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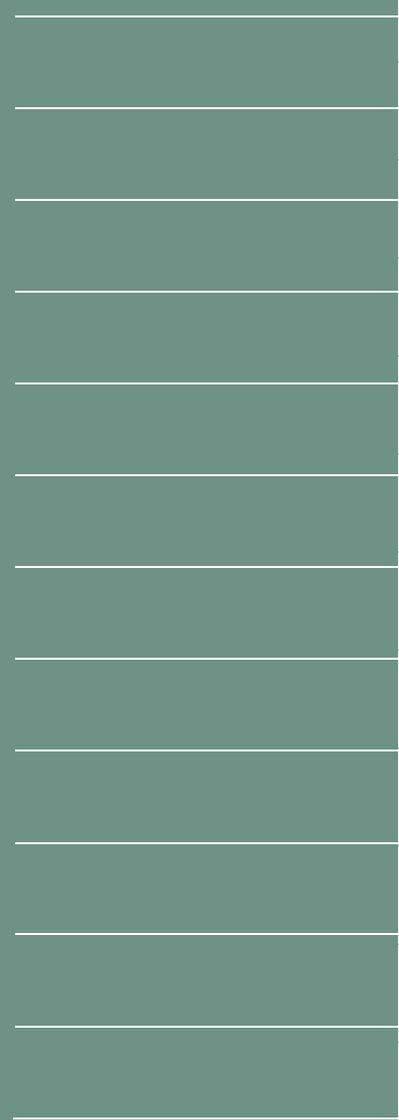
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LIETUVOS BANKAS
EUROSISTEMA

FINANCIAL STABILITY REVIEW

2 0 1 6



ABBREVIATIONS

AB	public company
CIS	Commonwealth of Independent States
CIU	collective investment undertaking
CRD IV	Capital Requirements Directive IV
CRR	Capital Requirements Regulation
CSD	Central Securities Depository
DSTI	debt-service-to-income ratio
DTI	debt-to-income ratio
EBA	European Banking Authority
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ES	European Union
ESRB	European Systemic Risk Board
EURIBOR	euro interbank offered rate
GDP	gross domestic product
GS	government securities
HHI	Herfindahl-Hirschman index
HICP	harmonised index of consumer prices
IMF	International Monetary Fund
IT	informatikon technology
LCCU	Lithuanian Central Credit Union
LCR	liquidity coverage ratio
LTV	loan-to-value ratio
MFI	monetary financial institutions
OECD	Organisation for Economic Cooperation and Development
p.p.	percentage points
RLR	Responsible Lending Regulations
UAB	private company
USA, US	United States of America
VĮ	state enterprise

The Review was prepared by the Financial Stability Department of the Economic and Financial Stability Service of the Bank of Lithuania.

The Review is available in PDF format on the website of the Bank of Lithuania at www.lb.lt.

The Review is based on data available before 1 May 2016.

The periods specified in chart subheadings include the data of the cut-off date of a respective period (year, quarter, etc.).

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

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SUMMARY

The country's financial sector remains healthy and sound — it would be capable of operating smoothly in the face of substantial systemic risk. Profitable operations of the financial sector and the large buffers of capital and liquid assets accumulated by banks strengthen the resilience of the sector, while the top emerging risks stem from unsustainable development of real estate markets in the Nordic countries and from a high leverage level of the private sector in those economies, as well as from the environment of low interest rates. The growth of household income in Lithuania, optimistic business expectations and recovery of the appetite for lending among the banks operating in the country promote sustainable development of the country's credit market.

As far as systemic risks are concerned, the risks related to the situation in the Nordic countries, as well as the prolonged low interest rate environment, are most relevant to the country's financial sector. Certain Nordic countries, in particular Sweden, continue to exhibit rapid growth in real estate prices and the leverage level of the private sector remains stubbornly high. More substantial economic or financial shocks in those countries would have a multidimensional negative spillover effect on the Lithuanian financial system, which could operate through at least several channels: a) a slowdown in lending and restriction of lending to business sectors with higher risk profiles; b) an increase in funding costs for parent banks and in credit costs in Lithuania, and c) increased volatility of deposits. The prolonged low interest rate environment poses the following risks: a) deterioration in the outlook for the profitability of credit institutions; b) a decrease in sustainability of traditional bank business models; c) the emergence of conditions for overpricing of financial assets and real estate as well as for taking on excessive liabilities or risk taking. Lithuania's export concentration by country and its dependence on riskier Eastern markets diminished in 2015 and corporates remained healthy in financial terms. Even though trade-restricting sanctions remained in place, the threat of an increase in exporters' credit risk, which was the most relevant risk in 2015, has decreased. Further development of the credit union sector continues to be a challenge for the Lithuanian financial system. In 2015, the Bank of Lithuania initiated the necessary regulatory changes with the aim to mitigate various risks emerging in the credit unions' sector. However, fundamental changes that would render the activities of credit unions and their development more sustainable can only be achieved by implementing system-wide reform of this sector. The increasing provision of services online by the Lithuanian financial institutions magnifies the risk of losses due to cyber-crimes. The number of incidents related to electronic communications increased by more than 15 per cent in Lithuania in 2015, which points to the need to implement national cybersecurity policies vigorously in order to make the financial sector more resilient to cyber risks.

The banking sector remained resilient and profitable. However, the prolonged low interest rate environment put banks' performance under ever-increasing pressure. The results of stress testing suggest that the banking sector is resilient to adverse economic shocks and short-term liquidity shocks. However, some of the banks have smaller liquidity and capital buffers. Even though the sector's capital adequacy ratio (and, simultaneously, its resilience) followed an upward path, some banks still need to strengthen their capital position. Moreover, the aggregate capital adequacy ratio of the sector will decrease in 2016 due to the disbursement of dividends by certain banks. In 2015, the banks' profit remained broadly unchanged from its level in the previous year. However, their net interest income decreased by 2.6 per cent as the interest rates continued low. If the interest rate trends continue as they are, downward pressure on the banks' profitability will increase in the mid to long term. Banks are becoming increasingly dependent on commission and fee income. Moreover, new alternative service providers are being established in certain segments. High concentration in the Lithuanian banking sector increased further in 2015 and is likely to grow significantly more in certain segments, for example, because of decreasing profitability of certain traditional products, such as housing loans. The insurance sector showed a rapid pace of growth, high solvency ratios of insurance undertakings underpinned its sustainability and the share of guaranteed-interest life insurance products, which can have direct implications for the stability of this sector in the low interest rate environment, followed a downward trajectory between 2012 and 2015.

Lending in Lithuania is recovering, underpinned by the growth of the domestic economy and improvements in the financial health of households and corporates. The portfolio of loans granted by MFIs operating in Lithuania to private non-financial sector rose by an annual 4.9 per cent in April 2016 and positive year-on-year growth was recorded for the tenth consecutive month. The portfolio of household loans showed a bigger increase than lending to corporates, which, however, was recovering as well. The growth of lending is driven *inter alia* by improvements in the financial health of the private sector, low interest rates and the growing need to invest amid the growth of the economy. In view of forecasts for the domestic economy and household income, as well as growing business investment, it is reasonable to assume that lending should continue growing, although its development will be sustainable. The ratio between credit and nominal GDP still remains well below its long-term values. Moreover, lending is starting to grow after a relatively long period of loan portfolio contraction.

After a slump early in 2015, real estate market activity picked up steam in the middle of the year and price developments in this market are seen as sustainable. Housing prices in Lithuania rose by 3.3 per cent on average in the final quarter of 2015 on a year-on-year basis. According to real estate market participants, housing prices grew at the annual pace of 2.9 per cent in the first quarter of 2016, with the biggest increases recorded in Vilnius. As was the case in the other two Baltic countries, which switched their national currencies to the euro in previous years, the adoption of the euro had no marked impact on home prices in Lithuania as it was more of a psychological factor. After a slump in housing market activity early in 2015, the number of home transactions returned to growth in the middle of the year. Market participants' fears that the number of home transactions would decrease after the updating of the Responsible Lending Regulations in November 2015 also proved groundless and the housing market activity remained high in the first quarter of 2016, accompanied by growth in the flow of new home loans. Surveys of households, banks and real estate market participants show strengthening expectations of faster growth in prices in this market. This is corroborated by the growing flow of investment in residential real estate. Improvements in the financial health of households, low interest rates and the fact that banks do not intend to tighten their standards for house loans may contribute to further growth in housing prices.

The Bank of Lithuania is ready to make active use of macro-prudential policy instruments to address systemic risk and its newly acquired role as a resolution authority for financial institutions will also help enhance the stability of the financial system. Precautionary amendments to the Responsible Lending Regulations, which aim to promote responsible lending in the low interest rate environ-

ment and to safeguard households against taking on excessive debt in the form of new long-term loans, came into force on 1 November 2015. In addition, last year Lithuania introduced a countercyclical capital buffer requirement. Moreover, the Bank of Lithuania identified the country's systemically important institutions, which were then made subject to the capital buffer rates set for other systemically important institutions, and published their list. In 2016, the central bank plans to assess the need to introduce a yet another macroprudential policy tool, i.e. a systemic risk buffer. In 2015, the Bank of Lithuania was given the role of a resolution authority for financial institutions. From now on, systemically important banks will have to be resolved according to a pre-existing resolution plan, instead of going through bankruptcy proceedings. Moreover, Lithuania started building up a resolution fund in order to make sure that the financial institutions in distress are resolved using their own money rather than taxpayers' money.

I. STATE OF THE FINANCIAL SYSTEM AND ITS OUTLOOK

FINANCIAL MARKET AND ECONOMIC DEVELOPMENT

Despite the deterioration in the international environment, Lithuania's economy kept growing and the financial health of corporates and households continued to improve. In 2015, a spate of economic sanctions and the economic downturn in the CIS region constrained the growth of Lithuania's exports and, simultaneously, of the whole economy. Nevertheless, Lithuania's GDP increased by 1.6 per cent in that period, matching the growth rate recorded for the euro area as a whole. The financial health of households and corporates continued to improve as the unemployment rate fell by 1.6 p.p., to 9.1 per cent, over the year and growing wages (+5.1%), coupled with negative annual inflation (−0.7%), bolstered consumers' purchasing power. Even though exports to Russia plummeted, non-financial corporations operating in Lithuania recorded increases in gross profit and the level of equity capital. Moreover, the decreasing interest rates eased the financial burden of the private sector. Lithuania's economy is projected to grow by 2.6 per cent in 2016 (see Chart 1); faster growth will mostly be restrained by structural unemployment among lower skilled workers, which is still high, and the deteriorating situation in developing economies.

Advanced economies followed a moderate upward trend, whereas developing economies experienced a slowdown. A sharp fall in commodity prices hurt major commodity-exporting countries badly in 2015. Russia's economy contracted by 3.7 per cent in that period and the economy of other CIS countries, which maintain intense commercial relations with Russia, shrank by 0.7 per cent. South America also suffered a recession and Brazil, the region's top economy, saw its GDP fall by 3.8 per cent. The continuing economic slowdown in China exacerbated negative trends dogging developing markets. Meanwhile, advanced economies kept growing at a sustainable pace, which, however, was slower than expected a year ago. The United States and the euro area, the world's top economies, recorded growth of 1.9 per cent and 1.6 per cent, respectively, in 2015. With commodity prices showing no signs of serious recovery, the growth of developing economies is likely to remain constrained, which, in turn, will have a moderating effect on the development of advanced economies.

The ECB enhanced its accommodative monetary policy stance whereas the Federal Reserve System of the United States started down a path of monetary policy tightening. In March 2015, the ECB, which kept lowering its interest rates almost continuously from 2008, embarked on an expanded asset purchase programme with the aim to give a further boost to the credit market and thereby achieve the euro area's inflation target of 2 per cent. In December of the same year, the ECB extended the timeframe of the programme by 6 months (to March 2017) and, in March 2016, further widened the scope of its asset purchases and cut its main interest rate to 0 per cent. This proactive monetary policy contributed to a further decline in interbank interest rates EURIBOR across all maturities and, for instance, the 3-month EURIBOR turned negative in April 2015 (see Chart 2). Based on EURIBOR futures, in April 2016, the financial markets expected that the 3-month EURIBOR would not turn positive until towards the end of 2019 (for more details see the section 'Prolonged low interest rate environment' in Chapter II of this review). Meanwhile, the Federal Reserve System of the United States took the opposite direction by raising its benchmark interest rate in December 2015, after keeping it unchanged since 2008, and thus became the first of the world's major central banks to start tightening monetary policy.

Interest rates applied by credit institutions in the euro area followed a downward trajectory and lending moved into recovery mode. Accommodative monetary policy implemented by the ECB contributed to the decline in interest rates charged on loans in the euro area. For instance, the interest rates on loans extended by monetary financial institutions (MFI) to non-financial corporations decreased by 0.4 p.p. in 2015, reducing cross-country heterogeneity in interest rates within the euro area simultaneously (see Chart 3). The low interest rate environment is conducive to the growth in demand for credit and encourages credit institutions to step up lending by limiting their opportunities to make money from other financial instruments. Naturally, this intensifies competition between banks and has a positive impact on credit standards, which are becoming

Chart 1. Annual real GDP growth in Lithuania and major global economies and its forecasts

(Q1 2012–Q4 2015)

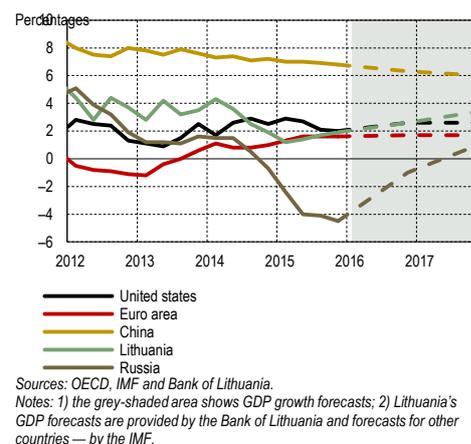


Chart 2. Three-month EURIBOR and its futures' value

(1 January 2008–1 March 2020)

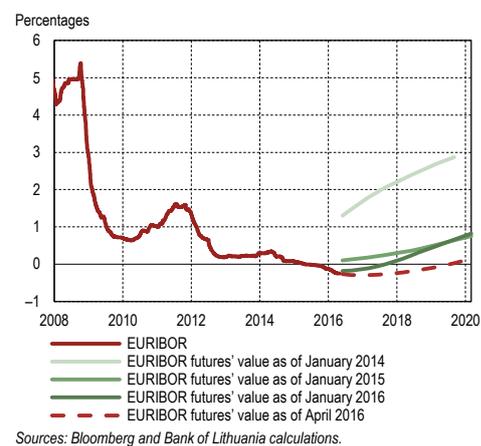


Chart 3. Interest rates on MFI loans to non-financial corporations in euro area countries

(January 2006–February 2016)

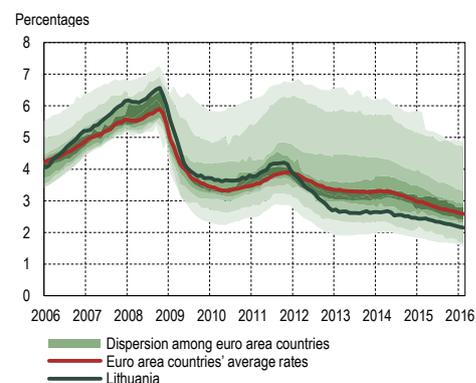
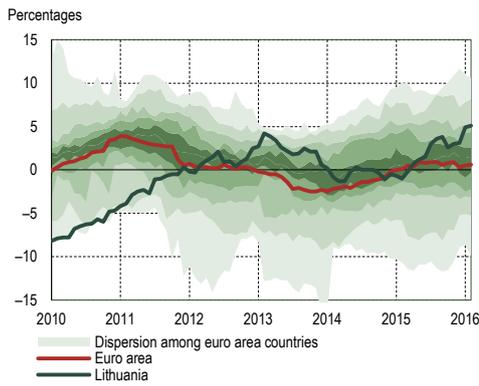


Chart 4. Annual growth pace of MFIs' loan portfolio in euro area countries (excl. loans to other MFIs)

(January 2010–February 2016)

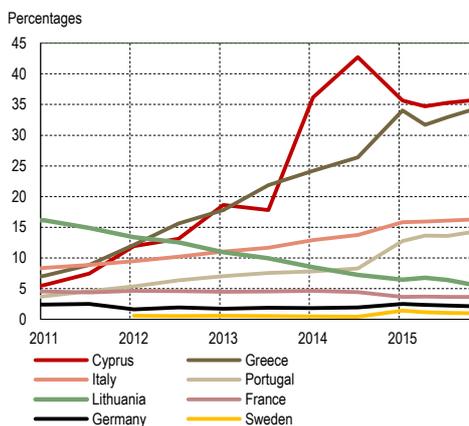


Sources: ECB and Bank of Lithuania calculations.

Note: different shades indicating dispersion show 10-per cent value intervals, with lighter shades marking the intervals that are farther from the median.

Chart 5. Non-performing assets as a share of banking sector assets in selected EU countries

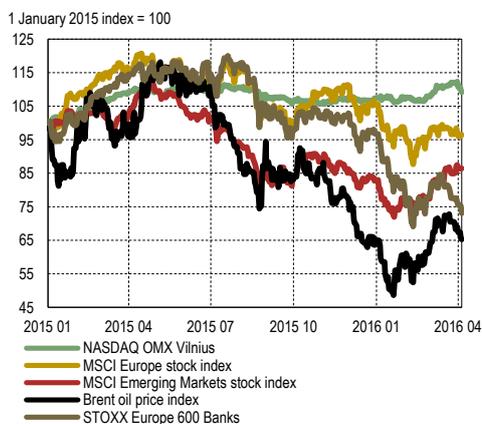
(Q1 2011–Q4 2015)



Source: ECB.

Chart 6. Stock and commodity indices

(1 January 2015–1 April 2016)



Sources: Datastream and Bank of Lithuania calculations.

more relaxed. The surveys¹ conducted by the ECB among banks suggest that credit standards remain sufficiently stringent; however, they also show a larger proportion of the euro area's banks as easing standards, rather than tightening them, since the end of 2014. All these aforementioned circumstances contributed to the annual growth of credit in the euro area, which turned positive in 2015 for the first time since 2012 (see Chart 4). Sustainable credit growth is supportive of growth in economic activity and it is therefore likely that the recovery of the credit market will bolster the growth of the euro area's economy.

The European banking sector is plagued by the share of non-performing loans, which remain stubbornly high. As the euro area's economy continued its recovery, this share followed a downward path in the main countries of the region, in Lithuania as well, but rose in Italy, Greece, Cyprus and Portugal (see Chart 5). The high share of non-performing loans in Southern European banks limit their capacity to provide fresh loans and, accordingly, the environment of low and negative interest rates makes it more difficult for lenders to achieve the desired level of profitability. The profitability of the European banks is also eroded by the increased regulatory burden. Most likely, concerns over the high share of non-performing loans and the poorer outlook for the profitability of banking activities also had a substantial downward effect on European banking stocks. Between early 2015 and May 2016, the European banks' stock index, *STOXX Europe 600 Banks*, lost one-fifth of its value (see Chart 6). Greater cautiousness on the part of investors might also have been inspired by the entry into force of the Bank Recovery and Resolution Directive, which stipulates that EU banks experiencing difficulties will be bailed out by their shareholders and large creditors, instead of taxpayers (for more details see the section 'Resolution of financial institutions' in Chapter III of this Review).

Financial markets experienced increased volatility, which reflected uncertainty in commodity prices and global economic growth. Hit by growth in crude oil stockpiles and the worsening outlook for global growth, oil prices started free falling in mid-2015, reaching 14-year lows early in 2016. Tumbling oil prices weakened the currencies of major oil-exporting developing countries substantially and stock markets suffered hefty losses (see Chart 6). Investor concerns were further compounded by the deceleration of growth in China. The negative sentiment spilled over into the stock markets of advanced economies, which suffered the biggest slump in stock prices since the global financial crisis in 2008. Between early 2015 and April 2016, the American stock market index S&P 500 showed a marginal gain of 0.6 per cent, the total European stock market index EURO STOXX fell by 4.3 per cent and the VIX index, reflecting volatility in the equity markets of the United States, shot back to the level last seen in 2011. Investors sought to reduce their stock exposures, in particular in developing markets², and funnelled their money into the government bonds of advanced economies, which, as a result, saw a continued decline in yields.

The benchmark index of the Lithuanian stock market showed moderate gains and the yields of the country's government bonds remained exceptionally low. Despite the prevalence of gloomy moods in global stock markets, the *NASDAQ OMX Vilnius* added 7.4 per cent to its value over 2015 (see Chart 6). It is true, however, that the stocks of 19 out of 33 listed Lithuanian companies recorded losses in their prices and trading activity on the stock exchange continued to be weak. Similar to many of the countries in the euro area, the yields on Lithuania's government bonds remained exceptionally low. For instance, Lithuanian 10-year government bonds yielded 1 per cent in May 2016, i.e. 1.1 p.p. less than in early 2015. These trends were shaped not only by the ongoing global search for higher yield but also by improvements in the assessment of Lithuania's credit risk. In May 2015, the international credit rating agency *Moody's* upgraded Lithuania's credit rating to A3.³ Moreover, the composite risk indicators developed by the Bank of Lithuania also showed no increase in stress in the Lithuanian financial system in 2015 and in early 2016 (see Box 1).

¹ Reviews of bank lending surveys can be found on the ECB's website: <https://www.ecb.europa.eu/stats/money/surveys/lend/html/index.en.html>.

² Estimates show that investors withdrew more than USD 1 trillion from China alone over 2015.

³ Lithuania now has investment grade ratings from all leading international credit rating agencies: 'A-' from *Fitch*, another 'A-' from *Standard & Poor's* and 'A3' from *Moody's*.

Geopolitical uncertainty, which can be a source of disruption to the financial system of the euro area, is on the rise across the globe. In addition to lingering tensions stemming from the military conflict in Ukraine, Europe faced increased uncertainty due to the civil war in Syria and the related migrant crisis in 2015. Surveys⁴ carried out by the Bank of Lithuania reveal that the financial institutions operating in Lithuania tend to view the intensification of migrant flows to Europe as an important, albeit indirect, factor, which can undermine financial stability. A referendum due in June 2016, in which the United Kingdom will vote either to remain in or leave the European Union, adds a further element of geopolitical uncertainty. The deterioration of expectations in the run-up to the referendum dampened the growth of the UK's economy while heightened fears among investors sparked volatility in prices for financial instruments. The country's exit from the EU is likely to depress the exports of the Union's Member States, including Lithuania, heighten political uncertainty to a great extent and trigger higher volatility in the financial markets, thus increasing the probability of a snapback in risk premia (for more details see the section 'Snapback in risk premia' in Chapter II of this Review).

Box 1. Financial stress indicators

Financial stress indicators adapted to Lithuania's context are used for a quantification of manifestations of elevated stress in the Lithuanian financial system. Although such indicators are widely used by both the ECB or other international institutions and the national central banks, they have not been adapted to Lithuania until now. In most cases, financial stress indicators are computed from daily financial market data and, therefore, reflect the latest trends. Following the practice established by the ECB and financial institutions, three quantitative indicators of systemic risk have been developed for the analysis of the Lithuanian financial system: 1) a composite indicator of systemic stress; 2) an indicator of banks' average contribution to systemic risk, and 3) a weighted indicator of banks' default probability (see Chart A).

The purpose of the composite systemic stress indicator is to identify, in real time, the heightening vulnerability of the Lithuanian financial system on the basis of information reflecting developments in certain important segments of the financial market. The indicator is calculated according to the methodology^I used to compute a similar indicator applied by the ECB (i.e. the composite indicator of systemic stress, or CISS) and on the basis of the data relevant for the Lithuanian financial system. The indicator is constructed in three steps. The first step is to compute 12 risk indicators^{II} on the basis of the daily data of the financial markets. The values of these indicators range between 0 and 1 and each of them shows the level of stress in five segments of the financial market, i.e. in the money market, the foreign exchange market, the equity market, the bond market and the financial institutions market. The second step is to aggregate segment-specific risk indicators (based on the data available, two or three per each segment) into five broader indicators, one per each market segment, which are calculated as the arithmetic averages of the respective risk indicators (and, therefore, their values also range between 0 and 1). The final step is to compute the composite systemic stress indicator by aggregating all five broader indicators in accordance with the principles of construction of an investment portfolio, i.e. by attaching certain weights^{III} to each of these indicators and taking into account their cross-correlations.^{IV} It should be noted that the value of the composite systemic stress indicator tends to decrease in cases of diminishing correlation between levels of stress in individual segments.

The indicator of the average contribution made by banks to systemic risk shows how much, on average, a bank operating in Lithuania would contribute to the sector's systemic risk. This indicator makes it possible to calculate, in percentage points, the average weekly losses of the banking sector's market valued assets, if banks were to experience a stressful episode. The indicator and its dispersion are calculated according to the methodology used by the ECB to compute a similar indicator (delta of conditional variance at risk, or ΔCoVaR)^V and on the basis of the data specifically relevant for the Lithuanian banking sector. The indicator is constructed in three steps. The first step is to derive the estimates^{VI} of the banks' market valued assets by summing up the banks' balance-sheet liabilities and market valued equity and then to compute an index^{VII} of the entire Lithuanian banking sector, based on weekly stock price data of the banks operating in Lithuania and their foreign parent banks. The second step is to calculate each bank's Value at Risk (VaR) in a normal state (50th percentile of return distribution) and a distressed state (1st percentile of return distribution), using quantile regressions with a bank's asset return as a dependent variable and lagged state variables^{VIII} as independent variables. The third step is to measure the banking sector's Conditional Value at Risk (CoVaR) in both a normal and a distressed state, using quantile regressions with the banking sector's index return as a dependent variable and the estimated VaR values as well as state variables as independent variables. Finally, the estimates of contributions of individual banks to the banking sector's systemic risk are derived by calculating the difference between the banking sector's CoVaR values for a normal state and a distressed state. The average value of such estimates represents the final indicator. Whenever the indicator dips deeper into the negative territory, this implies that the banking sector would suffer higher losses in a stressful episode. The larger the dispersion of this indicator is, the bigger are the differences between the participants of the banking sector in terms of their contribution to systemic risk.

