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Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



FINANCIAL STABILITY REVIEW

2018

ABBREVIATIONS

AB	public limited liability company
CAPM	capital asset pricing model
ССуВ	countercyclical capital buffer
CDR IV	Capital Requirements Directive IV
CRR	Capital Requirements Regulation
DSTI ratio	debt-service-to-income ratio
EBITDA	earnings before interest, tax, depreciation and amortisation
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FinTech	financial technology
GDP	gross domestic product
G-SIB	global systemically important bank
ICO	initial coin offering
IMF	International Monetary Fund
IT	information technology
LCR	liquidity coverage ratio
LTV ratio	loan-to-value ratio
MFI	monetary financial institution
RE	real estate
RLR	Responsible Lending Regulations
RoE	return on equity
SME	small and medium-sized enterprise
UAB	private limited liability company
UK	United Kingdom
US, USA	United States of America
VĮ	state enterprise
VšĮ	public undertaking

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The cut-off date for data used in the review is 1 May 2018, unless specified otherwise.

Consolidated data of banks operating in Lithuania, including foreign bank branches, is used to analyse the banking sector, unless specified otherwise.

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SUMMARY

The financial situation of households and firms continued to improve during the country's economic upswing. The rise in exports and investment was the mainstay of economic growth in 2017, which should further propel corporate productivity and economic expansion. The unemployment rate continued to decline, whereas wages grew faster than prices. Global economic growth accelerated as well, however, uncertainty increased. Unsubsiding military conflicts, unclear Brexit consequences and lingering trade wars are among the most important threats to global economy.

The largest part of the domestic financial system – the banking sector – operated in a sustainable manner, earning profit; however, market concentration rose even further. Credit growth and higher services and commissions income lent support to good banking results. The high capital level ensured the banking sector's resilience to adverse shocks, whereas the level of non-performing loans became lower than the median of EU banking sectors. On the other hand, after the merger of AB DNB bankas and Nordea Bank, AB, Lithuania branch, the sector's concentration increased – currently the market share of the three largest banks exceeds 80%. Moreover, in April 2018, Danske Bank announced its decision to exit the Baltic States, therefore, market concentration will continue on its upward trajectory.

In 2018 the rise in corporate investment, upbeat confidence indicators, and stronger financial health of households will boost crediting, which at the same time will be dampened by slower housing market developments. There are more premises for the faster growth of loans to businesses as corporate investment is expanding; however, housing loan growth may slow down given the stabilisation of housing market activity observed in 2016–2017. Supply almost reached record highs in some housing market segments, therefore, if demand growth decelerates and real estate market developers fail to reduce their operating volumes, housing prices will potentially continue on a more moderate path compared to 2017.

The two most important systemic risks to the country's financial stability are the following: the cyclical risk, which is related to the active credit and real estate markets in Lithuania, and the structural risk, which is linked to imbalances in the Nordic countries. 2017 saw mounting uncertainty regarding further housing price developments in the Nordic countries. House prices started to decline in Sweden, which signals that a scenario of their faster correction might unfold. An economic or financial shock in the Nordic countries could restrain the Lithuanian banking sector through three main channels – credit reduction, poorer liquidity and higher volatility of deposits. The rapid growth of real estate and credit markets moderated; however, they still need to be closely monitored since real estate market changes have a significant effect on the stability of the financial sector.

Ensuring greater resilience to cyber attacks remains an important task not only for the domestic financial system, but other sectors as well. In 2017 the number of e-communication incidents continued to increase. According to financial market participants, cybersecurity risk is the most important risk to the financial system. Optimisation of operations leads to the rise in the volume of online services and, in turn, related risks; therefore, both the Bank of Lithuania and other institutions implement measures for consolidating preventive capacity and increasing resilience in the electronic domain.

Bank stress testing results indicate that the banking sector would comply with capital and liquidity requirements even when faced with a significant shock. Currently, the banking sector's capital adequacy ratio is one of the highest in the EU; therefore, even a considerable loss on account of non-performing loans would not pose a risk to the banking sector's stability. Nevertheless, it would be useful for one bank to increase its capital level and resilience to adverse shocks. The domestic banking sector is overall resilient even to short-term liquidity shocks; however, some market participants ought to increase their liquidity buffers. The credit union sector reform, which was successfully completed last year, has also contributed to the strengthening of the financial system.

The good economic and financial sector situation in 2017 created conditions for increasing resilience of the financial sector; therefore, it was decided to raise the CCyB rate to reach 1% in the long run. Given the financial and economic upswing, ongoing credit growth, active real estate market and profitable banking operations, in December 2017 the Board of the Bank of Lithuania took a decision to increase the CCyB rate to 0.5%. Since the systemic risk level is moderate, the objective is to eventually accumulate a 1% CCyB; therefore, the rate may be increased to 1% in 2018. This would strengthen the resilience of credit institutions to potential unfavourable changes, for example, the change in the financial cycle phase, economic shocks, etc. The CCyB could be reduced in case of unfavourable shocks, thus increasing the capabilities of credit institutions to cover losses without prejudice to the set requirements or slowing down crediting.

I. STATE OF THE FINANCIAL SYSTEM AND ITS OUTLOOK

FINANCIAL MARKET AND ECONOMIC DEVELOPMENTS

2017 has been one of the best years for Lithuania's economy since the recession that took place a decade ago. With exports, investment and consumption following an upward trend, Lithuania's real GDP increased by an annual 3.9%, surpassing the growth rate recorded last year (2.3%). Strong expansion of exports was led by more pronounced external demand and an increase in production capacity of the tradable sector. In turn, this spurred investment by domestic companies (7.3%). Private sector consumption had picked up steam; however, it eventually was curbed by the steeper rise in inflation. As economic expansion progressed, the unemployment rate continued to decline, to stand at 6.7% at the end of 2017. Nevertheless, owing to negative demographic trends, in 2017 the headcount started to somewhat moderate. If such trends prevail, tensions in the labour market will not subside in the near future, therefore, wages will continue to rise, although at a slower pace compared to 2017. This will have a positive impact on the financial standing of households, yet it will become a challenge for lower-productivity companies that seek to retain the acquired level of competitiveness, thus they will have to take measures to make their operations more efficient. In the short term, amid a rise in wages, decline in unemployment and improvements in the corporate financial health, the economy will continue on its upward trend. However, if structural problems (e.g. those arising due to demographic trends) are not solved, faster economic growth may be hindered.

Euro area economic growth prospects improved; however, prevailing global geopolitical tensions, the wave of populism in Europe and the rising trade protectionism in the US caused concern. Over the year economic growth in the euro area went up from 1.8% to 2.4% (see Chart 1). The prospects of the US economy, which is the largest in the world, also improved; this was mainly affected by the decision to reduce the US profit tax rate. Commodity prices increased, which, in turn, strengthened commodity-exporting emerging economies. Still it is likely that, with the acceleration of oil extraction in the US, oil prices may start declining in the upcoming years, therefore, emerging economies, including Russia, could once again fall under pressure. This constraint may be offset by the prevailing global geopolitical tensions. China's economic growth picked up steam as well, mostly due to the rise in international trade. Nevertheless, with still many sources of uncertainty and risk, the acceleration of global economic growth might be subdued. Conflicts in Ukraine and Syria showed no signs of abating, while tensions in the Korean peninsula rose. The populist ideas still persisted in European politics, reducing the probability of structural reform implementation and their effectiveness. Uncertainty regarding potential Brexit scenarios prevailed. After the US announced higher customs tariffs on the imports of steel, aluminium and other goods, the risk of a trade war between the largest economies became ever more serious.



Expectations of an increase in euro area interest rates rose



On the back of a financial upturn, expectations that euro area interest rates, which reached historical lows, will start to increase strengthened. With still a very accommodative stance maintained in the euro area, key ECB interest rates remained unchanged; however, the volume of quantitative easing was reduced: from January 2018, monthly purchases by euro area central banks have been cut in half (from €60 billion to €30 billion). Bank lending in the euro area grew, therefore, the money supply created by banks gradually replaced quantitative easing efforts by central banks. Optimism regarding more sustainable economic growth within the region reflected in financial market expectations – it is anticipated that EURIBOR will become positive at the end of 2019 (see Chart 2). The US Federal Reserve System increased the reference

interest rate to 1.50–1.75% in the beginning of 2018. Due to low interest rates, the prices of financial assets remained particularly high in global markets, therefore, the risk of a sudden correction of prices was one of the key risks to the stability of financial systems in advanced countries.

BANKING SECTOR DEVELOPMENTS

Amid a financial upturn, the profit of the banking sector remained historically high. In 2017, banks operating in Lithuania earned the total net profit of €239.7 million; with the inclusion of the profit earned in three guarters by Nordea Bank, AB, Lithuania branch (hereinafter – Nordea)¹, the total net profit reached €251.9 million, which is slightly higher (by 0.3%) than a year ago (see Chart 3). Nonetheless the total profit was undermined by one-off factors, which could have taken out a chunk of around €65 million. One of such factors was the merger of AB DNB bankas and Nordea, when the costs related to the reduced IT system usage by one of the banks were included in its accounts. Net interest income of banks continued to grow at a fast pace (by 10.2%). This was determined both by the rapid growth of lending and the ongoing decline of business financing costs in an environment of low interest rates (see Chart 4). The latter also contracted due to the reduction of contributions to the deposit insurance fund in the middle of the year (from the second half of 2016 to the first half of 2017, bank contributions comprised 0.3% of insured deposits, whereas in July 2017 the contribution rate reduced three times, to comprise 0.1% of insured deposits). Overall, compared to asset holdings, banks operating in Lithuania spend the lowest amount for funding in the whole EU, which significantly increases bank profitability (see Box 1). Over the year banks also saw a rapid rise (17.1%) in net fee and commission income. This was mainly determined by more frequent payment card settlements and higher fees paid by customers that did not choose the so-called "service baskets". It should be noted that, in an environment of low interest rates, banks hold liquid funds at the central bank at a negative interest rate; therefore, they incur losses and most probably try to offset them with commission income.



Note: The accumulated 3-quarter profit of Nordea is also included in the profit for 2017.

With a rise in lending and a decline in funding costs, net interest income of banks increased Chart 4. Interest income and expenses



Note: The indicators for 2017 do not include 3-quarter income and expenses of Nordea, therefore, they are lower than a year ago.

Despite large earnings of the banking sector, profitability prospects for smaller banks remain limited. Return on assets of banks and bank branches operating in Lithuania comprised 0.9% in 2017, exceeding the average of all banks supervised by the ECB (0.4%). Major market participants made the largest contribution to the high profitability of the sector. At the same time, profitability of 10 other banks operating in the country was lower than the sector's average. Owing to the absence of economies of scale, small market participants incur relatively higher administrative costs, whereas higher funding costs and a moderate capital level limit their capability to compete for lower-risk loans. Therefore, smaller banks are forced to grant riskier loans, whose losses reduce profitability and for which more capital provisions are needed. Although in an environment of low interest rates funding costs of smaller banks significantly declined, they still need to seek a more sustainable business model, i.e. to digitalise their service provision processes in order to be able to compete with larger banks that operate particularly effectively. Otherwise, consolidation in Lithuania's banking sector may increase further.

After the merger of AB DNB bankas and Nordea and the announcement of Danske Bank about its exit from the Baltic States, concentration in the banking sector increased even more (see Chart 5). The two banks merged on 1 October 2017 and currently continue operation as Luminor Bank AB. At the end of 2017, this bank became the third largest

¹ After the merger with AB DNB bankas, Nordea did not submit its annual profit account.

bank in the banking sector in terms of assets, whereas the market shares of its loans granted to clients and deposits held made up, respectively, 27.3% and 19.3%. After the merger, concentration in Lithuania's banking sector, which was one of the highest in Europe even before the merger, increased further – the share of assets of the three largest banks increased from 73% to 82% over the year. After the withdrawal of Danske Bank from Lithuania, the banking sector's concentration will increase even more. On the one hand, the emergence of a third large market participant may improve the competitive environment in the oligopolistic market. On the other hand, large market participants may take advantage of the merger's side effects and boost their market shares even further. One way or another, high concentration increases systemic risk, since the domestic financial sector becomes more dependent on the financial health of the largest banks. Moreover, the Nordic parent banks of these three banks are financially interconnected. The Bank of Lithuania actively encourages the entry of new participants into Lithuania's market. In 2017, three institutions, as well as some credit unions under restructuring, applied for a specialised bank licence. The number of electronic money institutions rapidly increased, which reduces concentration in the payments market.



