in the total market risk was 60% for life insurance and 71% for non-life insurance.

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87 According to the Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking up and pursuit of the business of Insurance and Reinsurance (Solvency II), the Solvency Capital Requirement should be calculated on the basis of each of the underlying assets of collective investment undertakings and other investments packaged as funds (look-through approach).
4.1.3. Liquidity risk

A small increase in the value of premium was observed in the insurance sector. While in the non-life insurance an increase in the premium was observed, in the life insurance fewer premiums were collected than in the previous year. The decline concerned only unit-linked insurance. Additionally, the decline was accompanied by an increase in claims which resulted in the negative balance of cash.
flows for this business line. Outflows from the unit-linked insurance resulted from the reduction in the sale of single-premium policies and termination of current contracts. As a consequence of the drop in share prices, many policyholders decided to surrender the unit-linked contracts. A surplus of premiums over claims was still observed in the insurance sector, which allowed companies to finance their activity from their current revenues (see Figure 4.16 and Figure 4.17). However, in the life insurance sector this surplus was reduced almost to zero.

**Figure 4.16.** Earned premiums and payments – life insurance sector

**Figure 4.17.** Earned premiums and payments – non-life insurance sector

**Source:** UKNF

Insurance companies invested mainly in liquid assets on the domestic market. In the case of life insurance other than unit-linked contracts, the share of liquid assets remained at a very high level which exceeded 80% of assets (see Figure 4.18). Life insurance companies invested in non-liquid financial instruments, including corporate debt securities, to a very small extent, as they were not forced to search for yield. Insurance with the guaranteed rate constituted small part of their liabilities. Due to a regular inflow of premiums, life insurance companies did not maintain a high buffer of the most liquid assets (deposits and cash). Liquid assets prevailed in the unit-linked contracts, however, the potential lapse risk would be passed onto investment funds in whose shares unit-linked assets and assess of the insured (see Figure 4.19) were invested.
4.1.4. Leverage

The leverage level in the insurance sector was low and it did not change significantly. The level of leverage, measured according to the EIOPA methodology as a ratio of financial liabilities to own funds, was definitely higher in non-life insurance than in the life insurance. The difference resulted from a substantial value of subordinated bonds issued by non-life insurance entities and from loans. On the other hand, the ratio of own funds to total assets (without unit-linked assets) was at a very high level compared to the insurance sector in Western European countries.

In the first half of 2018, a further drop in investments of insurance companies on the derivatives market was observed. Interest rate instruments, including IRS transactions, prevailed in the structure of derivatives used by companies (see Figure 4.21). Insurance companies also held positions in FX forward contracts, and their share in the derivatives structure of life insurance had increased. The vast majority of derivatives held by entities from the sector was used for effective portfolio management. Only about one fifth of those instruments in the non-life insurance sector were used to hedge the portfolios. Hedging transactions were more important in life-insurance.

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88 In accordance with the aforementioned methodology, financial liabilities include subordinated debt, liabilities to credit institutions and financial liabilities other than those which are due to credit institutions.
Life insurance companies were less active on the derivatives market than non-life insurance institutions. Life-insurance companies concluded derivatives transactions mainly within unit-linked contracts. The derivatives portfolio was very highly concentrated in several entities from the sector. Almost 99% of these instruments were in the portfolios of five insurance companies. Derivatives were held by 12 insurance companies. Foreign banks were major counterparties in the derivatives transactions.

4.1.5. Linkages with financial institutions

The linkages between insurance companies and financial institutions were significant, mostly with investment funds. Both assets held in unit-linked contracts and in other contracts were invested in investment fund shares. The insurance companies were often the unitholders of the dedicated funds for their capital group entities. On the other hand, interconnectedness among insurance companies resulted from holding in related undertakings, as well as financing by debt securities (see Figure 4.22).

Exposure of insurance companies to the domestic banking sector was low and decreased even further in the first half of 2018. Shares, whose value dropped at the end of June 2018 due to changes in market prices, prevailed in the structure of exposure to the domestic banking sector. The value of banking debt instruments in insurance companies’ portfolios also slightly decreased. The share of covered bonds was marginal. The value of deposits, especially in unit-linked contracts, decreased (see Figure 4.23). Most bank deposits were held by non-life insurance companies, as those entities must have the means for payment of claims within a short period of time after damage occurrence. There

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89 In EU countries, 70% of the nominal value of derivatives were held by life insurance companies.
was a high concentration of deposits of insurance companies in one bank. Insurers often used the services of banks from the same capital group.

**Figure 4.22.** Insurance companies’ exposure to financial institutions

**Figure 4.23.** Structure of insurance companies’ exposure to domestic banking sector

Source: UKNF

The source of relationships with the banking sector was distribution of insurance products. In the first half of 2018, the share of banks in the distribution of the life insurance products was 28.5% and in non-life insurance – 4.6%. Compared to previous periods, the significance of bancassurance in the life insurance sector diminished.

4.1.6. Financial results

In the first half of 2018, the insurance sector reported positive financial and technical results (see Figure 4.24 and Figure 4.25). Both premium revenues and payments and costs increased. Outflows from unit-linked contracts caused the need to release some provisions. However, the life insurance sector recorded an increase in revenue due to this solution, which compensated costs related to unit-linked payments. Life insurance companies recorded a higher profit (1.3 billion zlotys) than in the first half of the previous year. More than half of the profit in life and non-life insurance was generated by the largest entities. In the non-life insurance, high prices of motor insurance generated the increase of premium revenue and a further improvement of the technical result of the business line and also the whole sector. The profit of non-life insurance companies (2.5 billion zlotys) was highly dependent on the amount of dividends paid by subsidiaries of non-life insurance institutions.

The ROE ratio remained high. In the first half of 2018, the return on equity of the life insurance improved, and in the case of the non-life insurance sector it did not change significantly. The life insurance was characterised by a higher ROE than non-life insurance due to a high share of high-income employee group insurance or individually continued insurance (see Figure 4.26 and Figure 4.27).
Non-credit financial institutions

ROE of the insurance sector was higher than that of the banking or corporate sector but lower than that of the asset management sector.

**Figure 4.24. Financial results – life insurance**

**Figure 4.25. Financial results – non-life insurance**

**Figure 4.26. ROE – life insurance**

**Figure 4.27. ROE – non-life insurance**

Note: ROE for H1 2018, in annualized terms.

A factor which could reduce profitability of life insurance companies in the future is a possibility of policyholders’ surrender of unit-linked contracts. This type of insurance shows a high share of costs and commissions, charged against clients. Thus, unit-linked insurance is a significant source of profits for intermediaries and insurance companies. Clients’ mass lapses would result in a decrease of the results, particularly of those companies which hold large number of unit-linked contracts.
The value of compensation still constitutes a significant risk to profitability of non-life insurance companies providing motor insurance. This risk may result in the need to adjust upward provisions for injuries incurred in the previous reporting periods but not reported yet and for insufficient provisions for claims incurred.

4.1.7. Solvency

Own funds in both life and non-life insurance increased in the first half of 2018. The increase resulted from the drop of predicted dividends which were to be paid by insurance companies. At the same time, the value of surplus of assets over liabilities decreased. The amount of eligible own funds of life insurance entities was close to the lowest level which was observed from the entry into force Solvency II regime. The value of non-life insurance’s funds, however, was oscillating among the highest reported levels. The non-life insurance had own funds which were 60% higher than funds of the life insurance sector. In the life insurance almost all own funds were classified to the highest category (see Figure 4.28). In the non-life insurance subordinated liabilities, including especially subordinated bonds, constituted just a marginal part (see Figure 4.29).

At the end of June 2018, life and non-life insurance companies recorded lower capital requirements than at the end of 2017. Life-insurance entities reported the lowest Solvency Capital Requirement since entry into force of Solvency II regime. However, non-life insurance companies recorded one of the highest requirements since the beginning of 2016. The Solvency Capital Requirement in the non-life insurance (approx. 17 billion zlotys) was over two times higher than in the life insurance (7.8 billion zlotys). The decrease in the value of the Solvency Capital Requirement resulted primarily from lower value of requirement for the equity risk submodule.

The level of the SCR in both life and non-life insurance was mostly affected by the underwriting risk module and by the market risk module (see Figure 4.30 and Figure 4.31). Considering the significant share of unit-linked contracts, life insurance companies recorded the highest capital requirement with regard to the underwriting risk for the lapse risk. The SCR for mortality risk was two times lower. The exposure of life insurance companies to the longevity risk was only marginal. For the non-life underwriting risk the highest requirement comprised the premium and reserve risk, the level of which was related to the extent of activity pursued. The SCR for cat risk was lower by a half. Reinsurance programmes had a big impact on lowering the solvency capital requirement for the underwriting risk in non-life insurance companies. Stress testing proved that lack of reinsurance could result in a solvency loss of some non-life insurance companies.

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90 Dividends to be paid decrease the value of own funds.
Non-credit financial institutions

**Figure 4.28.** Own funds and the SCR coverage ratio – life insurance

**Figure 4.29.** Own funds and the SCR coverage ratio – non-life insurance

**Source:** UKNF.

**Capital requirements in the market risk module resulted mainly from assets’ sensitivity to a drop of equity prices.** In the life insurance sector, those requirements were related to investments in investment funds’ shares. On the other hand, in non-life insurance companies holdings in related undertakings had an impact on capital requirements arising from equity risk. The lower requirement for market risk stemmed from the lower value of assets and liabilities sensitive to equity risk as well as from the lower value of the symmetric adjustment mechanism at the end of June 2018.