The weighted indicator of banks' default probability is intended to identify an increase in stress in the Lithuanian banking sector on the basis of balance sheet data of the banks operating in the country and their foreign parent institutions as well as financial market information. The indicator is calculated in accordance with Merton's structural credit risk model^{IX}, which is widely used in the finan-

⁴ Surveys of risks to Lithuania's financial system can be found online at http://www.lb.lt/risk_survey_of_lithuanias_financial_system_1.

cial literature. In line with this model, the default probabilities of the banks operating in Lithuania are estimated on the basis of the following indicators: 1) the ratio between their (or their parent banks') market capitalisation and existing liabilities; 2) the derived volatility of banks' market-valued asset return, and 3) the risk-free interest rate prevailing in the market. The values of the indicator are constructed in three steps. The first step is to calculate, by way of iteration process, the market value of the banks' assets and stochastic parameters, such as asset return volatility, average values and correlation ratios, by using the weekly data of market capitalisation and 12-month EURIBOR for the full last year, as well as the quarterly data of banks' liabilities. The second step is to generate scenarios of variation in the market value of the banks' assets over a period of one year by Monte Carlo simulation using the parameters estimated in the first step and to estimate the default probability, expressed as the ratio between the number of cases, where the market value of the bank's assets becomes less than the carrying value of its liabilities, and the total number of scenarios, for each bank at the end of the scenario period. And the final step is to calculate the weighted indicator of banks' default probability by aggregating the default probabilities of all banks on a weighted basis, using the weights that are proportional to the assets held by banks that operated in Lithuania in a respective time period.

These three indicators, which have been put in place by the Bank of Lithuania, show no increase in the level of stress in the Lithuanian financial system in periods of heightened volatility in 2015–2016. The indicators of financial stress in the euro area, which are applied by the ECB, signalled slight growth in the level of stress against the backdrop of growing volatility in the financial markets in the second half of 2015 and in the beginning of 2016. However, the indicators calculated by the Bank of Lithuania reveal that the level of stress in the Lithuanian financial system barely increased in the same time period and was low in comparison to the periods of elevated stress in 2008–2010 and 2012 (see Chart A). For instance, the composite systemic stress indicator did not increase as the rise in volatility in the financial markets that are relevant for Lithuania was moderate and the correlation between market segments was low. The indicator showing contributions by individual banks to systemic risk and the indicator of default probability of the banking sector remained virtually unchanged, reflecting the solid state of the Lithuanian banking sector.

ⁱ Holló, D., Kremer, M., Io Duca M. CISS — A Composite Indicator of Systemic Stress in the Financial System. *Working Paper Series*, No 1426, 2012.

ⁱⁱ The ECB computes the composite indicator from a set of 15 individual indicators (three to each segment of the financial market). Three of those individual indicators, i.e. MFIs' emergency central bank lending, the yield spread of non-financial corporations' bonds against government bonds and the yield differential between bonds of financial institutions and non-financial corporations, cannot be used in Lithuania's context due to data limitations. Despite that, the number of indicators is sufficient to compute the composite systemic stress indicator.

ⁱⁱⁱ The weights applied are identical to those used by the ECB, i.e. 15 per cent for the money market, 15 per cent for the foreign exchange market, 25 per cent for the equity market, 15 per cent for the bond market and 30 per cent for the financial sector.

^{iv} A weighted 2-year moving correlation average and exponential weights are used.

^v Adrian, T., Brunnermeier, M. K. *CoVaR*, 2011.

^{vi} Between 2000 and 2016, only three of the banks that operated in Lithuania in that period had their stocks listed on the stock exchange. Therefore, the market value of assets of branches or subsidiary banks is calculated on the basis of market capitalisation of their parent banks. The market value of a branch's assets and its fluctuations are considered equal to the market value of assets of a respective group weighted by a factor that corresponds to the percentage of the total balance sheet assets of the Lithuanian banking sector that is accounted for by the balance sheet assets of that branch. The market value of assets of subsidiary banks is calculated by summing up the carrying amount of liabilities and the estimated market value of equity, which, in its turn, is proportionately equal to the market value of equity of their parent banks.

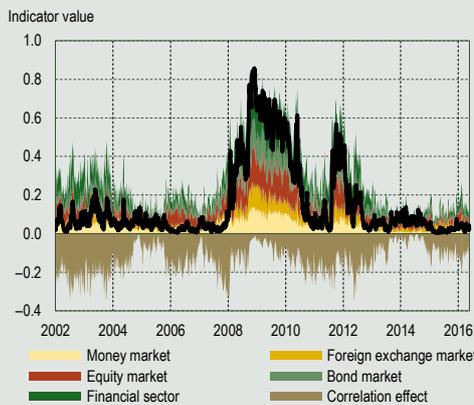
^{vii} The index for banks is derived from changes in stock prices of listed banks operating in Lithuania and of their parent banks, taking into account their holdings of assets in respective time periods.

^{viii} State variables have been chosen in accordance with the methodology described by Adrian & Brunnermeier (2011). The following variables are used: 1) a weekly change in Germany's 3-month T-bill yield; 2) a yield spread between Germany's 10-year bond and the 3-month T-bill; 3) a spread between 3-month EURIBOR and Germany's 3-month T-bill yield; 4) a weekly return of *STOXX Europe 600 Banks*; 5) volatility of *STOXX Europe 600 Banks*.

^{ix} Merton, R. C. On the Pricing of Corporate Debt: the Risk Structure of Interest Rates. *The Journal of Finance* 29(2), 1974.

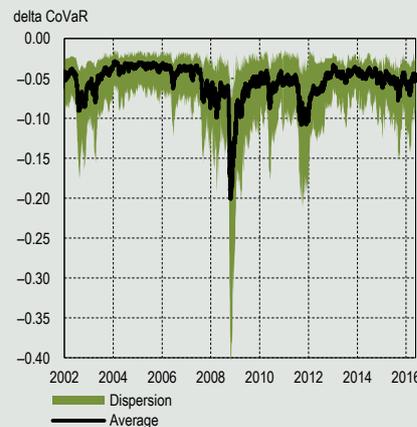
Chart A. Financial stress indicators

Composite systemic stress indicator

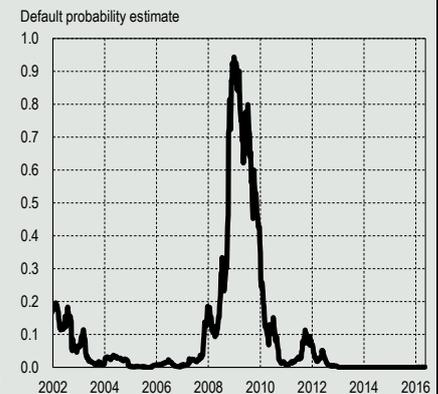


Sources: Bloomberg, Bank of Lithuania and Bank of Lithuania calculations.

Indicator of banks' contribution to systemic risk



Default probability indicator of the banking sector



BANKING SECTOR

Banks⁵ in Lithuania remained profitable in 2015 but the lingering low interest rate environment put the banks' revenue and earnings under ever increasing negative pressure. The combined profit of the Lithuanian banking sector came in at EUR 215.3 million in 2015 and exceeded the previous year's figure by only 0.9 per cent (see Chart 7). However, profit dynamics within the sector were uneven as five banks saw their profit decline and two of them suffered losses. A EUR 40.9 million decrease in

⁵ For the purposes of this review, 'banks' shall be understood as including foreign bank branches operating in Lithuania.

administrative costs (which was mainly attributable to several market participants), mostly related to IT, provided a positive boost to the profit of the banking sector as a whole. On the other hand, a fall in income from foreign currency exchange and transfers following the adoption of the euro put a lid on profit growth; in particular, net fee and commission income decreased by EUR 19.8 million, or 10.2 per cent. Moreover, as the low interest rate environment continued and the EURIBOR dipped into the negative zone, the banks' net interest income declined by EUR 9.9 million, or 2.6 per cent. Negative EURIBOR rates erode the profitability of existing bank loans, which makes it more difficult for lenders to generate a profit and strengthen their capital position (for more details see the section 'Prolonged low interest rate environment' in Chapter II of this Review). Nevertheless, the profitability figures of the Lithuanian banking sector remain stable today and its return on assets was one of the highest in Europe in the third quarter of 2015 (see Chart 8).

A decline in funding from foreign parent banks led to a slight decrease in the assets of the Lithuanian banking sector in 2015. Early in 2016, the assets of banks operating in Lithuania amounted to EUR 23.4 billion, marking an annual decrease of 2.9 per cent, or EUR 693 million. This decrease was due to a drop on the other side of the balance sheet, i.e. in liabilities, as a result of a substantial decline in parent banks' deposits (by 42.6%, or EUR 1,980 million). The growth of corporate and household deposits (by 4.8%, or EUR 783 million) staved off an even bigger drop in assets. It should be noted, however, that the steepest declines were recorded in values of non-performing or low-performing assets, while the main source of banks' income — the loan portfolio — followed an upward trajectory. For instance, the amount of money parked with the central bank decreased by 33.8 per cent, or EUR 1,428 million, and banks also reduced their government debt exposures (by 11.6%, or EUR 241 million) due to a dramatic decline in its yields. Nevertheless, as bank lending recorded growth, loans as a share of banking assets increased by 5 p. p. to 70 per cent.

The banking sector enhanced its resilience but the capital adequacy ratios for certain banks remained close to the minimum requirements. All banks operating in Lithuania complied with their respective capital adequacy requirements at the end of 2015 and the capital adequacy ratio of the entire sector improved by 3.6 p.p. over the year, to 24.8 per cent. It should be noted, however, that this dynamics was mainly due to two banks whose capital adequacy ratios grew at a more moderate pace (see Chart 9). Moreover, some of the banks still need to shore up their capital and, on top of that, the aggregate capital adequacy ratio of the sector will decrease in 2016 as a result of decisions to disburse dividend made by certain banks. The banks had a high liquidity ratio and a sufficient stock of liquid assets in 2015 (for more details see the section 'Stress testing' in Chapter II of this Review). All of the banks operating in Lithuania safely met the liquidity coverage requirement. As the banks' loan portfolio grew stronger than deposits in terms of value, the loan to deposit ratio showed a slight increase in 2015 (of 3.6 p.p., to 94%), yet remained low compared to the long-term average.

The quality of banks' assets continued to show moderate improvements. The ratio of non-performing loans⁶ has been in steady decline since 2010 and it contracted by a further 1.2 p.p., to 5.6 per cent, over 2015 (see Chart 10). This was due to both the growth of the newly originated loan portfolio and a decrease in the value of non-performing loans as a result of improvements in debtors' financial health and write-offs made by banks. The percentages of non-performing loans decreased for all loan types, in particular for housing loans (by 2.5 p.p.). The respective percentage for non-financial corporations decreased by 1.9 p.p., but this aggregate figure masks uneven developments across economic activities. The biggest decreases in the shares of non-performing loans were recorded in construction, real estate and transport sectors whereas the respective shares for accommodation and catering as well as agricultural activities showed increases in the same time period (see Chart 11). The highest non-performing loan ratios continue to be recorded in accommodation and catering as well as construction industries. The asset quality of banks operating in Lithuania is close to that of banks in the economically strongest euro area countries and, if the financial

Chart 7. Banking sector's profit and its structure

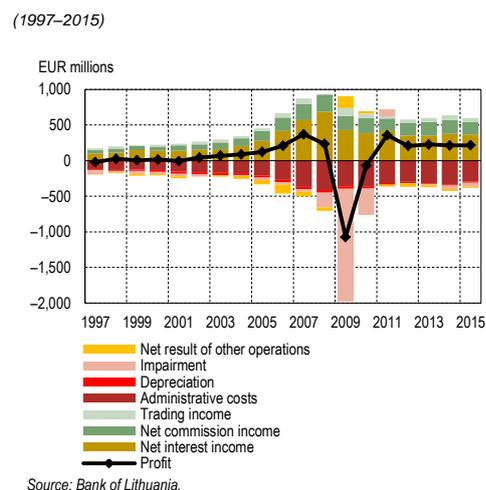


Chart 8. Return on assets (ROA) of banking sectors in EU countries

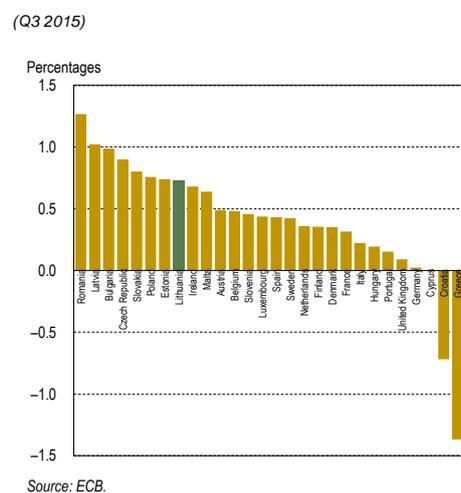
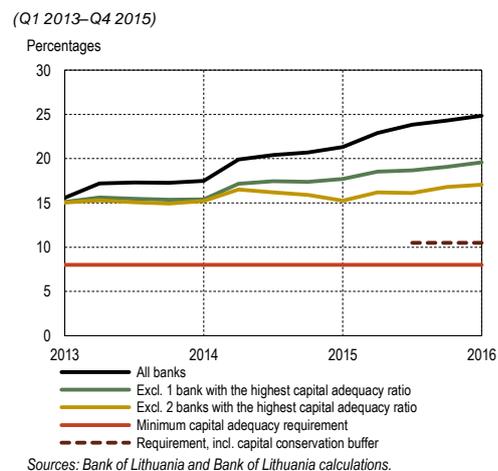


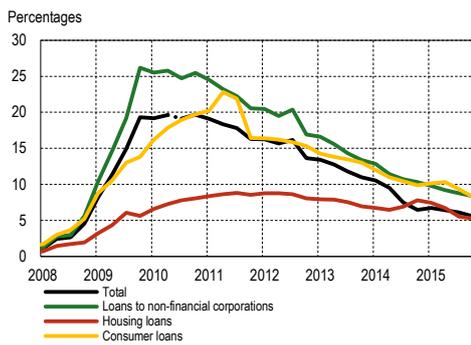
Chart 9. Banks' capital adequacy ratios



⁶ A non-performing loan is a loan, in which the interest and principal payment are more than 90 days overdue, or a loan, which carries a default risk and in which the collateral is worth less than the loan balance.

Chart 10. Banks' non-performing loan ratios

(Q1 2008–Q4 2015)

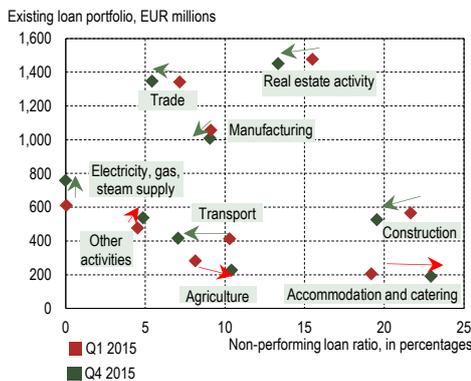


Source: Bank of Lithuania calculations.

Notes: 1) until Q2 2014, non-performing loans include both impaired loans and non-impaired loans that are more than 60 days overdue. Starting from Q3, the non-performing loan indicator is calculated on the basis of the general EU definition and therefore is not fully comparable to previous indicators; 2) the chart does not show the level of non-performing loans to financial intermediaries and the general government.

Chart 11. Total banks' loans and non-performing loans broken down by economic activity

(Q1 2015–Q4 2015)

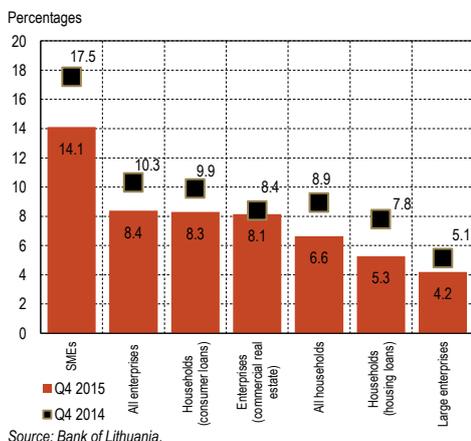


Source: Bank of Lithuania.

Note: green and red arrows indicate a y/y decrease or increase, respectively, in the non-performing loan.

Chart 12. Ratio of non-performing loans to total loans by debtor type

(Q4 2014–Q4 2015)



Source: Bank of Lithuania.

health of the private sector improves, the ratio of non-performing loans should continue shrinking. Still, the new requirements⁷, which stipulate that provisioning against non-performing loans will also reflect timely recognition of expected loan losses, may have direct implications for the banks' capital adequacy after coming into effect in early 2018.

After an extended period of loan portfolio declines, bank lending returned to growth in 2015 and improvements in asset quality, coupled with the low interest rate environment, should act as incentives for banks to step up lending to small and medium-sized corporates. Banks became more generous in lending to both companies and households. Even though the increase in lending to corporates recorded in 2015 was mainly due to enhanced credit supply to large corporations with lower risk profiles, the portfolio of bank loans extended to small and medium-sized enterprises also grew in value (by 2.8%). As profit margins on loans to small and medium-sized enterprises tend to be higher than the margins applied on other loans (since small and medium-sized business is perceived as having a higher risk profile), lending to small and medium-sized corporates is becoming ever more attractive in the current environment of low and negative interest rates. Bank lending surveys conducted by the Bank of Lithuania suggest that the incentives for banks, in particular smaller ones, to issue loans to smaller corporates also include intensifying competition for lending to large corporations. Moreover, lending to small and medium-sized business is also fuelled by improvements in companies' financial health mitigating their credit risk. Although the ratio of non-performing loans in this sector remains relatively high (14.1%) compared to other loan segments, it nevertheless decreased by 3.4 p.p. during 2015 (see Chart 12).⁸ With the domestic economy getting stronger, the share of non-performing loans in this sector should continue its decline while the loan repayment capacity of corporates should improve and therefore lending should grow as well.

Concentration in the banking sector increased in 2015 and the continued low interest environment might lead to its further growth. The level of concentration in the Lithuanian banking industry is among the highest in Europe: as estimated by the ESRB, higher levels are only found in Estonia and Greece. Early in 2016, 13 banks and foreign bank branches operated in Lithuania, i.e. down from 15 a year earlier, which means that market concentration has increased somewhat more (for more details see the section 'Insurance market and pension funds' in this Chapter). Increases in concentration are also observed in individual segments of services provided by banks. For instance, the level of concentration is particularly high in the Lithuanian market for payments where three biggest banks operating in the country account for approximately 90 per cent of basic payment service operations. Moreover, only a limited number of banks remain actively involved in supplying housing loans and, once the transaction whereby *Danske Bank* will transfer its housing loan portfolio to *Swedbank*, *AB* is closed, concentration in the market for housing loans will become even higher. With the low interest rate environment dampening the profitability outlook of the banking sector, there is a growing likelihood that the level of concentration will continue to increase in certain market segments or even in the whole market (for more details see the section 'Prolonged low interest rate environment' in Chapter II of this Review).

LENDING⁹

Lending in Lithuania is recovering and its development is sustainable. The portfolio of loans granted by MFIs operating in Lithuania to private non-financial sector rose by an annual 4.9 per cent¹⁰ in April 2016 and positive year-on-year growth was recorded for the tenth consecutive month (see Chart 13). MFIs have stepped up lending to both corporates and households. The important point here is that credit growth, which has been accelerating of lately, does not create imbalances in the financial system. For in-

⁷ The IFRS (*International Financial Reporting Standard*) 9: *Financial Instruments* will come into effect in 2018 replacing the existing requirements under IAS 39.

⁸ Small and medium-sized enterprises (SMEs) are defined as enterprises, which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million and/or assets not exceeding EUR 43 million.

⁹ Loan portfolio growth is measured on the basis of MFI data published by the Statistics Department of the Economics and Financial Stability Service of the Bank of Lithuania, as adjusted to take account of bankruptcies and mergers in the financial institution sector (for details see Annex 2 to the Lithuanian Economic Review of December 2014). It may differ from the data collected from banks for supervisory purposes.

¹⁰ Based on official MFI data, i.e. unadjusted to take account of bankruptcies and mergers in the financial institution sector, the annual increases in the portfolios of loans to private non-financial sector, households and non-financial corporations would be 6.8 per cent, 5.9 per cent and 7.8 per cent, respectively, as of the end of the first quarter of 2016.

stance, the ratio between credit and nominal GDP still remains below its long-term values. The deviation from the long-term trend was negative at the end of 2015 and, depending on the measurement method¹¹, stood at -7 p.p. and -20 p.p. Nevertheless, it narrowed by 1.4 p.p. and 3.5 p.p., respectively, on a year-on-year basis (see Chart 14).

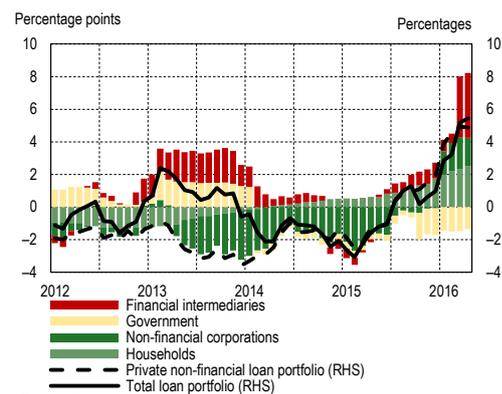
Regarding loans issued to non-financial corporations, the biggest increases were recorded in the volumes of loans granted to the energy, transport and agricultural sectors and the biggest declines — in the portfolios of loans extended to the construction, accommodation and catering industries. Even though the portfolio of loans granted to non-financial corporations remained slightly below its year-earlier level at the end of 2015 (see Chart 15), it has increased by 4 per cent as early as in April 2016 and amounted to EUR 7.8 billion. Excluding several new large-scale transactions made in the energy and telecommunication sectors, the total portfolio of loans issued to non-financial corporations would have increased by a meagre annual 0.1 per cent, instead of 4 per cent, in April 2016 (and the annual increase in the total portfolio of loans granted to private non-financial sector would have been 2.9 per cent, instead of 4.9 per cent). The amount of loans issued to energy enterprises rose by an annual 13.5 per cent in the first quarter of 2016, while the volume of financing provided to companies engaged in transport and agricultural activities increased by one-fourth. The portfolio of loans extended to trade enterprises followed a more moderate growth path (rose by 2%). The data available shows a substantial recovery in lending to transport and storage enterprises in 2016, after a continuous decline since 2014. This recovery might have been driven *inter alia* by their ability to adapt flexibly to the decline in exports to Russia. Meanwhile, the activity of lending to the companies engaged in construction as well as accommodation and catering activities followed a downward trajectory. The portfolio of loans granted to construction companies decreased by 13 per cent in the period under review while the value of loans extended to accommodation and catering enterprises fell by 10.9 per cent. The decrease in financing provided to the companies involved in construction activities might have been triggered by both a more cautious approach adopted by certain banks in relation to lending to this sector and a decrease in the number of projects involving the construction of transport infrastructures, in particular railways. The pace of growth in investment in buildings and structures was slow as well. This situation is likely to continue in 2016 due to an expected decrease in orders from projects financed with the assistance of the European Union.

Lending to households followed an upward trend with increases recorded in the portfolios of both housing loans and consumer loans. The total portfolio of loans extended to households rose by an annual 5.7 per cent to EUR 8 billion as of April 2016. The volume of housing loans granted to households increased at a rapid pace (6.4%) whereas the portfolio of consumer loans exhibited a slower growth pace (3.3%). In April 2016, the net flow of new housing loans soared by an annual 49.1 per cent to EUR 226.5 million (see Chart 16). This increase can be attributed *inter alia* to a pickup in activity in the housing market in 2016 (for more details see the section 'Real estate market' in this Chapter of the Review).

The volume of consumer loans issued by banks and credit unions followed a moderate upward trajectory (see Chart 17). The portfolio of loans, encompassing the consumer loans and other loans granted to households by banks and credit unions, increased by EUR 21.4 million, or 1.3 per cent, over the first quarter of 2016. On the other hand, households turned less frequently to consumer credit providers, other than credit institutions, for money. The portfolio of loans issued to households by consumer credit providers contracted by 4 per cent (to EUR 418.4 million) over the quarter and the amount of newly originated consumer loans decreased by EUR 29 million, or 46.7 per cent, on a year-on-year basis. As of the end of the first quarter of 2016, the market share held by banks in the market for consumer credit fell by 2.1 p.p. in year-on-

Chart 13. Contributions to annual changes in MFIs' loan portfolio

(January 2012–April 2016)

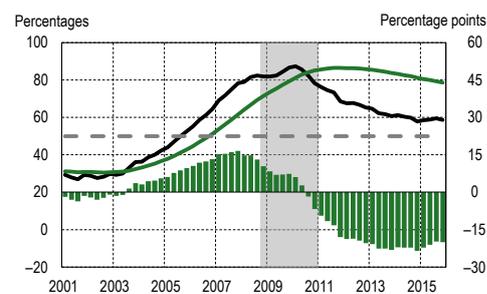


Source: Bank of Lithuania calculations.

Note: MFI balance sheet statistics adjusted for changes not related to transactions.

Chart 14. Long-term trend of private non-financial sector credit-to-GDP ratio and a deviation therefrom (measured by standardised Basel approach)

(Q1 2001–Q4 2015)

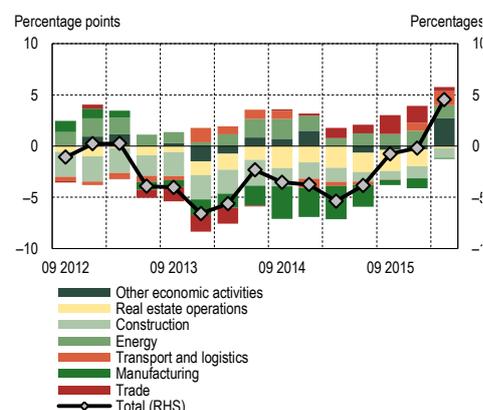


Sources: Statistics Lithuania and Bank of Lithuania calculations.

Note: long-term trend is computed using a one-sided HP filter with a smoothing parameter of 400,000.

Chart 15. Contributions to annual changes in loans to non-financial corporations

(Q3 2012–Q1 2016)



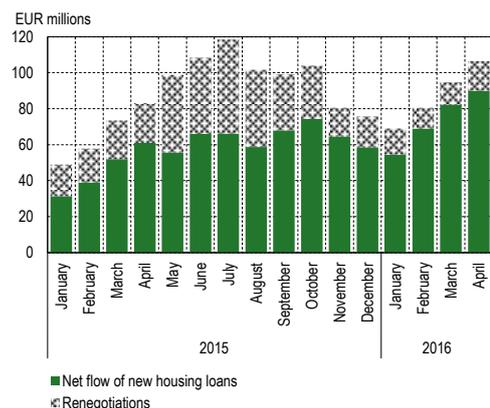
Source: Bank of Lithuania calculations.