Concentration in Lithuania's banking sector increased

A high banking sector capital level indicated sufficient bank resilience to potential shocks (see Stress Testing in Chapter II of this review). The overall capital adequacy ratio of the banking sector declined by 0.7 percentage point over the year and comprised 19.1% at the end of 2017; yet all banks complied with their capital adequacy requirements with a margin. Capital adequacy ratios of banks applying internal risk-based assessment models continued to be positively affected by the declining probability of borrower insolvency, which is influenced by the prevailing economic upswing. Nevertheless, capital adequacy ratios of some banks may decrease from the first quarter of 2018 as banks will start adhering to the new International Financial Reporting Standards, which will encourage banks to be more conservative in their assessment of expected loan losses. It should also be noted that banks should be ready to apply a 0.5% CCyB rate, which will become effective from 31 December 2018 in accordance with the decision of the Board of the Bank of Lithuania (see Financial System Strengthening in Chapter III of this review).

Bank assets were boosted by active lending and loan portfolio growth. In 2017 the banking sector's assets grew by \in 1.6 billion or 6.1% (in 2016 – 9.9%). Banks continued active lending which started in 2015 – the number of loans to both firms and households followed an upturn trajectory (see *Credit Developments*). Asset developments were also affected by one-off factors related to the merger of the two banks. Before merging with Nordea, AB DNB bankas increased its capital, whereas Nordea transferred part of loans to its parent bank. At the end of the year, some banks transferred funds held at parent banks to their central bank account, thus improving their liquidity situation. Overall, over the year almost all banks saw an increase in their assets. With Lithuania seeing investment growth and ongoing high activity in the housing market, bank lending should continue on its upward trend in the coming years.

The level of non-performing loans approached the level observed before the financial crisis and became lower than the EU average. The share of non-performing debt instruments in Lithuania's banking sector declined from 3.8% to 3.1% over the year and was the lowest since 2008 (see Chart 6). This asset quality indicator became lower than the median of EU banking sectors, which comprised 3.5% at the end of the third quarter of 2017. Over the year the overall balance of non-performing loans decreased by 15.3% (€140 million), whereas the largest contribution once again stemmed from loan write-offs. Nevertheless, the value of write-offs has been declining in recent years; in 2017 the value of loan write-offs nearly halved compared to 2016. This indicates that banks almost weeded out "bad" loans accumulated during the crisis, while the level of non-performing loans approached the long-term equilibrium. The flows of new non-performing loans are constantly decreasing. In 2017 special provisions for new overdue loans posted a year-on-year decrease of 15.4%.

Note: Different shades represent the asset share of individual banks, compared to total assets of the banking sector.



The level of non-performing loans decreased further

Chart 6. Level of non-performing loans in banks by borrower type

Note: The level of non-performing loans to the general government and to

financial institutions is not included, therefore the overall level of non-performing loans is lower.

The largest share of non-performing loans is still recorded among real estate enterprises, the smallest among energy sector enterprises. Although banks considerably reduced the amount of "bad" loans accumulated during the crisis, their value remains significant in real estate, construction and production sectors (see Chart 7). Non-performing loans to enterprises within these sectors comprised 68% of all "bad" loans at the end of 2017 (non-performing loans to enterprises in the real estate sector alone made up 37%). An active real estate market helps banks in disposing of the mortgaged property taken over for overdue loans, however, in some cases (e.g. when the mortgaged property is located in less active regions) it is still difficult to do so. The level of non-performing loans to SMEs comprised 8.6% and, despite a significant decline over the year, was more than three times higher than that to large enterprises.

In 2017 the risk appetite of banks increased, however, it remained moderate, compared to banks of other Central and Eastern European countries. The portfolio of bank loans to SMEs increased by 9.3% in 2017, i.e. significantly more than the portfolio of loans to large enterprises (4.1%). Moreover, the amount of new small loans (up to €0.25 million) granted by credit institutions in 2017 was 13.3% higher than a year ago (see Chart 8). More active granting of small loans and lending to SMEs have been observed since 2015, which indicates a gradually rising bank risk appetite. Nevertheless, in 2017 the average risk weight of assets of banks operating in Lithuania, which reflects this appetite, was one of the lowest among all banking sectors in Central and Eastern Europe (see Box 1).



Chart 7. Non-performing loans by borrower group



Granting of small loans has been increasing since 2015

Chart 8. Annual moving sum of different-sized new loans granted to enterprises over a month



The ratio of loans to deposits within the banking sector remained stable and fluctuated around 100%, which indicated sustainable bank funding amid their active crediting. In 2017 the fluctuations of financial liabilities and assets in the internal market of banks were determined by the merger of the two banks and the related need to have more funds in Lithuania to finance the transaction. In the long term, banks continued to reduce net liabilities to parent banks and relied more on private sector deposits attracted in the domestic market. Moreover, compared to total liabilities (excluding capital), non-resident (private non-bank sector) deposits, which may be particularly sensitive to unfavourable developments both in Lithuania and abroad, comprised 3% in the first quarter of 2018. This indicator was one of the lowest in Europe and significantly lower compared to Latvia (around 40%) or Estonia (roughly 11%). When bank liquidity indicators are high, the small volume of non-resident deposits (€0.7 billion) does not have any significant impact on the banking sector's liquidity. At the same time, such a low share of these deposits reduces the threat of money laundering and terrorist financing.

Box 1. Lithuania's banking sector: high operating efficiency, high concentration

After the financial crisis, the bank profitability level remained high, although banks assumed considerably less risk (see Chart A). Aggressive bank crediting policies pursued prior to the financial crisis (in 2009), when as much as one-fifth of the loan portfolio turned into overdue loans, translated into losses that amounted to €1.1 billion. This pushed banks to make their lending policies much more conservative. In Lithuania, the average risk weight of loans granted by banks in 2008–2017 declined from 59% to 34% (this was partially determined by the credit risk management system, which was based on internal risk assessment models, that some banks started to apply) and was lower than the EU median (39%). Despite this, bank earnings have not been declining since 2010. Since 2011, the ratio between profit and risk-weighted assets of banks operating in Lithuania has been better than that of banks operating in most other EU countries, reaching 3.3% in 2017. In other words, the bank profitability level in Lithuania became higher than in Western Europe, whereas the level of risk assumed – lower.

A rapid decline of funding costs was the main contributor to the high bank profitability level (see Chart B). With a reduction in risk appetite, after the financial crisis interest income earned by banks operating in Lithuania noticeably decreased. In the third quarter of 2017 the ratio of interest income earned by banks to assets (1.4%) was lower than the EU median (1.8%). Nevertheless, bank funding costs tumbled – the ratio of financing costs to assets (0.2%) was the lowest in Europe. This was mainly determined by the decline in interest rates on new time deposits, which have been among the lowest in the EU since 2010. At the same time, the share of overnight deposits rapidly increased (usually no interest is paid on them).

The ratio between profit and risk-weighted assets of Lithuania's banking sector has been one of the highest in the EU since 2010

Chart A. Ratio of net profit to risk-weighted assets





Chart B. Main bank income and expenditure items in Q3 2017,



Sources: IMF and Bank of Lithuania calculations.

After the financial crisis the losses of overdue loans markedly reduced. With the decline in bank risk appetite, the flows of new overdue loans decreased as well. In the three quarters of 2017, banks operating in Lithuania even earned profit from the recovery of loan value (0.05%, compared to assets), despite the fact that an average EU country incurred loan impairment losses (0.07%, compared to assets). Riskier lending has been on a downward path for a long time. At the same time, banks significantly reduced losses incurred on non-performing loans. All this mainly stemmed from the improving economic environment and financial health of borrowers, which partially offset the decline in interest income.

Interest rates on deposits and, in turn, bank funding costs were pulled down by foreign cash flows. Although after the financial crisis bank balances declined, in 2009–2018 domestic deposits increased by 75%. The rapid growth of deposits was determined by a significant improvement in the current account balance: with waning imports, rising emigrant remittances and increasing EU financing (and, recently, also exports), the Lithuanian financial system saw a larger influx of foreign financial funds. The money supply was also boosted by higher financing of government expenditure, which was hedged with foreign debt during the recession. At the final stage of financial flows circulation, the increasing external money supply turned into larger resident deposits with commercial banks. With the growth of domestic deposits, banks rapidly reduced both funding from parent banks and interest rates on deposits. Given their conservative saving habits, Lithuanians were not inclined to use other instruments for investing funds, even in an environment of particularly low interest rates on deposits.



Return on equity of the Lithuanian banking sector exceeded

*The price of equity is calculated using the CAPM method, assuming that the average long-term return of the European company stock market is 10%.

The level of bank operating efficiency became one of the highest in Europe. Efficiency is usually assessed as the ratio of operating costs to income earned. In Lithuania this indicator has significantly improved since 2014 and comprised 49% at the end of 2017 (EU average – 56%). High efficiency is primarily ensured by the number of bank staff and branches per population in Lithuania, which is one of the lowest in the EU; however, the economy of scale effect is no less important. Nordic banks operating in Lithuania recently integrated part of their operations with the operations of other bank groups. The Nordic banking sector is the leader in Europe in terms of operating efficiency.

The largest banks operating in Lithuania that reached the highest economy of scale and efficiency are the main contributors to the sector's results, whereas their return on equity exceeds the equity price in the financial market. In 2014–2017 the profit-to-assets ratio of the two largest banks in the country comprised 1.1–1.6% on average, significantly exceeding the banking sector's average (0.9%). In recent years their return on equity has surpassed the estimated equity price in financial markets (see Chart C). These banks were successful in ensuring

the lowest funding, administrative and overdue loan expenses. On the one hand, the largest banks in Lithuania are characterised by a relatively low risk appetite, hence credit losses incurred by them are also lower. On the other hand, as the largest banks have stronger market power, they may offer lower interest rates on deposits, whereas their large operation volumes allow them to reduce administrative costs. Overall, the largest banks in the country are among the leading banks in Europe in terms of their efficiency indicators; therefore, smaller banks find it difficult to compete with them.

The Lithuanian banking sector has space for new entrants; however, they must operate efficiently. Lithuania's private sector debt, compared to GDP, remains one of the smallest in the EU, whereas the scale of using electronic payment services is also notably lower than in the leading EU countries. This shows that the business expansion potential of banks is not yet exhausted. Moreover, bank concentration in other countries of similar economic capacity is lower. The low risk appetite of Lithuanian banks may open up a window of opportunity for banks with a higher risk appetite to claim a share of the market. Nevertheless, successful operation of new market participants is possible only if they reach a level of efficiency similar to that of the largest banks operating in Lithuania, otherwise, they may lose the competitive battle. Conversely, the largest old-timers may be challenged by high-tech FinTech companies as recently their interest in banking licences in Lithuania has been increasing.

CREDIT DEVELOPMENTS

In 2017 credit in Lithuania continued to grow, yet its growth rate stabilised. In February 2018, the portfolio of loans granted by MFIs to the non-financial sector was 7.1% larger than a year ago – a positive growth rate recorded for the fourth consecutive year. Both households and corporates are the main drivers of active lending (see Chart 9). Nevertheless, when assessing the impact of such changes on the stability of the domestic financial system, it should be noted that in 2017 credit grew at a similar rate as the domestic economy (respectively, 8.5% and 8.2%)², therefore, the credit-to-GDP ratio that shows sustainability of the borrowing market did not change significantly. The absence of imbalances is reflected by the credit impulse indicator, which allows assessing the acceleration of borrowing growth. At the end of 2017 this indicator was negative (–0.7 percentage point), which means that the loan portfolio growth rate is slowing down. A deceleration of such scale was last recorded in the beginning of 2014. The largest contribution to this decline was made by non-financial corporations – the portfolio of loans granted to energy companies declined significantly in the last quarter of 2017. In the beginning of 2018, households reduced their borrowing for consumption purposes, ultimately starting to exert a more significant influence on the slowdown in the growth rate.

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² Data of Q3 2017. When calculating the annual change of GDP, the moving sum of the last four quarters is applied.