**The capital requirement for default risk resulted mainly from reinsurance contracts.** There was no reinsurance in the life insurance, and companies had low exposure to derivatives. In the non-life insurance, however, this requirement was 3.5 times higher than in the life insurance. It did not have a significant influence of the SCR. Even a two times rise in the default risk would only result in a several percent increase in the SCR.

**The coverage rate of the Solvency Capital Requirement by eligible own funds of all insurance companies was higher than 100%**. For life insurance, this rate was 331% at the end of the first half of 2018, and it was over 20 percentage points higher than at the end of 2017. Its range was within 115%-492%. In the non-life insurance, the rate was 237%, 10 percentage points higher than at the end of 2017, and its level for particular companies fluctuated between 116% and 800% (see Figure 4.32 and Figure 4.34).
The coverage rate of the Solvency Capital Requirement by eligible own funds in Poland was higher than the EU average.91 Comparing with other EU countries, the solvency ratio of domestic life insurance companies was higher than of non-life insurance companies. The life insurance companies offered mainly insurance products which generated low risk for insurers. The employee group or individually continued insurance, as well as unit-linked insurance, had a big share. Insurance with the guaranteed rates of return accounted for only a margin of product offer. Life insurance companies

91 The data at the end of 2017
conducted less risky activity than non-life insurance companies. They also had a lower value of own funds to cover the Capital Solvency Requirement than non-life insurance companies.

4.2. Investment funds

4.2.1. Liquidity risk

Exposure of the investment fund sector to the liquidity risk increased. The share of open-ended investment funds, which, according to the law, redeem their units on demand, increased\textsuperscript{92} (see Figure 4.34). At the same time, the value of assets with limited liquidity owned by those funds increased by approx. 20% - more than twice as much as the value of liquid assets. As a result, the level of open-ended investment fund liquidity dropped and at the end of 2018 it was at the lowest level noted so far (see Figure 4.35). Mainly households were exposed to the risk of delays of unit redemption or redemption of units at reduced prize, as those entities were still the most important participants of open-ended investment funds.

Net outflows was noted by those groups of open-ended investment funds whose assets were the most liquid, that is equity and mixed funds (see Figure 4.36). In the first half of 2018, net inflows to open-ended investment funds amounted to 5.9 billion zlotys. For the majority of entities the balance of inflows and outflows was negative, but for a few of them it was positive and high (it concerned especially some of the debt funds concentrated on investment in short-term assets). Treasury securities prevailed in the structure of liquid assets of open-ended investment funds (see Figure 4.37). The share of deposits and cash, which could serve as a liquidity buffer, increased and reached 6.8% at the end of June 2018.

\textsuperscript{92} According to Art. 113 sec. 2 of the Act of 27 May 2004 on investment funds and alternative investment fund management (consolidated text, Journal of Laws of 2018, item 1355, as amended), in the case of a specialised open-ended investment fund, the statute may determine conditions at which the participants may require repurchase of units. On the other hand, there are no additional conditions in the event of requesting redemption of the open-ended investment fund units.
4.2.2. Market risk and financing of the economy

Debt instruments had the biggest share in the structure of investment funds’ assets. The main component of open-ended fund deposits were still domestic treasury bonds (see Figure 4.38), more
than half of which were fixed-rate securities. In the first half of 2018, their duration decreased, thus the sensitivity of this part of the portfolio to the change in interest rates was also reduced. The closed-ended funds increased their exposure to unlisted shares which, as in the previous periods, constituted the main component of their portfolio. Currency risk borne by investment funds seems to be limited, as approximately 70% of their assets were denominated in the domestic currency. The entities whose shares were valued in foreign currencies, invested mainly on foreign markets.

The value of assets of investment funds used for debt financing of the economy decreased slightly. At the end of June 2018, almost 90 billion zlotys, that is approx. 25% of assets of the sector, were used for that purpose (see Figure 4.38). The impact of the investment fund sector on the financial cycle was still relatively small. As at the end of 2017, non-treasury debt instruments owned by funds were dominated by those issued by domestic non-financial corporations. Also securities of domestic banks and foreign corporations were of crucial importance. The value of loans granted by the funds to other entities increased by almost 40% in the first half of 2018, which was caused mainly by funds represented by one TFI. The increase concerned in particular the loans granted by the closed-ended funds to domestic banks in repo transactions. Except these loans, also loans to domestic non-financial corporations were of great significance.

Changes in the structure of investment fund assets translated into decrease of their importance to domestic equity market and non-financial corporations debt securities market. The value of shares of domestic companies listed on the Warsaw Stock Exchange owned by the funds, (see Figure 4.40) as well as the value of debt instruments issued by the domestic corporations decreased notably (see Figure 4.41). In the case of the latter ones, a decrease was mainly connected to large outflows from one of the closed-ended private equity fund. On the other hand, the value of debt securities issued by domestic banks increased, but the importance of investment funds for the market of such instruments did not change significantly. Despite the dropping share of funds in trading on markets organised by the Warsaw Stock Exchange, it remained at the highest level among domestic institutional investors.
Figure 4.38. Structure of assets of investment funds

- Cash and deposits
- Loans granted
- Domestic treasury securities
- NFC’s debt securities
- MFIs’ debt securities
- Shares listed on GPW Main Market and NewConnect
- Investment funds’ shares
- Other equities
- Fixed tangible assets
- Other assets

Note: open-ended investment funds and specialised open-ended investment funds were included in the group of open-ended funds. The item – Cash and deposits also comprises margins. The item – Loans granted also comprises those granted in the repo transactions. The item – Debt securities of banks does not comprise state-guaranteed infrastructure bonds issued by BGK for KFD, these instruments were included in the item – Domestic treasury securities. Due to adjustments made, the data may differ from the presented in the previous editions of the Report.

Source: NBP.

Figure 4.39. Financing of the economy by investment funds (credit intermediation)

Note: the chart illustrates the share of non-treasury debt instruments and granted loans in total assets. The average presented is a three-year moving average.

Source: NBP.

Figure 4.40. Share of investment funds in GPW capitalization and turnover

- Share in the Warsaw Stock Exchange capitalisation
- Share in the Warsaw Stock Exchange Main Market turnover

Source: GPW, NBP.

Figure 4.41. Share of investment funds in domestic debt securities market

- Government and local government sector
- Banking sector
- Non-financial corporations sector

Source: NBP.
4.2.3. Leverage

The level of leverage, measured as the ratio of total assets to net assets, increased (see Figure 4.42). An important source of leverage in the investment fund sector were repo transactions. Liabilities arising from these transactions were significantly higher than those from loans taken out by the funds and bond issues.

Investment funds increased their exposures to interest rate derivatives\(^9\). The share of entities, measured in net assets, using the derivatives was close to 90% for open-ended funds and almost 20% for closed-ended funds (see Figure 4.43). In relation to net assets, the nominal value of these instruments was also significantly higher in the case of open-ended funds than in the case of closed-ended funds, and it increased considerably in the case of the first ones. Among the derivatives used, interest rate derivatives and FX derivatives prevailed. However, the first ones were less popular among investment funds than the second ones. Open-ended funds concluded the majority of transactions in financial derivatives with foreign entities, while closed-ended funds - with domestic entities.

**Figure 4.42.** Financial leverage ratio in the investment funds’ sector

**Figure 4.43.** Structure of derivatives used by investment funds, by nominal value

**Leverage used by alternative investment funds was limited.** At the end of June 2018, the total value of their exposure was approx. 115% of net assets of these funds.\(^4\) The investment techniques generating the financial leverage were used by less than half of AIFs, while the netting and hedging ar-

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\(^9\) According to European regulations, the leverage ratio is determined as the quotient of exposure and net assets. The exposure includes also notional values of the derivatives.

\(^4\) The exposure refers to the total amount of balance and off-balance sheet positions, after netting and hedging arrangements. The analysis, results of which are described in this chapter, concerns only national AIFs - those which use the leverage on a ‘substantial basis’ in compliance with Art. 111 of Commission delegated Regulation (EU) No. 231/2013 dated 19 December 2012 supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision, and perform reporting obligations to KNF on a quarterly or semi-annual basis, in compliance with Art. 110 of this Regulation. At the end of June 2018, the assets of these funds constituted approx. 2/3 of net assets of all AIFs.
rangements by at least 1/4 of them (see Figure 4.44). The smaller funds were characterised by the highest leverage, and the leverage on a ‘substantial basis’ (over 300%) were declared by five AIFs (their net assets amounted to almost 0.6 billion zlotys in total) (see Figure 4.45).