Note: names of some economic activities are abbreviated.

¹¹ Pursuant to the ESRB recommendation ESRB/2014/1, the Bank of Lithuania uses two methods to calculate the gap: a standardised Basel approach, defined in the first part of the annex to the recommendation, and an approach using loan-to-GDP ratio forecasts, which is better suited for Lithuania's data. In contrast to the standardised Basel approach, the other approach calculates the long-term trend by extending time series with a forecast using a 4-quarter weighted average. See N. Valinskytė and G. Rupeika, *Leading Indicators for the Countercyclical Capital Buffer in Lithuania*: http://www.lb.lt/leading_indicators_for_the_countercyclical_capital_buffer_in_lithuania_1.

Chart 16. Net flow of new housing loans

(January 2015 – April 2016)

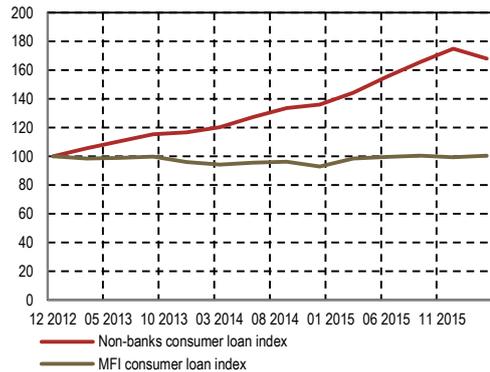


Sources: ECB and Bank of Lithuania calculations.

Chart 17. Growth in consumer loan portfolio of MFIs and consumer loan providers (other than credit institutions)

(Q4 2012–Q1 2016)

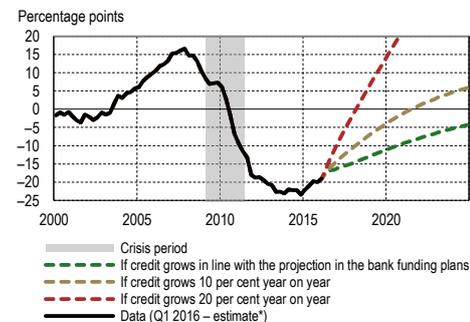
Q4 2012 index = 100



Source: Bank of Lithuania.

Chart 18. Future developments in credit-to-GDP ratio gap (in accordance with Basel approach), based on different scenarios

(Q1 2000–Q4 2025)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

* Taking into account Q1 2016 data of the MFI loan portfolio and assuming that other credit constituents remain unchanged from Q4 2015.

Notes: 1) based on the GDP (at current prices) forecast published by the Bank of Lithuania in March 2016; 2) the long-term trend is computed using a one-sided HP filter with the smoothing parameter of 400,000.

year terms.

Improvements in the financial health of the private sector and low interest rates contribute to the strengthening of lending activity. According to Statistics Lithuania, real wages in the country grew by 5.8 per cent, unemployment rate fell by 1.6 p.p. (to 9.1%) and the level of employment rose by 1.2 per cent in 2015. The households' burden of loan repayment continued to ease at a moderate pace thanks to income growth and low interest rates. In general, the environment of low interest rates makes borrowing (e.g. for house purchase) more attractive (for more details see the section 'Real estate market' in this chapter and the section 'Prolonged low interest rate environment' in Chapter II of this Review). Corporates shored up their financial strength, which manifested itself in the growth of their profitability and the decrease in their burden of liabilities. Demand for corporate loans was also driven by the growth of business investment, which increased by 11.2 per cent in 2015. In addition, non-financial enterprises are likely to make increasing use of funds borrowed from financial institutions for their investment. The results of business surveys conducted by the Bank of Lithuania suggest that the number of companies which rely solely on their in-house resources to finance business expansion is diminishing.¹²

Lending standards applied to households and corporates remain stringent, yet show some signs of easing gradually. A bank lending survey¹³ conducted in the first quarter of 2016 suggested that lending conditions for corporates were relaxed somewhat. This was underpinned by improvements in the liquidity of banks, growing competition among banks, improved outlook for economic growth and for activities of specific enterprises as well as growing risk tolerance among banks. Lending conditions for small and medium-sized enterprises were eased to a somewhat greater extent. Nevertheless, a survey of non-financial enterprises, which was carried out in the first quarter of 2016 under the commission of the Bank of Lithuania revealed that businesses remained unhappy about the availability of credit. Almost 50 per cent of respondents in the survey indicated that lending to businesses by credit institutions was strictly or at least partly limited.

Lending should continue to grow, but is likely to remain sustainable in the near future. Surveys among enterprises show that many companies plan to tap a wider range of sources to finance the future expansion of their business. Moreover, the proportion of enterprises that intend to rely solely on their in-house resources to finance business expansion decreased by 11 p.p. year-on-year. The demand in loans among households should increase as well in particular as forecasts indicate that wages should grow by 5.3 per cent and the unemployment rate should decrease to 8.6 per cent in 2016.¹⁴ According to the data available at the end of 2015, banks plan to further step up lending to the private sector within the next three years. As estimated by banks, credit to the private sector should increase by 7.5 per cent over 2016, by 4.8 per cent in 2017 and by another 4.5 per cent in 2018 (see Box 2). However, forecasts made by banks concerning the growth of loan portfolio often prove to be overly optimistic. Credit growth is likely to remain sustainable and, as such, will be underpinned by the growth of the economy and household income as well as improvements in the financial health of businesses. In order for the loan-to-GDP ratio (as estimated under the Basel approach) to go back to and exceed its long-term trend, for example in 2018 (which would indicate a potentially unsustainable growth in lending), the loan portfolio should be growing at an ultra-fast pace of more than 20 per cent a year in the near future (see Chart 18).

¹² The latest Review of the Survey of Non-financial Enterprises on Business Financing (2015, No 2) can be found online at https://www.lb.lt/review_of_the_survey_of_enterprises_on_business_financing_no1_2016.¹³ The Review of the Bank Lending Survey (2016, No 1) can be found online at http://www.lb.lt/duomenys_2016/i.¹⁴ Macroeconomic forecasts published by the Bank of Lithuania can be found online at http://www.lb.lt/makroekonominės_proгноzes.

Box 2. Banks' funding plans and lending to the economy

Bank liquidity problems that arose during the financial crisis of 2007–2009 brought to light the unsustainability of the funding structures of many of the banks. Following a shock to the financial market, credit institutions ran into difficulties in obtaining funding as a result of reduced liquidity of certain types of financial assets (e.g. asset-backed securities), a slump in securities' prices, re-hypothecation^I of assets, impaired access to market funding, etc. Central banks used a broad array of tools to address such bank liquidity constraints (e.g. stepped up longer-term monetary policy operations, scaled down their collateral eligibility requirements). Nevertheless, credit institutions in some countries continued to rely on such additional sources of funding early in 2016.

In 2012, the ESRB issued Recommendation 2012/02 on funding of credit institutions in order to steer banks towards more sustainable funding models. Pursuant to the Recommendation, the supervisory authorities of EU Member States are obliged to intensify monitoring and assessments of funding and liquidity risks and their management not only in individual banks but also across the entire banking system, whereas the European Banking Authority (EBA) is assigned the task of coordinating the assessment of funding plans at the EU level. The Recommendation provides that credit institutions shall supply data on expected developments and the structure of assets and liabilities over a three-year time horizon, the use of public sector sources of funding, unconventional and uninsured instruments, as well as on assets that are pledged explicitly or implicitly, using the templates^{II} for the reporting of funding plans developed by the EBA. This should help identify the manifestations of emerging systemic risks in good time and, where necessary, to take measures to fend them off.

In implementing the Recommendation ESRB/2012/02, the Bank of Lithuania has been collecting and analysing the data of funding plans reported by banks and assessing changes in the flow of credit to the real economy on a regular basis, starting from 2015.

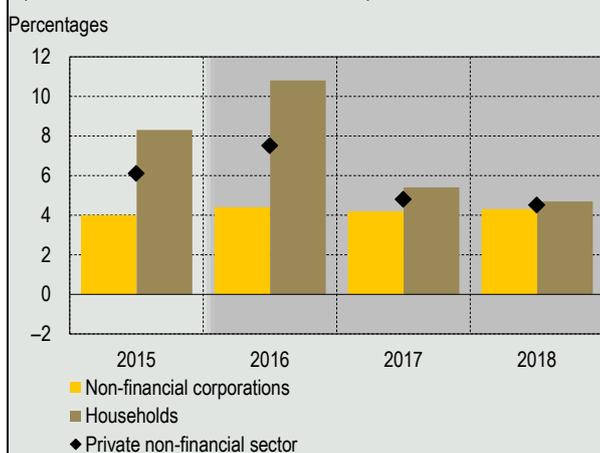
The data shall be supplied by all banks operating in Lithuania (i.e. *AB SEB bankas*, *AB DNB bankas*, *AB Šiaulių bankas*, *AB Citadele bankas*, *UAB Medicinos bankas* and *Swedbank*, AB), except foreign bank branches. Thereby, it collects detailed information about the envisaged size and composition of the loan portfolio and, therefore, this new source of data makes it possible to measure likely credit developments in Lithuania and to complement information obtained from other sources, such as projections provided by banks during surveys or forecasts made on the basis of econometric models. The banks' funding plans are helpful in assessing whether the credit development plans are reasonable and do not constitute a threat to financial stability.

As suggested by the end-of-2015 data, banks intend to intensify lending to the private sector within the next three-year window.

The banks estimate that credit to the private sector should increase by 7.5 per cent, or EUR 1,070 million, in 2016, by 4.8 per cent, or EUR 730 million, in 2017, and by another 4.5 per cent, or EUR 720 million, in 2018 (see Charts A and B.), although certain smaller banks target even faster growth of the loan portfolio in their plans. Lending to households should grow at a faster pace than lending to companies, notably in 2016.

Chart A Annual rate of growth in the banks' portfolio of loans to households and non-financial corporations

(actual data, 2015; 2016–2018, estimates)

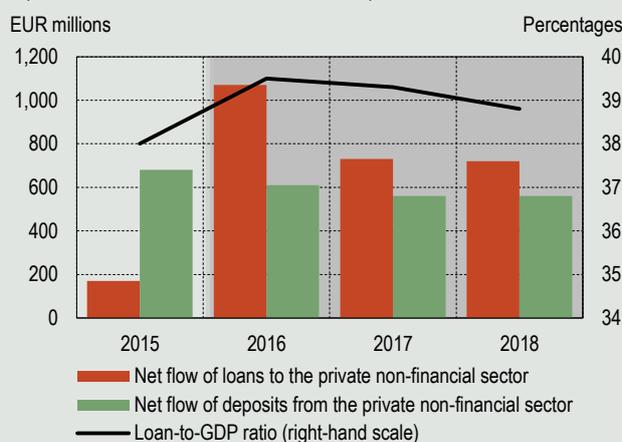


Sources: bank data and Bank of Lithuania calculations.

Note: grey area marks the period for which projections are made based on the funding plans as of 31 December 2015.

Chart B Annual net change in the banking sector's portfolio of loans to the private sector and deposits

(actual data, 2015; 2016–2018, estimates)



Sources: bank data, Statistics Lithuania and Bank of Lithuania calculations.

Note: grey area marks the period for which projections are made based on the funding plans as of 31 December 2015.

The envisaged growth of the loan portfolio is consistent with economic development as changes in the loan-to-GDP ratio would not be substantial. The ratio between loans granted by the banking sector to the private sector and GDP^{IV} would increase to 39.5 per cent, from 38 per cent, in the first year but then again would decline to 38.9 per cent by the end of the forecast horizon. Loan origination would slightly outperform the expected development of resident deposits (see Chart B) and, as a result, the loan-to-deposit ratio^V would increase to 98.5 per cent, from 93.1 per cent, over the entire period.

^I Re-hypothecation is a process whereby the same asset (e.g. securities) is re-used as collateral in transactions concluded by different participants, thus increasing the potential total volume of transactions.

^{II} In June 2014, the EBA issued guidelines on harmonised definitions and templates for funding plans of credit institutions (EBA/GL/2014/04), for details, see <https://www.eba.europa.eu/-/eba-publishes-guidelines-on-harmonised-definitions-and-templates-for-funding-plans-of-credit-institutions>.

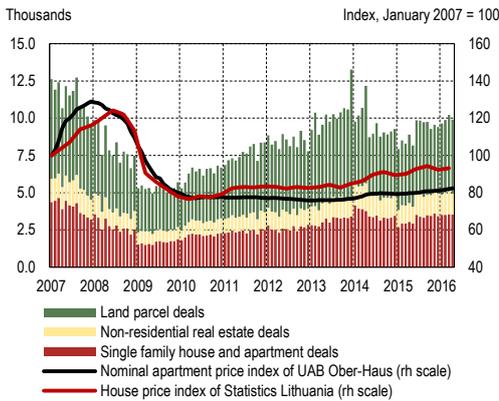
^{III} The data in this box is extended to cover the whole banking sector under the assumption that the principal items of assets and liabilities of foreign bank branches grow at the same pace as the respective aggregate indicators of the banks that have provided data (the assets of the banks that submitted their funding plans as of late 2015 accounted for 84.3 per cent of the total assets of the entire banking sector).

^{IV} Annual GDP at current prices, Bank of Lithuania's 2016 March forecast, see http://www.lb.lt/makroekonomines_proгноzes_2016_m_kovas.

^V The definition of the loan-to-deposit ratio as used in this box only covers loans to resident households and non-financial corporations as well as deposits of resident households and non-financial corporations. It may differ from definitions used elsewhere in this Review.

Chart 19. Real estate market deals (seasonally adjusted data) and home prices in Lithuania

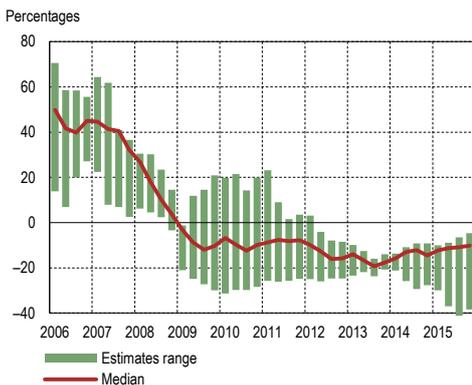
(January 2007–April 2016)



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

Chart 20. Deviation of actual home prices in Lithuania from fundamental value

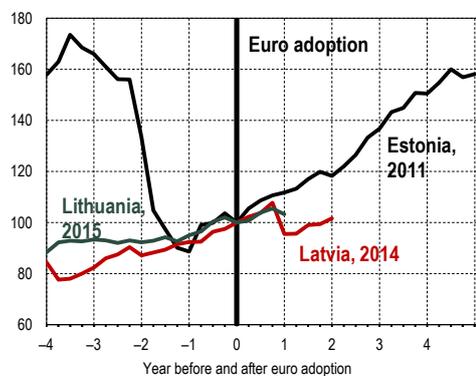
(Q1 2006–Q4 2015)



Source: Bank of Lithuania calculations.
Note: estimates are based on price to rent ratio, price to income ratio, econometric model and HP filter.

Chart 21. Changes in home prices in the Baltic countries after euro adoption

Index, date of euro adoption = 100



Sources: Eurostat and Bank of Lithuania calculations.

REAL ESTATE MARKET

Real estate market activity picked up steam early in 2016 as compared to the same period the previous year (see Chart 19). According to the Centre of Registers, the number of immovable properties that changed hands in the first quarter of 2016 rose by an annual 19.9 per cent. This was mostly due to intensified trade in land parcels and apartments as the sales of these types of immovable properties increased by 16.9 per cent and 25.4 per cent, respectively, in the beginning of the year. In Vilnius, advances were recorded in the sales of both existing and newly built apartments¹⁵, which increased by 10.9 per cent and 31.4 per cent, respectively, in the abovementioned period. To a large extent, this substantial increase in market activity was driven by the low comparable basis effect due to a slump in real estate market activity after the adoption of the euro in the beginning of 2015. In the second half of the year, the real estate market bounced back quickly, supported by fundamental factors, including the low interest rates on housing loans, improvements in the labour market, a balance between new housing demand and supply and rent price increases. Moreover, investing in both commercial and residential real estate was an attractive alternative for less risky fixed income financial instruments. For instance, the estimated rental yields on housing are higher than the average interest rates paid on loans (for more details see the section 'Prolonged low interest rate environment' in Chapter II of this Review). On average, housing transactions financed with a mortgage accounted for 31.3 per cent of the total number of home deals in the first quarter of 2016 (up by 7 p.p. from the first quarter of 2015). The proportion of the value of home transactions financed by newly issued mortgages in the same time period rose by an annual 3 p.p. to 56.2 per cent. This indicates that buyers tend to use loans to purchase more expensive homes and own money to purchase cheaper ones.

According to Statistics Lithuania, housing prices in Lithuania rose by an annualised 3.3 per cent on average in the final quarter of 2015, whereas the data available to real estate market intermediaries (UAB Ober-Haus) suggests that prices increased by 2.9 per cent in year-on-year terms in the first quarter of 2016. This pace of price growth was seen as sustainable and mainly driven by fundamental market factors, such as recent rapid growth in household income (ahead of the growth in housing prices). At the end of the year, prices for residential properties stood approximately 10 per cent below their long-term equilibrium values and the negative price deviation calculated on the basis of different parameters ranged between 2.1 and 38.9 per cent (see Chart 20). Price developments across big cities were uneven. According to the data made available by real estate market participants, the biggest increase in prices for apartments in 2015 was recorded in Vilnius (3.6%), whereas increases in other big cities (Kaunas, Klaipėda, Šiauliai and Panevėžys) ranged between 0.3 and 1.2 per cent. At the end of the first quarter of 2016, the annual pace of apartment price growth accelerated further: to 4.7 per cent in Vilnius and to 1.1–2.2 per cent in other big cities. According to the data published by the Centre of Registers, the average square metre price of housing units (detached houses and apartments) sold in Lithuania in the first quarter of 2016 rose by 6.9 per cent on a year-on-year basis. Prices for detached houses grew at a faster pace (9.7%) than prices for apartments (5.3%). Overall, housing prices in Vilnius rose by 7.5 per cent, with prices for detached houses up by 10.8 per cent, and those for apartments — by 8.7 per cent. However, this data from the Centre of Registers reflects only the average value of actual home purchase transactions, which suggests that larger price increases might have been driven by the mere fact of increased sales of higher quality homes in a specific period, which pushed up the aggregate average per-square-metre price. Moreover, the participants of the real estate market estimate that the combined sales of mid-tier and luxury apartments in Vilnius outnumbered the sales of economy class apartments in 2015. Increases in sales of higher-end apartments are also observed in other cities. Improvements in the financial health of households, low interest rates and the fact that banks do not intend to tighten their standards for house loans should contribute to further growth in housing prices.

The national currency changeover and the updating of the Responsible Lending

¹⁵ Newly built apartments are defined as apartments in residential buildings built within 1 year before the beginning of the reporting period.

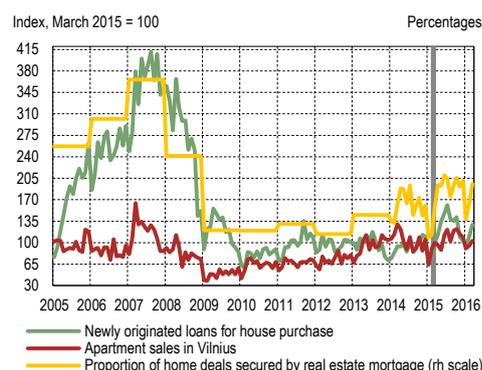
Regulations did not have significant implications for real estate prices in the period under review. The impact of the new domestic currency on activity varied between residential and commercial real estate markets. The uncertainty over the effect of currency switchover on housing prices led to a slump in the number of transactions involving apartments and detached houses early in 2015. However, as was the case in Latvia and Estonia, which switched their national currencies to the euro in previous years, the adoption of the euro had no marked impact on prices in Lithuania as it was more of a psychological factor (see Chart 21) and the number of home transactions returned to growth in mid-2015. On the other hand, integration in the euro area bolstered the confidence of both domestic and foreign investors and helped attract new investment in commercial real estate.¹⁶ Precautionary amendments to the Responsible Lending Regulations, which were adopted by the Bank of Lithuania, published in March 2015 and came into effect in November of the same year, might have triggered a short-lived spike in housing demand (see Chart 22) since the market perceived them as tightening the lending standards that existed at that time. Nevertheless, market participants' fears that the number of home transactions might decrease after the coming into effect of those amendments proved groundless and the housing market activity remained high in the first quarter of 2016. Lithuania plans to implement the provisions of the so-called Mortgage Credit Directive¹⁷ in the course of 2016. This regulatory development can also affect the lending conditions applied by banks as well as housing market activity.

The results of surveys of households, banks and real estate market participants, carried out by the Bank of Lithuania in the first quarter of 2016, suggest that prices in the real estate market are expected to grow (see Chart 23). Banks' expectations signalled a faster pace of growth in housing prices within the next 12 months, compared to what was expected in last year's survey. In particular, seven out of ten banks surveyed believed that prices for newly built housing would increase by up to 10 per cent and one respondent expected those prices to grow by 10 to 20 per cent. As estimated by banks, prices for existing housing and commercial premises should grow at a more moderate pace. According to a household survey¹⁸ conducted in the first quarter of 2016, nearly 50 per cent of respondents expected that housing would become more expensive. Higher interest in house purchase was also evident from substantially increased use of keywords related to real estate acquisition in online search engines early in 2016 (see Chart 24). Moreover, the first ever survey of real estate market participants carried out by the Bank of Lithuania revealed expectations for house price growth in Vilnius and Kaunas (see Box 3).

Growing demand in residential real estate led to an increase in the flow of investment in such properties in the reporting year. According to Statistics Lithuania, investment in the construction of apartments and detached houses rose by an annual 16.1 per cent in 2015, to EUR 1.1 billion. As a result of this surge in investment, the added value created over the year by the construction of new homes and measured as a share of GDP stood at 2.9 per cent on average, which represented an increase of 0.7 p.p. compared to the long-term average rate of 1995–2015. Most of this investment went towards the housing market of Vilnius. According to the data made available by real estate market participants, the number of apartments built in Vilnius over 2015 soared by 26.9 per cent from the previous year, to 3,600. Regarding other cities, the construction of new apartments lost momentum. In particular, new apartment construction fell by 40.7 per cent in Kaunas and by 27.6 per cent in Klaipėda in 2015 on a year-on-year basis. As far as smaller towns are concerned, apartment construction activity was virtually at a halt, with, for example, merely 27 apartments built in Šiauliai and 12 in Panevėžys over the year. The inventory of unsold apartments in newly built blocks of flats or in multi-apartment buildings still in the process of construction in Vilnius decreased by an annual 4.6 per cent to 4,200 as of the end of 2015. Similar inventories in Kaunas and Klaipėda decreased as well — by 26.6 per cent and 12.9 per cent, respectively. All of this shows that more new apartments were being sold than built in Lithuania's big cities in 2015 and that the supply of homes is not in surplus.

Chart 22. Housing market activity in Lithuania before and after publication of Responsible Lending Regulations

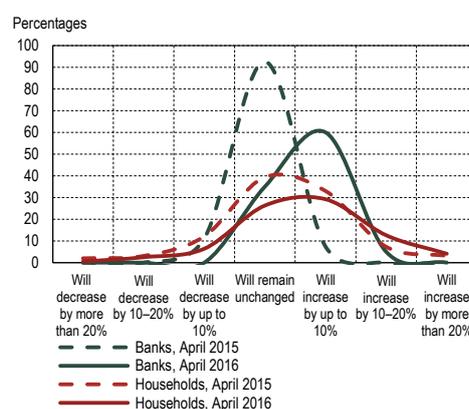
(January 2005–March 2016)



Sources: State Enterprise Centre of Registers, Central Mortgage Office and Bank of Lithuania calculations.
Note: grey vertical line indicates the date of publication of amendments to the Responsible Lending Regulations.

Chart 23. Changes in home prices expected by banks and households within next 12 months

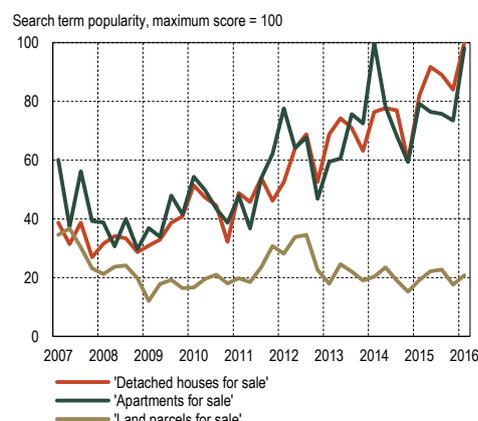
(April 2015–April 2016)



Sources: reviews of banks' surveys, reviews of households' surveys and Bank of Lithuania calculations.

Chart 24. Popularity of queries in Google's search engine

(Q1 2007–Q1 2016)



Sources: Google Trends and Bank of Lithuania calculations.

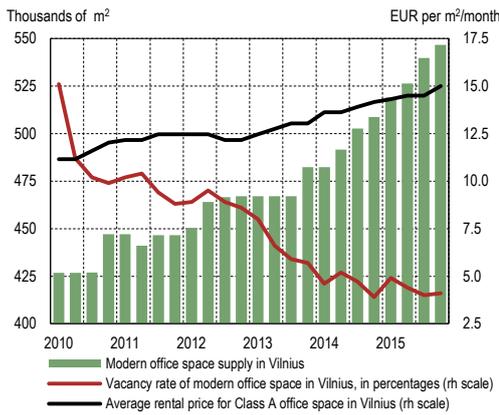
¹⁶ Colliers International Advisors. *Real Estate Market Overview*, 2016.

¹⁷ Directive 2014/17/EU of the European Parliament and of the Council on credit agreements for consumers relating to residential immovable property and amending Directives 2008/48/EC and 2013/36/EU and Regulation (EU) No 1093/2010.

¹⁸ See http://www.lb.lt/review_of_the_survey_of_the_financial_behaviour_of_households_1.

Chart 25. Developments in modern office space supply, prices and vacancy rate in Vilnius

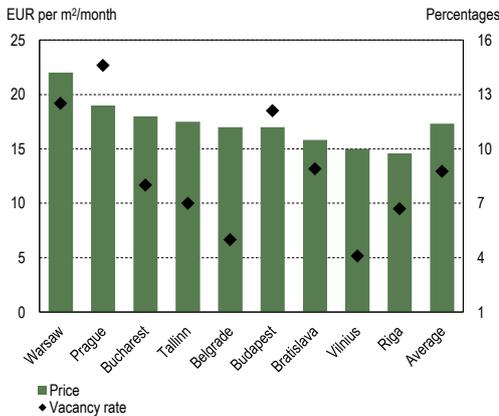
(Q1 2010 – Q4 2015)



Source: UAB Ober-Haus.