The loan portfolio continues to grow rapidly







The real estate and construction sector comprises the

Active domestic economy, improvements in corporate financial health and investment growth encouraged business crediting. The portfolio of loans granted to non-financial corporations has been growing for the second consecutive year. In February 2018, it was 6.8% higher than in the beginning of 2017 (in 2016 and 2015 the growth rate amounted to 8.3% and -0.2% respectively). Credit demand growth was underpinned by the improving corporate expectations regarding future business prospects and the related more active investment. For example, having been negative a year ago (-2.0%), the business confidence index³ stood at 4.0% in February 2018. Companies' material investments increased by 6.0% in 2017 and are expected to grow by an additional 6.3% in 2018. There are a number of premises for investment growth – the EU economy is expanding, the flows of EU funds are increasing and consumer optimism is growing. Moreover, for quite some time firms' income and profits have been picking up, whereas liquidity of their assets has been improving (see Chart 10). More active corporate lending is also reflected by the flow of new loans – it increased by one-fifth over the year. The largest contribution to the growth of the portfolio of corporate loans came from the financing of companies engaged in trade, real estate, professional, scientific and technical activities.⁴ Over the year the portfolio of loans granted to the mincreased by, respectively, €146.2 million, €193.7 million and €188.0 million (8.4%, 8.9% and 71.0%⁵). The portfolio of loans granted to the energy sector shrank the most – its value declined by two-fifths in 2017 due to the fast impairment of large short-term loans, which is characteristic of this sector.

Households borrowed actively – the housing loan portfolio posted the largest growth. A rapid growth of the housing loan portfolio in 2017 was observed for the third consecutive year. Since the second half of 2017, the annual growth rate has stabilised at nearly 8% (see Chart 11). The consumer loan portfolio grew as well and was 5.1% larger in February 2018 than a year ago. Over the same period, the net flow of new consumer loans somewhat moderated (by 2.2%). The value financed by the signed new leasing contracts increased by 17.3% in 2017, whereas for the first time the number of new passenger motor cars registered in the country went up by more than one-fourth (see Chart 12). The key factors that determine the significant crediting of households were rising wages, low interest, increasing consumption and stronger optimism regarding future prospects. Stronger household sentiment is also reflected by a record number of travellers and the saving ratio that turned negative.

The price of large loans to construction companies increased significantly. In the first half of 2018, interest on new loans granted to construction companies was the largest compared to other sectors (see Chart 13). This shows that banks consider this segment to be one of the riskiest. Interest on new small (up to €29 thousand) and large (more than €290 thousand) loans granted to construction companies remained broadly unchanged (in the period of Q1 2017 to Q1 2018 it increased by 0.4 percentage point, i.e. to 6.8% and 3.3% respectively). As the economy and investment grow, both households and corporates borrow more confidently and for a longer term. Over the last three years, the average maturity of new consumer loans has increased from 2.8 to 3.7 years, whereas that of corporate loans – from 2.7 to 2.8 years. On the other hand, the maturity of housing loans declined (from 23.1 to 22.0 years); however, this may be linked to the reduction of the maximum loan maturity (see Chart 14).

[◆] The sector's share in the MFI loan portfolio (right-hand scale) Sources: Statistics Lithuania and Bank of Lithuania calculations.

³ Economic sentiment indicator

These activities include legal, accounting, architecture, engineering, advertising, rental, travel, security and other services

⁵ The changes in the portfolio of loans to this sector were determined by individual large loans.



The housing loan portfolio growth rate remains robust

Chart 11. Annual change and net flow of the MFI housing loan





Sources: Statistics Lithuania and Bank of Lithuania calculations.

Source: Bank of Lithuania.

Although loan interest rates remain record low, they will not stay like that indefinitely; therefore, both firms and households should take into consideration a potential increase in interest rates when borrowing. The weighted average of the interest rates on loans to non-financial corporations (including renegotiated interest) amounted to 2.4% in 2017⁶ and was the lowest in the recent decade. Housing loan interest rates were also close to record low levels and stood at 2.0%. On the back of the economic recovery in the EU and a rise in inflation, expectations of an interest rate hike are strengthening (see *Banking Sector Developments*). Rising expectations may already have an impact on interest rates. For example, in February 2018 average interest rates on new housing loans (including renegotiated interest) were 0.2 percentage point higher than a year ago – an increase for the fourth consecutive month. Unsubsiding credit demand and higher-risk clients that have been applying to banks more frequently (the interest rate applied to them is usually higher) could also contribute to interest rate growth. Before taking the decision to borrow, borrowers need to evaluate the potential impact of an interest rate increase on their financial situation as well as properly assess their capabilities to comply with credit obligations, if interest rates were to rise significantly.





Maturity of consumer loans is increasing Chart 14. Average maturity of new loans granted by MFIs



Robust economic activity, investment growth and rising wages will support loan demand. Owing to the country's economic forecasts and positive household expectations, in 2018–2019 credit should continue to grow. For example, the number of firms that plan business expansion is increasing. The survey of non-financial corporations conducted in the beginning of 2018 revealed that almost 40.0% of respondents are planning business expansion in the nearest half-year. Nevertheless, currently the overall loan portfolio growth rate is probably already close to its potential, thus it should be

⁶ 12-month average.

similar to that of 2017 or slightly lower (see Charts 15 and 16). If the flow of business investment increased significantly, it could rapidly boost the portfolio of corporate loans, however, there are fewer possibilities for faster growth of lending to households. Banks operating in Lithuania also expect further credit growth. Fastest growth is expected in loans to SMEs and consumer loans (5.8%), whereas the housing loan portfolio should expand at a slightly slower pace (5.0%) given that the overall housing market activity has cooled off.

According to banks, credit will grow further, however, in some segments the growth rate may slow down Chart 15. Annual change of the MFI loan portfolio and its forecast





EUR Billions Percentage points



Box 2. Purchasing power created by banks and the impact of credit flows on the economic cycle

With the ongoing rapid growth of crediting, it is important for both financial market participants and supervisory authorities to assess which fundamental factors create possibilities for active crediting, how credit depends on the developments of the real economy and what impact it has on it. This box contains a brief discussion of the increasingly more popular view that bank crediting capabilities do not depend as much as thought on their pre-accumulated financial resources or, for instance, on the overall level of savings in the country. If banks indeed do not redistribute new financial resources but instead create them, their pursued crediting policy should depend relatively little on the real economy, yet still be a very important economic and financial cycle factor.

Discussion on whether banks granting loans act as financial intermediaries reallocating financial resources accumulated by savers to borrowers, or create new financial resources and, in turn, purchasing power, has been taking place for many decades. The first approach, also known as "deposits first" or "intermediation of loanable funds", is conceptually much simpler and more wide-spread. According to it, a specific bank's capabilities to grant new loans largely depend on the amount of deposits attracted and financial resources held, whereas crediting capacities of the entire banking sector depend on aggregate saving. Thus banks attempt to attract deposits and other financing resources by competing, for example, via deposit interest rates. Having been successful, banks can expand their loan portfolios. This in itself should not increase aggregated demand since for borrowers to be able to increase their expenditure accordingly, part of households and firms must save, i.e. postpone expenditure. The second approach, known as "credit first" or "financing through money creation", essentially is the complete opposite of the first one. It states that when banks grant loans, financial resources (money) are not redistributed but instead created. This means that bank capabilities to grant loans do not directly depend on the saving level in the country, whereas bank credit has a direct impact on the aggregate demand for goods and services.¹

The credit creation process at the bank or the whole banking system level is more accurately described in light of the "financing through money creation" approach.^{II} When a bank grants a loan, its balance sheet is expanded: the amount of loans granted increases on the assets side, while deposits increase on the liabilities side. However, these are not funds saved by other market participants and entrusted to the bank. Quite the contrary – by granting a loan, the bank creates a new deposit in the borrower's account via an electronic accounting entry. The majority of bank deposits are a constituent part of the overall money stock (e.g. funds held in current accounts may be utilised at any time for purchasing goods), which leads to the conclusion that lending creates money and gives additional purchasing power to borrowers. Still, money created through crediting may be turned into cash, transferred to another bank or leave the domestic banking system altogether (e.g. when paying for imported goods), and hence the bank or the whole banking system may suffer a lack of liquidity or financing. Banks may ensure sufficient liquidity by taking liquidity loans from the central bank or using other means, thus the system's liquidity situation is usually not the most important factor that limits crediting. In other words, the banking system has technical capabilities to increase lending almost independently from the accumulated amount of deposits – this is what is known as elasticity of the banking system.

By granting loans, banks create money and purchasing power; however, it is difficult to accurately assess the macroeconomic impact of credit and the limits of the possibilities to expand loan portfolios. This calls for large-scale general equilibrium models that meaningfully incorporate the entire banking sector. Results of new research confirm that, contrary to what is usually stated under the "deposits first" approach, bank credit may increase aggregate demand, create pressure on the overall price level and increase the volume of imports.^{III} The macroeconomic impact of credit largely depends on whether the credit flow is directed towards financing productive economic activities, as well as on the labour force, production capacity utilisation level, degree of the economy's openness, capability of firms to change prices, phase of the financial cycle, etc. On the other hand, a greater debt burden and, in particular, the sudden slowdown of credit flows or their halt due to the money and purchasing power elimination effect may exert a strong negative impact on the overall economic growth.

When banks grant loans, the demand for goods and services strengthens, thus there is a direct connection between the bank credit flow and the nominal aggregate demand level (i.e. consumption and investment expenditure). For example, during the economic and financial upturn of the previous decade, almost one-fifth of the aggregate demand in Lithuania was financed by bank credit.^{IV} Around half of the decline in aggregate demand during the crisis was linked to the fact that the net credit flow had suddenly dipped into the negative zone on account of the slowdown of bank crediting and faster loan redemption (see Chart A). The so-called credit impulse (the ratio of the change in the bank credit net flow to GDP) was negative during the peak of the crisis and reached 8%. Spurred by the economic recovery, bank credit started to once again support aggregate demand, yet it was not the most important demand factor (e.g. the impact of foreign borrowing of the general government on aggregate demand was larger). Bank credit started to grow faster in 2015 and 2016, thus generating a significant impulse for aggregate demand.

Bank credit is an important contributor to money creation; however, the overall money supply dynamics depend on the interplay of various factors. Money supply dynamics and their determining factors may be analysed using information on integrated economic and financial accounts.^V Money supply changes are determined by the bank credit flow, net foreign funding of the non-bank sector, current and capital account balances and other factors (see Chart B). During the upturn of the previous decade, money supply in Lithuania recorded a very fast increase: this was mainly supported by active bank lending and foreign investment in Lithuania, although the fact that money left the country through the current account (simply speaking, imports strongly exceeded exports) had a dampening effect. When the crisis unfolded, the contraction of bank loan portfolios put a lid on money supply dynamics, which at the same time were supported by active foreign borrowing of the general government. Later, the main driver of money supply growth was capital transfers (EU structural fund support), while in recent years the role of bank credit in determining the money supply increase has once again strengthened.

In summary, it should be noted that exceptionally active bank crediting in Lithuania before the crisis and a rapid change of the credit flows direction during the crisis enhanced the economic and financial cycle, whereas after the crisis and in recent years the supporting impact of credit on the economy has been relatively weak.



Credit dynamics is one of the most important factors behind money supply changes

Chart B. Macroeconomic factors of money developments Percentages of GDP



Jakab, M. Kumhof (2015). Banks are not intermediaries of loanable funds - and why this matters. Bank of England, Working Paper No 529

 For details, see: M. NcLeay, A. Radia, R. Thomas (2014). Money creation in the modern economy. Quarterly Bulletin, Bank of England.
 Z. Jakab, M. Kumhof (ibid.); T. Ramanauskas, J. Karmelavičius. Bank credit and money creation in a small DSGE model (forthcoming).
 V For details, see: T. Ramanauskas, S. Matkénaité, V. Rutkauskas (2018). Application of the integrated accounts framework for empirical investigation of the economic and financial cycle in Lithuania. Occasional Paper Series of the Bank of Lithuania, No 20.