**Figure 4.44.** AIF leverage on commitment and gross method basis as of end of June 2018

**Figure 4.45.** AIF leverage on commitment method basis as of end of June 2018

Among financial institutions linked to investment funds, the most important ones were domestic insurance companies and banks. Insurance companies were of much importance among unitholders, although their share decreased (see Figure 4.46). Those entities invested both unit-linked funds’ assets and other assets, often within capital groups. Moreover, in the recent period an exposure of monetary financial institutions to investment funds’ shares was observed, which is the consequence of, among others, government programmes aiming at supporting the residential construction business. On the other hand, exposures relating to the banking sector were the most important in the assets of investment funds (see Figure 4.47). Exposures to foreign financial institutions, including especially shares in Luxembourg funds, were also important. A significant share of them was found in portfolios of funds-of-funds (such business model was often adopted by funds focused on foreign markets). Relations with the national financial sector both on the liabilities side and on the asset side were more important in the case of open-ended funds than in the case of closed-ended funds.
In the first half of 2018, the value of exposure of investment funds to banks increased, especially in the case of loans granted in the repo transactions (see Figure 4.48). The share of assets related to banking sector was two-and-a-half times higher in the case of open-ended funds than in the case of closed-ended funds. For the open-ended funds, the most important exposures were still bank debt securities. On the other hand, for the closed-ended funds deposits and cash were the most important (see Figure 4.49). Domestic banks were also important counterparties of investment funds in derivative transactions. Moreover, these institutions were dominant among distributors of shares and depositaries of investment funds. Such relations caused the reputational risk for both sectors.
4.3. Open pension funds

4.3.1. Liquidity risk

In the first half of 2018, the value of the liquid assets of open pension funds decreased. However, their share in the net assets of this sector remained at a high level (see Figure 4.50). The aforementioned decrease of liquid assets resulted from price falls on the domestic equity market. Due to the lack of possibility to rapidly withdraw funds by their members, there was no liquidity risk in the sector of open pension funds. Nevertheless, from December 2017 there was a significant increase of redemptions which was connected with lowering of the retirement age. As a result, the OFE sector once again recorded a negative balance of cash flows with the Social Insurance Institution (see Figure 4.51). However, the funds were not forced to sell off the elements of their investment portfolio since, besides contributions, they received dividends and interests (in the first half of 2018 it was 2 billion zlotys in total), they also had a significant liquidity buffer in the form of bank deposits and cash (11.1 billion zlotys in total, i.e. the total of 7.0% of OFE assets at the end of June 2018).
4.3.2. Market risk and financing of the economy

The OFE investment portfolio, due to current regulations, was stable and poorly diversified in terms of asset classes. Domestic equities prevailed which was associated with a significant exposure to market risk. Equity securities constituted over 77% of the OFE investment portfolio, and it largely reflected the structure of WIG index (see Figure 4.52). As a consequence of OFE high exposure to the Warsaw Stock Exchange, those institutions did not have the opportunity to quickly change their portfolio without affecting the level of share prices (see Figure 4.53). In the first quarter of 2018 there was a significant increase of the OFE exposure to the shares of companies listed on foreign regulated markets. However, this growth rate was so low that it did not affect the level of OFE direct dependence on economic situation on foreign markets. Other changes in the structure of OFE investment portfolio did not influence the risk profile of those institutions.

Analysis of share purchase and sale by OFE indicates that they acted pro-cyclically in the first quarter of 2018. In the conditions of price falls on the domestic equity market, the transactions of sale of equity instruments listed on the Warsaw Stock Exchange conducted by OFE exceeded the purchase transactions conducted by those entities. Consequently, the balance of sale and purchase of the domestic equity instruments was positive (see Figure 4.54).
OFE had relatively low importance for financing the economy. At the end of June 2018, the credit intermediation index, which measures the relation between debt assets and OFE assets in total, amounted to 8.3% (see Figure 4.55). Maintaining the index at the level similar to the level recorded six months earlier was possible due to similar, in terms of pace, decrease of OFE exposure to the debt instruments and decrease in value of their assets. As purchasers, OFE played important role on the domestic market of debt instruments issued by banks, including mortgage covered bonds. However, at the end of March 2018, the share of funds in this market was lower than in the previous periods, what resulted from their reduced involvement in these instruments (see Figure 4.56). Due to relative-
ly low, from the perspective of OFE investment needs, supply of other non-treasury debt securities, such as corporate bonds and municipal bonds, the level of OFE purchase of such instruments was still low.

**Figure 4.55.** Financing of the economy by open pension funds (credit intermediation)

**Figure 4.56.** Share of open pension funds in domestic debt securities market

Note: the chart illustrates the share of non-treasury debt instruments in total assets.

Source: UKNF.

**Source: UKNF.**

### 4.3.3. Linkages with financial institutions

**OFE assets were characterised by high exposure to the domestic financial sector.** The structure of this exposure was stable. At the end of June 2018, approximately 50% of OFE total assets (i.e. 77.3 billion zlotys) was related to financial institutions, and most of them - to banks (see Figure 4.57). The structure of OFE exposure to the domestic banking sector did not change significantly. The shares listed on the regulated domestic market prevailed in this structure with over 70% share (see Figure 4.58). Deposits and cash constituted less than one fifth of this exposure.
Figure 4.57. Open pension funds exposure to financial institutions

Source: UKNF, NBP.

Figure 4.58. Structure of open pension funds’ exposure to domestic banking sector

Source: UKNF.
5. Assessment of systemic risk in the Polish financial system

The assessment of systemic risk in Poland is focused on the banking sector due to the structural characteristics of the balance sheet of banks and their dominating role in the financial system and in financing the economy. Systemic risk associated with other financial institutions is limited by their size and business models which, at present, do not seem to create significant risks to the stability of the whole system.

5.1. Risk areas

There are five basic areas of systemic risk which have been included in the intermediate objectives of macroprudential policy. They relate to risk associated with: (1) indebtedness, (2) the structure of assets and liabilities and liquidity, (3) interconnectedness and concentration, (4) moral hazard and (5) the resilience of the financial infrastructure.

No risks jeopardising financial stability have been identified in any of the areas; however, some trends in the particular segments of the loan portfolio of banks need to be particularly monitored. This applies to high-value consumer loans with long maturities, which are increasingly common, and to housing loans granted in the environment of low interest rates and robust activity in the real estate market.

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

The analysis of the credit cycle in Poland indicates that the risk of excessive growth of total loans is low. The deviation of measures of the credit cycle, calculated for growth in total credit, the value of the credit gap and the debt service ratio, from the long-term trend is small. Non-financial sector debt remained moderate and was growing at a rate similar to or lower than the long-term trend, therefore the credit gap remained negative or close to zero (see left-hand panel of Figure 5.1). Early warning models also indicate that in the horizon of 1 year to 4 years the risk of a crisis arising from excessive

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95 In the area of the fifth intermediate objective, i.e. the resilience of the financial infrastructure, NBP examines the functioning of payment systems together with securities clearing and settlement systems. The results of the analyses are presented in a separate publication – “Polish payment system oversight report” and partly in “Assessment of the functioning of the Polish payment system”.

96 The standardised credit gap (i.e. compliant with the ESRB recommendation (2014/1) and calculated based on the broad credit measure with the parameter $\lambda = 400,000$, which corresponds to fluctuations lasting 20 years and more) amounted to -7.2%.
credit growth is low (see right-hand panel in Figure 5.1). As a result, the countercyclical buffer remains at the level of 0%.

**Figure 5.1.** Position in the credit cycle (left-hand panel) and the results of early warning models for Poland (right-hand panel)

Notes: last observation in 2018 Q2 and extrapolations using ARIMA models for the period 2018 Q3-Q4 (left-hand panel). The credit gap is a deviation in the value of credit to GDP ratio from the long-run trend, which was specified using a recursive HP filter with the smoothing parameter corresponding to the length of the financial cycle in Poland (i.e. from 5.5 to 10.5 years). The right-hand panel presents the average (signal quality-weighted) value of probability obtained on the basis of 148 models including domestic variables and the cut-off threshold which, when exceeded, signals the threat of a banking crisis (it has been assumed, following ESRB studies, that the cost of the lack of a signal warning against a crisis is 3 times higher than the cost of a wrong signal about a crisis if no crisis occurs). The green shaded areas denote the range of values of probability (not weighted by signal quality) for all models, excluding the models which show the lowest and highest probability of a banking crisis in Poland in every period. The average value of probability (a black line) weighted by the quality of signals of the models sometimes runs below the line of 30th percentile of probabilities (right-hand panel), because better models have indicated a lower probability of a crisis in these periods and above the line of the 60th percentile of probabilities, because better signal quality models have indicated a higher probability of a crisis in these periods.

*Source: NBP, BIS, Eurostat and GUS.*

Housing loans need to be closely monitored and have to meet appropriate credit standards in the environment of low interest rates. Low interest rates increase the accessibility of credit as a result of a reduction in its current servicing costs. This is reflected, among other things, in the high value of individual loans. The NBP simulations show that in the event of an increase in interest rates of not more than 3 p.p., the rise in the servicing costs of debt should not cause problems with its servicing, especially in view of the already realised wage growth and wage growth expected in the future. On the other hand, an increase in interest rates above that level could pose a challenge for some borrowers.

The real estate market, including the residential and commercial property, remains highly robust. Balance is still observed in the residential property market; however, it seems to be less stable than in

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97 Historical analysis implies that the risk should be assessed as significant when probability is higher than 25%, whereas it is now below 7%.
the past due to tensions on the supply side. No strong price increases have so far been recorded, and high demand in the housing market is, to a large extent, financed with own funds, which reduces risk to financial stability. Increasing credit funding and the emergence of speculative demand associated with home price growth expectations would be a risk factor. Risk associated with the commercial property market and the occurrence of oversupply of office space is currently low due to limited exposure of the domestic banking sector to this segment.

Risk associated with foreign currency mortgage lending is steadily declining. The portfolio of FX mortgage loans still accounts for a relatively large portion of banks’ assets (6.8%), but its value is diminishing at the rate of 8% y/y. The quality of the portfolio remains very good, and so is the financial condition of most borrowers.