Chart 26. Prices and vacancy rates of modern office space in CEE capitals

(Q4 2015)



Source: BNP Paribas Real Estate.

The market for commercial real estate saw a substantial increase in activity in 2015 and investment spread evenly across regions. According to the data made available by market participants, Lithuanian and foreign investors concluded 154 commercial real estate (office space, commercial space, etc.) transactions, worth a total of EUR 435.1 million, in 2015. As compared to 2014, the number of investment transactions soared by 81.2 per cent and their total volume increased by 48.2 per cent. In 2015, investments were mainly made in the acquisition of commercial space (51%) and office space (27.6%). This was in contrast to the trends observed in 2014, when office space ranked as the most popular investment choice, accounting for 57 per cent of the total investment, whereas spending on acquisition of commercial space accounted for 22.7 per cent of the total. In geographical terms, the distribution of investment was more even in 2015. In particular, the proportion of investment that went towards commercial real estate in Vilnius decreased by an annual 19.9 p.p. to 43.7 per cent of the total. Real estate market participants polled in the new survey of the Bank of Lithuania also anticipate an increase in supply in the office market (see Box 3).

The rental yields of modern office space remained unchanged in big cities over 2015. However, rental prices for offices followed an upward path. The average return on investment for rental modern office space in the prime locations in Vilnius was as high as 7 per cent, whereas in Kaunas, the average return was 8 per cent, as was in Klaipėda. The biggest year-on-year increases were recorded in rental prices for Class B office space in Kaunas and Klaipėda, which rose by 15.4 per cent and 16.9 per cent, respectively. Increases in rental prices for Class A office space in those cities were less pronounced (of 0.9% and 3.4%, respectively). Regarding Vilnius, rental prices for office space in both Class A and Class B business centres grew at a similar pace in the same time period (by 6% and 6.3%, respectively). Still, the relatively rapid growth in prices in the markets for modern office space in Kaunas and Klaipėda was insufficient to attract more attention from office building investors as the bulk (82.4%) of total investment in office buildings in Lithuania went towards Vilnius. This trend also found reflection in the supply of useful office space, which increased by 38,000 square meters in Vilnius in 2015 (see Chart 25). The demand for modern office space in Vilnius was mostly driven by foreign companies establishing their shared services centres in Lithuania.

The office vacancy rate in Vilnius is the lowest among Eastern and Central European capitals and the rental price for office space in the city's prime locations is among the lowest. However, office space supply will increase substantially in 2016–2017 (see Chart 26). Financially strong international corporations tended to choose top-tier office space. As a result, the office space in Class A business centres in Vilnius was almost fully occupied and the vacancy rate for such offices was a meagre 0.6 per cent at the end of 2015. The lowest vacancy rate for all classes of office space — of 2.6 per cent — was recorded in Kaunas, where modern office space is in short supply. The situation in Klaipėda was way more different as the free office space in that city accounted for as much as 18.8 per cent of the total supply. The attractive investment environment in Lithuania, which encourages entry of new foreign enterprises and the expansion of those already present in the country, as well as the substantial yield on investment are likely to keep commercial property investors interested in Lithuania throughout 2016. These preconditions feed into expectations of the continued establishment of new service centres by foreign enterprises and, simultaneously, of the emergence of new office building projects in Vilnius in the coming years. According to the data made available by market participants, the total space of modern office premises in Vilnius should increase by one third (33.4%) in 2016 and 2017, which indicate the likelihood of an increase in the office vacancy rate. Meanwhile, the ability of the market to adapt to this additional supply will mostly depend on the expansion of shared services centres. This being so, an exit by one or a few large foreign shared services centres would present the most serious risk to the office market in Vilnius as it could have a substantial effect on the office vacancy rate and rental prices.

Box 3. New survey of real estate market participants

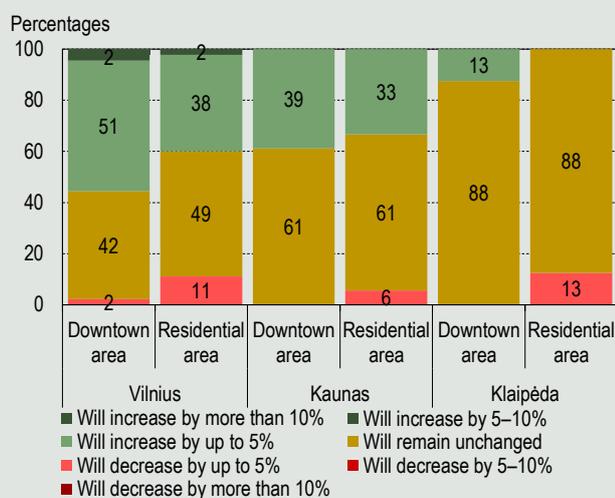
In 2015, the Bank of Lithuania launched a regular survey of real estate market participants, which aims to enhance the quality of monitoring of this market. The Bank of Lithuania regularly performs intense and comprehensive monitoring and analysis of the domestic real estate market in order to maintain the stability of the Lithuanian financial system. In addition to existing quantitative indicators and expectations estimates, which are derived from the results of bank and household surveys, the Bank of Lithuania has also started collecting information reflecting expert opinion of well-informed real estate market participants about the development of this market, as it seeks to improve the quality of those monitoring and analysis exercises. Starting from the beginning of 2016, direct participants, such as real estate developers and realtors, appraisers, managers, banks, etc., are invited, on a quarterly basis, to fill in a questionnaire about the situation in the Lithuanian real estate market at present and in the near future.¹ The results of such surveys are expected to help identify market segments showing unsustainable price developments (if that was the case) and find out expectations of well-informed market participants regarding future developments in prices, demand and supply.

The survey involves the assessment of prices for standard hypothetic offices and apartments in Lithuania's big cities, expectations about their developments as well as demand/supply indicators. The assessment uses standardised, i.e. fully and invariably defined, properties in order to ensure the comparability of results. These properties are divided by type (office vs home), city (Vilnius, Kaunas or Klaipėda) and city area (downtown vs residential areas). For example, a standard apartment in the residential area of Vilnius is defined as a fully fit-out one-bedroom apartment with a living space of 55 square metres in a newly built or fully renovated building, except for the ground floor and the top floor, in the Fabijoniškės neighbourhood. The respondents are free to choose the city and the properties for their assessment, based on their competence. Real estate market participants assess the current price for a standard property and indicate their expectations regarding its developments within the next 12 months. Moreover, they provide insights on the current office vacancy rate and the inventory of newly built unoccupied homes and make forecasts about changes in real estate supply and demand in the near future.

The results of the first survey have shown that the respondents have the highest expectations about growth in housing prices in Vilnius and Kaunas. More than 50 per cent of respondents in the survey of the first quarter of 2016 said that prices for a standard apartment in the central part of Vilnius would increase within the next 12 months (see Chart A) and 40 per cent predicted growth in housing prices in residential areas of the capital city. Regarding Kaunas, 39 per cent expected housing prices to grow in downtown Kaunas and another 33 per cent had the same expectations for the residential areas of the city. Meanwhile, meagre 13 per cent of those polled thought that housing prices would increase in downtown Klaipėda and no one expected growth in such prices in the city's residential areas. Regarding the home rental market, the trends revealed by the survey were broadly similar. In most cases, the respondents said that rental prices would grow in Vilnius and a somewhat smaller proportion had the same expectations about Kaunas. Regarding Klaipėda, the majority believed that rental prices in that city should remain unchanged in the near future.

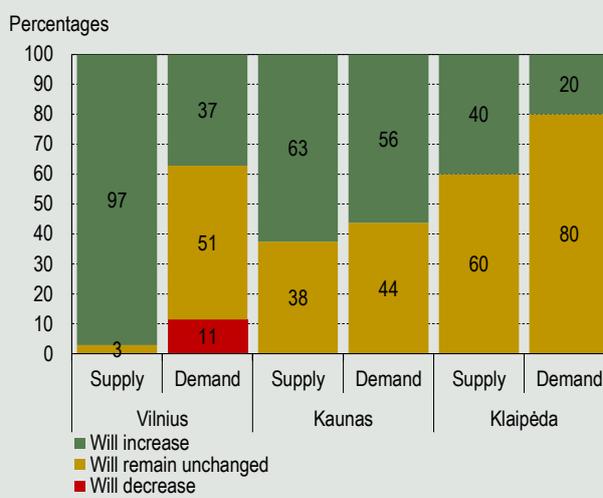
Expectations of growth in the supply of office space in Lithuania's big cities are increasing. An overwhelming 97 per cent of the respondents that answered questions from the survey of the first quarter of 2016 said that the supply of modern office space in Vilnius would increase within the next 12 months (see Chart B). A substantial amount of respondents (63%) expected growth of supply in Kaunas and a somewhat smaller proportion (40%) had the same expectations for Klaipėda. Expectations of growth in the demand for office space among the surveyed market participants were substantially lower (for instance, 37% expected growth in demand in Vilnius). Nevertheless, a substantial proportion of survey participants predicted that increases in office prices and rentals would be concentrated in downtown areas of the country's big cities. For instance, 34 per cent of the polled expected growth in rentals in downtown Vilnius, 31 per cent — in downtown Kaunas and another 20 per cent — in downtown Klaipėda. Expectations of such rapid growth in prices in downtown Vilnius and Kaunas may be underpinned by low vacancy rates for office space in these cities. In most cases, the respondents indicated that these rates hovered around 5 per cent in Vilnius and Kaunas and around 15 per cent in Klaipėda.

Chart A. Expectations of prices for standard homes



Source: Survey of real estate market participants.

Chart B. Expectations of supply and demand of modern office space

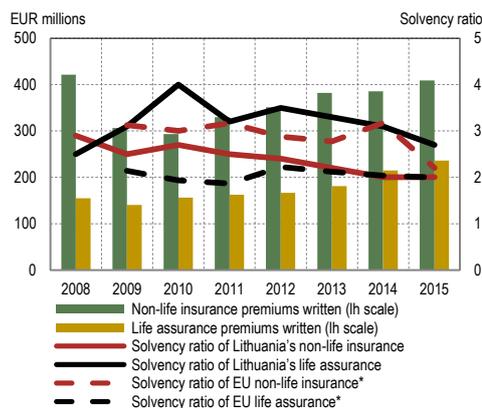


Source: Survey of real estate market participants.

¹ The survey of real estate market participants can be found online at http://www.lb.lt/nekilnojamojo_turto_rinkos_dalyviu_apklausa.

Chart 27. Premiums written and solvency ratios of life assurance and non-life insurance undertakings

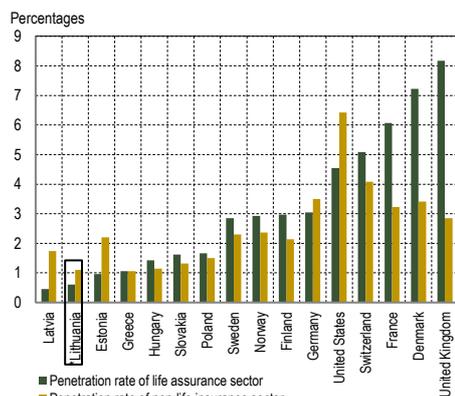
(2008–2015)



Sources: ECB and Bank of Lithuania.
*The median solvency ratio of large EU insurance groups.

Chart 28. Penetration rates of life assurance and non-life insurance undertakings

(2014)



Sources: OECD and Bank of Lithuania calculations.
*Lithuania's rates remained unchanged in 2015.

INSURANCE MARKET AND PENSION FUNDS

Lithuania's insurance market continued to grow at a rapid pace in 2015 and the country's economic output should enable it to grow further in a consistent manner. The amount of insurance premiums written during 2015 rose by 7.4 per cent, to EUR 645.1 million. This increase was mainly due to a 9.7 per cent rise in premiums written in the life assurance sector. However, the non-life insurance market also saw a year-on-year acceleration in the growth rate, which came in at 6 per cent (see Chart 27). Lithuania lags well behind other EU Member States in terms of insurance penetration (defined as the ratio of insurance premium volume to GDP), which shows the level of insurance market development (see Chart 28). On the one hand, the low penetration rate shows that the pace of growth of the Lithuanian insurance market should remain broadly unchanged in the future, given its high growth potential. On the other hand, the low level of market development may *inter alia* be attributed to structural factors (such as the cost of insurance, competition, product range, etc.). Nevertheless, high solvency ratios of insurance undertakings ensure the sustainability of the Lithuanian insurance market, which has room for expansion and is growing at a rapid pace. Based on the data available for the first quarter of 2016, the increase in non-life insurance premium volume (by 5.9 p.p.) offset the decline in the volume of life assurance premiums (by 5.8 p.p.) and led to an overall rise in the insurance premium volume in that quarter. The year-on-year decrease in the flow of life assurance premiums was due to the diminished flow of lump sum contributions.

The solvency ratio¹⁹ of life assurance undertakings operating in Lithuania exceeded the EU's median solvency ratio.²⁰ As of late 2015, the insurance undertakings operating in Lithuania had sufficient funds to cover unexpected losses or losses that had not been accounted for when calculating technical provisions. Solvency ratios of both life assurance and non-life insurance sectors (at 2.7 and 2, respectively) safely exceeded the statutory minimum requirement (of 1) and the overall solvency ratio of the Lithuanian insurance market was as high as 2.3 at the end of 2015. The Solvency II Directive, which came into effect in Lithuania and all across the EU on 1 January 2016, has further boosted insurers' resilience to unexpected shocks. The Directive stipulates that all types of risks, which an insurer's operations may be exposed to (such as underwriting, operational, investment, etc.), shall be taken into consideration when calculating the insurer's capital requirement. Estimates based on the new directive have shown that life assurance undertakings have a solvency ratio of 2.6 and non-life insurance undertakings — of 1.6.

In 2016, insurance undertakings will be stress tested to assess their resilience to adverse market scenarios. The process to carry out such tests is being launched by the European Insurance and Occupational Pensions Authority (EIOPA). A sample of three life assurance undertakings (*UAB Bonum Publicum*, *UAB PZU Lietuva Gyvybės Draudimas* and *Ergo Life insurance SE*), whose portfolios contain a substantial proportion of traditional life assurance products (guaranteed-interest life insurance products), will be tested in Lithuania by exposing them to adverse market scenarios so as to assess the vulnerability of insurance businesses in the persistent low interest rate environment. Also worthy of mention are the ever-increasing international discussions about the need to apply macro-prudential policy instruments to the insurance sector. The initiatives related to the introduction of such measures are likely to be relevant for the Lithuanian insurance undertakings in the future. In 2015, the EIOPA published a public discussion paper²¹, which aims to consider a range of macro-prudential policy instruments that might be relevant for the insurance sector and, as such, could contribute to the enhancement of financial stability in the environment of low interest rates and mitigate the likelihood of a systemic crisis to occur and the negative impact in case such a crisis materialises (e.g. additional capital buffers enhancing resilience against systemic or cyclical risks, etc.).

¹⁹ The solvency ratio was estimated pursuant to the Solvency I Directive, which remained in effect until 1 January 2016.

²⁰ ECB's data on the median solvency ratio of EU's large insurance groups: https://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=277.LIG.H.V3.N.M00.ME.F&periodSortOrder=ASC.

²¹ *Macprudential Objectives and Instruments for Insurance — an Initial Discussion*; <https://eiopa.europa.eu/Publications/Reports/Macprudential%20Objectives%20and%20Instruments%20for%20InsuranceFSR-May2015-.pdf>.

Concentration in the market for non-life insurance increased in 2015 and its level was higher than those in the banking industry or the life assurance sector (see Chart 29). This increase in concentration was due to mergers in the non-life insurance sector. Although the overall number of undertakings remained substantially unchanged, there is a tendency for large insurance groups to take several non-life insurance companies in Lithuania under their control, which leads to a higher level of concentration, when measured by ownership.²² The Herfindahl-Hirschman Index (HHI), a commonly accepted measure of market concentration, as adapted to the Lithuanian non-life insurance sector, stands at 2,472 and is well above the 1,800 threshold denoting a highly concentrated market. Although a high level of concentration does not automatically render the market less effective, it appears, from a systemic risk perspective, that a highly concentrated sector dominated by a few larger companies or their groups, becomes more dependent on the sustainability of the operations of those several market participants.

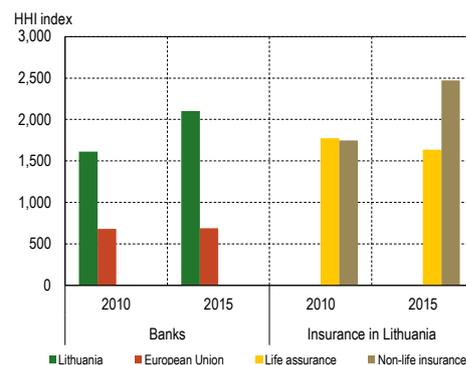
The portfolio of Lithuania's insurance undertakings is highly concentrated around government securities. Same as in previous years, insurers in Lithuania had the biggest chunk of their investment portfolio (47.9%) invested in government securities (see Chart 30). Lithuania's government securities accounted for more than 56 per cent of all those exposures. Even though this proportion decreased in 2015 (from 63%), it exceeded the 2010 level by 15 p.p. (the absolute amount increased to EUR 478.4 million, from EUR 320.2 million). Many international institutions warn that overinvestment by insurance undertakings in the home government debt may pose a systemic risk as it would strengthen the nexus between banks, insurance and government sectors in adverse times.²³

As the period of low interest rates continues, insurers find it increasingly difficult to ensure the investment return required under existing guaranteed-interest life insurance contracts. Even though the proportion of traditional life insurance contracts, i.e. endowment life assurance with a guaranteed interest rate, in the total mix of life insurance contracts concluded in Lithuania is diminishing (see Chart 31), it still remains substantial (20.6%). Pre-existing insurance contracts pose a direct risk to the stability of the insurance sector, in particular to those undertakings, whose business is to a large extent related to these particular products. Insurers step up sales of other products, which enable passing investment risk on to policyholders, in order to reduce the risk stemming from low interest rates. For instance, the volume of unit-linked life assurance premiums written in 2015 rose by 12.3 per cent (to EUR 170.2 million, from EUR 151.6 million). Although the growth of life assurance decelerated early in 2016, a personal income tax relief maintained by the government, aside from other factors, provides an incentive effect for the growth of the life assurance market, which, in general, is rather fast, in the longer term. As part of efforts to improve market transparency and ensure a higher level of protection for consumer interests in the booming market for unit-linked life assurance, the Bank of Lithuania has drafted amendments²⁴ to the Law of the Republic of Lithuania on Insurance and sent them to the Ministry of Finance.

The assets of the 2nd and the 3rd pillar pension funds as a share of the total Lithuanian financial system are growing at a rapid pace. Although many of the 2nd pillar pension funds recorded negative returns in the first quarter of 2016, unit values increased by an average of 3.61 per cent over 2015, which was in line with their average performance in the past decade (3.56%). Fund membership displayed an upward trend against the backdrop of the country's economic growth and the decrease in unemployment. In particular, the number of members of the 2nd pillar pension funds increased by more than 57,000, or 4.9 per cent, over 2015 and by another 9,300 in the first quarter of 2016, to reach 1.223 million (i.e. 90.6% of the total number of employed persons in

Chart 29. HHI index for banks and insurance sector

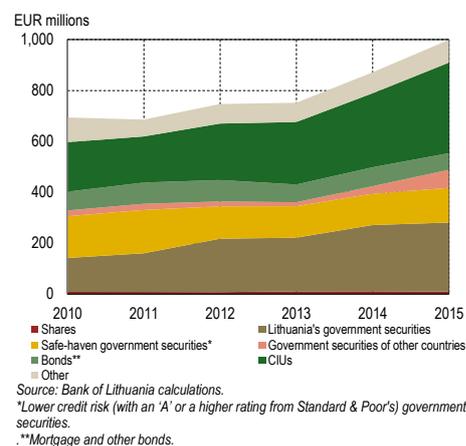
(2010 and 2015)



Source: Bank of Lithuania calculations.
Note: insurance market concentration is measured by premiums written and concentration in the banking market — by assets.
* Calculations for 2015 made on the basis of 2014 data; included are all credit institutions, not only banks.

Chart 30. Composition of investment portfolio of Lithuania's insurance undertakings

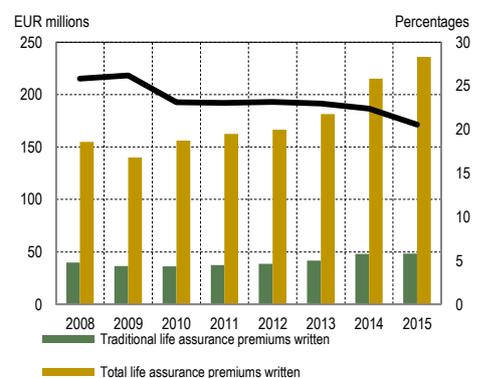
(31 December 2010-31 December 2015)



Source: Bank of Lithuania calculations.
* Lower credit risk (with an 'A' or a higher rating from Standard & Poor's) government securities.
** Mortgage and other bonds.

Chart 31. Developments in traditional life assurance premiums

(2008-2015)



Source: Bank of Lithuania calculations.

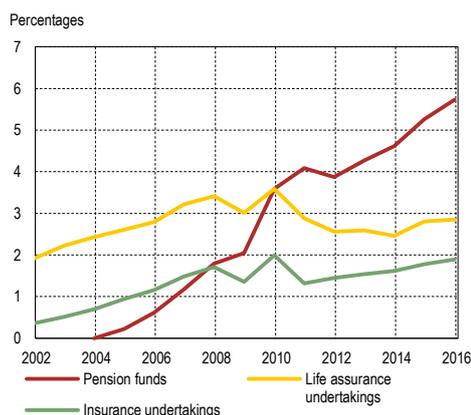
²² The level of concentration is measured by the amount of insurance premiums written by undertakings, owned by different groups, in 2015. Vienna Insurance Group owns the Lithuanian branch of Baltikums Vienna Insurance Group AAS, Compensa Life Vienna Insurance Group SE Lithuanian branch and UADB Bank Compensa Vienna Insurance Group. It is assumed that Vienna Insurance Group will be given the green light to integrate AAS BTA Baltic Insurance Company Lithuanian branch. PZU Group owns PZU Lietuva Gyvybės Draudimas and AB Lietuvos Draudimas. ERGO Group owns Ergo Life Insurance SE and ERGO Insurance SE Lithuanian branch.

²³ E.g. https://www.esrb.europa.eu/pub/pdf/other/2015-12-16-esrb_report_systemic_risks_EU_insurance_sector.en.pdf.

²⁴ The most important proposed amendments have been published on the website of the Bank of Lithuania: http://www.lb.lt/bank_of_lithuania_proposes_to_increase_transparency_in_life_assurance_market_and_protection_of_user_interests_by_amendments_to_the_law.

Chart 32. Assets of pension funds and insurance undertakings vs GDP

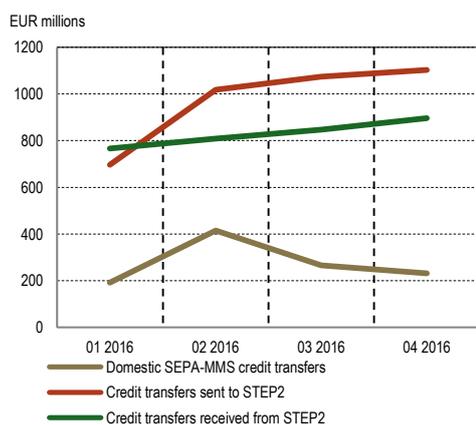
(2002–2015)



Source: Bank of Lithuania.

Chart 33. Developments in the value of SEPA-MMS payment transactions early in 2016

(January–April 2016)



Source: Bank of Lithuania.

Lithuania in the first quarter of 2016). The assets of pension funds as a share of the Lithuanian financial system followed an upward trajectory until reaching 7.4 per cent at the end of 2015. After continuous growth over the past several years, the assets of pension funds as a percentage of GDP came to 5.7 per cent at the end of 2015 (see Chart 32). Lithuania has chosen the so-called defined contribution system as its 2nd pillar pension fund system, i.e. the investment risk is borne by funds' members, and an increased threat of a snapback in risk premia (for more details see the section 'Snapback in risk premia' in Chapter II of this Review) would seriously affect the investment performance of pension funds and it is therefore crucial to make sure that people save for their retirement in pension funds whose risk profile matches their age.

FINANCIAL MARKET INFRASTRUCTURE

By implementing an EU regulation²⁵, Lithuania joined SEPA, the single area for electronic payments in euro encompassing 34 countries, on 1 January 2016. This was the second crucial milestone (after the adoption of the euro) in the area of payments and settlements on the way towards integration into the single payment market in Europe. In countries that have joined SEPA, both domestic and international payments in euro to the European Economic Area countries are subject to standardised payment transaction forms and common rules for payment processing.

Accession to SEPA led to profound changes in Lithuania's interbank payment infrastructure. The SEPA area made it possible for banks to choose a channel for the execution of interbank payments in euro similar to other Baltic countries, that joined the SEPA area some time earlier, *AB SEB Bankas*, *Swedbank*, *AB* and *AB DNB Bankas* as well as foreign bank branches operating in Lithuania opted to execute SEPA payments through parent banks and head offices and thereby participate indirectly in the retail payment system STEP2 managed by *EBA Clearing* (as a result, the bulk of payment operations in Lithuania is executed via the payment system STEP2; see Chart 33). In addition to payments between abovementioned banks, this payment system is also used to execute domestic payments towards other banks operating in Lithuania as well as credit unions and payment and electronic money institutions. This is ensured by the Bank of Lithuania, which participates in the system STEP2 and operates SEPA-compliant payment system SEPA-MMS, which became operational on 8 December 2015.

The new generation retail payment system SEPA-MMS has replaced the payment system LITAS-MMS and increased the range of opportunities available to Lithuania's payment service providers. The participants of the payment system include both banks and credit unions. Access to SEPA-MMS can also be provided to payment and electronic money institutions. The system provides SEPA credit transfer services in real time and at a designated time. Payments in real time are only performed between SEPA-MMS participants whereas payments between SEPA-MMS participants and participants of other systems that meet SEPA requirements are performed at a designated time, thereby this system transfers and receives payment orders from payment service providers registered in the SEPA area via the payment system STEP2 several times a day. By April 2016, the functionality of SEPA-MMS has been expanded to include SEPA direct debit facilities.