. Ramanauskas, S. Matkenaite, V. Rutkauskas (2018). Credit and money creation from the integrated accounts perspective. Working Paper Series of the Bank of Lithuania, No 5

REAL ESTATE MARKET DEVELOPMENTS

In 2017 housing market activity proved itself to be rather fickle: in the beginning of the year it was the highest in the recent decade, whereas in the second half of the year it started to decline. In the first half of the year the seasonally adjusted number of housing deals has been the largest since 2008 (see Chart 17). Nevertheless, in the second half of the year it recorded a year-on-year decrease of 0.6% (in the first half of 2017, housing sales were 3.1% higher than in the respective period of 2016). Differences between housing markets in different regions started to emerge. The largest impact on the overall decline in the number of housing deals was made by the marked slowdown of trade in the Vilnius housing market, which is the largest in the country, where the number of housing deals was higher in the second half of 2017 (by 2.3%) than in the second half of 2016. According to the recent data of the Centre of Registers, in the first four months of 2018 housing sales in Lithuania were 1.7% lower than in the respective period of 2017, therefore, it is likely that in 2018 housing market activity will not change significantly.

Housing price changes in 2017 were closely related to the overall housing market activity – in the beginning of the year, housing prices had grown at two-digit rates, yet later price growth moderated (see Chart 18). According to the data of Statistics Lithuania, housing prices in Lithuania grew by 6.9% in 2017. As housing market activity trends across the country's regions varied, prices changed at different rates. Over the year, the prices of housing that was sold outside the capital saw the most significant increases: the prices of new housing in other regions of the country grew by 10.2% in 2017, whereas those of old construction housing rose by 9.4%. In Vilnius house prices grew at a slower pace: the annual increase in the prices of new construction and old construction housing amounted to 5.5% and 2.7% respectively. It is likely that in 2018 housing prices will only change insignificantly. This is indicated by moderate expectations of households, banks and real estate market participants. Econometric models also show that housing prices in Lithuania broadly correspond to the fair value of housing.

After housing demand growth slowed down, the number of housing units built declined. According to the data of Statistics Lithuania, in 2017 the construction of 11.0 thousand housing units was completed in Lithuania, which was 13.1% less than a year ago. The scale back in housing supply in the period under review was mainly determined by the decrease in the number of housing units completed in Vilnius (by 27.6%). In the remaining part of Lithuania, the number of housing units completed was almost the same in 2017 as in 2016 (2.0% less). Attention should be paid to the fact that the share of individual houses in the overall structure of housing grew significantly after the financial crisis (i.e. after 2009) (see Chart 19). With the construction of individual houses gaining traction, structural changes within this segment play an increasingly more important role in terms of the whole housing market.



Activity in Lithuania's housing market started to decline, however, it is still historically high Chart 17. Number of housing deals in Lithuania

Sources: Centre of Registers, Statistics Lithuania and Bank of Lithuania calculations.

Housing price growth also started to lose momentum

Chart 18. Annual growth of house prices according to different sources



Sources: Centre of Registers, Statistics Lithuania, UAB Ober-Haus and Bank of Lithuania calculations.

In 2017 the number of unsold new flats increased markedly in Vilnius and Kaunas. According to market participant data⁷, the number of unsold flats in these cities was 4.6 thousand and 0.8 thousand, respectively, at the end of 2017, a year-on-year increase of 12.6% and 16.9% respectively. If activity of buyers of new flats remained close to the level

prevailing at the end of 2017, real estate developers would sell the offered but not yet sold flats in Vilnius and Kaunas in 1.2 years and 1.6 years respectively (assuming that no new construction is started). Such liquidity of the new flats market in these cities was close to the long-term average. However, if the demand for new flats continued on its downward path and the supply remained unchanged or even increased, liquidity in the primary housing market would worsen noticeably. In such a case, real estate developers could reduce the prices of housing sold in order to sell the offered flats faster and avoid incurring additional costs related to housing maintenance and loan redemption.

In 2017 the impact of loans on the housing market was the largest in the recent decade. According to the data of the Centre of Registers, in 2017 40.3% of housing deals were made by mortgaging housing and using bank credits – the largest share since the very beginning of the financial crisis (2008) and larger than the long-term average of 37.0% (see Chart 20). Buyers in Vilnius and Klaipėda were the most avid users of housing loans – 55.2% and 55.0% of housing deals, respectively, were financed by bank loans. Judging from the value of housing deals, housing loans in Lithuania have been also playing an increasingly more prominent role. The value of all housing deals made in the country in 2017 amounted to \in 1.7 billion, while the value of new housing loans granted over the year stood at \in 1.2 billion or 69.8% of the total housing market turnover.







^{2001 2003 2005 2007 2009 2011 2013 2015 2017} Sources: Statistics Lithuania and Bank of Lithuania calculations. Note: 4-quarter moving averages are calculated.

Recent surveys show that moderate housing price growth and significant regional differences are expected in the coming years. During the survey of the Lithuanian households conducted by the Bank of Lithuania in the second half of 2017, the majority of respondents (23.1%) anticipated that housing prices will grow by up to 5% in the upcoming 12 months. However, banking and real estate market participants surveyed in 2018 did not expect such a level of growth – more than a half of respondents stated that the prices of new flats will remain unchanged in the coming years. Moreover, real estate market participants' assessments of the prospects of the most active housing markets – those of Vilnius and Kaunas – also differed. The majority of respondents expected both the number of new flat sale deals and the volume of their construction to decline in Vilnius in the upcoming 12 months. However, they believed that the new flat market in Kaunas will expand.

Overall housing rent prices in Lithuania increased insignificantly in 2017, however, different trends were observed in Vilnius. According to the data of Statistics Lithuania, housing rent prices in Lithuania grew by 2.3% in 2017 – the lowest growth rate in six years. Nevertheless, in the Vilnius housing rent market, which is the most active in Lithuania, the rent prices of older construction flats and flats located in the city centre slightly increased, whereas those of new flats located in residential areas – declined. According to market participant data⁸, the rent prices of new flats located in the residential areas of Vilnius were lower by 1.3–6.2% year on year in the first quarter of 2018. The prices of small flats slumped the most. It is likely that the decrease in the rent prices of new flats in Vilnius was determined by the noticeably larger supply of rented flats over the last few years: according to the data of the surveys of real estate market participants conducted in 2017, almost every third new flat in the capital was purchased for renting.

As reflected by the developments of the fundamental factors affecting the housing market and econometric modelling, in 2017 housing prices in Lithuania largely corresponded to the fair price of housing (see Chart 21). After

assessing the developments of wages, rent prices, construction costs, housing loans granted by banks and the population dynamics, it may be stated that house prices in Lithuania at the end of 2017 largely corresponded to the fair value of housing (which was based on macroeconomic and demographic factors).

In the nearest future Lithuania's real estate market may also be affected by tax incentives and measures supporting regional housing demand that are under consideration by the Government of the Republic of Lithuania. The Government proposal provides for a 0.3% tax levied on all housing units held by one natural person, with the exception of main housing. The main housing unit would be taxed in the same manner as before - starting from the total amount of €220 thousand and in line with the progressive tax approach. A universal progressive real estate tax applied by expanding the coverage of the taxed real estate objects would allow ensuring higher state budget revenue and a lower scale of the shadow economy, which are the main objectives of the Lithuanian tax system reform implemented by the Government. Administration of such tax would be noticeably simpler and there would be no possibilities to avoid it by distributing real estate objects owned among connected persons. Another measure considered by the Government in the beginning of 2018 - the financial incentive for young families that acquire their first housing outside the country's biggest cities - will not have a significant effect on the domestic housing market, if the foreseen volume of support is maintained.⁹ This measure (according to the Government's assessment, financial support could be rendered to around 0.5 thousand of young families each year) would boost regional housing market liquidity in the short term, which may significantly decline over several years due to the shrinking population in the country's regions. Recently Lithuania's housing loan portfolio has been growing quite rapidly, boasting a roughly 8% annual increase, whereas housing prices in 2017 rose by 6.9%, thus any additional increase in the amount of financial support could accelerate growth in housing prices.

It is likely that housing tax tariffs applied to the better part of the population as well as higher progressiveness could increase the expenses of persons that own large value real estate as well as costs incurred by investors that actively purchased housing for renting purposes. Larger expenses would reduce the attractiveness of housing as an investment alternative, thus part of investors could sell the housing that they own. Moreover, lower attractiveness of purchasing housing for renting purposes may reduce the overall housing demand, since such investment has made up a significant share of housing deals in recent years. If housing sold by investors significantly boosted housing supply and the number of housing buyers dropped, the supply pressure would exert a negative effect on housing prices. Nevertheless, in the long term a universal progressive real estate tax has more positive than negative sides to it: state budget revenue would grow, housing price volatility would decrease¹⁰, the management of the pool of buildings and constructions would become more effective and the scale of the shadow economy would contract (as it is more difficult to conceal housing than income). Also, a progressive real estate tax would not have negative social effects since in Lithuania higher-value housing is owned by a relatively small share of the population (see Chart 22).



Note: Estimates are calculated on the basis of the price-to-income ratio,

price-to-rent ratio, econometric model and HP filter.

Natural persons in Lithuania own relatively moderate-value housing





Sources: Centre of Registers and Bank of Lithuania calculations.

In 2017 the overall activity in Lithuania's commercial real estate market remained broadly unchanged; however, the number of investment deals concluded increased noticeably. According to the data of the Centre of Registers, the sales

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⁹ See the <u>official opinion</u> of the Bank of Lithuania on the draft Law on Financial Incentives for Young Families Acquiring First Housing. ¹⁰ Poghosyan T. (2016). Can property taxes reduce house price volatility? Evidence from U.S. regions. IMF Working Paper, No 16/216.

of non-residential and mixed-purpose real estate objects, which are mainly used for commercial activity, declined by 0.6% in 2017, compared to the previous year. Nevertheless, investors' willingness to acquire higher-value real estate objects peaked over the year: according to market participant data¹¹, in 2017 local and foreign investors invested €312.0 million in office, commercial, production and storage real estate objects whose value exceeds €1.5 million (which is 23.3% more than in 2016). The majority of such investments was made into commercial and office spaces (44.0% and 41.0% respectively), whereas 15.0% of investment transactions were concluded for production and storage premises. Investor activity in the Lithuanian commercial real estate market is likely to remain relatively high, supported by the sustainable and balanced development of the market – a relatively small number of unoccupied property and stable rent prices as well as attractive equity return when compared to other investment alternatives.

Box 3. Housing policy in Lithuania

Housing policy is an important part of social policy, covering government actions that directly or indirectly affect housing availability, quality and other housing-related aspects. Since housing policy is an important part of a welfare state, it is often considered in conjunction with welfare state models. Three housing policy models are distinguished: social-democratic, corporate and liberal.¹ The Lithuanian housing policy has the most in common with the latter.^{II} Relatively moderate government intervention in the Lithuanian housing sector is also reflected in legislation: housing policy guidelines were established only in 2004 when the Lithuanian Housing Strategy^{III} was adopted (this document became ineffective in 2017, yet the objectives laid therein are implemented through other strategic planning documents). Although the strategy envisaged that the Ministry of Environment would be responsible for the implementation of its priorities, housing policy where it is seen as a social activity formed by many institutions differs from the narrower view stating that social policy measures play the key role (see Chart A). Hence, the analysis of the impact of individual policy areas (social, fiscal, macroprudential, monetary policy, urban requirements) unveils a more comprehensive view of housing policy.





Source: Bank of Lithuania.

Note: The objective of the chart is not to provide the final list of institutions that contribute to housing policy formulation, but to present the key actors.

To affect housing availability directly, redistributive fiscal policy measures are usually invoked. In Lithuania, support is provided both for housing acquisition and rent. The provision of government-backed housing loans is linked to the household's income, whereas the amount of a subsidy depends on the number of children and other conditions and may comprise 10% or 20% of mortgage credit. Nevertheless, the volume of support provided for housing acquisition is relatively small. For example, the credit flow financed by government subsidies comprised 0.3% of the new housing loans in the first half of 2017 (subsidies amounted to $\in 0.2$ million). The situation could be changed by the Law on Financial Incentives for Young Families Acquiring First Housing^{IV}, which is currently under consideration and may become effective

from 1 July 2018; it would allow covering part of the credit amount with no requirement to conduct the household's income appraisal. Such measures lend support to housing demand and may exert an upward pressure on housing prices, reduce housing affordability and increase household indebtedness. To ensure the supply-demand balance in the market, it is also worth considering measures that reinforce supply. Moreover, financial incentives should not be discriminatory towards housing rent, therefore it is recommended to think how subsidies could be used by those who rent housing. ^V Currently, social housing rent is the most popular form of support – according to the data of 30 June 2017, it was used by 10,221 families. Another form of support is the compensation of part of housing rent or lease contributions, which is used by 256 families (according to the data of 30 June 2017). There were also other initiatives to increase housing availability, for example, a household income tax relief for those paying housing loan interest, which was applied from 2002 to 2008. The amount of interest paid over the year was deducted from taxable income, with certain exceptions; however, this prompted speculative transactions, which further accelerated housing price growth. Consecutively, the capabilities of lower-income residents to acquire housing declined, which contradicted the primary objective of the relief. This example shows that measures that are not well-discussed, evaluated and are directed only towards boosting housing demand may cause unwanted consequences.