Risk in the consumer loan segment is steadily rising. Consumer credit growth is higher than the rate at which GDP grows, and the credit gap for this credit category remains positive. The growth in debt value is accompanied by a shift in the structure of the consumer loan portfolio, where the share of high-value loans with extended (several years) maturity is growing. The quality of these loans is currently slightly lower than that of other consumer loans, which may enhance the level of risk of the whole portfolio. It is worth noting that Poland has one of the highest ratios of consumer debt to GDP in the European Union. For this reason, a deterioration in the quality of the portfolio of consumer loans may potentially have more systemic consequences than in other EU countries.

5.1.2. Risk arising from excessive maturity mismatch of assets and liabilities or the illiquidity of markets

Risk associated with the transformation of maturities by credit institutions and liquidity risk remain at a low level. Banks finance their operations in a stable manner with deposits from the non-financial sector, and the credit to deposit ratio remained at a level close to 100%. Banks also hold sufficient liquidity buffers – the buffer of liquid assets is higher than the average in the EU and is mainly composed of high quality securities, i.e. NBP bills and government bonds.

Market risk for banks in Poland remains low and results mainly from interest rate risk and FX risk. Most banks are characterised by a positive interest rate gap, which means that a fall in interest rates causes a decline in banks’ earnings, and a growth in interest rates – an improvement in earnings. The fact that the interest on some deposits is set by banks themselves, which enables them to partially compensate for the adverse changes in market interest rates, is a risk-constraining factor. However, the interest rate of checking and savings accounts, which is already close to zero, reduces banks’ flexibility in that matter. The currency mismatch associated with loans extended in foreign currency is hedged using derivatives transactions. In the case of turbulences in financial markets, banks may, however, be exposed to increased liquidity needs when the need arises to roll over the transactions or to call deposit margins.

98 More information on the issue can be found in Chapter 2 and Box 2.1 “Consumer loans in Poland compared to the EU states”.
5.1.3. Risk arising from excessive concentration of exposures and interconnectedness between financial system entities

The entity concentration of banks’ credit exposures is not a material source of risk. Simulations performed by NBP show that most banks hold sufficient capital that enables them to absorb the consequences of the potential bankruptcy of the largest borrowers. One exception is the group of large cooperative banks, which exhibit increased sensitivity to such risk.

Due to the structure of cross-sectoral linkages of the financial sector, the risk of conveying shocks between its elements is limited, and the banking sector plays a key role. The banking sector is dominant in terms of size and linked to all other sectors, most strongly with the household sector (see Figure 5.299). Foreign links remain a significant channel of the direct propagation of shocks from global markets – through foreign investors’ exposure to government bonds and financing provided to Polish enterprises and banks. On the other hand, from a systemic point of view the propagation of shocks between the non-banking sector and the real economy or the banking sector seems to be limited.

Indirect linkages play an important role in the transmission of shocks in the financial system. In the case of the whole financial system, government bonds are a significant asset type that constitutes a substantial part of the balance sheets of all financial institutions. The magnitude of indirect linkages, related to portfolios of government bonds, has risen in recent years, especially in the banking sector. Nevertheless, the risk of Treasury securities is declining along with the continued decline in the public debt to GDP ratio. FX loans are another area of banks’ exposures to a common risk area; however, the scale of the exposure is falling and the quality of the portfolio is high.

The establishment of Poland’s largest capital group100, comprising banks and insurance sector entities, is of major importance for the structure and scale of linkages in the financial system (see Figure 5.3). Although intra-group linkages do not have to translate automatically into risk growth, they do, however, create new challenges.101 The fact that the State Treasury is a controlling shareholder in the group creates a new context for the functioning of micro- and macroprudential supervision. In consequence, the group’s activities need to be closely monitored by financial safety net institutions.

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99 Figure 5.2 shows the size of individual sectors from the point of view of their assets and liabilities (area at the circumference of the pie chart) and mutual exposures, illustrated as financial receivables of a given sector (an outgoing arrow) or its liabilities (an incoming arrow) against other sectors of the economy.

100 The PZU group is a financial conglomerate which includes, among others, 40% of assets of the domestic insurance sector and two large banks which were responsible for almost 15% of the domestic sector’s assets and have been identified by the Polish Financial Supervision Authority as systemically important institutions.

**Figure 5.2.** Cross-sectoral linkages of the financial sector in June 2018 (in billion zlotys)

Notes: Values on external arcs are the sum of inflows and outflows for each sector. The direction of the arrows on the graph corresponds to the location of the asset allocation of each sector. GD - households, MIF - monetary financial institutions, IU - insurance institutions, PN - non-financial enterprises, FI - investment funds, IRiS - general government institutions, FER - pension funds, PIPF - other financial intermediaries.

*Source: NBP.*

**Figure 5.3.** Financial sector’s assets managed by capital groups in the end of 2017

Notes: for PTE share of a given capital group calculated according to net assets of open pension funds, for investment fund companies according to the value of managed assets.

*Source: NBP, UKNF.*

Deposit links between associating banks and cooperative banks are an important channel of transmission of shocks in the banking sector. They result from the role of associating banks in the monetary settlements of cooperative banks and the depositing of a portion of cooperative banks’ cash surpluses in the associating banks. In connection with the key role of associating banks in institutional protection schemes, this determines the significance of the financial and capital situation of associating banks for the stability of the cooperative banking sector and justifies the systemic relevance of associating banks.

An indirect channel of linkages between banks and between the banking sector and credit unions is the manner of the financing of the deposit guarantee system and the resolution system. The deposit guarantee system enhances financial stability by reducing the probability of a bank run, but at the same time potential pay-outs of guaranteed deposits will, in the first instance, affect the funds accumulated by the BFG. The necessity of rebuilding BFG’s resources after the pay-outs would require raising contributions by credit institutions, which, in turn, would affect their earnings and capacity to increase capital. Therefore, actions supporting the takeover of insolvent credit unions by

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102 Data on sector assets are derived from the national accounts. The assets include deposits, long-term securities, short-term securities, long-term loans, short-term loans, shares in investment funds and stocks.
other stronger credit unions or banks with the support provided by the BFG, have a positive impact on the reduction of restructuring costs, because they help to avoid bankruptcies, which, as a rule, are more costly.

5.1.4. Risk arising from misaligned incentives influencing the behaviour of financial institutions or their clients

Risk arising from moral hazard remains limited, but it is growing due to the continued concentration of the banking sector and the establishment of a financial conglomerate. Compared to other EU countries, the Polish banking sector is still characterised by low concentration, which leaves room for the further consolidation of smaller institutions, without creating excessive risk to financial stability. The likely occurrence of moral hazard risk associated with systemically important institutions is, in part, reduced, by the imposition of additional capital buffers (so-called O-SII buffers) and current regulations related to resolution.

The growing role of the government sector in the financial system is part of a circumstance for financial safety net institutions. It manifests itself in a simultaneous dominant ownership participation in a number of large financial entities, among others in the banking and insurance sectors, and in the presence of the government sector representation in the financial safety net. In such a situation it is important to separate ownership and supervisory functions.

5.2. Risk triggers

The risk triggers identified in this report refer primarily to trends in the external environment of the Polish economy and their impact on Poland’s economic situation. This situation, in turn, materially affects the quality of loans which constitute the most significant exposure of banks to risk, although the loan portfolio as a whole does not represent a vulnerability of the financial system. A worsening of the macroeconomic situation may also foster intensification of problems in the credit union sector as well as in some cooperative banks.

Threats arising from the developments in the external environment of Poland may affect the domestic financial system via the credit channel and the market channel. Polish banks hold mainly exposures to domestic entities, therefore increasing credit risk (i.e. an increase in impaired loans) may be caused by the weakening of the pace of economic growth in Poland, resulting indirectly from an economic slowdown in the EU and a fall in exports (Poland’s economic cycle is strongly tied to the business cycle of the EU). A worse economic growth outlook for the EU would have a negative impact on the availability of cross-border funding for entities in Poland.

Materialisation of market risk might manifest itself in the form of a weaker zloty exchange rate, an interest rate hike, a fall in financial asset prices, or higher pressure on raising the interest rate on deposits. A depreciation of the zloty and an interest rate hike in global markets would lead to a rise in FX debt servicing costs, both for banks and their clients. Banks would also have to increase the val-
ue of margin deposits in derivatives transactions in international markets, which may push up costs of such transactions. Assuming that the rise in global interest rates would also be accompanied by an increase in market interest rates domestically, banks’ earnings would be hit by a fall in the value of their debt securities portfolios. The need to pay margin calls in derivatives transactions could also imply banks’ increased liquidity needs and more intense competition for clients’ deposits. Such a situation occurred in late 2008 and early 2009 after the collapse of the Lehman Brothers investment bank, when the interest on interbank deposits and deposits offered to clients rose substantially.

5.3. Resilience of the banking sector to shocks

5.3.1. Single-factor simulations of materialisation of the credit exposure concentration risk

In order to assess the banking sector’s resilience to the materialisation of credit exposure concentration risk, simulations were performed to examine the impact on banks of a simultaneous bankruptcy of the three largest borrowers of each of the banks and the three largest domestic borrowers in the sector.103

The simulation of the bankruptcy of the three largest borrowers at each bank indicate that bankruptcy-related losses would neither jeopardise solvency of the majority of the domestic banking sector nor its capacity to keep the required level of Common Equity Tier 1 capital for capital buffers purpose. A shortage of capital necessary to meet the pillar 1 and pillar 2 requirements would be recorded 59 banks (including 3 commercial banks), representing a share of less than 3.5% in the banking sector’s assets. The total shortage of capital, together with banks having capital shortages before the simulation, would reach 0.6 billion zlotys (15.1% of regulatory capital of the group of banks in which such a shortage occurred). At the same time, a shortfall of Common Equity Tier I capital needed to fulfil the current capital buffer requirements could be recorded by 240 banks (including 8 commercial banks) with an 11% share in the banking sector’s assets. The total shortage of Common Equity Tier I capital for capital buffers, together with banks having capital shortages before the simulation, would amount to 6.4 billion zlotys.