The transition to a different model for the execution of domestic interbank settlements was smooth. However, its introduction led to an increase in time needed to execute a significant number of customers' orders to transfer money between banks. As part of transition to SEPA, the Bank of Lithuania discontinued the operation of its payment system LITAS-MMS on 31 December 2015. Starting from 4 January 2016, interbank payments in Lithuania are executed via the abovementioned payment systems STEP2 and SEPA-MMS. Thanks to their thorough *ex ante* testing and coordination, the execution of payments in the new interbank payment infrastructure was launched without systemic disruptions and interbank settlements went on smoothly. Nevertheless, this change had an impact on the execution time of interbank payments. The payment system LITAS-MMS executed payments on an hourly basis nine times a

²⁵ Regulation (EU) No 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009

day. Meanwhile, the system SEPA-MMS executes payments in real time and the payment system STEP2 — five times a day. With the payment system STEP2 executing more than 90 per cent of domestic interbank payments, banks' customers have noticed that the execution of their payment orders takes more time.

The choice to execute payment operations via intermediaries made by large banks, which are the key participants of the payment market, poses a higher risk to the process of payment execution. Indirect participation in the payment system STEP2 implies that payments are executed through an intermediary, which has a direct connection to the payment system. This creates operational and liquidity risks related to the intermediary. Direct participation in a payment system mitigates the risks of the entire process of payment execution as there are fewer middlemen, which may lead to additional disruptions or risks.

Box 4. Risks posed by execution of domestic payments in euro via intermediaries

Following the adoption of the euro and accession to the Single Euro Payments Area (SEPA), most of the domestic interbank payments in euro in Lithuania are executed via intermediaries. At present, the banks operating in the country execute domestic payments as direct participants of SEPA-MMS, a SEPA-compliant retail payment system managed by the Bank of Lithuania, or as indirect participants of STEP2, a retail payment system managed by *EBA Clearing*. Three of the banks operating in the countries and all credit unions participate in SEPA-MMS and execute payments via this system. Several electronic money institutions have also joined SEPA-MMS. However, the subsidiary banks of Nordic banking institutions, which are operating in Lithuania, as well as foreign bank branches, execute their payment transactions in STEP2 through intermediaries, i.e. other banks of their respective groups or their head offices, which are direct participants of this payment system. This is the reason why the majority of payment transactions in Lithuania are executed via the STEP2 payment system. Interbank peer-to-peer payments executed by the domestic commercial banks, credit unions and payment institutions, which participate in SEPA-MMS, only account for approximately 4 per cent of the total payment flow.

Participation of Lithuania's biggest banks in the STEP2 payment system through intermediaries augments the risks related to payment execution. Execution of domestic payments via intermediaries magnifies operational and liquidity risks. The use of intermediaries also often carries a credit risk. However, the intermediaries of banks and foreign bank branches in Lithuania are their parent banks and/or head offices simultaneously, which makes the credit risk less relevant.

The operational risk increases due to the means of communication, which are used to transfer payment orders to the intermediary, also due to the use and maintenance of information systems by the intermediary itself. The process of payment execution via an intermediary encompasses more links as compared to those cases where a bank has direct access to the payment system, which heightens the probability of the operational risk occurring. This involves at least the following two additional elements: 1) means of communication with the intermediary, and 2) the intermediary's information systems and internal processes to ensure the functioning of these systems. The process of payment execution via intermediaries may be disrupted unless high-availability channels¹ are used, i.e. the provider of communication channel undertakes to ensure its continuous smooth functioning. Intermediaries have to ensure safe and timely transmission of payment orders sent by banks to the payment system as well as the provision of settlement results to the bank. The way the intermediary's internal functioning is organised on its days-off may have an impact on the execution of payments being sent and/or received by a parent bank or a foreign branch. This includes the provision of assistance in the event of an incident, as well as the ensuring of the continuity of operations. Moreover, upgrades and preventive maintenance of intermediaries' internal information systems can also disrupt execution of payments of their user banks. Even though a group of banks interconnected by ownership ties or the head office of a bank and its foreign branches can use the same information system, which eliminates the need for additional means of communication within the chain of payment execution, the issue of organisation and alignment of operations so as to ensure a high level of service provided to all units of the bank, is still relevant. Equally important is the capacity of the information system as a whole to respond to different needs of its customers in a flexible and operationally efficient way.

The liquidity risk increases due to the fact that the requirement of banks making up a group to execute all their payment orders cannot always be fulfilled as a result of efforts to manage the group's liquidity on a centralised basis. Following changes in the practice of domestic payment execution, the banks operating in Lithuania come across the liquidity risk because they become dependent on the management of liquidity exercised by their intermediary — a parent bank or a head office — in the payment system. Clearing positions calculated in the STEP2 payment system are settled in the TARGET2 payment system. However, this system uses funds in the TARGET2 account of one bank of the group to settle all payments made by the group via the STEP2. If that bank does not have enough funds to settle the position calculated in the STEP2 payment system in its TARGET2 account, some of its payment orders may not be executed. This magnifies the risk of non-execution of payment orders sent by the banks operating in Lithuania. Payments made by customers of one bank may be considered less urgent or important than large payment orders sent by its parent bank, which, accordingly, would be the first to settle with the money in the account.

The management of risks arising from the execution of domestic payments via intermediaries is the responsibility of the bank using intermediaries. However, the Bank of Lithuania, as a supervisory authority, is also paying close attention to those threats. Banks shall ensure the sound management of various risks related to the intermediaries participating in the process of payment execution if they want to guarantee the uninterrupted provision of payment services to consumers. Within the framework of prudential supervision exercised by the Bank of Lithuania, the execution of payments via intermediaries is treated as the outsourcing of material services rendered by third parties.¹¹ The Bank of Lithuania is entitled to obtain information that is necessary to ensure a bank's risk management process, including information held by its group's banks rendering material services to the bank. This information can help establish the level of risk and its changes and apply additional requirements with a view to reducing the impact of the risk. Moreover, the STEP2 payment system is overseen by the Eurosystem. It follows the provisions of an ECB regulation¹² establishing requirements for systemically important payment systems. One of those requirements applies in case of tiered participation in the system, meaning that indirect participation is also possible.

The Bank of Lithuania, alongside other central banks of the euro area, carries out supervision of this important retail payment system, STEP2, under the aegis of the ECB.

ⁱ 'System availability' means the relationship between a period of time during which participants were able to use the system and the working time of the system in accordance with the scheduled timetable.

ⁱⁱ Intra-group transactions between bank branches and their parent institutions are not considered as the outsourcing of services rendered by third parties.

ⁱⁱⁱ Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28).

New regulation of securities settlement in the EU²⁶ alters operating conditions for central securities depositories. The newly adopted regulation on the activities of central securities depositories (CSD) stipulates that all CSDs currently operating in the EU shall apply for authorisation within six months from the publication of technical standards accompanying the regulation. The authorisation process would take another six months. Technical standards, which are an integral part of the regulation, should be published in the autumn of 2016, which implies that all CSDs currently operating in the EU will have to be authorised until the autumn of 2017 at the latest or will have to cease activities.

The process of reorganisation of the Baltic countries' CSDs complies with the time limits established in the new regulation. In view of the requirements of the new regulation, that gave rise to costs of small CSDs, and of the opportunities offered by the same regulation, the *Nasdaq* group is reorganising the CSDs, which it owns in the Baltic countries, and establishing a single CSD with a head office in Latvia and branches in Estonia and Lithuania. This CSD will operate three securities settlement systems — one per each country under its national law.²⁷ In line with the schedule of the reorganisation, the CSD of the Baltic countries should be authorised in the middle of 2017.

The Bank of Lithuania will not be the supervisory authority competent for the supervision of the Baltic countries' CSD, but it will supervise the securities settlement system, which is governed by the law of the Republic of Lithuania. The Baltic countries' CSD will have its head office in Latvia, which means that Latvia's financial supervisory authority will be the competent authority responsible for the compliance of this CSD with the requirements of the new regulation. The Bank of Lithuania will participate in the oversight of this CSD, given its vital importance in Lithuania as it will serve the entire Lithuanian securities market and will provide the full range of core CSD services. Moreover, one of the securities settlement systems operated by the Baltic countries' CSD, which will be governed by the law of the Republic of Lithuania, will be registered with the Bank of Lithuania²⁸. The Bank of Lithuania will monitor operations of this system and assess its conformity in relation to the regulation and international standards²⁹. As part of supervision of the Baltic countries' CSD, the Bank of Lithuania will cooperate with the central banks and financial market supervisory authorities of Latvia and Estonia. To this end, these institutions are developing an agreement on cooperation in supervision of the Baltic countries' CSD.

²⁶ Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012.

²⁷ Pursuant to Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems, a system shall be governed by the law of a Member State chosen by the system's participants.

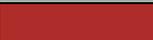
²⁸ Article 5(1) of the Law of the Republic of Lithuania on Settlement Finality in Payment and Securities Settlement Systems says that the systems governed by the law of the Republic of Lithuania shall be registered with the Bank of Lithuania.

²⁹ The Principles of Financial Market Infrastructures established in 2012 by the Committee on Payment and Securities Systems of the Bank for International Settlements in tandem with the Technical Committee of the International Organisation of Securities Commissions.

II. RISKS TO THE FINANCIAL SYSTEM

This chapter deals with the main systemic risks and challenges faced by the Lithuanian financial sector (see Table 1), as well as presents the results of stress tests showing the resilience of the banking sector.

Table 1. Main risks and challenges to the Lithuanian financial system

Main risks to the Lithuanian financial system	2015	2016
Real estate market and leverage imbalances in the Nordic countries	→	↔
Prolonged low interest rate environment	↔	↔
Increase in credit risk as a result of reduced demand in main export markets	↔	↔
Snapback in risk premia	→	↔
Challenges to the Lithuanian financial system		
Cybersecurity threats for financial institutions	↔	↔
Unbalanced development of credit unions	↔	↔
Risk assessment legend		
High systemic risk		Elevated probability of risk occurrence
Medium systemic risk		Unchanged probability of risk occurrence
Low systemic risk		Reduced probability of risk occurrence

Note: the existing level of risks has been established on the basis of expert evaluation and individual quantitative indicators, taking into account the probability of the risks occurring and their potential systemic impact. Arrows indicate changes in the probability of risk occurrence since the publication of the Financial Stability Review 2015.

Real estate market and leverage imbalances in the Nordic countries: the importance of this risk and the probability of its occurrence are elevated as real estate prices continue growing at a rapid pace in certain Nordic countries, which are relevant for the Lithuanian financial sector (for instance, real housing prices in Sweden rose by 13% in twelve months to the end of the fourth quarter of 2015), and the leverage level of the private sector remains stubbornly high. More substantial shocks affecting the financial stability or the economy of those countries would have a multidimensional negative spillover effect on the Lithuanian financial system, which could operate through at least several channels: 1) a decrease in overall lending or restriction of lending to business sectors with higher risk profiles; 2) an increase in funding costs for parent banks and in credit costs in Lithuania, and 3) increased volatility of deposits. The risk is partly mitigated by the sufficiently strong economic climate in many of the Nordic countries and their sufficiently healthy banking sectors (for more details see the section 'Real estate market and leverage imbalances in Nordic countries' in this Chapter).

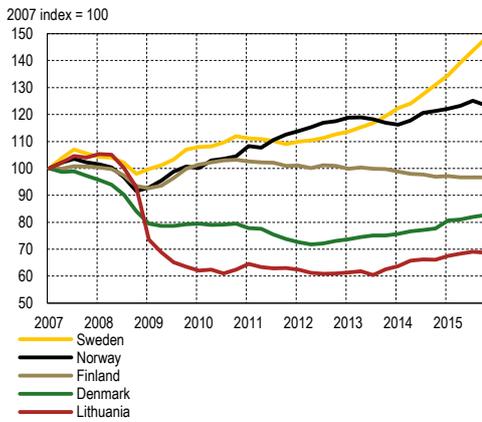
A prolonged low interest rate environment: the continuing period of low and negative interest rates poses more and more challenges and threats to financial institutions and investors. Hence this risk continues to be seen as a medium systemic risk. The probability of this risk occurring increased during a half a year as interest rates in money markets continued to decline and even dipped into the negative territory, dampening expectations of their recovery. This risk can manifest itself via several channels: 1) deteriorating outlook for profitability of credit institutions and pressure on their resilience in the long term; 2) changes to traditional bank business models and an increase in concentration in the market; 3) search for yield through higher risk taking and overpricing of financial assets and real estate, and 4) growing incentives for households to take on excessive financial liabilities. On the other hand, the potential effect of this risk is mitigated by macroprudential policy instruments applied by the Bank of Lithuania and the high level of capital adequacy of the country's banking sector (for more details see the section 'Prolonged low interest rate environment' in this chapter).

An increase in credit risk as a result of reduced demand in main export markets: Lithuania's goods and services export market has become more diversified and less dependent on riskier Eastern markets. As Lithuania's exporters have proved their ability and flexibility to refocus, the decline in exports to Eastern countries has been offset to a large extent by increased exports to Western countries and new markets. Moreover, domestic consumption continues to gain in importance as a driver of Lithuania's economic growth. Banks are better prepared to cope with a potential increase in credit risk and the quality of the corporate loan portfolio continues to improve. As a result, this risk is expected to be less relevant. The probability of a risk of export decline occurring is also considered lower, despite the projected contraction of Russia's economy in 2016. This probability assessment is underpinned by the envisaged economic growth in other Lithuania's export markets, which should drive the growth in Lithuania's exports volumes that are expected to increase by 2.9 per cent in 2016 (for more details see the section 'Credit risk growth due to lower demand in major export markets' in this chapter).

A snapback in risk premia: risk premia in financial markets are still depressed and, therefore, the risk of their snapback remains relevant. Securities holdings of MFIs operating in Lithuania decreased somewhat over 2015 and, measured as a share of total MFI assets, remained relatively small (8.4%) thereby the potential effect of the risk and the risk itself are still viewed as having low systemic importance. On the other hand, the probability of this risk occurring has increased due to a surge in volatility in global financial markets. The main channel, which this risk works through, relates to losses that would be incurred by financial institutions with relatively large holdings of securities. Securities holdings of Lithuania's banks, measured as a proportion of total assets, are insubstantial. However, this cannot be said of many credit unions, which hold relatively large shares of their assets as investments in securities and therefore remain vulnerable (for more details see the section 'Snapback in risk premia' in this Chapter).

Chart 34. Home price indices in selected Nordic countries and Lithuania

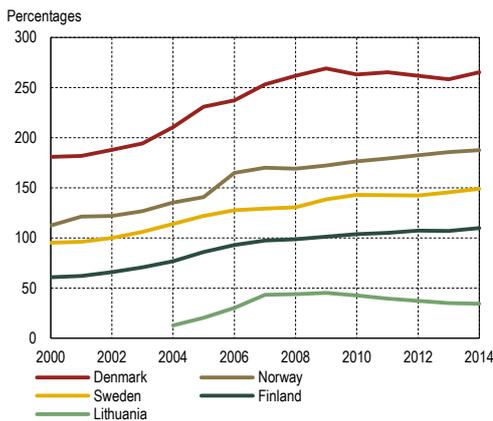
(Q1 2007–Q4 2015)



Source: OECD, Bank of Lithuania calculations.

Chart 35. Household debt-to-income ratios in selected Nordic countries

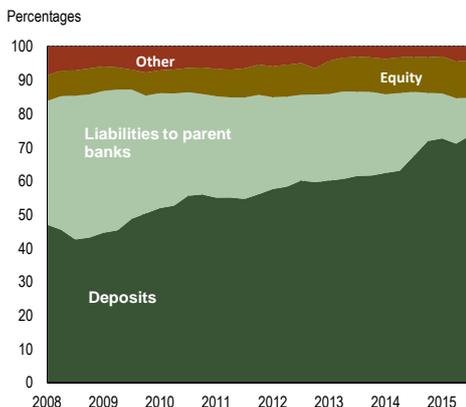
(2000–2014)



Sources: Eurostat.

Chart 36. Funding structure of banks operating in Lithuania

(Q4 2008–Q4 2015)



Source: bank of Lithuania.

REAL ESTATE MARKET AND LEVERAGE IMBALANCES IN NORDIC COUNTRIES

Real estate prices in certain Nordic countries continue their upward climb. In particular, real housing prices rose by 13 per cent in Sweden, by 6.4 per cent in Denmark and by 1.8 per cent in Norway over the twelve months to the end of December 2015 (see Chart 34). Housing prices continued to be driven higher by both the growth of demand (fuelled *inter alia* by demographic factors, the growth of household income, low interest rates, the growth of lending and tax incentives) and the slow growth in supply, which is constrained by a range of structural factors. For instance, the factors contributing to supply constraints in Sweden include rent controls as well as complicated procedures for land acquisition and the delivery of construction permits. Moreover, population grew by 11.8 per cent in Sweden, 19.3 per cent in Norway, 8.5 per cent in Denmark and 7.3 per cent in Finland in the past twenty years. One of the main causes of the rapid population growth was the rising immigration. For instance, the number of foreign-born residents in Sweden increased by 600,000 between 2000 and 2014 and they accounted for nearly 70 per cent of the total rise in the country's population in the same time period (see Box 5). Real gross disposable income per household in the Nordic economies also followed an upward trend. Between 2004 and 2014, such income increased by 30.3 per cent in Sweden, whereas in Norway, Denmark and Finland the increases were even more remarkable — of 33.9 per cent, 30.6 per cent and 36.8 per cent, respectively.

Amid growing demand for homes, households' liabilities vis-à-vis credit institutions showed no signs of abating in many Nordic countries. The debt-to-income ratio of the Danish households rose by 7 p.p., of Swedish households — by 3.3 p.p. and of Finnish and Norwegian households — by 3 p.p. and 2 p.p., respectively, over the twelve months to the beginning of 2015 (see Chart 35). Moreover, the ratios between loans to households for house purchase and GDP increased impressively over the past decade — by 24.7 p.p. in Sweden, 17.3 per cent in Denmark and 15.6 per cent in Finland. The rise in the respective euro area's ratio was much more moderate in the same time period — of 3.9 p.p. This growth of liabilities makes households more sensitive to potential shocks.

Even though borrowing from parent banks is following a general downward trend, some of the banks operating in Lithuania still draw substantial funds from their parent institutions (see Chart 36). As a result, shocks in the financial system or the economy of the Nordic countries could also affect the stability of the Lithuanian financial system. If parent banks were to sustain significant losses and face a rise in funding costs, they would step up the use of liquidity buffers. On average, the liabilities of banks operating in Lithuania to foreign banks accounted for 11.2 per cent of their asset at the end of 2015. However, the level of this rate varied greatly among banks. Liabilities to foreign banks as a percentage of assets ranged from 0.3 to 21.5 per cent (not including foreign bank units and branches). If an adverse scenario were to happen, the banks operating in Lithuania might need to tap alternative sources of financing, likely at higher costs. The costs of loans granted to Lithuania's economic entities might also increase accordingly.

If the Nordic countries were to suffer more substantial shocks to their financial system and the banks of those countries were to make a strategic decision to reduce risk exposure across their respective groups, lending volumes would decline not just in the Nordic countries but also in Lithuania. Subsidiary banks operating in Lithuania are dependent on group-wide strategic decisions. Bigger shocks to the financial system of the Nordic countries, such as a rapid slump in real estate prices in Sweden, are likely to dampen banks' risk appetite and their willingness to lend not just in Sweden but also in the Baltic countries, which would probably lead to a decrease in lending to the sectors that are important to the Lithuanian economy but usually regarded as having a higher risk profile (e.g. to small and medium-sized business, construction and transport enterprises). Capital adequacy ratios of certain Swedish parent banks are close to the minimum requirements (see Chart 37), which implies that even relatively limited losses might force banks to cut down on lending.

An example of *Danske Bank* can be used to illustrate the point that a sudden fall in real estate prices in the Nordic countries may have direct implications for the Lithuanian credit market. Between the first quarter of 2007 and the second quarter of 2012, housing prices in Denmark plummeted by 28.2 per cent, in contrast to other Nor-

dic countries, which recorded a rise in those prices in the same time period. This might have contributed substantially to a decrease in lending by *Danske Bank* in Lithuania. In 2010 through 2014, the group-wide loan portfolio of this bank inched up by meagre 1.1 per cent whereas all other major Nordic banks recorded double-digit increases in their loan portfolios (see Chart 38). Negative home price trends in Denmark and a high level of non-performing loans might also have affected the activities of the *Danske Bank's* branch operating in Lithuania. Between 2010 and 2014, all Nordic-owned banks saw a decline in their loan portfolios in Lithuania, but the loan portfolio of *Danske Bank* decreased at the fastest pace.³⁰

Regarding those banks which are less indebted to their parent institutions, more relevant is the risk of a decline in public trust. Spreading messages about the difficulties faced by the parent banks in the Nordic countries may trigger a rise in deposit costs of the banks operating in Lithuania and an increase in volatility of this source of funding (for more details about the resilience of banks against liquidity shocks see the section 'Stress testing' in Chapter II of this Review).

To some extent, the probability of occurrence of the above mentioned risks is reduced by the stable state of Nordic economies. The economic situation in the Nordic countries (e.g. Sweden, Denmark and Norway) is favourable at the moment. The real GDP is growing, inflation is low and the jobless rate is stable in many of the countries. The economic indicators in Finland, for example, the growth of GDP and the unemployment rate, are less positive, however.

Despite improvements in financial health, the capital adequacy ratios of the Nordic banks remain close to the minimum requirements. The main banks (*Swedbank*, *SEB*, *DNB*, *Nordea*, *Danske* and *Handelsbanken*) saw moderate improvements in their capital adequacy and profitability in 2015. Their average Tier 1 capital ratio rose by an annual 2.4 p.p., to reach to 20.3 per cent at the end of the year. The average return on equity (ROE) increased by 0.6 p.p. on a year-on-year basis to 12 per cent. A decline in net income (of 1.8% over 2015) was partly offset by income from other operations (including fee and commission income), which rose by 4.8 per cent over the year. The banks' liquidity also showed improvements. The average liquidity coverage ratio (LCR) of the abovementioned Nordic banks rose by 13 p.p. on year-on-year terms to 141 per cent.

The Nordic countries are broadening the range of macro-prudential policy tools put in place. In the first quarter of 2016, Sweden decided to raise the countercyclical capital buffer to 2 p.p. Moreover, it has put proposals to tighten home loan amortisation requirements and to introduce a debt-to-income (DTI) requirement on the table. Norway plans to keep the countercyclical capital buffer at 1.5 p.p. and to introduce a 2 p.p. other systemically important institution (O-SII) buffer requirement for its two top banks (*DNB ASA* and *Nordea*) in July 2016. Finland plans to take action from the middle of 2016. This country will introduce a 90 per cent loan-to-value (LTV) threshold for home loans (of 95% for first-home buyers), which, if necessary, can be reduced by a further 10 p.p. Nevertheless, these measures may prove to be insufficient to address high indebtedness in the Nordic countries.

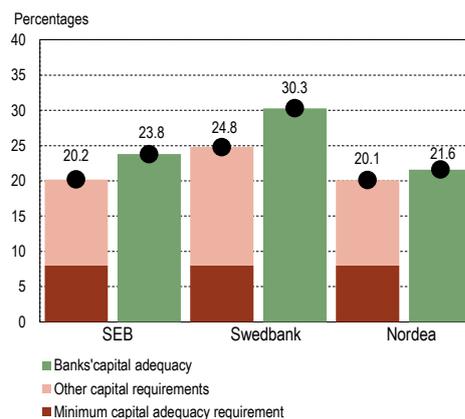
Box 5. Reasons behind home price developments in Sweden

The past decade in Sweden's housing market was marked by the extraordinary growth of prices and the widening gap between housing prices and household disposable income. Prices for residence in the country showed only a marginal decline during the economic downturn of 2008–2009 and the pace of their growth has been particularly strong in recent years. Housing prices in this country soared by nearly 50 percent between 2007 and mid-2015. Such developments in prices augment the risks of their 'hard landing' and the possibilities of related losses to the financial system, real economy and households.

The fast growth of housing prices in Sweden was largely driven by excess demand in housing and the slow growth of supply. Excess demand developed mainly due to the following factors: ever-increasing immigration, growing household income, favourable tax climate, rent controls and low interest rates. Supply limitations in Sweden stem *inter alia* from structural factors, such as complicated land acquisition procedures and rent controls. These factors are discussed in more details below.

Chart 37. Capital adequacy ratios of Swedish parent banks

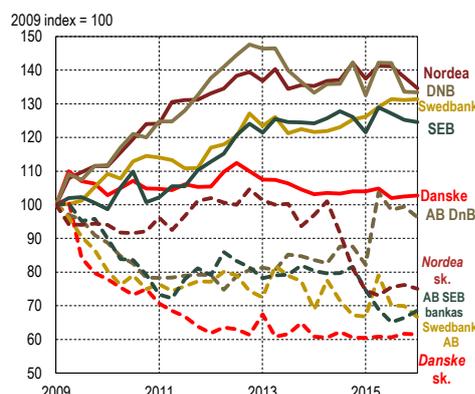
(Q4 2015)



Source: Finansinspektionen.

Chart 38. Comparison of changes in loan portfolio volumes of Nordic banks

(Q1 2009–Q4 2015)



Sources: SNL, Bank of Lithuania calculations.

³⁰ The loan portfolio of *Danske Bank* contracted by 39.6 per cent whereas the carrying amount of portfolios of *Nordea*, *Swedbank*, *SEB* and *DNB* decreased by 25.5 per cent, 33.2 per cent, 25.3 per cent and 17.8 per cent, respectively.

Tax deductibility of mortgage interest. Legislation governing Sweden's tax system entitles households with mortgage loans to a partial income tax refund, which can be as high as 30 per cent of mortgage interest costs. This tax credit further reduces the households' interest burden, which is already relatively low, and acts as an additional incentive to borrow money to buy a residence.

Immigration and rapid growth in population size (see Chart A). Between 1990 and 2014, Sweden's population grew by 1.2 million people, or 13.5 per cent, i.e. almost double the rate of population growth observed across Europe in the same time period (6.7%). This increase was largely driven by fast immigration. In 2000 through 2014, the number of foreign-born residents in Sweden increased by 600,000 and they accounted for nearly 70 per cent of the total rise in the country's population in the same time period. Larger numbers of immigrants and the social policy implemented by Sweden have probably also led to a higher birth rate. According to Eurostat, Sweden has the fertility rate of 1.89 newborns per woman, which is one of the highest rates across the EU.