In Lithuania, a number of tax instruments affecting the housing market are employed. For example, a new more progressive version of the real estate tax came into effect in 2018, replacing the former uniform tax of 0.5%, which was applied on real estate objects exceeding the untaxable value of €220 thousand. According to the new version of the law, the 0.5% tax shall be applied to real estate valued from €220 thousand to €300 thousand, 1% – to real estate valued from €300 thousand to €500 thousand, and 2% – to real estate with a value of more than €500 thousand. The tax is applied to the total value of real estate owned by natural persons, however, its effect is not limited to additional budget revenue. As the total value of real estate owned by natural persons is included when calculating the real estate tax, this tax also covers housing acquired for renting purposes (e.g. buy-to-let properties); therefore, the maintenance costs of such housing increase, effectively reducing return on investment. Housing market activity would be similarly affected by the 0.3% tax proposed by the Government, which would be applied to all housing units belonging to each natural person, with the exception of main housing. To achieve higher efficiency of the tax reform, however, the introduction of a universal progressive real estate tax should be considered. After expanding the coverage of taxable real estate objects, the government budget would see additional €118 million^{VI} collected, i.e. much more than the €11 million that would potentially be collected under the Government proposal. Housing market activity is also affected by the 15% income tax applied to profit on real estate sale (i.e. the differential between the sale income and acquisition price). This limits speculative transactions, since the tax provisions apply to sale profits that come from housing that was acquired or inherited less than 10 years ago or housing that was not the place of residence of the seller for the last 2 years. Housing owners also need to allocate additional funds to pay the 0.01-4% land tax to municipalities.

In order to prevent financial crises, imbalances in the housing market are reduced using various macroprudential measures. These measures are usually used to limit unsustainable household indebtedness or increase resilience of credit institutions. On the one hand, measures applicable to borrowers, for example, the LTV or DSTI requirements, reduce housing availability, since certain conditions have to be met to qualify for a housing loan. On the other hand, these measures may have a positive effect on housing availability, restricting excessive housing loan demand and putting a lid on housing price growth. With the tightening of capital requirements to credit institutions (e.g. increasing the CCyB rate) the loan price may rise, potentially leading to a decline in housing availability, albeit research results and the experience of other states show that this impact would be insignificant.

The most important monetary policy tool – the setting of the key interest rate – has a significant impact on the demand for new loans and the capability of repaying existing ones. The ECB's Governing Council, which includes the Chairman of the Board of the Bank of Lithuania, sets interest rates to maintain price stability. Interest rate changes transmit to the interbank market – banks take them into account when setting interest rates on loans granted to their customers. As interest rates fluctuate, their regular resetting may have a large impact on loan repayment costs. In addition, changing interest rates directly affect housing loan flows; therefore, they may also have an effect on real estate prices. For example, low interest rates prevailing in the euro area for quite some time have contributed to the rapid real estate price growth observed in Lithuania in recent years.

Housing availability is notably affected by housing maintenance and construction regulations. For example, to start the implementation of a new apartment block construction project, it is not enough to have or borrow sufficient capital; it is also necessary to obtain a permit and comply with other requirements for construction. Urban and regional expansion is planned in advance, so contractors cannot exceed height requirements and must comply with energy efficiency, environmental and parking requirements. Builders of individual houses may not build houses on lake shores and other protected territories or too close to roads as well as are not allowed to exceed fence height requirements. All these requirements make an impact on the construction process and determine additional costs. The facilitation of construction permit issuing processes is a structural measure having a long-term supply-increasing effect. Energy class also has a significant impact on housing prices and housing maintenance costs. From the start of the apartment block renovation programme in 2005, 479 houses were renovated in Lithuania by 2012. The breakthrough of renovation started in 2013, when the new apartment block modernisation model was adopted – almost 2 thousand apartment blocks have been renovated since then. After renovation, the value of housing increases by around 15–20% on average^{VII}, whereas heating costs become lower (which is considered to be the main advantage of renovation).

Pursuing macroprudential policy, the Bank of Lithuania aims to assess the impact of all housing policy areas, their interrelation and take optimum macroprudencial decisions. It is important to monitor housing policy as a whole instead of just its individual segments and assess how different types of regulation could affect the entire domestic housing sector.

¹ Countries with a social-democratic model of housing policy (e.g. Sweden) aim at providing quality housing for everyone and reducing housing-related inequality. In countries with a corporate housing policy model (e.g. Germany), the role of the state is less holistic and generous; non-governmental organisations (e.g. trade unions) have a rather important role in providing housing. In countries applying a liberal housing policy model (e.g. Lithuania), housing development, construction and consumption are regulated by the market. Lipnević A. (2012). Bisto politikos raida Lietuvoje. Societal Innovations for Global Growth 1(1), 835–848.

Resolution No 60 of Government of the Republic of Lithuania of 21 January 2004 on adopting the housing strategy of Lithuania.

V Draft Law No XIIIP-1833.

²See the <u>official position</u> of the Bank of Lithuania of 30 April 2018 on the tax and pension system reform.

^{VI} Bank of Lithuania position of 30 April 2018 on tax and pension system changes.

According to the data of VšĮ Būsto energijos taupymo agentūra.

II. RISKS TO THE FINANCIAL SYSTEM

Table 1. Main risks and challenges to Lithuania's financial system

Main risks to Lithuania's financial system				
Potential effect of imbalances in the Nordic countries and a snapback in risk premia on the risk appetite of banks operating in Lithuania			\Rightarrow	⇒
Rapid growth of credit and real estate markets in Lithuania			$\overline{\nabla}$	\Box
Challenges to Lithuania's financial system				
Cybersecurity threats to financial institutions			\Box	\Box
Risk assessment legend				
High systemic risk		Elevated probability of ris	k occurrence	\sim
Medium systemic risk		Unchanged probability of r	\Box	
Low systemic risk		Reduced probability of risk occurrence		

Note: The current risk level has been established on the basis of expert evaluation and certain quantitative indicators, taking into account the probability of risk occurrence and its potential systemic impact; the arrows show changes in the probability of risk occurrence since the publication of the 2017 Financial Stability Review.

POTENTIAL IMPACT OF IMBALANCES IN THE NORDIC COUNTRIES AND A SNAPBACK IN RISK PREMIA ON THE RISK APPETITE OF BANKS OPERATING IN LITHUANIA

Lithuania's financial sector is dominated by the Nordic banks, thus important structural risks remain associated with imbalances in these countries. Almost 90% of the Lithuanian banking sector's assets belong to the Nordic banks; therefore, a financial system stability or economic shock in the Nordic countries that would affect parent banks would, in turn, exert a negative impact on Lithuania's financial system.

Uncertainty in the Nordic housing markets, which have been growing particularly fast in recent years, is mounting; a significant drop in prices is also possible. The annual housing price growth rate in Sweden and Norway has been noticeably slowing down, whereas monthly data points to a drop in prices (see Chart 23). Although housing prices somewhat increased in the beginning of 2018, this was partially influenced by seasonal activity, which is characteristic to the beginning of each year; therefore more precise trends will mature only after the end of the first half of the year. It is likely that the macroprudential policy tools applied in Sweden will help subdue the rapid housing market growth, however, if the supply of new housing will continue to increase, the scenario of a more significant drop in prices may become increasingly more probable.

Household indebtedness in the Nordic countries, with the exception of Finland, remains one of the highest in Europe and is growing further. The experience of the recent economic recession showed that more indebted countries are more sensitive to unfavourable changes. The share of households that acquired housing using a housing loan in the Nordic countries comprises 40–60%. This significantly exceeds the EU average, which is around 25%. In these countries the debt redemption burden is becoming increasingly heavier for households, which could lead to solvency problems, the growth of non-performing loans in banks and related losses (see Chart 24). If Nordic economies grow slower than expected, the household debt burden may become even heavier due to the drop in oil prices (in Norway), foreign trade restrictions (in Sweden) or an increase in interest rates (e.g. in Sweden around 70% of interest rates on housing loans are fixed for a short term). Nevertheless, the latest forecasts show that economic expansion in Sweden and Norway will remain strong and may

even accelerate further. Moreover, Nordic households have accumulated significant reserves of financial assets, which might be used for reducing liabilities.

The Nordic banks finance a significant share of their activities in international financial markets; therefore, stronger sentiments regarding an increase in interest rates may determine significant growth in funding costs. At the end of 2017, the Nordic parent banks of banks operating in Lithuania financed one-third of their liabilities with debt securities or in other financial institutions (e.g. borrowed abroad for a short term), which became more attractive given the environment of low interest rates. Nonetheless, expectations of an increase in interest rates in financial markets are already growing stronger and some key global central banks are implementing or intend to implement restrictive monetary policy, therefore, the probability of a rise in funding costs of parent banks is also increasing.

Housing price growth deceleration in Sweden was influenced by the larger supply of new housing

Chart 23. Housing prices, supply and household indebtedness in Sweden



Sources: Valueguard, Statistics Sweden and Bank of Lithuania calculations.

The financial health of credit institutions in Sweden is sustainable, whereas the portfolio of loans to households is growing at a slower pace

Chart 24. Annual growth of the portfolio of MFI loans to nonfinancial corporations and households and the portfolio of nonperforming loans



Sources: Statistics Sweden and Bank of Lithuania calculations.

There are three channels through which the risks associated to imbalances in the Nordic countries could materialise in Lithuania: credit reduction, the poorer liquidity situation and higher volatility of deposits in Lithuania. If Sweden or other Nordic countries face economic or financial stability problems, parent banks, owing to lower risk appetite, could reduce the credit supply in Lithuania and other Baltic States or even abandon their business in the region altogether. The financial leverage (debt-to-equity ratio) of Swedish banks is currently one of the worst among the EU countries, therefore, when facing difficulties and incurring even small losses, some parent banks may be forced to attract additional capital or reduce their riskier positions. As a result, lending in Lithuania may contract markedly. Quantitative assessments of the Bank of Lithuania indicate that a 1% decrease in credit may determine a 0.3% GDP decline. Moreover, information about potential losses of parent banks would reduce confidence in banks operating in Lithuania and, in turn, part of residents would most likely withdraw their savings. To reduce the consequences of higher volatility of deposits, banks would be forced to borrow from parent banks or raise interest rates paid on deposits attracted in the domestic market. Due to higher business financing costs and seeking to maintain profitability, banks operating in Lithuania would be forced to increase interest rates on loans. Consequently, loans would become less attractive due to their rising price, whereas part of investment projects would be abandoned, ultimately leading to the deceleration of economic growth.

The strong financial situation of parent banks in the Nordic countries, actively applied macroprudential policy measures and lower direct interconnectedness with banks in Lithuania reduce potential adverse effects of the risk arising from the Nordic region. Macroprudential policy authorities in the Nordic countries have been actively applying macroprudential policy tools directed at reducing the growing imbalances in the real estate market and private sector indebtedness. The 2017 adjustment in the real estate market¹² is partially related to the application of risk mitigating measures directed at borrowers. Foreign financial liabilities of the Lithuanian banks remain higher than foreign assets, however, this gap is significantly smaller than recorded previously. For example, net liabilities of banks operating in Lithuania to parent banks amounted to €3.7 billion in 2014, whereas in 2017 they declined to €2.6 billion. The loan-to-deposit ratio of

¹² For example, the number of housing deals in the second half of the year was 0.8% lower year on year (in the first half of 2017, housing sales were 2.8% higher than in the respective period of 2016).

banks operating in Lithuania fluctuates around 100%, which does not indicate a need to attract additional external business financing sources.