The simulation assuming additionally that borrowers have ceased to service their total credit obligations towards all banks shows that a shortage of capital necessary to meet the pillar 1 and pillar 2 requirements would occur in 168 banks (including 8 commercial banks) with a 9.6% share in the banking sector’s assets. The total shortage of capital, together with banks having capital shortages before the simulation, would amount to 1.9 billion zlotys (13.8% of regulatory capital of the group of banks in which the shortage occurred). At the same time, a shortage of Common Equity Tier I capital needed to fulfil capital buffer requirements could be recorded by another 181 banks (including 10 commercial banks) with a 13.3% share in the banking sector’s assets. The total shortage of Common

103 The methodology and assumptions of the simulations are specified in Appendix I.
Equity Tier I capital for capital buffers, together with banks having capital shortages before the simulation, would amount to 11.3 billion zlotys.

In both variants of the simulation of the bankruptcy of the three largest borrowers of each bank, shortages occur more frequently in the sector of cooperative banks. The results of both simulations also show that, compared to simulations based on December 2017 data, the amount of the potential shortage of capital for the pillar 1 and pillar 2 requirements has somehow fallen and concerns banks with a slightly lower share in the sector’s assets.

The materialisation of the scenario of a simultaneous bankruptcy of the three largest non-financial borrowers of the banking sector would not have significant impact on the solvency of creditor domestic banks or their capacity to absorb shocks via their capital buffers. Such borrowers’ indebtedness is still relatively small in relation to the size of domestic banks’ assets and their capital levels. Receivables from the three borrowers under analysis are held in the portfolios of 12 commercial banks (representing a share of approx. 68% in the banking sector’s assets). The losses arising from the bankruptcy of these borrowers (totalling approx. 11 billion zlotys) would not cause capital shortages in banks, neither with regard to the regulatory capital ratios, nor capital buffers.

### Table 5.1. Simulation of the impact of hypothetical bankruptcy of the three largest borrowers of each bank

<table>
<thead>
<tr>
<th></th>
<th>before simulation June 2018</th>
<th>after simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit losses after simulation (zloty billion)</td>
<td>0.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Share of banks in banking sector assets that are not compliant with capital ratios standards (pillar 1 and pillar 2)</td>
<td>0.02%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Share of banks in banking sector assets that are not compliant with combined buffer requirement</td>
<td>12.1%</td>
<td>23.1%</td>
</tr>
</tbody>
</table>

**Source:** NBP

5.3.2. Stress tests

Stress tests encompassing macroeconomic, market and liquidity shocks were carried out to assess the resilience of domestic commercial banks to negative shocks. The analysis was aimed at quantifying the effects of hypothetical shocks on domestic commercial banks from the third quarter of 2018 to the end of 2020. The results of the simulation for the reference scenario as well as other simulations contained in this chapter should not be regarded as a forecast of the situation in the banking sector. The methodology and assumptions of the simulation are described in Appendix I.

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104 As the combined buffer requirement was substantially increased at the beginning of 2018, a comparison of the results of the simulations performed in December 2017 and in June 2018 in the part concerning shortfalls of Common Equity Tier 1 capital for capital buffers purpose does not provide reliable information relating to the credit exposure concentration risk.
Reference scenario and shock scenario

Stress tests were carried out on the basis of two scenarios: a reference scenario and a shock scenario. The central path of the NBP macroeconomic projection from the “Inflation Report. November 2018”, prepared under the assumption of constant interest rates, served as the reference scenario. A significant deterioration of the economic outlook was assumed in the macroeconomic shock scenario, stemming from the materialisation of the risk factors in the global economy discussed in the previous section and in Chapter 1. Under such assumptions, Poland would experience a significant decline in the pace of economic growth (see Table 5.2) and an increase in risk aversion, which would result in a substantial deterioration of the operating activity of banks. The probability of such a combination of shocks and economic slowdown as severe as the one resulting from the shock scenario is, however, small (see Figure 5.4).

Table 5.2. Major economic indicators considered in the macroeconomic scenarios (in %)

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP growth y/y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference scenario</td>
<td>4.8</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>3.6</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>LFS unemployment rate, annual average</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference scenario</td>
<td>3.6</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>3.9</td>
<td>5.7</td>
<td>7.6</td>
</tr>
<tr>
<td><strong>CPI inflation y/y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference scenario</td>
<td>1.8</td>
<td>3.2</td>
<td>2.9</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>1.7</td>
<td>2.5</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>WIBOR3M</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference scenario</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Shock scenario</td>
<td>1.7</td>
<td>0.7</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: NBP.
Results

The vast majority of banks examined in the simulations would hold sufficient capital resources to expand their business if the reference scenario were to materialise. All the banks would meet the Pillar 1 and Pillar 2 capital ratios. The capital ratios of the majority of banks would decrease (see Figure 5.6) due, among others, to the growth in lending and the related increase in risk exposure. The average total capital ratio for the sample of banks under analysis would drop from 18.1% to 17.1%. At the same time, eleven banks, representing a 17% share in the banking sector’s assets, would fail to meet the combined buffer requirement (see Table 5.3). The estimated value of the capital needs would amount to 5.1 billion zlotys, i.e. 14.7% of their regulatory capital at the end of June 2018. A common feature of the majority of the banks which do not comply with the combined buffer requirement in the reference scenario is their relatively low initial level of capital surplus and profitability ratios. The latter factor reduces their capacity to accumulate capital from retained earnings.

The materialisation of a severe slowdown in economic growth and the increase in risk aversion would lead to a strong decrease in banks profitability, and in some institutions – to losses which would have to be covered with available capital (see Figure 5.5). The average total capital ratio for the analysed group of banks would fall from 18.1% to 15.0%. The fall in the total capital ratio would apply to the majority of banks (see Figure 5.6). Four banks with a total share in assets of the banking sector amounting to 6.7% would not fulfil the Pillar 1 and Pillar 2 capital requirements. The shortfall of regulatory capital at the banks would be 3.0 billion zlotys (i.e. approx. 24.2% of their regulatory capital at the end of June 2018). On the other hand, 16 banks with a 22.0% share in assets of the banking sector would use a portion of their capital buffers accumulated under the combined buffer requirement. In the case of all twenty banks, the shortfall of capital needed to meet the present com-
combined buffer requirement again would amount to 15.4 billion zlotys (i.e. approx. 27.0% of their regulatory capital). However, it should be pointed out that one of the main objectives of keeping capital buffers is to increase banks’ capacity to absorb losses under stress conditions. Therefore, a temporary use of capital buffers by banks in times of crisis should not be perceived explicitly as a negative development.¹⁰⁵

Table 5.3. The results of macro stress test

<table>
<thead>
<tr>
<th></th>
<th>Historical data for the period Q3 2017 – Q2 2018</th>
<th>Simulation results for the period Q3 2018 – Q4 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On average per year (as % assets)</td>
<td>reference scenario</td>
</tr>
<tr>
<td>Charges to loan impairment provisions</td>
<td>0.5</td>
<td>0.83</td>
</tr>
<tr>
<td>Net interest income</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Net earnings</td>
<td>0.9</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**Capital needs**

<table>
<thead>
<tr>
<th></th>
<th>Current requirements (zloty billion)</th>
<th>Combined buffer requirement (zloty billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital shortfall in term of Pillar 1 and 2 requirements</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Capital shortfall in term of Pillar 1 and 2 requirements increased by the combined buffer requirement</td>
<td>0</td>
<td>5.1</td>
</tr>
</tbody>
</table>

**Banks that do not meet Pillar 1 and 2 requirements**

- number of banks
- share of assets in the banking sector (in %)

**Banks that meet Pillar 1 and 2 requirements, but do not meet the combined buffer requirement**

- number of banks
- share of assets in the banking sector (in %)

**Additional information — market shock in the simulation period (zloty billion)**

<table>
<thead>
<tr>
<th></th>
<th>Current requirements</th>
<th>Combined buffer requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in bond value recognized in the profit and loss account</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Change in bond value recognized in capital</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Zloty depreciation impact (impairment charges to FX loans to households) recognized in the profit and loss account</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Notes: (1) The scenario is based on the central path of the NBP macroeconomic projection from “Inflation report. November 2018” (2) “Net interest income” includes fees and commissions income on granted loans, but does not include interest income on debt securities. (3) “Capital needs” result from the macroeconomic and market shock and the domino effect. A detailed description of minimum capital levels (requirement of Pillar 1 and Pillar 2 and the combined buffer requirement) can be found in Box 4 in “Financial Stability Report. June 2017”. The result of the simulation for the reference scenario or other simulations contained in this section should not be considered as a forecast of the condition of the banking sector.

Source: NBP.