Income growth and low interest rates. Between 2004 and 2014, real gross household disposable income, as measured per household, increased by 30.3 per cent (vs 21.8% in the EU). Such an increase in income made households healthier in financial terms and helped shape up positive expectations about the future. Larger income and low interest rates provided further opportunities for buying a residence and the fast growth of housing prices gave an additional impetus for home purchase.

Rental market regulation. In accordance with Sweden's legislation, rental prices in the country shall be agreed on between tenants and landlord organisations as well as the companies in charge of municipal housing, and the rental prices charged by private landlords shall be comparable to social housing rentals. As a result, home rental prices in the country run low and households that could rent out homes are discouraged from doing so by the returns that are far too low. Low rental prices and the growth of population contributed to the growth of home demand and the scarcity of opportunities to rent a home encouraged households to borrow money to buy their own housing. Moreover, the low level of home rental yields discouraged real estate enterprises from investing in the construction of homes for rent, which led to a decrease in new home-for-rent completions.

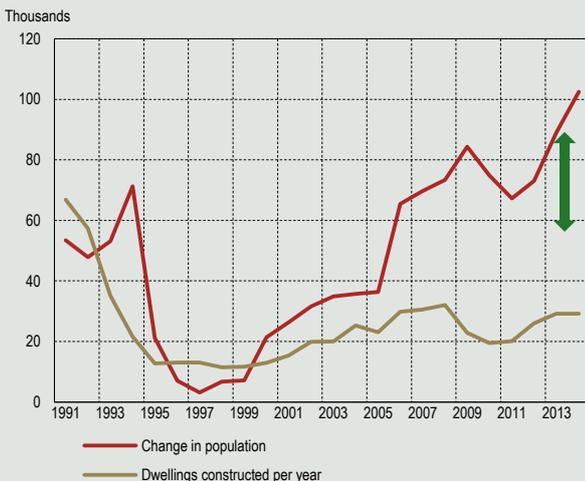
A significant proportion of single-person households (see Chart B). According to Eurostat, single-person households in Sweden account for 19.6 per cent of the total number of households. This compares to the average rate of approximately 13 per cent across the EU. Higher shares of single-person households are only found in Finland (19.9%), Denmark (22.7%) and Germany (20.2%). It goes without saying that the wish of smaller households to own a home bolsters the demand for housing.

Restrictions on land acquisition and the complex process of preparation and approval of detailed plans for new development areas. Even though the annual net profitability of the construction sector exceeded 5 per cent in Sweden in the past decade, home supply remained limited due to weak competition between construction enterprises. The low level of competition was due to complicated land acquisition and planning procedures favouring large construction companies with a very developed knowledge of the local market and its subtleties.

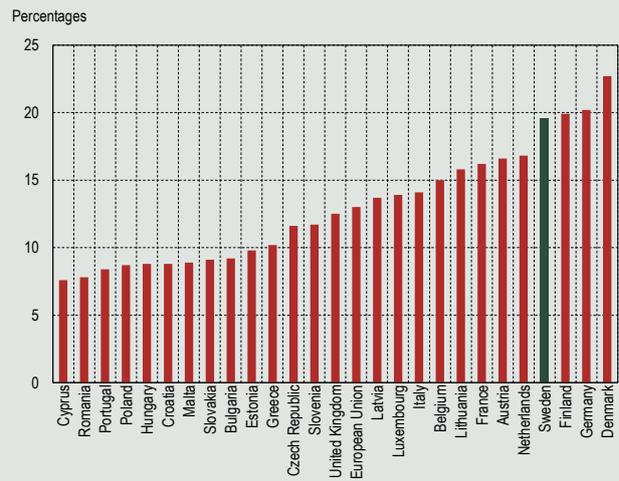
As proposed by certain international institutions (e.g. OECD), Sweden should first of all phase out tax deductibility on mortgage interest payments in order to stabilise changes in housing prices and to make the development of the real estate market more sustainable. Those institutions also highlight the need of a more substantial and active input from the Swedish government into the financing of home construction programmes. Moreover, they recommend easing rent controls or scrapping them altogether.

Chart A. Change in population size and annual new home completions in Sweden **Chart B. Single-person households**

(1991–2014)



Sources: Swedish statistics, Bank of Lithuania calculations.



Sources: Eurostat, ESRB calculations.

¹ See <https://www.imf.org/external/pubs/ft/scr/2015/cr15329.pdf>.

PROLONGED LOW INTEREST RATE ENVIRONMENT

The continuing period of low and negative interest rates poses more and more challenges and threats to financial institutions and investors. First of all, the proactive accommodative monetary policy implemented by the ECB drove down interest rates in the euro area's money and bond markets. In February 2016, the Euro Interbank Offered Rates (EURIBOR) entered the negative zone across all maturities and, based on futures' quotes, should not turn positive before 2019 (for more details see the section 'Financial market and economic development' in Chapter I of this Review). The yields on Lithuania's government bonds, which are the most popular investment choice among financial institutions operating in Lithuania, also followed a downward path thereby amplifying the incentives to search for yield through investment in riskier assets (for more details see the section 'Snapback in risk premia' in this Chapter of the Review). Moreover, the decline in EURIBOR rates pulled down the interest rates charged by credit institutions on loans and offered on deposits, which provided additional incentives for households to take on excessive liabilities.

If interest rates remain in the negative territory, this may pose a risk to the resilience of the banking sector in the mid to long term. Interest rates offered on deposits and those charged on loans decreased in a uniform fashion thereby the net interest margin of the country's banks held firm in 2015 (see Chart 39). However, negative pressure on this performance measure should increase in the near future in particular as EURIBOR rates will probably remain in the negative zone and banks are discouraged from introducing negative interest rates on deposits by both the provisions of the Civil Code of the Republic of Lithuania³¹ and, for instance, banks' reluctance to provoke a deposit run. It is important to mention that most of the loans issued by banks operating in Lithuania carry variable interest rates, which means that negative EURIBOR rates have direct implications on the net interest margin and banks now tend to write new loan contracts with a clause equalling negative EURIBOR rates to zero as they seek to prevent negative interest rates from squeezing customers' margins. Moreover, as the proportion of deposits paying more than 0 per cent in interest has been diminishing steadily (it stood at 26% early in 2016), there is little room left for the costs of banks' interest-bearing liabilities to decrease. Banks' net interest income fell by 2.6 per cent in 2015 and, if the current trends persevere, pressure on banks' profitability, as well as pressure on their level of capital, will grow in the mid to long term. The Bank of Lithuania estimates that a 1 p.p. decrease in interest rates would reduce the net interest income of the banks operating in Lithuania by EUR 75.1 million (see Chart 39). The estimate of this loss of net interest income has been increasing continuously since 2012.

The continuous decline in income from interest-earning assets gives rise to the risks of changes in traditional operational models in the banking sector and of an increase in market concentration in certain segments. Between 2009 and 2015, the ratio between interest income and interest-earning assets of the banks operating in Lithuania shrank almost threefold — from 6.1 per cent to 2.2 per cent (see Chart 40), which was accompanied by changes in the banks' income profile. For instance, typical banks' earnings, i.e. interest income, as a proportion of total income fell to 59.3 per cent, from 82.1 per cent, in the abovementioned period. If low and negative interest rates persist, the proportion of interest income should continue to decrease. This can lead to a situation where such products as home loans lose much of their appeal to banks with smaller market shares due to low interest rates. If such a situation was to actually materialise, this might lead to an increase in concentration in certain market segments. Moreover, low interest rates create increasingly more challenges to the banks' profitability. In late 2015, the return on equity of subsidiary banks in Lithuania ranged between 5 and 9.3 per cent and lagged behind the respective return of parent banks, which ranged between 12.6 and 14.3 per cent. Before the financial and economic crisis of 2008–2009, the situation was completely the opposite (see Chart 41).

Lack of profitable investment instruments acts as an incentive for the non-financial sector to invest in risky financial assets or real estate and commit itself to excessive financial liabilities. Against the backdrop of low returns on safe financial

Chart 39. Banks' net interest margin and sensitivity

(Q1 2012–Q4 2015)

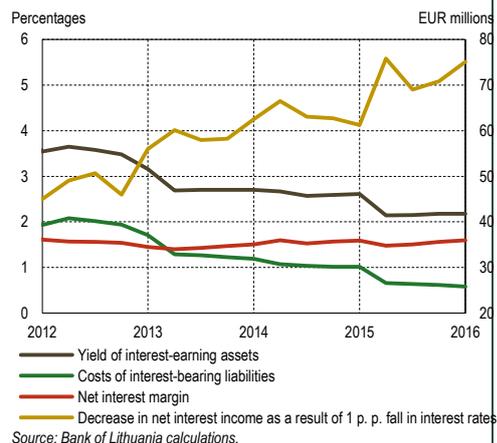


Chart 40. Structure of banks' income

(Q1 2008–Q4 2015)

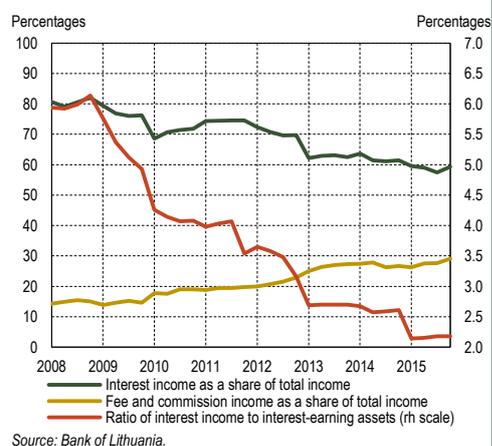
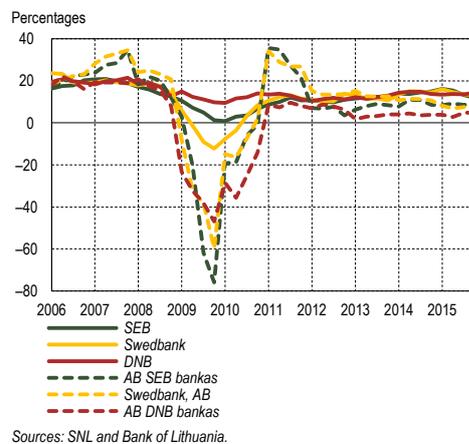


Chart 41. Return on equity (ROE) of Lithuania's biggest banks and their Nordic parent banks

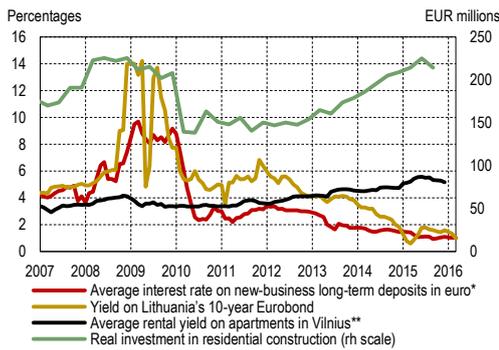
(Q1 2006–Q4 2015)



³¹ This restriction only applies to deposits of natural persons.

Chart 42. Bond and deposit interest rates, yield on apartments in Vilnius and investment in residential buildings

(1 January 2007–1 March 2016)



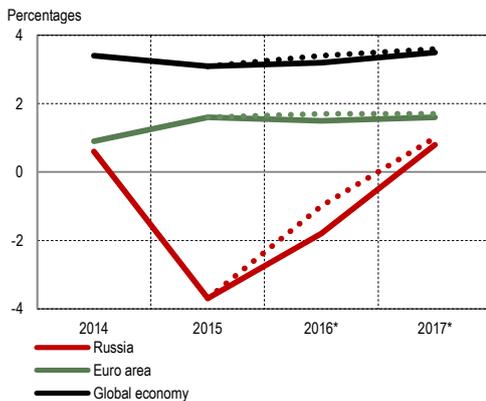
Sources: Bloomberg, Aruodas.lt, Statistics Lithuania and Bank of Lithuania calculations.

*3-month moving average of average monthly interest rates.

**Yield is expressed as an average rent-price ratio for apartments, based on the data provided by Aruodas.lt.

Chart 43. Global economic development forecasts published by the IMF in April 2016

(2014–2017)



Source: IMF.

Note: The dotted line shows forecasts published in January 2016.

assets, increasing numbers of households directed their funds towards higher risk — and higher expected return — unit-linked life assurance products or investment fund units or invested in peer-to-peer lending in 2015. For instance, unit-linked life assurance contributions rose by an annual 13.9 per cent in the third quarter of that year. Moreover, four new peer-to-peer lending platforms offering high return and a number of real estate investment funds were created in 2015. The rent-to-price ratio, which partly reflects the annual rental yield, ranged between 2.7 and 5.2 per cent at the end of 2015, which acted as an additional incentive to invest in real estate (see Chart 42). For instance, residential construction investment at constant prices returned to the pre-crisis level in 2015. Moreover, low mortgage interest rates create incentives to borrow money to invest in housing for its subsequent letting with a view of generating higher return.

The prevailing low interest environment promotes improvements in debtors' financial health and contributes to the recovery of lending. Meanwhile, the amendments to the Responsible Lending Regulations, which have recently come into effect, mitigate the risk of households taking on excessive financial liabilities. The decrease in loan interest rates alleviates the loan repayment burden facing households and businesses with outstanding loans, which contributes to improvements in the loan portfolio quality of credit institutions. In addition, low interest rates fuel credit demand in the private sector and encourage credit institutions to tolerate at least somewhat more risk, after a period of great risk aversion following the financial crisis. As a result, small and medium-sized business gains better access to finance for expansion, which contributes to economic activity in the country. Even though households may feel overly optimistic about their capacity to take on more debt due to the prevalence of low interest rates, the amendments to the Responsible Lending Regulations, which came into force on 1 November 2015, mitigate this risk. Risk exposure in the banking sector is reduced by the capital conservation buffer, which came into effect in 2015, and by the banks' ability to — still — maintain a stable net interest margin (for more details see the section 'Strengthening of the financial system' in Chapter III of this Review).

CREDIT RISK GROWTH DUE TO LOWER DEMAND IN MAJOR EXPORT MARKETS

Uncertainty about the geopolitical situation and the economic development of Russia and other emerging markets remains high, whereas the Lithuanian exports to Russia declined, but still remained significant. In 2015, these exports comprised 13.7 per cent of the total production of Lithuania sold abroad. Of these 13.7 per cent, the export of goods of the Lithuanian origin made up 1.4 p.p., whereas the re-export of goods comprised 12.3 p.p. In 2014, the respective shares amounted to 2.4 per cent and 18.4 per cent. The IMF forecasts published in April 2016 show that Russia's economy will shrink by 1.8 per cent in 2016 (0.8 p.p. more than expected a quarter ago). The ongoing military conflict in Ukraine and the related foreign trade restrictions as well as low oil prices (the IMF forecasts that they will fall by more than 30% in 2016) will prevent the recovery of the Russian economy, which in turn will determine a slower economic growth of the countries with close trade relations with Russia, which are also important foreign trade partners of Lithuania (for example, Latvia, other CIS states).

Global economic development forecasts slightly deteriorated recently. In January 2016, the IMF revised downwards the global economic growth forecasts for 2016 and 2017 (see Chart 43). The expectations regarding economic growth of emerging markets — South America and the CIS countries, which are much more important to the Lithuanian economy — deteriorated the most. Composite future trend indicators calculated by the OECD confirm the deteriorating expectations regarding economic growth in many regions of the world. Moreover, the European Commission slightly reduced the economic growth forecasts of the EU, euro area and the world for 2016 in May 2016. The slower global economic growth rate will determine lower foreign demand and thus may aggravate the financial position of not only non-financial undertakings operating in Lithuania, but also households. Besides, as undertakings in Lithuania increasingly often face the shortage of suitable labour force, the nominal wage growth exceeds the price growth rates several times. However, an excessively fast wage growth that is not based on the value created may increase the prices of Lithuanian exports and reduce their demand in foreign markets in the long term.

In 2015, the diversification of the Lithuanian exports by country increased, whereas dependence on the riskier Eastern markets declined. Openness of Lithuania to foreign trade remains high (foreign trade — import and export — made up

154.7% of the nominal GDP). The nominal export of the Lithuanian goods and services declined by 5.5 per cent, the real export of goods and services went down by 0.1 per cent, whereas the real export of goods, excluding mineral products, fell by 4 per cent in the course of 2015. Such fall of exports had a relatively small effect on the performance of non-financial undertakings – their income grew in 2015, operating profit (EBITDA) increased, whereas the share of profitable undertakings remained relatively high. Moreover, the share of non-performing bank loans to businesses declined and banks continued to favour the sectors more open to foreign trade (for example, transport, agriculture) and lent to them, although these sectors are usually considered as riskier. The decline of exports to Russia was partially offset by the increase in export volumes to the Western countries and the discovery of new markets in Asia, therefore, the market concentration of the Lithuanian exports by country declined (see Chart 44). In the course of 2015, the Lithuanian exports to the EU states increased by 5.9 per cent and comprised almost two thirds of total exports. In addition, the nominal annual growth of the exports of Lithuanian goods, excluding mineral products, was positive in the first three months of 2016.

The potential negative effect of the export decline on stability of the Lithuanian financial system is decreasing. First, the risk posed by lower demand in one large export market — Russia — to the Lithuanian financial system is reduced by flexibility of exporters and the increasing diversification of the Lithuanian exports. Second, Lithuanian exporters increasingly direct their production to those markets, where sustainable, albeit slower, economic growth is forecasted in the nearest time. Besides, the global demand index calculated by the ECB indicated in March 2016 that the demand for Lithuanian production in 2016 and 2017 will be higher than expected in December 2015. Third, domestic consumption is becoming an increasingly more important factor of the Lithuanian economic growth (it is forecasted that it will grow by 4.2% in 2016). Fourth, the banking sector's loan position that is more closely related to those activities, to which foreign trade restrictions are applied, is small, whereas the financial system has accumulated sufficient capital stock for covering potential losses (for more detail see 'Stress testing' in this Chapter).

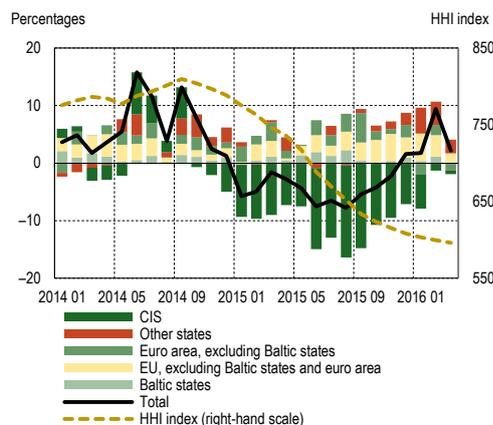
SNAPBACK IN RISK PREMIA

Although certain corrections took place in 2015, risk premia in global financial markets remained particularly low in April 2016, compared to the long-term average. In 2015, the ECB continued its accommodative monetary policy, thus supporting the low interest rate environment, therefore, investors seeking higher yield were still forced to assume higher risk. For this reason, they were inclined to invest in less liquid higher risk financial instruments (for example, longer term and lower credit rating debt securities). As lower risk premia in financial markets basically do not properly reflect term, insolvency and liquidity risks, the probability of their abrupt increase in case of correction remains elevated. For example, Lithuanian 10-year bond yield was lower by 4 p.p. in April 2016 than the average of the previous 10 years. Moreover, the differential between 10-year and 1-year German bond yields, which reflects the risk premium for longer investment term and the differential between the Lithuanian and German 10-year bond yields, which reflects the premium for insolvency risk, were respectively 0.4 p.p. and 1.8 p.p. lower in the said period than the average over the last 10 years. It is likely that lower liquidity of financial instruments would contribute to the potential effect of an abrupt increase in risk premia.

Shocks in bond and stock markets in 2015 and in the beginning of 2016 increased risk premia and determined losses of the Lithuanian financial institutions. The first such shock took place in April to June 2015. Then, after inflation expectations improved and the sentiment related to the start of the application of quantitative easing by the ECB subsided, the European government and corporate bond yields increased significantly (see Chart 45). For example, the Lithuanian 10-year government bond yield grew by 1.3 p.p. Therefore, in the second quarter of 2015, banks and credit unions operating in Lithuania incurred direct losses due to the depreciation of bonds held for trading — they amounted to EUR 4.2 million and EUR 4.1 million, respectively. Among 15 credit

Chart 44. Annual changes in exports of the Lithuanian goods, excluding mineral products, and the concentration of goods and services export by country

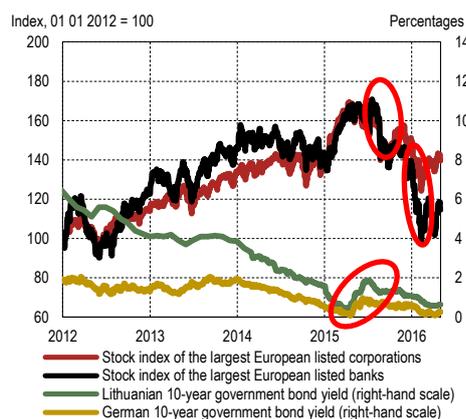
(January 2014 to March 2016)



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Chart 45. Stock price indices and government bond yield

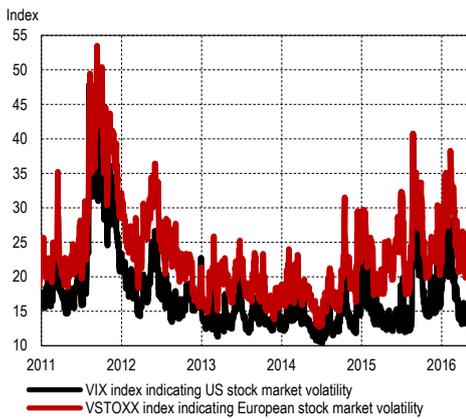
(1 January 2012–1 May 2016)



Sources: Bloomberg and Bank of Lithuania calculations.

Chart 46. US and European stock volatility indices

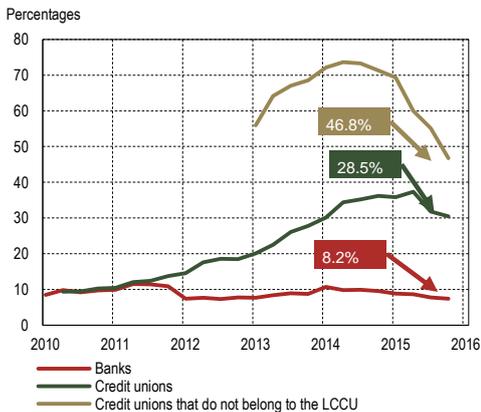
(1 January 2011–6 April 2016)



Source: Bloomberg.

Chart 47. The share of securities holdings in bank and credit union assets

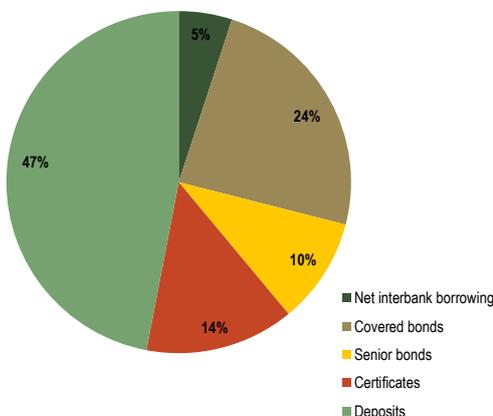
(Q1 2010–Q4 2015)



Sources: Bank of Lithuania and Bank of Lithuania calculations.

Chart 48. Financing sources of the largest Swedish banks

(March 2014)



Source: Central Bank of Sweden.

unions that incurred losses, holdings of securities of 10 credit unions in the first quarter of 2015 comprised more than 35 per cent of total credit union assets, which is the ceiling indicated in the rules adopted by the Bank of Lithuania.³² Besides, in the second quarter of 2015, the total capital of such unions declined by more than one-tenth due to the incurred losses. The second and the third increase in risk premia took place in stock markets, when the global stock markets suffered a significant fall in September 2015 and in January and February 2016. Owing to a small share of stocks held by the Lithuanian financial institutions, this development did not cause significant losses.

More frequent periods of higher volatility in financial markets in 2015 and in the beginning of 2016 increased the probability of an abrupt increase in risk premia. After relatively calm period of 2013 and 2014, the periods of higher volatility in financial markets become more frequent and sensitivity of investors to new information increases. For example, VIX and VSTOXX indices, which reflect the US and European stock market volatility, increasingly often rise to the levels observed during the European sovereign debt crisis of 2011 (see Chart 46).

The potential direct impact of an abrupt increase in risk premia would still be the largest in the credit union sector. The share of securities held by banks, the largest participants of the Lithuanian financial system, compared to total assets, remained small at the end of 2015 (8.2%) and declined over the year by 0.5 p.p. (see Chart 47). Credit unions operating in Lithuania still had significant securities holdings in the said period. Although the share of securities held by them, compared to total assets, declined by 7.3 p.p. in 2015, it remained high (28.5%). In addition, the potential impact of the risk is increased by the fact that the concentration of securities held by the Lithuanian credit institutions is high. For example, Lithuanian government debt securities comprised two thirds of their total securities portfolio at the end of 2015.

Large exposures of securities of the Northern parent banks could have an indirect negative impact on the Lithuanian financial system, if risk premia started to rise abruptly. Banks of the Northern states would experience the impact of an abrupt increase in risk premia both through the financial assets decline channel and through the financing cost increase channel. The share of securities held by the largest Northern bank groups (Nordea, SEB, DNB, Swedbank, Danske), compared to total assets, amounted to 26.5 per cent at the end of 2015, therefore, potential losses due to an increase in risk premia would be significant. Moreover, according to the data of the central bank of Sweden, as much as around half of financing of the largest Swedish banks consists of borrowing in the wholesale market and around one fourth of it consists of financing by covered bonds (see Chart 48). The yield of such bonds is particularly low at present, however, in the case of an increase in risk premia, it would rise and banks would experience higher financing costs. The risk probability is increased by the fact that more than one third of covered bonds issued by Swedish banks were acquired by foreign investors. They may be inclined to sell them during a shock, as it was observed during the financial crisis of 2008. If the value of financial assets of parent banks declined and their financing costs increased, the Lithuanian financial system would also be indirectly affected (for more detail see 'Disbalances of real estate markets and indebtedness in the Northern states' in this Chapter).

The risk related to financial asset impairment losses is reduced by the positions of high quality securities held by MFIs and the high level of bank capital. Banks operating in Lithuania mostly invest in securities of those states that have high investment ratings and whose probability of an abrupt fall in their value is relatively lower. For example, investment in securities issued in Germany, the Netherlands, France, Denmark and Lithuania comprised four fifths of the total securities portfolio at the end of 2015. Moreover, if risk premia in financial markets increased, the banks would be able to withstand the losses incurred due to the high capital level.