RAPID GROWTH IN CREDIT AND REAL ESTATE MARKETS

Credit institutions have been granting more housing loans, however, housing market activity is not rising, which may increase the risk assumed by credit institutions and make the housing market even more dependent on the change of credit terms. With domestic economic growth gaining momentum, in recent years the amount of new loans granted by banks was also expanding at a rapid pace: in 2016 and 2017 banks increased the amount of new loans to non-financial corporations and households, on average, by an annual one-fifth (19.5%). The historically high activity in the real estate market was underpinned by favourable lending conditions, the improvement in the financial situation of households and firms as well as upbeat confidence indicators. Such conditions may potentially lead to unfounded housing price developments and excessive risk assumed by credit institutions. 2017 marked the third consecutive year when the amount of new housing loans grew faster than housing prices and the turnover of housing deals, thus the role of banks in the real estate market became more prominent (see *Real Estate Market Developments* in Chapter I of this review). Moreover, there are increasing more signs that after several years of high market activity housing demand may decline.

The supply and demand mismatch may also significantly contribute to the formation of housing market imbalances and a drop in prices. According to market participant data¹³, in 2017 the number of completed but not yet sold flats more than doubled in Vilnius (112%). Moreover, in the Bank Lending Survey organised by the Bank of Lithuania at the end of 2017, more than a half of banks indicated that they notice imbalances in Lithuania's real estate market, whereas the majority of respondents stated that imbalances are related to housing supply. It is likely that housing supply will not decline in the nearest future – this is reflected by the higher number of flat construction permits and the real estate market participants' forecasts. If housing market activity growth subsides, the rising supply will increase the number of unsold housing even more, whereas real estate developers may start to reduce housing prices.





As the demographic situation in the country continues to deteriorate, in the coming years the number of first-time buyers and renters in Lithuania may housing significantly decline. For several consecutive years the population aged 25-35 comprised the bulk of borrowers receiving new housing loans (around 50%). Young persons that do not yet own housing constitute a significant share of demand for rental housing offered by investors. According to the data of Statistics Lithuania, in the beginning of 2018 the number of young people - a key group of housing buyers in Lithuania - has declined for the second consecutive year, whereas the European Commission's forecasts indicate that the number of young people in Lithuania will continue on its downward path (see Chart 25). If housing demand does not grow, possibilities to earn acceptable return on housing investment will contract, therefore, investors, which also comprised a significant share of all housing buyers in 2017, may start to search for other investment opportunities and allocate funds elsewhere.

If the deteriorating demographic situation, increasing housing supply and changing investor priorities caused a sudden drop in housing demand and prices, the stability of the financial system as a whole would be noticeably affected. First of all, if the number of new flats sold and their prices fell, real estate development companies (especially those that implemented large-scale housing projects or those that were excessively indebted to credit institutions) would suffer losses. Recently there were more signs that real estate development companies in the Vilnius housing market, which is the largest in Lithuania, developed increasingly larger scale housing projects. According to market participant data¹⁴, the average number of flats built under one residential real estate project in 2011–2017 increased from 51 to 86, reaching the level observed in 2005. A larger number of flats under one project was built only in 2006–2009, a period that was characterised by high activity in real estate and credit markets. If housing demand and prices fall and real estate

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¹³ UAB Eika. ¹⁴ UAB OBER-Haus

development companies experience difficulties in selling the flats built, companies may encounter solvency problems and banks that had granted them loans may suffer losses. Although in recent years the share of loans granted to construction and real estate development companies in the portfolio of corporate loans has declined, they accounted for around one-third (31.0%) of total corporate loans granted by banks operating in Lithuania at the end of 2017. Waning housing demand would lead to a fall in housing rent income, therefore, investors might be forced to sell their housing, thus accelerating the drop in housing prices even further. If housing for rent was acquired for borrowed funds, rent income earned by investors may be insufficient to cover loan redemption expenses. So if such investors became insolvent, banks that had granted them loans would also suffer losses as they would take over impaired and illiquid collateral. Households that acquired housing as their place of residence and not as an investment would be less affected by the drop in housing prices. Nevertheless, owing to their lower income or higher interest rates, a housing loan may become a heavy financial burden, especially if the loan was taken without considering the sustainability of the household financial health.

After assessing macroeconomic factors, it may be stated that the financial cycle in Lithuania has already reached its active expansion phase. Given that the financial cycle reached the active expansion phase (see Chart 27) and activity in credit and real estate markets remains historically high, the systemic risk of unsustainable development in credit and real estate markets may arise. Therefore, the Bank of Lithuania is closely monitoring the situation in those markets and applies macroprudential tools to ensure financial system resilience to potential economic shocks. At the end of 2017, taking into consideration real estate and credit market developments, for the first time ever the Bank of Lithuania established an additional 0.5% CCyB rate for the capital of financial institutions (see Financial System Strengthening in Chapter III of this review). This decision was the first step towards ensuring that a 1% rate is applied in the current financial cycle expansion phase. As real estate and credit markets remained active in the first half of 2018 and the economic and financial upturn is prevailing, this year the CCyB rate might be increased to 1%.





The financial cycle in Lithuania has reached its active expansion phase



Chart 27. Financial cycle in Lithuania and its components

CHALLENGES TO THE FINANCIAL SYSTEM

CYBERSECURITY THREATS TO FINANCIAL INSTITUTIONS

The need to ensure cybersecurity and the potential damage caused by cyber attacks remain an important challenge to Lithuania's financial system. In 2017, as compared to 2016, the number of e-communication incidents recorded in Lithuania increased by 10% (see Chart 28). The average number of incidents recorded over the quarter in 2017 made up 13.6 thousand. In the opinion of financial market participants, the risk posed by cybercrimes is the most important systemic risk. According to the Global Cybersecurity Index¹⁵, Lithuania ranks 56th among 164 countries in the world and 24th among the 28 EU Member States (see Chart 29). When overviewing the most important global risks for 2018, the World Economic Forum included the cyberattack risk, as well as data fraud and theft risks, in the list of five most probable risks. As indicated by the Global Risks Perception Survey, the cybercrime risk is one of the 10 risks that may have the largest impact on

¹⁵ When calculating the global cybersecurity index, a country survey is conducted, during which the country's cybersecurity progress is assessed. The objective of the calculation of this index is to cultivate the cybersecurity culture and its implementation in IT and telecommunications. Each country's progress is assessed in five categories. Lithuania received the poorest assessments in the fields of competence development as well as communication with other institutions and countries.

financial stability. According to the <u>assessment</u> of the Center of Strategic and International Studies, the global losses caused by cybercrimes in 2017 amounted to USD 445–600 billion.

FinTech development increases possibilities for launching cyberattacks. On the global scale, cyberattacks directed at payment services were 105% more frequent in 2017 than in 2015.¹⁶ This increase was largely determined by the fact that cybercriminals directed attacks at FinTech platforms and alternative borrowing models. Forecasts that in 2017 around half of all global payments will be made using mobile phones have materialised: according to the latest <u>Threatmetrix data</u>, in 2017 52% of payments were made using mobile phones. According to the <u>data</u> of the survey conducted in Lithuania in September 2017, mobile apps created by credit institutions were used by 19% of respondents that had a bank account. The number of non-cash payments in Lithuania increased by 8% in 2017, whereas the number of cross-border payments made in the country grew by 38%.

The number of cyber incidents is growing, although at a slower pace Chart 28. E-communication incidents recorded in Lithuania







Sources: Communications Regulatory Authority of the Republic of Lithuania and Bank of Lihuania calculations.

Note: Device security gap statistics have been published since 2014.

Source: International Communication Association.

The Bank of Lithuania was the first institution in the euro area to conduct unprecedented cyber exercises. In 2017 the Bank of Lithuania was the first institution in the euro area that conducted cyber exercises at its own expense and using its own resources; during the exercises it investigated the resilience of financial market participants - mostly banks - to cyber attacks. Imitating various cyberattack scenarios, the Bank of Lithuania assessed infrastructure protection as well as checked cyber risk management procedures and compliance with them. The exercises showed that Lithuania's financial system is overall ready to withstand cyber threats, yet some areas still need improvement. The Bank of Lithuania will continue to perform regular cyber risk testing and consult financial market participants on ways to better prepare for cyber attacks. Two years ago, the Bank of Lithuania started cooperation with the National Electronic Communications Networks and Information Security Incident Response Team of the Communications Regulatory Authority of the Republic of Lithuania (CERT-LT). This prompted exchange of information between the two institutions: the Bank of Lithuania received summarised data on incidents encountered by Lithuania's financial system participants, whereas CERT-LT was transferred systematic information about financial institutions and contact details of officials to be reached in case of an incident. Around a seven-fold decline in the number of incidents at financial institutions was recorded since the start of the bilateral cooperation (this could be determined by faster response to notifications and due attention of financial institutions to cybersecurity). On 2 May 2018, the ECB announced the launch of TIBER-EU (Threat Intelligence-based Ethical Red Teaming). It is the first EU-wide framework for controlled and bespoke tests against cyber attacks in the financial market. To withstand the emerging cyber threats, the changes that were started should be continued both at the level of financial market participants and on the national and global scale.

Box 4. Virtual currency and its links to financial stability

What is virtual currency? The European Banking Authority <u>defines</u> virtual currency as unregulated digital money, which may be used as a means of payment, but is issued into circulation and guaranteed by an institution other than the central bank. It should be noted that disappearance or depreciation of virtual currency are also ungoverned processes. According to the Financial Stability Board, virtual currency is a digital expression of value created by software developers and usually

¹⁶ https://www.threatmetrix.com/info/2017-cybercrime-year-in-review

denominated in accounting units of the developers themselves. Recently bitcoin laid the foundation for decentralised peer-to-peer currencies that are based on blockchain technology. This means that all information about operations is stored in blocks, which in turn are connected to the so-called blockchain. Decentralised virtual currency allows system participants to transfer funds or access information stored within the system without any third-party (such as financial institution, government, etc.) mediation.

Virtual currency usage. Virtual currency is mainly aimed towards: (a) direct fast real-time transfers, which may be executed across the globe (e.g. the Ripple blockchain technology platform is even used by some banks, such as Unicredit, UBS or the Canadian Imperial Bank of Commerce); (b) paying for goods and services purchased from retailers, in restaurants and other points of sale; (c) paying for online computer games or other online services. Virtual currency may be purchased in digital currency exchanges for traditional currency. It is held in a personal virtual currency account, also known as a digital wallet. Using the wallet, users may make online transfers of digital currency to anyone who also has a digital wallet or convert it back to real currency.

Breadth of virtual currency. According to the data provided by Coinmarketcap for February 2018, the market has around 1,500 types of virtual currencies, which have the total capitalisation of USD 448 billion (see Chart A) or less than 1% of the total global money stock. The most popular virtual currency is bitcoin, which covers as much as 41% of the total virtual currency market.

The rising number of virtual currencies increases the risk to financial system stability



Chart A. Number and capitalisation of virtual currencies



Chart B. Risks

Risks to consumers	Risks to financial stability
 Usage or exchange restrictions Theft Possibility of losing funds if the password is forgotten or lost 	 Drop in market expectations due to the contagion effect The rising number of virtual currencies increases the risk to the financial system as a whole The exchange rate of virtual currency against real currencies is extremely volatile

What risks to financial stability and consumersmay be posed by virtual currency¹ (see Chart B)?

- Market risk. The virtual currency exchange rate is highly volatile compared to the exchange rates of traditional currencies. Thus if the volume of and investment in digital currency continued to expand, investors could potentially incur large losses, which would affect their expectations. Consequently, investors would also want to withdraw investment from other institutions, such as investment funds.
- Risk of loss of investment in ICOs. Corporate confidence in financing via ICOs, when financing is attracted by selling coins for virtual or real currency, is rising. Virtual currency covers an increasingly larger share of the financial system. Like virtual currency, public virtual currency coin offerings are not supervised or regulated by the authorities; therefore there is a risk that all funds invested in virtual currency coin offerings may be lost. This could also negatively affect the sentiment in traditional markets.
- Risk of money laundering or other criminal activity. Transfers of funds carried out in virtual currency are public, however, senders and receivers of these funds are often unknown. Such transactions ensure a high level of anonymity for virtual currency users so they are almost impossible to track. Hence virtual currency networks may be used for transactions related to criminal activity, including money laundering. Misuse of virtual currency may ultimately harm the consumer since law enforcement authorities may decide to close a virtual currency exchange and prevent the withdrawal or usage of available funds.
- Risk of hacking and account usage restrictions. The reversal of illegal or incorrect debit withdrawals from the digital wallet is usually impossible. Digital wallets are encrypted and have public and private passwords, which may be used to connect to them, however, this does not protect against potential hacking. Similarly to a usual wallet, money from a digital wallet may be stolen, with no possibility to recover it. This is an important risk to consumers. Moreover, if the password of a digital wallet is forgotten, virtual currency held in the wallet may be lost.