¹⁰⁵ In accordance with the provisions of the CRDIV/CRR package, banks not complying with the supervisory capital buffers, despite the fact that they have to prepare capital conservation plans specifying the manner of replenishing capital shortfalls, can carry on their operations, while retaining a relatively high autonomy. The consequences of non-compliance with the combined buffer requirements are discussed in detail in Box 4 in the “Financial Stability Report. June 2017”. In the context of the analysis of the shock scenario, it should also be pointed out that the basic assumption of buffers is the build-up of adequate capital surpluses over the requirements of Pillar 1 and Pillar 2 so that they can be used in the event of a shock.
Assessment of systemic risk in the Polish financial system

Figure 5.5. Accumulated changes in the total capital ratio in the shock scenario (% of risk-weighted assets)

Notes: Purple bars represent the value of the total capital ratio of banks analysed at the beginning and the end of the simulation period under the shock scenario. Factors with a positive influence on the average total capital ratio over the simulation period are marked with green bars, and those with an adverse influence – with red bars. The influence of these factors is expressed in percentage points. „Retained earnings of 2018H1” are an assumed increase in the capital of banks by a part of undistributed (end of June 2018) profit earned prior to the start of the simulation. „Earnings before impairment charges and tax on assets” are equivalent to net income from banking activity, less, among others, operating costs. „Tax on assets” is the estimated amount of a tax on certain financial institutions, which would be paid by banks in the simulation period. It is assumed that a bank to record a loss in two subsequent quarters will be subject to the recovery plan, which will exempt it from paying the tax over the remaining projection period.

Source: NBP.

The results of the analysis indicate that even if the shock scenario were to materialise, no contagion effect would occur between banks. In the adverse scenario, only one bank would meet the conditions which were assumed in the analysis for defaulting on repayment of liabilities to other banks.106 However, as the bank’s share in the banking sector’s assets is very low and other entities’ exposures to the bank are low, this would not lead to a domino effect.

The results of the liquidity shock simulation have indicated that the resilience of domestic commercial banks is good despite a slight deterioration in relation to the assessment presented in the previous issue of the Report. Banks hold adequate buffers of liquid assets to face situations of stress related to financing. However, there are four banks with an elevated risk profile, with a share of approximately 19% in the banking sector’s assets. These banks could have problems with covering their liabilities with available liquid assets if foreign funding is limited, the zloty is depreciated, and customer confidence falls (see Figure 5.7). Their shortfall of liquid assets would total approx. 18 billion zlotys.

106 The simulation assumes that such a condition is a fall in the total capital ratio of the bank below 4%.
**Figure 5.6.** Distribution of banks covered by stress tests according to the total capital ratio

Notes: Distribution approximated with the use of kernel density estimator. Asset-weighted observations. The range of presented total capital ratio values was limited to the range between 0 and 30\% in order to eliminate outliers.

Source: NBP.

The results of the stress tests indicate that the likelihood of materialisation of systemic risk, understood as the risk of a disruption in the provision of financial intermediation services by banks, is low. The relatively high initial levels of capital ratios would allow banks to absorb losses arising from the materialisation of external risk factors. These banks could carry on lending even if they failed to meet the combined buffer requirement. Only a small group of banks would face capital shortfalls in relation to the pillar 1 and pillar 2 capital requirements.

**5.4. Recommendations**

In addition to identifying and assessing risk in the financial system, the role of the Report is to offer measures aimed at eliminating or mitigating systemic risk. This is one of the methods to fulfil the statutory mandate of NBP which includes acting to maintain domestic financial stability (Article 3 paragraph 2 items 6a and 6b of the Act on NBP). In the opinion of Narodowy Bank Polski, the implementation of the following recommendations will support the maintenance of the stability of the Polish financial system:

1. Banks should closely monitor the risk associated with the portfolio of consumer loans, in particular in the part relating to the rapidly growing high-value loans and loans with long maturities. Banks should analyse in detail and verify the purpose of these loans. Long maturity increases the probability of a change in interest rates and borrowers' income during the
loan repayment period, therefore banks should take a more prudent approach to creditworthiness assessment in such cases.

2. **Banks should pursue a particularly prudent policy in real estate lending.** It is important in the context of robust activity in the residential property market and still existing imbalances in selected segments of the commercial property market. Banks should also require borrowers to have adequate income buffers to enable repayment of loans even at significantly higher level of interest rates than currently observed, irrespective of the loan rate formula and the value of its collateral. An excessive increase of real estate loans could also lead to the build-up of imbalances, whose adjustment would negatively affect both the real economy and the financial system.

3. **The restructuring of FX housing loans should proceed on the basis of voluntary agreements between banks and borrowers.** The voluntary nature of the process, consistent with the recommendations of the Financial Stability Committee of 13 January 2017, will allow broadly defined risk associated with the FX loan portfolio to be reduced, while preserving financial stability. Legislative solutions providing for the forced currency conversion of the loans at an exchange rate different from the current market conditions could generate a significant risk to financial stability, reduce borrowers’ propensity to enter into voluntary agreements, and negatively impact the cost of funding of banking activity.

4. **In order to strengthen the cooperative banking sector, further integration of entities from this sector, particularly under the Institutional Protection Schemes (IPS), is desirable.** Experience from the functioning of institutional protection schemes gained so far is positive and points to the effectiveness of the intra-cooperative mechanisms of early intervention that strengthen supervision, reporting quality, as well as risk identification and management. The efficient functioning of IPSs could provide a stimulus for further integration of the cooperative banking sector, which can increase sector’s effectiveness and competitiveness, thus creating the conditions for its stable development.

5. **The cooperative banks, which have not joined the IPSs should ensure compliance of their operations with the statutory requirements.** The need for such action arises from the expiry in 2018, by act of law, of the existing association agreements. In the case of the banks that do not meet the criteria of independent operation outside an association, the recommended solution from the financial stability point of view is their integration within the IPSs.

6. **Restructuring actions in the credit unions sector should continue with the use of the internal resources of the system, limiting the use of public funds to the necessary minimum.** In the case of these credit unions where restructuring inside the credit unions system is not feasible, efforts should be made to let them exit the market at the lowest possible cost, i.e. via a takeover of the credit union, or of selected property rights or selected liabilities by domestic banks, potentially using support tools provided by the BFG.
7. **Financial institutions distributing investment products should pay particular attention to the reputational risk.** The products they offer should be appropriately tailored to the profile of the client, who should also be clearly informed of the risk associated with a given investment. Misaligned incentives affecting the offering of products could result in reputational and legal risk for the product-selling institution, and possibly further undermine confidence in the whole financial system.

8. **Banks should take gradual efforts to fulfil MREL requirements, so that the whole process is adequately spread over time.** Gradual implementation will help in avoiding a cliff-effect right before the fulfilment date in 2023.

9. **Integrating the microprudential supervision into the central bank’s structure would be justified from the financial sector stability perspective.** Recently, the role of the government sector in the financial system has significantly increased, which is manifested in the dominant ownership participation in a number of large financial entities in the banking and insurance sectors. At the same time, the government is represented in the financial safety net. In such a circumstance separating ownership and supervisory functions remains important. Integration of the microprudential supervision into the central bank’s structure would support this objective and would enhance the functioning and coordination between the microprudential and macroprudential supervision.
Appendix I

Assumptions of single-factor simulations and stress tests

Single-factor simulations of materialisation of credit exposure concentration risk

The simulation of bankruptcy of the three largest borrowers of each bank\(^\text{107}\) was performed in two variants:

- borrowers do not repay their loans only in a specific bank,
- borrowers do not repay their loans in all banks.\(^\text{108}\)

The simulations examine whether as a result of a simultaneous bankruptcy of a given group of borrowers the banks meet the pillar 1 and pillar 2 capital adequacy requirements, and, additionally, whether it has an adequate Common Equity Tier 1 capital for the combined buffer requirement.\(^\text{109}\)

The simulations cover only balance sheet exposures of non-financial sector borrowers, mainly enterprises.\(^\text{110}\) The lack of realization of collateral was assumed and it was also assumed that all loans would be subject to 100% impairment. Costs resulting from the recognition of impairment provisions reduce, in the first place, a bank’s current profits not recognized as regulatory capital and, subsequently, its Common Equity Tier 1 capital.

The calculation of change in the capital requirement incorporates average credit risk weights for non-financial sector exposures in a specific bank. Capital adequacy and accounting regulations applicable at the end of June 2018 were taken into account. The simulations assumed that the amount of core capital for the systemic risk buffer is adjusted accordingly to the decreasing total risk exposure. On the other hand, no changes were assumed in the level of an adjustment of Common Equity Tier I capital, which would mitigate the effect of entry into force of the IFRS 9.\(^\text{111}\) The simulations are static and based on reported data as of June 2018.

Stress tests

The stress tests were run in three stages, consisting in the impact analysis of, respectively, macroeconomic scenarios, a market shock and liquidity shock. The impact of two macroeconomic scenarios

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\(^{107}\) The simulations were performed using non-consolidated financial statements of domestic commercial banks, including their foreign branches, and of cooperative banks. The simulations did not comprise branches of credit institutions and BKG.

\(^{108}\) Problems with servicing a debt by a borrower in one bank often lead to problems with loan servicing in other banks. This is why we have also examined a situation when the borrower ceases to service all his/her liabilities related to loans at all banks.

\(^{109}\) In June 2018, domestic banks were required to maintain the conservation buffer (1.875% of total risk exposure), the institution-specific countercyclical capital buffer, the other systematically important institution buffer (0% -0.75% of total risk exposure) and the systemic risk buffer (3% of domestic total risk exposure).

\(^{110}\) In cooperative banks, natural persons are sometimes in the group of the three largest borrowers. Those borrowers also have loans in commercial banks and via the contagion effect they are also taken into account in the group of commercial banks.