The risk that the participants of the Lithuanian financial system would incur losses in the case of an increase of risk premia in financial markets is reduced by the

³² The Rules of Credit Union Investment in Non-equity Securities adopted by the Bank of Lithuania on 19 June 2015 envisage that credit union investment in non-equity securities should not exceed 50 per cent of the credit union's balance sheet assets from 31 December 2015 and 35 per cent from 31 December 2016.

introduction of regulatory amendments in certain sectors and new capital requirements. The rules of investment in non-equity securities adopted by the Bank of Lithuania are used to protect credit unions, the sector that is most sensitive to this risk (for more details see 'Unbalanced development of the credit union sector' in this Chapter). The rules, which came into effect on 31 December 2015, restrict investment activities of certain credit unions, since the securities portfolio held by them may essentially be used only for the management of liquidity needs. The risk impact is limited in the Lithuanian banking sector by the capital conservation buffer introduced in June 2015 and supervisory Pillar 2 capital requirements applied to certain banks. In addition, resilience of the banking sector to the depreciation of securities will be improved by additional capital requirements to systemically important banks, which will come into effect on 31 December 2016 (for more details see 'Other systemically important institutions buffer' in Chapter III of this Review).

CHALLENGES TO THE FINANCIAL SYSTEM

Cybersecurity threats to financial institutions

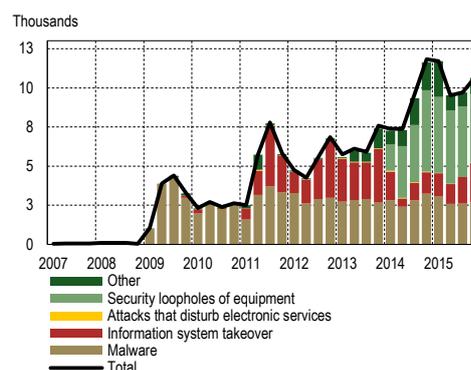
As Lithuanian financial institutions increase the number of services provided electronically, the risk of incurring losses due to cybercrime is growing. These crimes are usually divided into two categories: personal data confidentiality breaches and cyber attacks.³³ Financial institutions store the available data of private and business customers and are responsible for the management of the flows of financial resources, therefore, they are an attractive target for cybercriminals seeking to appropriate these resources or to gain financial benefit from the disrupted provision of services. If the attempts to affect integrity of information systems of financial institutions or to intercept the information managed by them were successful, they could not only incur financial losses directly related to that, but also suffer damage to their reputation. With the decline of confidence in the financial system, the risk to its stability would increase (for example, if people started to withdraw deposits rapidly).

In 2015, the banking sector of Lithuania incurred losses related to operational risk and a part of them were directly related to information systems. The losses related to operational risk amounted to EUR 4.5 million in 2015 (EUR 1.2 million in 2014). According to the data of the Communications Regulatory Authority, the total number of electronic communications incidents in Lithuania (including those that took place not only in banks, but also in other institutions) increased by 15.1 per cent in 2015 (see Chart 49). The numbers of cybercrime-related cases submitted to court for investigation and investigated increased even faster (by 27.6% and 31.3%). With the increase in internet availability and complexity of online crime schemes and the improvement of the tools applied by criminals, the losses incurred in the cyberspace will grow, whereas with the increase in popularity of online services (for example, according to the data of the Association of Lithuanian Banks, the number of registered online banking users increased 2.6 times from 2008 to 2015) and the replacement of cash payments with electronic payments, the risks to the financial system related to cybercrimes will increase unavoidably (see Chart 50). Nevertheless, the country currently does not have a joint database showing the losses incurred by financial system participants due to cybercrime. Besides, even if such a source was present, it would be difficult to avoid incomplete disclosure of losses incurred by financial system participants, since they may avoid to disclose the detailed information to prevent damage to their reputation. Limited and incomplete data increase uncertainty about this risk even more. However, with the increase in cyber risk importance, suggestions on the increase of network and information security in the whole EU are presented. For example, the European Commission proposed the Network and Information Security Directive.

The risk posed by the cyberspace can materialise, if financial institutions make insufficient investment to ensure security of electronic communications and if internet users and in certain cases also financial institution employees lack IT skills. The trend is observed in the world that private companies do not make sufficient

Chart 49. Electronic communications incidents recorded in Lithuania

(Q1 2007–Q4 2015)

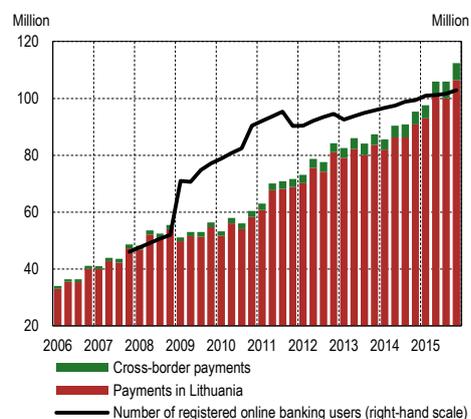


Sources: Communications Regulatory Authority of the Republic of Lithuania and Bank of Lithuania calculations.

Note: the dissemination of statistics of equipment security loopholes was started 2014.

Chart 50. Number of payments and registered online banking users

(Q1 2006–Q4 2015)



Sources: Association of the Lithuanian Banks and Bank of Lithuania.

³³ *Cyber Risk: Why Cyber Security is Important*: <http://www.whitecase.com/publications/insight/cyber-risk-why-cyber-security-important>.

Table 2. Key performance indicators of the credit union sector in 2014 and 2015

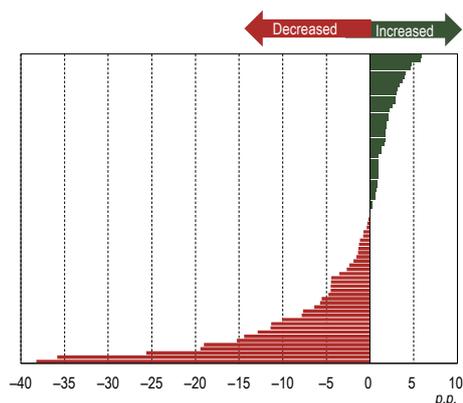
(Q4 2014–Q4 2015)

Indicator	Amount		Annual change	
	01/01/2015	01/01/2016	percentages	percentage points
Assets (EUR millions)	617.2	670.5	8.6	–
GS (EUR millions)	221.3	191.7	–13.4	–
Loans granted (EUR millions)	263.5	281.5	6.8	–
Share capital (EUR millions)	51.4	54.4	5.8	–
Profit (loss) for the current year (EUR millions)	0.6	–3.6	–157.8	–
Non-performing loans to total loans ratio (percentages)	26.3	21.5	–	–4.9
Capital adequacy ratio (percentages)	22.7	17.6	–	–5.1

Source: Bank of Lithuania.

Chart 51. Annual changes of capital adequacy ratios of individual credit unions

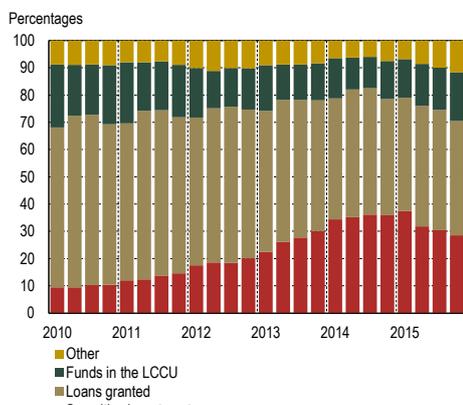
(Q1 2014–Q4 2015)



Source: Bank of Lithuania and Bank of Lithuania calculations.

Chart 52. Composition of credit union assets

(Q1 2010–Q4 2015)



Source: Bank of Lithuania.

investment in information system security³⁴ that would help counter the increasing threats (such trend is certainly not characteristic to all financial institutions operating in Lithuania), despite the fact that data theft closely related to cybersecurity was indicated in the Global Economic Forum as the eighth most important risk among global level risks emerging in 2016.³⁵ Moreover, the number of cyber attacks against financial institutions is 3 times higher than against other institutions.³⁶ It is also important that, for example, an insufficient number of organisational and technical cybersecurity measures are implemented in the public sector of Lithuania. Public institutions do not pay sufficient attention to ensuring cybersecurity in their activities, whereas the Cybersecurity Law of the Republic of Lithuania, adopted on 11 December 2014, does not eliminate all threats related to cybersecurity.³⁷

Cybersecurity risk may be reduced by more active sharing of information about incidents or attacks that occurred and the formation of a joint practice that facilitates a faster recovery of financial institution activities disrupted by cyber attacks. The regular review and update of data related to cybercrime would allow a more accurate assessment of the extent of the problem and trends in Lithuania and create preconditions to take adequate actions to reduce cybersecurity risk. In order to regularly obtain information on cyber incidents experienced by domestic financial system participants, the Bank of Lithuania started to cooperate with the Communications Regulatory Authority in 2016. The Bank of Lithuania also cooperates with banks operating in the country to improve cybersecurity of the banking infrastructure. It is planned to prepare and to perform a cybersecurity testing in 2016 and 2017. Theoretical and practical scenarios of cyber attacks would be evaluated during such testing and the results of pilot test attacks would allow to identify the current gaps and to prepare for contingencies in the future. In addition, taking into account the changing payments environment and in order to improve security of online payments, a couple of years ago the Board of the Bank of Lithuania adopted the Minimum Security Requirements for Online Payments.³⁸ They came into effect on 1 November 2015.

To ensure higher resilience of the financial sector to cyber risks, it is important to actively implement the national plans for ensuring cybersecurity. The national cybersecurity model has been formed and defined in the Cybersecurity Law. Nevertheless, to ensure effective functioning of this model, it is very important to confirm the list of information infrastructure of exceptional importance (the said law assigns this task to the Government of the Republic of Lithuania). After confirming such list and including the financial sector in it, active cooperation between managers of such infrastructure under coordination of the National Cybersecurity Centre would help improve readiness to counter cyber attacks in the financial sector as well.

Unbalanced development of the credit union sector

The probability of materialising of the risks related to unbalanced development of the credit union sector increased, whereas structural problems related to sustainability of their capital and operation models still emerge. Legal uncertainty regarding the structural reform of the credit union sector increased over 2015, whereas the main performance indicators of the sector deteriorated (see Table 2). In 2015, the sector incurred the loss of EUR 3.6 million, whereas the overall capital adequacy ratio of credit unions declined by 5.1 p.p. to 17.6 per cent. Capital adequacy ratio deteriorated in 36 out of 74 credit unions operating in Lithuania, whereas in 11 credit unions this indicator declined by more than 10 p.p. (see Chart 51). At the end of 2015, the capital adequacy ratio of 8 credit unions was close to the minimum ratio. In addition, although the holdings of securities by credit unions declined, they still form a significant share of their assets, therefore, credit unions remain sensitive to an increase in risk premia in financial markets.

The remaining high securities exposures in the credit union sector increase sen-

³⁴ Institute of Information Security Professionals. *Security Market Trends and Predictions*, 2015, p. 2.

³⁵ *The Global Risks Report 2016*: <http://www3.weforum.org/docs/Media/TheGlobalRisksReport2016.pdf>.

³⁶ Websense. *Industry Drill Down Report*, 2015, p. 4.

³⁷ National Audit Office. *Cybersecurity Environment in Lithuania*. Public Audit Report. 09 December 2015, No VA-P-90-4-16.

³⁸ Bank of Lithuania Board Resolution No 03-172 of 30 September 2014 on Approval of the Minimum Security Requirements for Online Payments.

sitivity of credit unions to fluctuations in financial markets (see Chart 52). Credit unions that have large securities exposures incurred significant losses in the second quarter of 2015, when the yields of the European government bonds increased abruptly (for more details see 'Snapback in risk premia' in this Chapter of the Review). The losses amounted to EUR 4.1 million or 9.7 per cent of the total value of securities portfolio held by credit unions. On the other hand, the ratio of securities held by credit unions to total assets declined by 7.3 p.p. to 28.5 per cent in 2015. The share of securities was reduced by 34 out of 74 credit unions, whereas the number of credit unions with securities portfolios exceeding 35 per cent of assets (this is the ceiling of the share of securities held by credit unions that will be applied from the end of 2016) declined by 6. Nevertheless, in the second quarter of 2015, securities portfolios of 13 credit unions exceeded 35 per cent of their assets, whereas the holdings of securities comprised as much as 70 per cent of the total investment in securities by the credit union sector.

In order to reduce the risks emerging in the credit union sector, the Bank of Lithuania initiated the necessary regulatory amendments in 2015, however, essential progress in increasing sustainability of their operation and development may be achieved only by implementing this sector's reform. The capital adequacy calculation rules were amended and investment rules were adopted in 2015. The uniform capital adequacy ratio is applied to all credit unions since 30 September 2015. According to the rules adopted by the Bank of Lithuania, higher capital requirements are established to riskier assets, i.e. to loans granted to associated members, taking into account their share in the loan portfolio. In addition, in order to reduce sensitivity of the credit union sector to market risk, the Bank of Lithuania prepared the Rules for Credit Union Investment in Non-Equity Securities. According to these rules, the credit union's investment portfolio shall not exceed 35 per cent of its balance-sheet assets, whereas the average modified financial duration of the securities portfolio shall not exceed 3 years from 31 December 2016 and 2 years from 31 December 2017.

In order to deal with structural problems faced by credit unions, the sector's reform is necessary, however, there is legal uncertainty about its implementation. In March 2015, the Budget and Finance Committee of the Seimas of the Republic of Lithuania approved the Concept of Sustainable Operation of Credit Unions, which envisages the main objectives of the credit union sector reform. On the basis of this Concept, the Bank of Lithuania, together with the Ministry of Finance of the Republic of Lithuania, prepared draft laws for the implementation of the structural reform of credit unions. Draft laws were registered in the Seimas and will be discussed in the nearest time (for more details see 'Credit union sector reform' in Chapter III of this Review).

STRESS TESTING

The Bank of Lithuania regularly performs the banking system stress testing with the aim of quantitative assessment of bank resilience. Bank solvency is tested by assessing the impact of macroeconomic environment changes on bank credit losses and profitability. The testing period covers two years, i.e. the main bank profit (loss) and balance sheet items are modelled until the end of 2017. Bank liquidity is assessed by applying one-off financing shocks emerging over a short period (up to 1 month).

Bank solvency testing

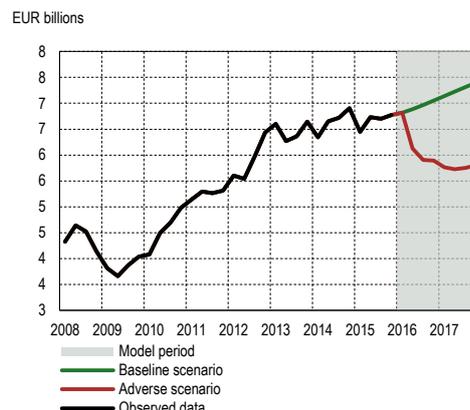
The main objective of bank solvency testing is to assess changes in the capital adequacy ratio of the domestic banking system and the banks that comprise it³⁹ in the event of unfavourable economic shocks. Attention should be paid to the fact that the results of the stress testing are not a forecast. On the contrary, this is an analysis of unlikely events and the conclusions presented are conditional. Thus, the results obtained should be evaluated, taking into account the assumptions made.⁴⁰

³⁹ The following banks are assessed during solvency testing: AB SEB bankas, AB DNB bankas, AB Šiaulių bankas, AB Citadele bankas, Swedbank, AB, and UAB Medicinos bankas.

⁴⁰ Static balance sheet assumptions used in the international practice are applied: 1) bank loan portfolio structure remains unchanged over the testing period; 2) the natural portfolio amortisation is offset by new loans granted, therefore the loan portfolio calculated on a gross basis remains unchanged; 3) if profit is earned over the testing period, it is used to increase capital; 4) changes in risk-weighted assets are only determined by changes in the loan portfolio quality; 5) it is assumed that bank supervisory authorities and public authorities do not take actions to mitigate consequences of an economic shock; 6) potential strategic decisions taken by banks themselves and their impact on capital adequacy ratio are not considered.

Chart 53. Quarterly real export with different scenarios in Lithuania

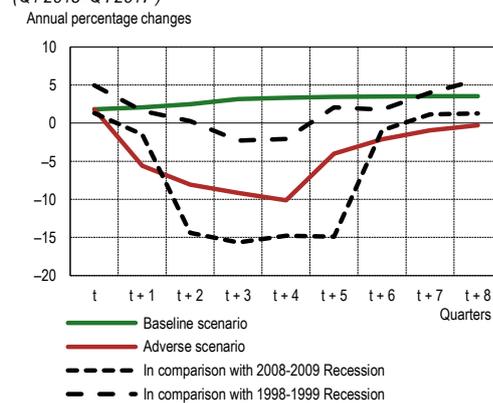
(Q1 2008–Q4 2017)



Source: Statistics Lithuania and Bank of Lithuania calculations.

Chart 54. Annual change of real GDP with different scenarios and recession periods

(Q1 2016–Q4 2017)



Source: Statistics Lithuania and Bank of Lithuania calculations
Note: t = Q1 2016.

Table 3. Changes of the key macroeconomic indicators according to testing scenarios

(percentages)

	Actual indicator	Baseline scenario		Adverse scenario	
	2015	2016	2017	2016	2017
GDP (at constant prices; annual change)	1.6	2.6	3.4	-5.3	-4.4
Exports of goods and services (at constant prices; annual change)	1.2	2.9	4.8	-7.2	-6.8
Private consumption expenditure (at constant prices; annual change)	4.9	4.2	4.0	-5.0	-4.7
Unemployment rate (annual average, compared to labour force)	9.1	8.6	8.3	11.5	13.1
Wage (compensation per employee, annual change)	5.1	5.3	5.3	-1.4	-2.7
Average annual inflation (based on HICP)	-0.7	0.5	1.8	-0.5	0.2
Housing price index (annual change)	3.3	4.4	4.5	-13.9	-8.6

Sources: Statistics Lithuania and Bank of Lithuania calculations.

The adverse scenario is used as the main scenario, on which conclusions on bank resilience are based. The main assumptions of this scenario are the following: 1) foreign demand in the main export markets of Lithuania declines substantially and is declining until the end of 2017; due to this reason, the export of Lithuania would fall by 7.2 per cent in 2016 and by 6.8 per cent in 2017 (see Chart 53); 2) declining export and import prices determine low inflation in Lithuania; 3) net foreign transfers decline, therefore, disposable income of residents and consumption fall; 4) real estate prices decline (by 13.9% in 2016 and 8.6% in 2017); 5) bank borrowing costs increase, which determines higher borrowing costs of the private sector.

The course of events according to the adverse scenario would strengthen pessimistic expectations regarding future economic developments. Enterprises would postpone investment plans, reduce production volumes and suspend wage increases or dismiss a part of employees. The combination of the fall in foreign demand and the slowdown of domestic consumption would determine substantial overall economic downturn in Lithuania, which would last over the whole testing period (–5.3% in 2016 and –4.4% in 2017; see Chart 54). The decline of financial reserves of households and enterprises would substantially impair their ability to repay debts. Real sector problems would spill over to the banking sector – bank loan portfolio quality would deteriorate, credit losses would grow and profitability would fall.

The baseline scenario is based on the official macroeconomic projections of the Bank of Lithuania published in March 2016. This scenario is used to assess sustainability of bank operation in the case of the most probable economic development. The key macroeconomic indicators and their evolution under both scenarios are provided in Table 3.

Chart 55. Banks sector capital adequacy ratio dispersion according to adverse scenario

(Q1 2016–Q4 2017)

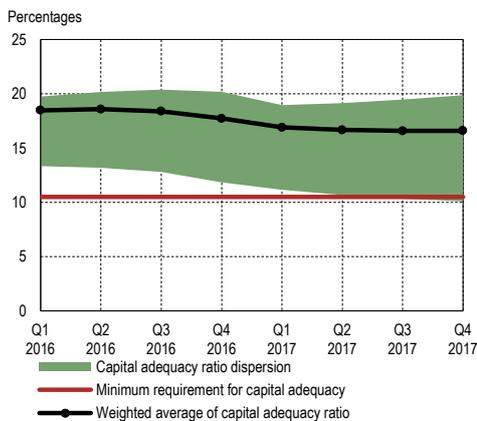
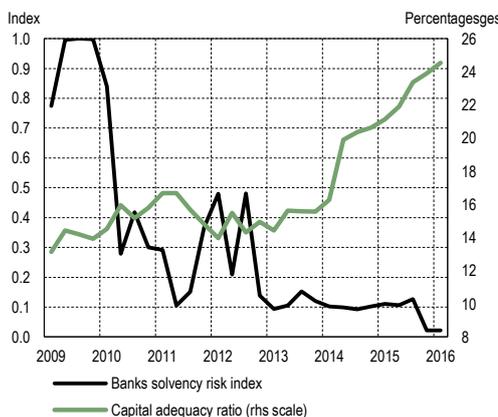


Chart 56. Banks solvency risk index

(Q1 2009–Q1 2016)



Bank credit losses calculated according to the adverse scenario would amount to EUR 642 million in 2016 and 2017, whereas their largest increase would be observed at the end of 2016. Total credit losses incurred over the testing period would be 3.4 times higher than those calculated according to the baseline scenario and would amount to 4.7 per cent of the total loan portfolio at the end of Q4 2015. Credit losses calculated after excluding the impact of other factors would determine the decline of the capital adequacy ratio of around 6.1 p.p.

The loss of fee and commission income due to the euro adoption in Lithuania and the decline of interest income due to low interest rates have a strong impact on bank operating profit (before credit losses). Operating income declined by 19 per cent year-on-year in the first half of 2015, however, in the second half of the year the decline of income slowed down and operating income of 2015 was lower by 9.1 per cent than in 2014. It is assumed according to the baseline scenario that operating income should stabilise around the level of 2015. Bank income under the adverse scenario would become around 16.9 per cent lower than according to the baseline scenario in 2016 and 2017.

Stress testing results show that the banking sector, as a whole, remains resilient to economic shocks. Bank resilience is mostly based on the currently high capital adequacy ratio: it amounted to 24.5 per cent at the end of 2015.⁴¹ During this year's stress testing, bank plans to pay dividends were taken into consideration. Owing to this, the banking sector's capital adequacy ratio would decline to 18.5 per cent in Q1 2016 and to 16.6 per cent over the testing period of the adverse scenario (see Chart 55). Although overall the banking sector is sufficiently resilient to the adverse scenario, one bank would violate the capital adequacy requirement. This bank would need an additional amount of around EUR 0.6 million to comply with the minimum capital adequacy ratio. Compared to the size of the banking sector, the capital shortfall established during the testing is not significant enough to pose risk to the sector's stability.

The banking sector solvency risk index shows that the sector's riskiness declined slightly, compared to the previous year (see Chart 56). This index shows how the ability of currently operating banks to cover losses incurred due to the standardised shock changed over time and enables the comparison of the current situation with the crisis period of 2008 and 2009. The decline in the value of this index at the end of 2015,

⁴¹ The bank solvency testing is performed on the basis of unconsolidated data of banks.

i.e. improved ability of banks to cover losses incurred due to the standardised shock, was determined by good operating results of AB Šiaulių bankas in 2015 and the increase in this bank's capital adequacy ratio

Bank liquidity testing⁴²

Bank liquidity testing analyses short-term liquidity shocks, which assume the fall in the value of liquid assets of banks, situation in which individuals and enterprises would rush to withdraw a part of deposits, and banks would experience an unplanned decline of their cash inflows. The banking sector of Lithuania could experience such shocks, for example, in case of a particularly unfavourable situation in the banking system of the Northern countries (for more details see 'Real estate market and leverage imbalances in Nordic countries'). In the the standard adverse scenario, it is assumed that the market value of bonds of EU governments and institutions would decline by 5 per cent.⁴³ The same sizes of shocks as those used when calculating the liquidity coverage ratio (LCR) are applied to other asset classes, deposits and the amounts, which are planned to be received over the month.⁴⁴ For example, covered retail deposits, which are assessed by banks as particularly stable, would decline over a month by 5 per cent, those assessed as less stable would fall by 10 per cent and uncovered deposits would fall even more (see Table 4). Amounts to be received from customers over a month are reduced by half.

The banking sector is resilient to short-term liquidity shocks assumed in the standard scenario. The banking sector would comply with the liquidity coverage requirement of 100 per cent with reserve (see Chart 57)⁴⁵, although the LCR indicator of two banks would decline to 74 per cent and to 80 per cent according to the adverse scenario. The poorer result of these two banks was determined by lower, compared to other banks, liquidity buffers and less favourable composition of liabilities. Although the sector would need to repay around 14.6 per cent of liabilities on average, liabilities of both banks are more sensitive to the shocks than the sector's average (see Chart 58). In addition, the quality of liquid assets of one of the banks is substantially poorer, therefore, in the adverse scenario their value would decline more than the average (the median of impairment of liquid assets is 3.6%). In order to comply with the minimum requirement, both banks would need to increase liquid assets by around 8 per cent without changes of liability composition. It should be noted that in the event of an unfavourable situation in the market the banks may violate the minimum LCR requirement, however, the Bank of Lithuania would then monitor their situation more strictly until liquidity is restored to the required level.

Reverse testing results show that the banking sector would withstand two times larger shock than according to the standard scenario. The result of reverse testing is the multiplier, which is used to increase all shocks applied to a bank in the standard scenario until the liquid assets held by it before the shock are used up, i.e. it shows how many times bigger shock could be withstood by the bank than according to the standard scenario. Bank results range from 1.1 to 3.4 times, meaning that possibilities of some banks to withstand particularly large liquidity shocks independently are smaller. The risk that banks may be lacking liquid assets in the event of particularly large shocks is mitigated by the fact that the large banks that are least resilient belong to foreign bank groups, where liquidity is managed more intensively at the group level. Same as during the crisis of 2008 to 2010, they could expect support from parent banks if they had

⁴² The following banks are assessed in liquidity testing: AB DNB bankas, AB SEB bankas, AB Šiaulių bankas, UAB Medicinos bankas, AB Citadelė bankas and Swedbank, AB. The data of preliminary liquidity reports of banks as of 1 February 2016 are used.