Liquidity risk. Money is converted to virtual currency both by natural persons and financial institutions; however, it is impossible to ensure that the conversion of virtual currency to real currency is as easy as the conversion of money paid to a bank or transferred to a regular payment account. Moreover, virtual currency users face the risk that the providers of virtual currency services might go bankrupt.

Is virtual currency already posing risk to financial stability? Since virtual currency is not wide-spread, for now this asset class does not pose high risk to financial stability. On the contrary, virtual currency has some advantages: this instrument may facilitate the execution of electronic transfers, which might be beneficial to e-trade and increase financial inclusion in regions where confidence in existing monetary policy instruments is lacking.

The Bank of Lithuania published its position, which states that financial service provision should be separated from activities associated with virtual currencies. Banks, payment institutions and other financial market participants should not provide services related to virtual currency or participate in its issue. Financial market participants, which provide financial services to customers that distribute digital currency or are otherwise associated with it, will need to ensure strict compliance with money laundering and terrorist financing prevention requirements. The Bank of Lithuania also provided its position regarding ICOs, a way of attracting money that recently has been rapidly gaining traction. This activity is unregulated, whereas such risks as the loss of investor funds are particularly high. Moreover, in certain cases ICOs should be subject to the requirements and restrictions established in certain laws related to investment. For example, when virtual currency coins have characteristics of securities, it should be mandatory to prepare a prospectus and get it approved by the supervisory authority; other requirements of the Law on Securities should be also applied.

ⁱ http://www.fsb.org/wp-content/uploads/r270617.pdf

STRESS TESTING

BANK SOLVENCY TESTING

The main purpose of bank solvency stress testing is to assess changes in the capital adequacy ratios of the domestic banking system and its constituent banks¹⁷ in the event of adverse economic shocks. It should be noted that the results obtained through stress testing are not a forecast. On the contrary, they represent an analysis of highly unlikely events, thus the conclusions presented are conditional.

The stress testing was performed under an adverse scenario, which takes into account business, real estate market and credit cycles (see Chart 30). The main assumptions underlying this scenario were as follows: 1) a slump in real estate prices (21.8% in 2018 and 5.8% in 2019); 2) a decline in domestic demand (4.5% in 2018) and exports to foreign markets (6.5% in 2018). As a result, the real GDP of Lithuania would reduce by 5.7% in 2018 and by 0.1% in 2019. The key macroeconomic indicators and their evolution under the stress test scenarios are presented in Table 2.



Evolution of the key macroeconomic indicators under stress test scenarios

Chart 30. Developments of Lithuania's real GDP under stress test scenarios and during economic recession



Table 2. Percentage changes of indicators

	Actual indicator	Baseline scenario**		Adverse scenario	
	2017*	2018	2019	2018	2019
GDP (at constant prices; annual change)	3.9	3.2	2.7	-5.7	-0.1
Exports of goods and services (at constant prices; annual change)	11.0	5.7	4.6	-6.5	2.8
Private consumption expenditure (at constant prices; annual change)	4.2	3.7	3.5	-4.5	-0.6
Unemployment rate (annual average, compared to labour force)	7.1	6.7	6.6	8.9	9.8
Wage compensation per employee (annual change)	8.5	6.7	6.0	-5.4	0.4
Average annual inflation measured by HICP	3.7	2.7	2.2	2.2	1.9
Housing price index (annual change)	8.5	4.2	4.7	-21.8	-5.8

Sources: Statistics Lithuania and Bank of Lithuania calculations.

*Forecast of the Bank of Lithuania of 19 March 2017.

**The baseline scenario has been compiled using the official macroeconomic projections published by the Bank of Lithuania in December 2017. The scenario is used to assess sustainability of bank operation in the case of the most probable economic development.

¹⁷ The following banks were assessed: AB SEB bankas, Luminor Bank AB, AB Šiaulių bankas, AB Citadele bankas, Swedbank, AB, and UAB Medicinos bankas.

Stress testing results show that the banking sector, as a whole, remains resilient to economic shocks. In the adverse scenario:

- Bank credit losses would amount to €835 million in 2018–2019 or 5.0% of the total loan portfolio at the end of 2017.
- The weighted capital adequacy ratio would decline to 16.7% over the testing period (the difference from the baseline scenario is -4.1 percentage points) (see Chart 31).
- One bank would fail to meet the capital adequacy requirement (see Chart 32). This bank would need approximately €3.0 million in fresh capital in order to comply with the minimum capital adequacy ratio. Compared to the size of the banking sector, the capital shortfall identified during the stress test is not significant enough to pose risk to the sector's stability.

The banking sector remains resilient to economic shocks Chart 31. Banking sector's capital adequacy ratio by scenario









Bank liquidity stress testing involves the analysis of short-term liquidity shocks, which would trigger a fall in the value of liquid bank assets, a larger than usual deposit withdrawal and a decline in the cash inflows of banks. The banking sector is resilient to short-term liquidity shocks; however, the resilience of one bank is lower.

- In January 2018 the sector's actual LCR was 270%¹⁸, yet in a more adverse scenario it would fall to 170%, thus the banking sector would outperform the 100% liquidity coverage requirement with a margin.
- Nevertheless, the LCR of one bank would decline to 98%. Although the quality of its liquid assets is good, its liquidity buffer is not particularly large, whereas the overall sensitivity of liabilities to shocks is higher than the sector's average.

¹⁸ The LCR is calculated as the ratio of liquid assets to net cash outflow. The LCR of banks operating in Lithuania is relatively high since the structures of bank liabilities and inflows are relatively stable. It should be noted that the largest share of liabilities of banks operating in Lithuania consists of corporate and household deposits, which are considered to be stable liabilities.

Should the adverse scenario materialise, one bank would fail to comply with the LCR

The banking sector would be able to cover the 28% decline in deposits with liquid assets, however, some banks have slightly smaller reserves

Chart 34. Decline of deposits that banks would be capable to withstand



Chart 33. Bank liquidity stress testing results

Overall, banks would be able to cover the 28% decrease in deposits with liquid assets, however, the liquidity situation of banks differs.

- Individual banks would be able to cover a decline in deposits of 22–45%.
- The largest decline of deposits in the banking sector over one month amounted to 6.2%. It occurred in October 2018, when depositors started to have doubts regarding the activity sustainability of one Swedish bank. The largest unexpected decline of deposits over one month in an individual bank (28.7%) was registered in November 2008 in AB Parex bankas (currently AB Citadele bankas), when its parent bank encountered difficulties, thus the Government of Latvia had to provide support.
- If banks faced liquidity shortfalls, only a small part of their assets could be easily and rapidly pledged as collateral to the Bank of Lithuania. For example, the process of pledging corporate or household loans could take longer than a month due to various operational hurdles (it would be necessary to assess a large amount of loans, etc.). According to preliminary assessments, currently only around 6% of total assets of banks operating in Lithuania could be easily pledged as collateral to the Bank of Lithuania.¹⁹ On the other hand, as long as banks have a sizeable liquidity buffer, the relatively small amount of assets that could be pledged to the central bank as collateral does not constitute a large liquidity risk management problem.

III. FINANCIAL SYSTEM STRENGTHENING

The good shape of the economic and financial sector in 2017 created conditions to strengthen resilience of the financial sector, therefore, on 20 December 2017 the Board of the Bank of Lithuania adopted a decision to increase the CCyB rate to 0.5%, with an objective of gradually raising it to 1% provided that cyclical systemic risk remains at a moderate level. In Lithuania the decision to apply a positive rate was taken for the first time since this instrument was first applied. It is foreseen that the established rate will become effective on 31 December 2018.²⁰ The CCyB could be used for covering potential bank losses in case of a more significant shock to the economy or financial system or during the slowdown of the economic or financial cycle. The decision to increase the CCyB rate was made taking into account the high profitability of banks (see *Banking Sector Developments* in Chapter I of this review), active real estate and credit markets (see *Credit Developments* and *Real Estate Market Developments* in Chapter I of this review) and economic growth that is close to its potential. These conditions allow banks to accumulate capital relatively easy and cheap. In the absence of excessive imbalances of cyclical nature and under the said favourable conditions, the Bank of Lithuania seeks to ensure that credit institutions operating in Lithuania accumulate a 1% CCyB (see Chart 35). Thus, if the economic situation, real estate and credit market trends and the banking sector's health do not change significantly, the CCyB rate may be increased to 1%

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¹⁹ On average, this indicator reaches around 15% in euro area countries.

²⁰ Countercyclical capital buffer. Background material for the decision.

in 2018.²¹ Last year there was no need to change the rates of other instruments (see Table 3); the RLR measures, although unchanged, have a restrictive effect on lending to households for house purchase and contribute to a more sustainable development of lending (see Box 5).

Under a moderate cyclical risk level, it is sought to ensure that credit institutions accumulate a CCyB rate of around 1% Chart 35. Demonstration of the CCyB rate setting



Last year, there was no need to change the rates of most macroprudential policy instruments

Table 3. Main macroprudential policy instruments applied in Lithuania

Instrument	Effective date of the decision on the instrument size			
Capital buffers of banks*				
CCyB rate (0.5%; 0% until 30 December 2018)	31 December 2018			
Other systemically important institutions buffer (0.5–2%)	31 December 2016			
Capital conservation buffer (2.5%)	30 June 2015			
RLR requirements				
(restrictions applied when granting real estate-related credits**)				
Maximum DSTI ratio (40%; 50% with a 5% interest rate; 60% in exceptional cases)	1 November 2015			
Maximum loan maturity (30 years)	1 November 2015			
Maximum LTV ratio (85%)	1 November 2011			

Source: Bank of Lithuania.

*Applied to banks and central credit unions. **Applied to credit institutions granting housing loans until 30 June 2017.

Box 5. Impact assessment of the Responsible Lending Regulations on credit and real estate markets

Since 2011, credit institutions have been obligated to observe the borrower-based requirements that were enlisted in the RLR^I, whose main objective is to encourage responsible lending practices. On the back of an increase in credit demand, the lending requirements established in the RLR are aimed to reduce the extremely fast changes in the housing loan portfolio and residential real estate prices as well as protect borrowers from assuming an excessive burden of financial obligations. The RLR adopted in 2011 established the maximum allowed limits of the LTV and DSTI ratios – 85% and 40% respectively – and the maximum loan maturity of 40 years. With the goal to affect as fewer borrowers as possible, the requirements drew on international responsible lending practices as well as took into consideration housing loan granting terms and residential real estate market conditions prevailing during the financial recession observed at that time (in 2011). In addition, the requirements had to act as a sufficient safeguard in case of faster growth in credit and real estate markets. On 1 November 2015, in light of the changes in market conditions and the prevailing particularly low interest rates, the RLR were amended^{III}. Credit institutions were not only obligated to apply a maximum DSTI of 40%, but also had to ensure that this ratio would not exceed 50% when an annual interest rate of 5% was used for calculating interest contributions. In order to protect borrowers from assuming excessive financial obligations and taking into account the experience of other countries when applying stricter limits for maximum loan maturity, the latter was limited to 30 years.

Consultations on the new regulation process with market participants took around 6 months prior to the 2-month transition period, which was anticipated after the adoption of the RLR; hence housing credit growth accelerated only in the third quarter of 2011 (see Chart A). The anticipated entry into force of the RLR encouraged market participants to apply for a mortgage earlier than they originally intended (i.e. prior to the adoption of the RLR). However, such an increase in market activity did not have a significant effect on the value of transactions or the overall housing loan portfolio growth in 2011. The housing loan portfolio decline that started in 2010 (around 1%, compared to the previous year) halted just for a short period and comprised 0.6% in 2011, whereas in 2012 the portfolio decline rate once again reached 1%.

²¹ The CCyB rate is reviewed on a quarterly basis (in March, June, September and December).