\(^{111}\) For more information on the adjustment, see Chapter 2.6. Banks’ capital position.
(reference and shock scenarios) on the costs of credit risk materialisation and net interest income of banks was examined in the first stage. In the second stage, the impact of an additional negative market shock on the capital position of banks was added to the analysis of a macroeconomic shock. In the third stage, the impact of both market shock and liquidity shock on the liquidity position of banks was examined. The final part of the simulation was to analyse the impact of a potential bankruptcy of a bank in the two macroeconomic scenarios on the standing of other banks through the so-called domino effect.

The hypothetical capital needs of banks in both scenarios were defined under the assumption that all banks under analysis must preserve regulatory capital at a level compliant with the capital adequacy ratios (pillar 1 and pillar 2 combined). Also presented were the amounts of capital necessary to comply with the combined buffer requirement, considering the transitional period for the conservation buffer.

It was assumed that in each quarter of the scenario, banks holding adequate capital surpluses over the standards of the required capital ratios increase their loan portfolios and other assets at a rate not higher than the quarterly growth of the nominal GDP. Growth rates for individual banks were made conditional upon the level of capital surplus above the set capital ratios. With respect to FX housing loans, it was assumed that the portfolio will decline at a rate observed in previous quarters and it will at the same time be replaced by zloty housing loans with a lower risk assigned.

The balance-sheet value of the loan portfolio was also affected by provisions for recognized impaired loans and for expected losses on loans classified into Stage 1 and Stage 2, whereas the value of the debt securities were affected by valuation changes triggered by a market shock. A decreasing ratio to assets was assumed for net fees and commissions income, and a constant ratio was assumed to assets for other non-modelled profit and loss account items. Assumptions concerning these relations were based on the EBA stress test methodology, consequently, their levels in the shock scenario were less favourable than in the reference scenario.

The possibility of a dividend pay-out from earned profits was allowed. The dividend was made conditional upon banks’ compliance with the KNF-defined criteria regarding the capital adequacy ratios and the share of FX housing loans in receivables from the non-financial sector.

The interest rate path in the shock scenario is based on the Taylor rule (which takes into account inflation’s deviation from the target and the output gap). Due to its theoretical nature, the interest rate

112 Tests were conducted on domestic commercial banks, including their foreign branches. The tests exclude branches of credit institutions, BGK and Volkswagen Bank Polska, which was transformed into a branch of a credit institution towards the end of September 2018. On the other hand, the demerger of Raiffeisen Bank Polska and a transfer of a part of its assets and liabilities to BGŻ BNP Paribas, scheduled for the fourth quarter of 2018, and the demerger of Deutsche Bank Polska and a transfer of its part to Santander Bank Polska, scheduled for 9 November 2018, were not taken into account.

113 Provided that the rate of GDP growth is positive.

114 See the “KNF position of 14 March 2018 on the dividend policy of banks in a medium-term perspective”.

Narodowy Bank Polski
path should not be interpreted as a forecast of a response of the monetary authority to the circumstances described in this scenario. A constant interest rate path is assumed in the baseline scenario.

Dynamic panel models were used to translate the macroeconomic shock into credit losses and interest margin. A market shock was added to the macroeconomic scenario to assess the impact of a potential rise in investor aversion to the risk of emerging markets and the region (leading to an outflow of capital from Poland) on the situation of banks. Capital outflow would be reflected in the growth in the yields of Polish Treasury securities due to growth in credit risk premia and in a depreciation of the zloty. In turn, the depreciation of the zloty would have an influence on the increase in the capital requirements and a deterioration in the quality of bank’s loan portfolios stemming from the rise in the zloty value of the foreign currency-denominated loans and the associated rise in borrowers’ burden with loan repayment. The simulation assumed an increase of 300 basis points in bond yields and a 30% depreciation of the zloty against all major currencies.

The analysis also encompasses the impact of a market shock and additional liquidity disturbances on banks’ liquidity position. The simulation aimed to check whether banks have adequate buffers of liquid assets in the event of developments assumed in the shock scenario, i.e. a depreciation of the zloty, a rise in Polish Treasury bond yields and, in addition, an outflow of a part of foreign funding and a loss of confidence both from other domestic financial institutions and real economy entities, leading to a withdrawal of a portion of their deposits. A withdrawal of 100% of deposits, 10% of loans and 25% of other liabilities towards foreign financial institutions was assumed, among other things, as well as an outflow of the unstable (not classified as core deposits) part of deposits from households, enterprises and the general government sector and, additionally, 5%, 10% and 10%, respectively, of their other deposits.
Glossary

Adjusted net interest margin – the ratio of net interest income on a given loan portfolio posted in a given period less net charges to provisions for expected loan losses created in this period to the average value of this portfolio over this period.

Annualised data – in the case of data on flows – the value of flow in the preceding 12 months; in the case of data on balance (stock) – the average value of balance in the preceding 12 months.

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

Automobile third party liability insurance OC – third party liability insurance for land vehicles with own drive – Subsector no. 10 of the non-life insurance sector according to the Act on Insurance Activity.

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

Baseline credit assessment (BCA) – a main measure developed by Moody’s designed for the assessment of banks. Calculated in accordance with the new methodology (implemented in March 2015), the measure replaced the financial strength rating. It represents the probability of default of the bank without any external support and its scale depends on the financial profile of the bank’s activity, qualitative factors, such as the level of business diversification and complexity, and corporate practices, as well as the status of the macroeconomic environment in which the banks operates.

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

Consumer loans – overdrafts, credit card loans, consumer instalment loans and other consumer loans to natural persons.

Core deposits – stable part of deposits of the non-financial sector.

Credit Default Swap (CDS) – a derivative transaction under which the issuer undertakes to pay the buyer contractually specified compensation in the case of a credit event pertaining to a third party (the reference entity) in return for remuneration in the form of a single/upfront payment or periodic payments (so called premiums). The value of remuneration paid to the issuer of the CDS is interpreted as a measure of the perceived credit risk of the reference entity.

Credit losses – in banks applying the IFRS – balance of provisions created or (-) released for expected credit losses (until the end of 2017, charges to provisions for impaired loans); in banks applying the
Polish Accounting Standards – balance of specific provisions created or released. Credit losses also include net income on write-downs of a financial asset in the amount of the difference between the value of the financial asset written down and the value of provision/specific provision, as well as recovery of assets written down earlier.

**Cross-Currency Interest Rate Swap** – a derivative transaction under which the parties are obliged to the periodic exchange of interest payments calculated on the basis of an agreed nominal amount for a set period of time. Interest payments are denominated in different currencies and calculated on the basis of interest rates for each currency. Such a transaction may involve the exchange of the nominal amount at the start or at the end of the transaction (at a predetermined exchange rate).

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

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

**Domestic banking sector** – domestic commercial banks and cooperative banks.

**Domestic commercial banks** – domestically incorporated banks operating in the legal form of a joint-stock company or a state bank.

**Earned premium** – the premium payable to an insurance company within the reporting period less the change in provisions for premiums.

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

**Fee and commission margin** – the ratio of net fee and commission income in a given period to the average value of assets in the period.

**Forward Rate Agreement** – a derivative transaction under which the parties are obliged to exchange the difference between the FRA rate (forward rate determined at the date of the transaction) and the reference rate that was binding two working days before the date of settlement (fixing date), calculated on the basis of an agreed nominal amount for a set period of time starting in the future.

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

**Housing loans** – households loans for residential real estate.
Individual rating (Stand-Alone Credit Profile, SACP) – (a rating of the rating agency S&P) a measure of the long-term capacity of a financial institution to perform its activities without the support of third parties, calculated on the basis of the assessment of the risk of operation in different countries in which it is active and the individual characteristics of this financial institution.

Interest rate gap – the difference between interest bearing assets and liabilities repriced in a given time bucket and in a given currency.

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

JPM G7 Volatility Index, JPM EM Volatility Index – risk indices for the FX market calculated by J.P. Morgan Chase & Co. As the weighted average of 90-day implied volatility derived from at-the-money FX options for USD against, respectively, the 9 most liquid currencies from the developed countries and 14 most liquid currencies from emerging markets. The weightings of individual currencies within the indices are based on turnover data in the global market for FX options.

Leverage (banks) – according to CRDIV/CRR, the leverage ratio is calculated as the ratio of Tier I capital to the exposure measure that includes both on- and off-balance-sheet exposures.

Leverage (investment funds) – the ratio of total assets to net assets of a fund expressed in percentages.

Liquid reserve of credit unions – funds amounting to no less than 10% of the saving-loan fund (which comprises own funds of members and their savings), kept by credit unions in the form of: cash, funds on separate accounts with the National Association, and units of money market funds.

Loan-to-Value – the ratio of the value of loan outstanding to the current value of the property on which the loan was secured.

Loans with identified impairment – in banks applying the IFRS – loans from portfolio B are credit-impaired loans, if an event/events having a negative influence on the estimated future cash flows on such loans occurred (Stage 3) (by the end of 2017 – loans from portfolio B for which objective evidence of impairment and a decrease in the value of expected cash flows have been recognised); in banks applying the Polish Accounting Standards – loans from portfolio B classified as irregular pursuant to the Regulation of the Minister of Finance regarding the principles for creating provisions for the risk of banking activity.

Net income from banking activity – the sum of net interest income and net non-interest income.

Net interest margin – the ratio of net interest income in a given period to average assets in this period.
**MOVE** – risk index for the US Treasury bond market calculated by Bank of America Merrill Lynch on the basis of a 30-day implied volatility derived from Treasury options. The share of Treasury bond options of 2-year, 5-year, 10-year and 30-year maturities in the index amounts to 20%, 20%, 40% and 20%, respectively.

**MSCI EM** – the stock index calculated by Morgan Stanley Capital International on the basis of stock indices of 23 emerging markets, weighted by the free float value of these instruments in a given market.

**Net charges to provisions for impaired loans** – charges to provisions for impaired loans less releases of provisions for impaired loans in a given period.

**Non-interest income** – the sum on income on fees and commissions, revenue from dividends, income on valuation of instruments measured at fair value, gains/losses from the derecognition of financial instruments other than instruments measured at fair value through profit and loss, and foreign exchange rate differences.

**Operating costs** – the sum of the bank’s general expenses and amortisation.

**Own funds of insurance undertaking** – the sum of basic own funds which include the excess of assets over liabilities and subordinated liabilities, and ancillary own funds which comprise unpaid share capital or initial fund that has not been called up, letters of credit and guarantees and also any other legally binding commitments received by insurance undertakings (or reinsurance undertakings).

**Portfolio B** – a portfolio of assets separated in banks’ prudential reporting, comprising – since 2018 – for banks applying the IAS/IFRS the whole portfolio “Financial assets measured at amortised cost” and claims from the portfolio “Financial assets measured at fair value through other comprehensive income”, and for banks applying the Polish Accounting Standards – the whole portfolio “Loans and other receivables”, “Financial assets held to maturity” and claims from the portfolio “Financial assets available for sale”. Until 2017, portfolio B comprised claims classified as available for sale or held to maturity as well as all financial instruments (including debt securities) classified as loans and receivables.

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

**Small credit union** – a credit union with assets at the end of the financial year below 20 million zlotys and an average annual number of members below 10 thousand persons.

**Small and medium-sized enterprises** – enterprises that employ fewer than 250 persons.

**Solvency Capital Requirement (SCR)** – corresponds to one-year Value-at-Risk (with a confidence level of 99.5%) of a change of basic own funds of an insurance or reinsurance undertaking.
**Systemic risk** – a risk of disruption in the functioning of the financial system, which in the case of its materialisation, interferes with the functioning of the financial system and the national economy as a whole (Article 4(15) of the Act on Macroprudential Supervision of the Financial System and Crisis Management).

**Technical provisions** – the amount of liabilities arising from insurance contracts.

**Technical result** – the difference between income from premiums as well as certain income from deposits and other technical income and claims and benefits paid, changes in insurance provisions, the costs of insurance activity and other technical costs.

**Viability rating** – an individual rating assigned to institutions by Fitch Ratings advising of the financial condition of single entities.

**VIX** – risk index for the equity market calculated by the Chicago Board Options Exchange on the basis of a 30-day implied volatility derived from the out-of-the-money options for equities included in the S&P 500 index. A high level of the index indicates an elevated level of risk aversion.

**VXEEM** – risk index for equity markets of emerging economies calculated by the Chicago Board Options Exchange on the basis of a 30-day implied volatility derived from the out-of-the-money options on the units of MSCI EM exchange-traded fund.
Abbreviations

AC  auto casco
AFI  Alternative Investment Fund
AMA  Advanced Measurement Approach
ASF  Available stable funding
BAEL  Badania Aktywności Ekonomicznej Ludności (Labour Force Survey)
BEA  U.S. Bureau of Economic Analysis
BFG  Bank Guarantee Fund
BGK  Bank Gospodarstwa Krajowego
BIK  Credit Information Bureau
BIS  Bank for International Settlements
CDS  Credit Default Swap
CIRS  Cross-currency Interest Rate Swap
CPI  Consumer Price Index
CCP  Central Counterparty
CRD  Capital Requirements Directive
CRR  Capital Requirements Regulation
EBA  European Banking Authority
ECB  European Central Bank
EIOPA  European Insurance and Occupational Pensions Authority
ESRB  European Systemic Risk Board
EU  European Union
EURIBOR  Euro Interbank Offered Rate
EURO STOXX 50  Stock index of the 50 biggest companies in the euro area by value of shares in free float
EURO STOXX Banks  Stock index of the biggest banks in the euro area
FE  Pension fund
Fed  Federal Reserve System
FI  Investment fund
FIO  Open-ended investment fund
FOMC  Federal Open Market Committee
FRA  Forward Rate Agreement
FSC  Financial Stability Committee
GDP  Gross Domestic Product
GPW  Warsaw Stock Exchange
GUS  Statistics Poland
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH</td>
<td>Households</td>
</tr>
<tr>
<td>IBNR</td>
<td>Incurred But Not Reported provisions</td>
</tr>
<tr>
<td>IFRS/IAS</td>
<td>International Financial Reporting Standards / International Accounting Standards</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>IPS</td>
<td>Institutional Protection Scheme</td>
</tr>
<tr>
<td>IRB</td>
<td>Internal Ratings Based Approach</td>
</tr>
<tr>
<td>IRS</td>
<td>Interest Rate Swap</td>
</tr>
<tr>
<td>KDPW</td>
<td>Central Securities Depository of Poland</td>
</tr>
<tr>
<td>KFD</td>
<td>National Road Fund</td>
</tr>
<tr>
<td>KNF</td>
<td>Polish Financial Supervision Authority</td>
</tr>
<tr>
<td>KSKOK (National Association)</td>
<td>National Association of Credit Unions</td>
</tr>
<tr>
<td>LCR</td>
<td>Liquidity Coverage Ratio</td>
</tr>
<tr>
<td>LIBOR</td>
<td>London Interbank Offered Rate</td>
</tr>
<tr>
<td>Ltv</td>
<td>Loan-to-Value</td>
</tr>
<tr>
<td>MFI</td>
<td>Monetary Financial Institution</td>
</tr>
<tr>
<td>MPC</td>
<td>Monetary Policy Council</td>
</tr>
<tr>
<td>MREL</td>
<td>Minimum Required Eligible Liabilities</td>
</tr>
<tr>
<td>mWIG40</td>
<td>Warsaw Stock Exchange index of medium-sized companies</td>
</tr>
<tr>
<td>NAV</td>
<td>Net Asset Value</td>
</tr>
<tr>
<td>NBP</td>
<td>Narodowy Bank Polski</td>
</tr>
<tr>
<td>NEG</td>
<td>Negative rating outlook – expected downgrade</td>
</tr>
<tr>
<td>NIF</td>
<td>Non-credit financial institution</td>
</tr>
<tr>
<td>NIM</td>
<td>Net interest margin</td>
</tr>
<tr>
<td>NP.</td>
<td>Not Prime</td>
</tr>
<tr>
<td>NSFR</td>
<td>Net Stable Funding Ratio</td>
</tr>
<tr>
<td>O/N</td>
<td>overnight</td>
</tr>
<tr>
<td>OC</td>
<td>Third party liability insurance</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OFE</td>
<td>Open Pension Fund</td>
</tr>
<tr>
<td>OIS</td>
<td>Overnight Index Swap</td>
</tr>
<tr>
<td>OSII</td>
<td>Other Systemically Important Institution</td>
</tr>
<tr>
<td>PDA</td>
<td>Right to shares</td>
</tr>
<tr>
<td>P&amp;L account</td>
<td>Profit and loss account</td>
</tr>
<tr>
<td>PM</td>
<td>Primary market</td>
</tr>
<tr>
<td>PSR</td>
<td>Polish Accounting Standards</td>
</tr>
<tr>
<td>PTE</td>
<td>Pension fund management company</td>
</tr>
</tbody>
</table>
| PZU          | Powszechny Zaklad Ubezpieczeni
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
</tr>
<tr>
<td>ROE</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>RORC</td>
<td>Return on Regulatory Capital</td>
</tr>
<tr>
<td>RSF</td>
<td>Required stable funding</td>
</tr>
<tr>
<td>S&amp;P</td>
<td>Standard &amp; Poor’s</td>
</tr>
<tr>
<td>S&amp;P500</td>
<td>Stock index of 500 companies listed on NYSE and NASDAQ with the highest value of shares in free float</td>
</tr>
<tr>
<td>SACP</td>
<td>Stand-Alone Credit Profile</td>
</tr>
<tr>
<td>SCR</td>
<td>Solvency Capital Requirement</td>
</tr>
<tr>
<td>SKOK</td>
<td>Credit union</td>
</tr>
<tr>
<td>SM</td>
<td>Secondary market</td>
</tr>
<tr>
<td>SME</td>
<td>Small and medium-sized enterprise</td>
</tr>
<tr>
<td>STA</td>
<td>Stable rating outlook</td>
</tr>
<tr>
<td>STOXX Europe 600</td>
<td>Stock index of 600 largest companies from European developed markets</td>
</tr>
<tr>
<td>sWIG80</td>
<td>Warsaw Stock Exchange index of small companies</td>
</tr>
<tr>
<td>TCR</td>
<td>Total Capital Ratio</td>
</tr>
<tr>
<td>TFI</td>
<td>Investment fund management company</td>
</tr>
<tr>
<td>TLTRO</td>
<td>Targeted longer-term refinancing operations</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>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>Warsaw Stock Exchange index of 20 largest companies by the value of shares in free float</td>
</tr>
<tr>
<td>WIG-Banki</td>
<td>Warsaw Stock Exchange index of banks</td>
</tr>
<tr>
<td>ZBP</td>
<td>Polish Bank Association</td>
</tr>
<tr>
<td>ZU</td>
<td>Insurance company</td>
</tr>
<tr>
<td>ZUS</td>
<td>Social Insurance Institution</td>
</tr>
</tbody>
</table>
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