Shortly after the entry into force of the RLR, the new loan maturity and LTV indicators started to stabilise within the established limits. After establishing the maximum LTV limit, the earlier share of loans whose LTV ratio was up to 80% remained unchanged - it still comprised around 50% of all newly-issued loans (see Chart B). However, after the RLR came into effect, the share of borrowers that issued loans with an LTV ratio close to the maximum limit increased. This is evidenced by the 80-85% increase in the LTV ratio. The share of persons borrowing for the period of 25-30 years grew as well (see Chart C). The larger share of loans with indicators (LTV and maximum loan maturity) close to the maximum limits indicates the importance of the new lending standards - market participants started to apply the RLR requirements as safe lending environment standards. However, the share of income dedicated to housing loan redemption did not concentrate near the maximum limit - the share of loans with the DSTI of more than 20% had started to decline long before the adoption of the RLR. According to the data of the first two quarters of 2017, such loans comprised only around 15% of total

loans, approximately 6 percentage points less than in the first quarter of 2011.

Setting of the LTV limit, a macroprudential policy instrument that was adopted at the end of 2011, did not have a significant impact neither on household credit and real estate markets nor economic activity in the short term. The quantitative assessment of the LTV ratio^{III} indicated that, in the absence of such instrument, credit granted to households would have increased by around 1% (roughly €80 million) at the end of 2014 (3 years after the instrument came into force), whereas in 2012–2014 the growth rate of the housing loan portfolio would have been, on average, 0.3 percentage point higher. It is likely that this would have determined a 0.4 percentage point rise in real estate prices. It should be noted that the impact of the borrower-oriented instruments is highly dependent on the financial cycle phase prevailing at that time. For example, data on the distribution of housing rent and the change in age of persons borrowing for house purchase^{IV} indicates that, given the spur in demand over the medium term, the LTV ratio requirement could have had an impact on some borrowers, especially the younger ones. Moreover, currently around 50% of loans are granted by applying the LTV ratio that exceeds 80%, therefore, it could not be stated that if the LTV ratio was now^V tightened, the impact on lending would be insignificant.

After the RLR came into force , the share of loans with the LTV ratio close to 85% increased

Chart B. Distribution of newly-issued loans by LTV ratio



refinanced loans and individual loans for housing construction that are paid in instalments, after setting the LTV limit. The loan value in the database is equal to the amount planned to be paid, whereas the collateral value is updated after the end of a specific construction stage. After the entry into force of the RLR and their amendments, the maturity indicators of newly-issued loans concentrated within the limits established by the regulations

Chart C. Distribution of newly-issued loans by loan maturity



Changes in housing credit and residential real estate markets that took place after the adoption of the RLR and their later amendments matched the expectations that were present before taking these macroprudential policy decisions. During the adoption of the RLR, borrower-oriented instruments did not have a marked restrictive impact on borrowers due to the cautious approach to risk assumed that prevailed during the recession. Although housing credit growth accelerated after the announcement of the planned introduction of the RLR, this was only a shift of borrowing decisions to an earlier date, therefore, the amount of credit granted over the year was not affected. Later, when credit and real estate markets recovered, the instruments established by the RLR started to limit the degree of allowed risk assumption – this is evidenced by the loan maturity and LTV indicators of the newly-issued loans that started to stabilise within the established safe limits. In this way, the macroprudential requirements established by the RLR ensure sufficient protection of credit institutions and borrowers, reducing the probability of excessively fast credit and residential real estate price growth.

^{IV} Markevičius J. (2016). Recent trends in the development of the Lithuanian housing market. Monetary Studies, No 1. ^V I.e. when the financial cycle entered the expansion phase.

Since AB DNB bankas and Nordea merged into Luminor Bank AB in 2017, during the annual update of the buffer requirements for other systemically important institutions the new bank substituted AB DNB bankas in the list of systemically important institutions.²² There were no other changes in the list of systemically important institutions in Lithuania – it still contains the four largest banks in the country: AB SEB bankas, Swedbank, AB, and Luminor Bank AB are required to hold a 2.0% additional capital buffer, whereas AB Šiaulių bankas has to maintain an additional capital buffer of 0.5%. The banks have already accumulated the said reserves in line with the decision on other systemically important institutions buffer adopted last year.²³ Attention should be paid to the fact that the EU is considering to increase the upper limit of other systemically important institutions buffer (currently it comprises 2%). As shown by the ESRB analysis²⁴, an additional capital buffer of 2% may be insufficient (especially in highly concentrated financial systems) to account for a credit institution's weight in the country's financial system.

The credit union sector reform, which was successfully completed last year, also contributed to the strengthening of the financial system. 2017 was a transitional period, when credit unions had to prepare for operation in the reformed sector. They had to choose whether to continue operation as cooperative financial institutions uniting a certain community and join (or remain joined with) a central credit union group or to reorganise their activity and operate as banks. Moreover, throughout 2017 institutions in this sector had to accumulate sufficient sustainable capital reserves. Two central credit union groups have been operating in Lithuania since 1 January 2018: the Lithuanian Central Credit Union, which maintains the core of the former central credit union and unites 50 credit unions, and the newly-established United Central Credit Union, which has a membership of 11 credit unions. Both of these credit union groups have sufficient sustainable capital and may ensure solvency of their members.²⁵ In addition, five credit unions (Mano unija, LTL, Saulègrąža, Ratas, and Taupa) were allowed to start reorganising into specialised banks. Although that does not mean that these credit unions will automatically become specialised banks, the road is open for them to reorient their activity in such a way that would ensure compliance with all requirements set for banks and ultimately obtain a specialised bank licence.

Since mid-2017, the Bank of Lithuania automatically recognises the ESRB-recommended macroprudential policy instruments applied by other EU Member States.²⁶ The decision of the Board of the Bank of Lithuania of 28 June 2017 adopted a set of rules (framework)²⁷ for the reciprocation of other EU countries' macroprudential policy tools in Lithuania, under which the ESRB-recommended tools will be applied, without any exceptions or adopting additional legal acts, within three months after the publication of the recommendation to recognise a specific instrument in the Official Journal of the European Union. These rules ensure the effectiveness of national macroprudential policy instruments and a level playing field for all EU credit institutions, i.e. it would not matter if loans were granted by a domestic bank, foreign bank branch located in the country or directly by a foreign bank.²⁸ The rules have already been applied in practice by recognising the lower limits of risk weights for residential mortgage loans in Finland.²⁹ This means that when lending to households with a mortgage on housing units located in Finland, banks established in Lithuania that use the internal ratings-based approach for calculating capital requirements need to comply with the same average floor requirement for risk weights (15%) as the Finnish banks.

¹ Resolution No 03-144 of the Board of the Bank of Lithuania of 1 September 2011 on the Responsible Lending Regulations. ^{II} Resolution No 03-90 of the Board of the Bank of Lithuania of 28 May 2015 on amending Resolution No 03-144 of the Board of the Bank of Lithuania of 1 September 2011 on the Responsible Lending Regulations.

Responsible Lending Regulations. Responsible Lending Regulations. The assessment is performed in two stages. First, by making certain assumptions about LTV distributions, the analysis calculates how household credit would grow if the LTV ratio limit was not introduced. In the second stage, using the vector autoregression (VAR) model, the analysis turns to the assessment of the impact on real estate prices and GDP by making an assumption that household credit is an exogenous variable (calculated in the first stage). See, for example, M. Cussen, M. Brien et al. (2015), Assessing the impact of macroprudential measures, Economic Letters 03/EL/15, Central Bank of Ireland. "Markevičus J. (2016). Recent trends in the development of the Lithuanian housing market. Monetary Studies, No.1.

²² Application of other systemically important institutions buffer requirement in Lithuania, Working Paper Series of the Bank of Lithuania, 2015, No 7.

²³ Resolution No 03-185 of the Board of the Bank of Lithuania 21 November 2017 on setting the other systemically important institutions capital buffer.
²⁴ ESRB report on macroprudential structural buffers and revised Handbook on Operationalising Macro-prudential Policy in the Banking Sector (2018).

²⁵ The Lifthuanian Central Credit Union was granted a refundable state support of (8.88 million, so that it would not only have the required capital buffer, but also an additional capital buffer required to ensure stable operation of credit institutions in case of unforeseen losses.

²⁶ The currently recognised macroprudential policy instruments applied by other EU Member States are indicated on the Bank of Lithuania website.

²⁷ Resolution No 03-92 of the Board of the Bank of Lithuania of 28 June 2017 on the recognition and mutual application of macroprudential policy instruments applied by European Union Member States and the adoption of the rules of assessment of the cross-border effect of macroprudential policy instruments applied by the Bank of Lithuania.
²⁸ Thus implementing <u>Recommendation of the European Systemic Risk Board of 15 December 2015 on the assessment of cross-border effects of and voluntary reciprocity for</u>

macroprudential policy measures (ESRB/2015/2). ²⁸ Recommendation of the European Systemic Risk Board of 8 January 2018 amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures (ESRB/2018/1).

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With the ongoing implementation of Basel III regulation standards in Europe, amendments to the CRR and CRD IV are on the way. In November 2016, the European Commission presented its proposal³⁰ on the further strengthening of resilience and liquidity of financial institutions, including the introduction of the minimum leverage ratio and net stable funding ratio requirements. Moreover, the proposal also lays down potential amendments to the regulation of certain macroprudential policy instruments so as to ensure their clearer and more consistent application. The amendments package is still under discussion at the EU institutions, however, it is expected that the updated requirements will be adopted in 2018–2019.

The global banking sector regulation reform – Basel III – that has been in works for almost a decade reached its final stage. In December 2017, the Basel Committee on Banking Supervision published the last Basel standards³¹ that had been endorsed prior to 2010. These revisions are aimed at restoring the credibility in the calculation of risk-weighted assets by: constraining the use of internal ratings-based approaches; enhancing the risk sensitivity of the standardised credit risk assessment approaches; and complementing the risk-weighted capital ratio with a finalised leverage ratio and a revised and robust capital floor. Moreover, banks identified as G-SIBs are also subject to a stricter than minimum leverage ratio requirement – the requirement has been increased by an amount equal to 50% of the established capital buffer of a G-SIB. For example, an additional leverage ratio buffer of 1% is established for a bank that has been set a 2% G-SIB buffer, thus the leverage ratio buffer for such bank will amount to 3% instead of 4%. The Basel Committee on Banking Supervision expects these standards to enter into effect by 2022, however, they will acquire legal power only when countries transpose them into national law. The European Commission will submit a proposal to amend the CRR and CRD IV only after a thorough assessment of the impact of the revisions on the EU banking sector and consulting with other EU and Member States' institutions.³²

³⁰ Proposal of the European Commission of 23 November 2016 on the review of directive and regulation on banking prudential requirements.

Press release of the Basel Committee on Banking Supervision of 7 December 2017.
 Press release of the European Commission of 7 December 2017.

GLOSSARY

Gross domestic product (GDP): a measure of economic activity showing the value of an economy's total output of goods and services, less intermediate consumption, plus net taxes on products and imports, in a specified period. GDP can be broken down by output, expenditure or income components. The main expenditure aggregates, which comprise GDP, include household final consumption, general government final consumption, gross fixed capital formation, changes in inventories, as well as imports and exports of goods and services (including intra-euro area trade).

EURIBOR (Euro Interbank Offered Rate): the average rate at which prime banks are willing to lend funds in euro to other prime banks in the European interbank market. The rate is calculated by the European Banking Federation in accordance with the interest rates published by a representative panel of the most active participants of the interbank market.

Financial stability: the condition, (i) in which the financial system, comprising financial intermediaries, markets and market infrastructures, is capable of withstanding shocks and the unravelling of financial imbalances and (ii) when the likelihood of disruptions in the process of financial intermediation, which are severe enough to impair the allocation of savings to profitable investment opportunities, is low.

Credit institution: (i) an undertaking whose business is to receive deposits or other repayable funds from the public and grant credits for its own account, or (ii) an undertaking or any other legal person, other than those under (i), that issues means of payment in the form of electronic money.

Monetary financial institutions (MFIs): financial institutions that together form the money-issuing sector of the euro area. These include the Eurosystem, resident credit institutions (as defined in the EU law) and all other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs and to grant credit and/or invest in securities for their own account (at least in economic terms). The latter group consists predominantly of money market funds, i.e. funds that invest in short-term and low-risk instruments usually with a maturity of one year or less.

Systemic risk: a financial system disruption risk that might impair the functioning of the financial system and the economy.