⁴³ When credit institutions use the Eurosystem's traditional monetary policy instruments and provide as collateral government securities of Lithuania and other high-rating EU states, their market value would be reduced by 0.5–7 per cent (the reduction of 5% or more would be applied only to the value of bonds with the remaining maturity of more than 10 years); as of end-2015, the decline in the market value of debt securities portfolio of Lithuanian banks of 5 per cent would correspond to a 2.3 p.p. increase in yield (government debt securities comprised 79% of the debt securities portfolio held by banks).

⁴⁴ The assumptions used for the calculation of the LCR indicator are defined in the Capital Requirements Regulation (CRR).

⁴⁵ The LCR indicator of some banks increases according to the adverse scenario, since the LCR is calculated as the ratio of liquid assets to net cash outflow (NCO). The assumption about the shock is made that the bank repays a part of its liabilities using liquid assets. If liabilities decline, the NCO used for the calculation of the LCR also declines. When the reserve of the bank's liquid assets is particularly large, in the general case its liquid assets (the LCR numerator) decline relatively less than the NCO (the LCR denominator), therefore the technical increase in the LCR indicator is observed. If an assumption is made according to the standard adverse scenario that the LCR denominator does not change, the main conclusions of testing would not change.

Table 4. Assumptions applied in the standard scenario of the bank liquidity testing

	LCR calculation (percentages)	Standard adverse scenario (percentages)
Valuation haircut		
Cash	0	0
Funds held at the central bank that can be used	0	0
Government bonds of EU states and other (non-EU) high rating states	0	5
Other extremely high quality liquid assets and high quality liquid assets	0	5
Other liquid assets	15–20	15–20
Decline of liabilities applied to assess the cash outflow		
Retail deposits:		
- stable (covered, with very low probability of withdrawal)	5	5
- lower stability (other covered)	10	10
- not insured	10–25	10–25
Wholesale deposits:		
- stable (operational, covered)*	5	5
- lower stability*	25–40	25–40
The included share of the planned cash inflow		
Receivables from customers	50	50

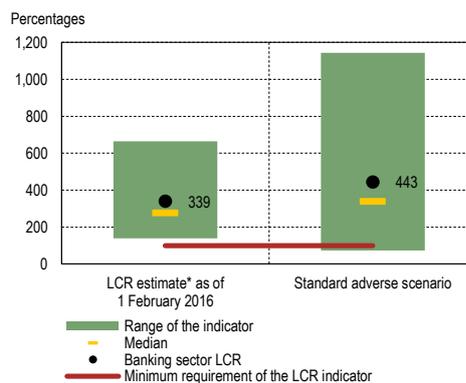
Source: Bank of Lithuania calculations.

Note: the assumptions of the standard adverse scenario are the same as those used in the calculation of the LCR, but the value of debt securities of EU governments and institutions is reduced (by 5%); ranges are provided, if the item is divided into constituent parts, to which different size shocks are applied.

* Evidence should be provided that the customer cannot withdraw the amounts that are legally due in 30 days.

Chart 57. Bank liquidity testing results

(according to the data of 1 February 2016)

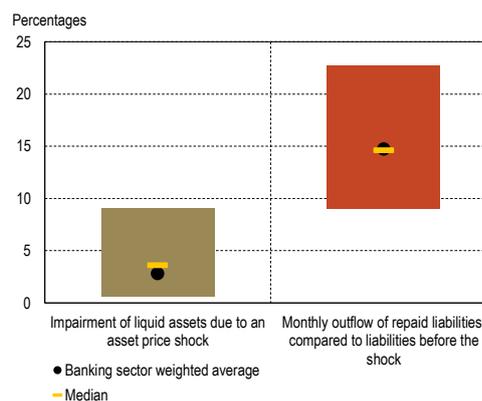


Source: Bank of Lithuania calculations.

* Preliminary LCR estimate calculated by the Bank of Lithuania on the basis of the data submitted by banks.

Chart 58. Sensitivity of liquid assets and liabilities of banks to the shocks of the standard adverse scenario

(according to the data of 1 February 2016)



Source: Bank of Lithuania calculations.

Note: columns denote the range of indicators among banks.

Table 5. Main macro-prudential policy instruments

Instrument	The effective date of the latest decision on the instrument size
Other systemically important institutions buffer (0.5–2%)	31 December 2016
Counter-cyclical capital buffer (0%)	31 March 2016
DSTI indicator (40%, 50% with 5% interest rate; 60% in exceptional cases)	1 November 2015
Maximum loan maturity (30 years)	1 November 2015
Capital conservation buffer (2.5%)	30 June 2015
Loan-to-value ratio (85%)	1 November 2011

Source: Bank of Lithuania.

liquidity problems. Moreover, the capability of banks operating in Lithuania to ensure sufficient liquidity is also higher due to the possibility to participate in the Eurosystem's monetary policy operations. As of March 2016, banks operating in Lithuania could use around EUR 1.68 billion of available assets as collateral to participate in monetary policy operations and had pledged securities for the value of EUR 0.4 billion to the Bank of Lithuania.

III. STRENGTHENING OF THE FINANCIAL SYSTEM

MAIN CHANGES IN THE AREA OF FINANCIAL SYSTEM STRENGTHENING

In 2015 and in the first half of 2016 the Bank of Lithuania continued to implement the Macro-Prudential Policy Strategy according to the macro-prudential policy mandate that has been granted to it.⁴⁶ In accordance with amendments to the Law on the Bank of Lithuania, which obligated the Bank of Lithuania to conduct macro-prudential policy, the Board of the Bank of Lithuania adopted the Macro-Prudential Policy Strategy⁴⁷ on 12 March 2015, which establishes the ultimate and intermediate macro-prudential policy objectives and instruments for achieving these objectives. The strategy lays down the guidelines for macro-prudential policy decision making and communication as well as cooperation of the Bank of Lithuania with other institutions. In addition, the main provisions of the Capital Requirements Directive (CRD IV) were transposed to the law of Lithuania on 9 April 2015. These amendments entitled the Bank of Lithuania to apply new liquidity requirements and new capital buffers to the Lithuanian financial institutions to reduce structural and cyclical risks. The key macro-prudential policy instruments currently in use are specified in Table 5.

Last year, the countercyclical capital buffer requirement was introduced. In 2015, the Bank of Lithuania started to apply the countercyclical capital buffer requirement to implement the first intermediate target defined in the Macro-Prudential Policy Strategy — to limit and prevent excessive credit growth and leverage. The required buffer rate is set each quarter after assessment of the situation in credit and real estate markets. The application of this macro-prudential instrument is regulated by the Rules for the Formation of Capital Buffers adopted by the Board of the Bank of Lithuania on 9 April 2015. CRD IV obligates the EU Member States to start the application of the countercyclical capital buffer from 2016, however, the Bank of Lithuania implemented this requirement earlier and set the rate at 0 per cent after assessment that imbalances in lending and housing markets have not emerged in Q2 2015.⁴⁸ It became effective on 30 June 2015. On the basis of the data of Q3 and Q4 2015, the Bank of Lithuania made a decision on 31 March 2016 to keep the countercyclical capital buffer rate of 0 per cent unchanged (analogous decision was made in Q3 and Q4 2015).⁴⁹ The countercyclical capital buffer rate higher than 0 per cent would be set, if it was assessed that the systemic risk level increases and sustainability of economic development is threatened by excessive credit growth in the financial system.

In order to ensure responsible borrowing in the environment of low interest rates and to protect households from excessive indebtedness by taking long-term loans, the Responsible Lending Regulations were revised and their amendments became effective on 1 November 2015. Due to the prevailing low interest rates, the capacity of the previous debt-service-to-income ratio of 40 per cent to restrict over-indebtedness weakened, therefore, credit institutions will be required to ensure additionally that this ratio does not exceed 50 per cent by using the annual interest rate of 5 per cent for the calculation.⁵⁰ The aim of this amendment is to protect those households that borrow at the debt-service-to-income ratio close to 40 per cent in the envi-

⁴⁶ Republic of Lithuania Law Amending Article 8, 11, 27, 51, 55 and Annex 2 of the Law on the Bank of Lithuania I-678 and Supplementing the Law with Chapter Seven and Article 52 (18 September 2014, No XII-1097). Register of Legal Acts, 23 September 2014, No 2014-12712.

⁴⁷ Resolution of the Board of the Bank of Lithuania No 03-31 of 12 March 2015 on Adopting the Macro-Prudential Policy Strategy.

⁴⁸ Resolution of the Board of the Bank of Lithuania No 03-106 of 19 June 2015 on the Application of the Counter-Cyclical Capital Buffer. For more details see 'Counter-cyclical capital buffer application in Lithuania', Working Paper Series of the Bank of Lithuania, 2015, No 5: http://www.lb.lt/anticiklinio_kapitalo_rezervo_taikymas_lietuvoje.

⁴⁹ Resolution of the Board of the Bank of Lithuania No 03-35 of 31 March 2016 on the Application of the Counter-Cyclical Capital Buffer.

⁵⁰ The interest rate applied is the average interest rate of housing loans in euro granted during the period of 2005 to 2014 increased by one standard deviation.

ronment of low interest rates from the risk of facing difficulties in paying higher loan payments if interest rates increased in the future. Amendments were made in such a way as to ensure that their impact on credit developments is neutral. For this purpose, a possibility was created for credit institutions to grant 5 per cent of new loans with the debt-service-to-income ratio of up to 60 per cent over the calendar year. Moreover, to protect households from over-indebtedness by taking long-term loans, the Bank of Lithuania reduced the maximum loan maturity from 40 to 30 years. Judging from the data of the last quarter of 2015 and the first quarter of 2016, the amendments to the Responsible Lending Regulations did not have a negative impact on lending to households.

In 2016, the Bank of Lithuania will evaluate the need of one more macro-prudential policy instrument — the systemic risk buffer. This capital buffer is used to increase the resilience of banks to structural systemic risk. Structural systemic risk is a long-term risk that emerges due to specifics of the country's financial system or the environment in which it operates. For example, the Lithuanian economy is small and open and particularly dependent on the economic development of the main export partners and other foreign environment changes, therefore, unfavourable events may worsen the capability of bank customers to meet their financial liabilities. The structural risk is increased by the fact that the Lithuanian banking sector has an exceptional role in financing the economy⁵¹, whereas its concentration is high. According to the unaudited data of January 2016, the three largest banks comprise more than 74 per cent of the banking sector both by loans granted and by total assets. Although the resilience of systemically important institutions is increased by the already applied other systemically important institutions buffer (see 'Other systemically important institutions buffer' in this Chapter), owing to such high importance of the banking sector, the maximum potential limit of this buffer of 2 per cent may be insufficient. According to the Rules for the Formation of Capital Buffers, the systemic risk buffer may range from 1 to 5 per cent and may be applied both to the whole sector and to individual banks, to which the identified structural risk is important. The need to apply the systemic risk buffer will be assessed after considering the said risks (but not excluding others), already applied capital requirements to banks and the costs and benefits of the additional capital buffer.

OTHER SYSTEMICALLY IMPORTANT INSTITUTIONS BUFFER

One of the main changes in the financial sector regulation after the financial crisis of 2008 is the reform of capital requirements prepared by the Basel Committee on Banking Supervision, which establishes tighter capital requirements (additional capital buffers) to banks. Larger capital buffers should increase resilience of these institutions to negative shocks. Within the EU, these requirements are harmonised with CRD IV and one of the established additional capital buffers is the other systemically important institutions buffer. The setting of its rate is regulated by the Rules for the Formation of Capital Buffers, adopted by the Board of the Bank of Lithuania on 9 April 2015.

The main objective of the other systemically important institutions buffer is to increase resilience of especially important financial institutions to potential losses. When a systemically important institution faces operational difficulties, other financial institutions or markets may be negatively affected due to their interconnectedness. When one bank experiences financial difficulties and cannot meet its liabilities to another bank, this financial institution may face liquidity problems and default on its liabilities to a third party. Thus the problems of one financial institution may spill over to the whole financial or interbank system and affect a significant share of its participants. Moreover, systemically important banks have large shares of payments, loans and deposits markets, therefore, if they face difficulties, the provision of a significant share of financial services would be disturbed. By establishing this additional capital buffer, important banks are obligated to maintain a larger reserve of own funds to cover losses, therefore, the probability of their bankruptcy declines, as well as the costs that would be incurred

⁵¹ At the end of 2015, bank assets made up 79 per cent of the total assets of financial system participants supervised by the Bank of Lithuania.

Table 6. Criteria and indicators used to determine systemic importance of financial institutions

Criterion	Criteria weight, per cent	Indicator	Weight, per cent
Size	25	Total assets	25.00
Importance, including substitutability of financial services and financial system infrastructure	25	Value of domestic payment transactions	8.33
		Private sector deposits from depositors in the EU	8.33
		Private sector loans to recipients in the EU	8.33
Complexity and cross-border activities	25	Value of OTC derivatives (notional)	8.33
		Cross-jurisdictional liabilities	8.33
		Cross-jurisdictional claims	8.33
Interconnectedness	25	Intra-financial system liabilities	8.33
		Intra-financial system assets	8.33
		Debt securities outstanding	8.33

Source: Bank of Lithuania.

by the public.

This instrument allows achieving one of the intermediate macro-prudential policy targets — limiting misaligned incentives of financial institutions that may have a systemic impact and reduction of the danger of their irresponsible behaviour. Owing to their importance, large financial institutions may have expectations that in case of their difficulties the national government will provide support to them (strengthen capital, provide guarantees, etc.) to reduce potential negative consequences to the financial system and the economy. This may encourage financial institutions to assume excessively high risk to earn profit under expectations that potential losses in case of failure will be transferred to taxpayers.⁵² Additional capital buffer for such institutions increases incentives to ensure suitable risk management.

The definition of systemically important institutions is based on the CRD IV instructions and the methodology defined in the EBA guidelines. The EBA guidelines⁵³ recommend to use the following criteria in determining the financial institution's systemic importance: 1) size; 2) importance to the EU or Lithuania's economy; 3) importance of cross-border activities; 4) interconnectedness of the institution or financial group with the financial system. To assess the importance of the financial institution comprehensively, all of the above-mentioned criteria are taken into account when assessing systemically important institutions in Lithuania. Each of these four criteria has similar importance (the weight of 25% is assigned; see Table 6). The higher systemic importance of the financial institution is according to one or another criterion, the larger score it receives. The general score of the financial institution is expressed in basis points, whereas the potential maximum size of the score is 10,000 basis points. Financial institutions that have the general score of 350 basis points or more are identified as systemically important institutions on the basis of the EBA guidelines. The additional capital buffer for systemically important institutions may compose from 0 to 2 per cent of the risk-weighted assets of the institution.

When setting the other systemically important institutions buffer, the potential costs of institutions' bankruptcy to the financial system and the whole economy are taken into account. The capital buffer size of individual institutions is assessed by two methods. In the first case, the method of expected impact is applied. Taking into account the probability of bank bankruptcy, systemic importance and potential damage of bank bankruptcy to the economy, the size of other systemically important institutions buffer is determined so that the potential damage of the bankruptcy of a systemically important institution is reduced to the total expected costs of the bankruptcy of the largest still systemically unimportant bank. Another method is the expected loss method, which is used to determine the size of capital buffers of systemically important financial institutions, taking into account the expected losses of the institution, i.e. the more important the institution, the larger capital for covering potential losses it should have. When setting other systemically important institutions buffer size in Lithuania⁵⁴, the average of these two methods is used.

The list of systemically important institutions and the capital buffers assigned to them was published for the first time on 15 December 2015.⁵⁵ Four systemically important institutions were identified: the other systemically important institutions capital buffer of 2 per cent was set for *AB SEB bankas*, *Swedbank*, *AB*, and *AB DNB bankas*, whereas the capital buffer of 0.5 per cent was set for *AB Šiauliy bankas*.⁵⁶ From 2016, the capital buffer size will be determined and published by December of each year. It is envisaged to apply one year transitional period for systemically important institutions to

⁵² After the transposition of the requirements of the Bank Recovery and Resolution Directive to the national law of Lithuania from December 2015, the laws envisage instruments, which could help solving problems of financial institutions without the financial aid of the state.

⁵³ On the criteria that are used to establish the conditions of assessment of the application of Article 131.3 of the Directive 2013/36/EU (CRD) to other systemically important institutions.

⁵⁴ For more detail see 'Application of other systemically important institutions buffer requirement in Lithuania', Occasional Paper Series of the Bank of Lithuania, 2015, No 7: http://www.lb.lt/kitu_sistemines_svarbos_istaigu_kapitalo_rezervo_reikalavimo_taikymas_lietuvoje.

⁵⁵ Resolution of the Board of the Bank of Lithuania No 03-192 of 15 December 2015 on Setting of the Capital Buffer for Other Systemically Important Institutions.

⁵⁶ It is likely that if *Danske Bank AS* Lithuania branch and *Nordea Bank AB* Lithuania branch were operating as banks established in Lithuania and not foreign bank branches, these institutions would also be recognised as systemically important.

accumulate the respective capital buffer.⁵⁷ For example, the systemically important institutions identified in 2015 will be required to comply with the additional capital buffer requirements from 31 December 2016.

CREDIT UNION SECTOR REFORM

Overall financial performance results of credit unions operating in Lithuania are poor, structural problems related to the sustainability of credit union capital and business models are still emerging, whereas essential changes can only be achieved by implementing this sector's reform. The losses incurred by credit unions in Q4 2015 (EUR 2.3 million) were a determining factor that the sector did not earn a profit over the year (the losses amounted to EUR 3.6 million), whereas 27 credit unions were operating at a loss (their total loss was EUR 6.6 million). The Bank of Lithuania had previously identified⁵⁸ that the operation of the majority of credit unions was significantly far from cooperative principles and this was directly related to riskier operations of these institutions. For example, large asset impairment expenses were the main reason for the operation with a loss in 2015 (they comprised EUR 5.6 million, of which EUR 4.2 million belonged to three credit unions). These expenses consisted of unprofitable investment in debt securities (see 'Unbalanced development of the credit union sector' in this Chapter) and particularly risky lending. Although last year credit unions reduced securities portfolios and changed their composition by maturity in preparation to comply with the Requirements of Credit Union Investment in Non-equity Securities⁵⁹, according to the data of 1 April 2016, debt securities still comprised more than a quarter (28.5%, 35.8% in 2014) of credit union assets (EUR 173.4 million). Thus, the credit union sector remains excessively risky, whereas the requirements of the said rules are not sufficient to deal with the structural problems of the sector.

In 2015, the draft legal acts⁶⁰ required for the implementation of the credit union sector reform envisioned in the Concept of the Sustainable Credit Union Operation⁶¹ were prepared and submitted to the Seimas. These draft legal acts were coordinated with all market participants and more than four fifths of all credit unions operating in Lithuania approved them. Moreover, to ensure successful implementation of the credit union reform, it is planned to perform a comprehensive, independent and standardised review of the credit unions' assets before these legal acts come into force, by employing the services of audit companies, asset valuers and other entities that have required qualification. The objective of this review is to identify the financial situation of credit unions prior to the implementation of the changes proposed in the reform, i.e. to ensure that the new credit union system starts its operations without the inherited problems and the institutions may trust each other.

The credit union reform will protect individual credit unions from problems related to insolvency by creating an effective self-regulation and solvency ensuring system. In the beginning of 2016, 74 credit unions operated in this sector, of which 61 belonged to the Lithuanian Central Credit Union (LCCU), and the other 13 operated independently. The experience of the recent years shows that independent credit unions are riskier (4 out of 5 credit unions that went bankrupt since 2013 did not belong to the LCCU). Therefore, the Draft Law Amending the Law on Credit Unions determines that each credit union shall be required to become a member of a Central Credit Union. It will be possible to have several central credit unions, as the draft laws define the terms for establishing several central credit unions. Moreover, they will be given effective and clearly defined rights and obligations related to the supervision of their members. After implementing the reform, central credit unions and their members would be unified into solvency ensuring systems and would become jointly responsible for the liabilities of the other members of the respective central credit union in cases of insolvency. Thus, an

⁵⁷ The legal acts do not envisage a period, after which institutions should comply with this capital buffer requirement. Taking into account the fact that it would be difficult for the institutions to attract additional capital quickly and the practice related to the counter-cyclical capital buffer, one year transitional period is applied.

⁵⁸ See, for example, the Financial Stability Review 2015: http://www.lb.lt/finansinio_stabilumo_apzvalga_2015_m.

⁵⁹ See <https://www.e-tar.lt/portal/lt/legalAct/81802eb018ca11e58569be21ff080a8c>.

⁶⁰ Decision of the Budget and Finance Committee of the Seimas of the Republic of Lithuania on the concept of sustainable credit union activity and drawing up the draft amendments to the legal acts of the Republic of Lithuania envisaged in it (18 March 2015, No 109-S-1): http://www.lb.lt/n23425/tvarios_kredito_uniju_veiklos_koncepcija.pdf.

⁶¹ Draft Law Amending the Law on Credit Unions No I-796 (XIIP-3772): http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=1094072; Draft Law Amending the Law on the Central Credit Union No VIII-1682 (XIIP-3771): http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=1094063.

efficient solvency ensuring system would be created with the main objective of ensuring mandatory and reciprocal support between credit unions and protecting their members and taxpayers from financial losses, when one of this sector's institutions faces difficulties.

The credit union reform aims to ensure that credit unions accumulate sustainable capital. The shares that currently form the larger part of credit union capital, cannot be considered as sustainable capital, since they can be withdrawn quite easily. Sustainable capital should be paid-in, stable and belong to the credit union. The draft laws determine that compulsory reserves or reserve capital of central credit unions and credit unions should be formed from contributions from credit union profit. Contributions to compulsory reserves or reserve capital will be mandatory and may not be lower than 90 per cent of distributed profits until the compulsory reserves and reserve capital comprise no less than 90 per cent of the equity capital of credit unions. After accumulating sustainable capital, credit unions will become reliable participants of the financial market and will be able to compete more successfully with commercial banks in providing financial services not only to individuals, but also to legal entities. Together with requirements on the improvement of self-regulation and implementation of efficient liquidity and unified solvency ensuring systems, this requirement would help in ensuring the stability of the credit union system and restoring public confidence in this sector.

ASSESSMENT OF THE RISKINESS OF THE DEPOSIT INSURANCE SYSTEM PARTICIPANTS

In order to harmonise the key deposit insurance principles within the EU, the Directive 2014/49/EU on deposit guarantee schemes was adopted on 16 April 2014. This Directive establishes the minimum *ex ante* deposit insurance fund level and the size of *ex post* contributions. It was established that *ex ante* contributions should be accumulated before credit institution's bankruptcy, whereas *ex post* contributions of the deposit insurance system participants are collected after the bankruptcy takes place and the financial resources of the deposit insurance fund are insufficient to repay the amounts due to depositors. The Directive aims to increase comparability of deposit insurance systems in the EU Member States and to ensure level playing field to deposit collecting institutions in different states. This Directive implements several new deposit insurance system principles: 1) the minimum target deposit insurance system level of 0.8 per cent of total covered deposits was established and the national deposit guarantee schemes should reach it by 3 July 2024; 2) when establishing contributions, the deposit insurance system participants are assessed according to their riskiness; 3) the base was unified in EU Member States, according to which annual *ex ante* contributions are paid — these contributions are paid from covered deposits to the amount of EUR 100,000. This determined the reduction of the base, from which Lithuanian credit institutions will pay deposit insurance contributions: annual deposit insurance contributions paid by the Lithuanian banks were fixed until July 2015 and equal to 0.45 per cent and those paid by credit unions comprised 0.25 per cent⁶² of the total balance of covered deposits.

Riskiness of the institutions of the Lithuanian deposit insurance system is identified by the Bank of Lithuania.⁶³ Lithuania decided to collect a higher level of the deposit insurance fund (2% of covered deposits until 3 July 2028) than the minimum required in the above-mentioned Directive⁶⁴ to ensure that it is capable to pay insurance benefits independently in case of bankruptcies of at least small credit institutions. Although almost all deposit insurance fund administration and annual contributions' calculation functions are performed by the public enterprise *Indėlių ir investicijų draudimas*, the Bank of Lithuania was assigned the task of calculating riskiness coefficients of all institutions paying contributions to the Deposit Insurance Fund until June of each year for one year — from 1 July to 30 June of the next year.⁶⁵ These coefficients are deter-

⁶² The previous wording of the law envisaged that the rates of credit union contributions to the Deposit Insurance Fund will gradually reach the rate paid by banks (0.45%) by 1 January 2019.

⁶³ Republic of Lithuania Law Amending the Law on Insurance of Deposits and Liabilities to Investors No IX-975.

⁶⁴ Article 12.5 of Section 2 of the Republic of Lithuania Law Amending the Law on Insurance of Deposits and Liabilities to Investors No IX-975.

⁶⁵ The exception was applied when determining the risk-based contributions of the transitional period of 1 January 2016 to 30 June 2016. The Bank of Lithuania had to present riskiness coefficients of individual credit institutions calculated during this period to the public enterprise *Indėlių ir investicijų draudimas* by January 2016.

mined on the basis of the description of the procedure for determining the operational riskiness of the deposit insurance system participants adopted by the Board of the Bank of Lithuania.⁶⁶

Operational riskiness of the Lithuanian commercial banks that collect deposits and the LCCU is established according to the EBA guidelines on the methodology of calculating the contributions to the deposit guarantee scheme.⁶⁷ These guidelines are used to implement the principle according to which credit institutions of relatively lower riskiness pay lower contributions than riskier credit institutions. Riskiness of banks and the LCCU is assessed according to five criteria groups defined in the EBA guidelines (see Table 7). The list of indicators defined in the EBA guidelines has been supplemented with non-rounded estimate of the Supervisory Review and Evaluation Process (SREP average). The institution's riskiness is expressed by the overall risk coefficient (see Chart 59), which may comprise 75 to 150 per cent. The amount of the contribution paid by the deposit insurance system participants to the Deposit Insurance Fund depends on the size of this coefficient.

Taking into consideration the specific form of credit union activities, their riskiness was assessed according to the methodology that enables a more accurate assessment of operational risk of credit unions. The methodology proposed in the EBA guidelines is adapted to those institutions to which CRR requirements are applied (these are essentially commercial banks), therefore, it is not suitable for credit unions and some indicators envisaged in the EBA guidelines cannot be calculated for credit unions at all. Taking this into account, it was decided to determine credit union riskiness by the amount of risk indexing points, which are calculated by quantitative assessment of the credit union performance quality indicators. These indicators cover the composition of assets and liabilities, growth rates of individual balance sheet items, profitability, quality of financial assets and compliance with prudential requirements.

After changing the procedure of calculating the contributions to the Deposit Insurance Fund, banks operating in Lithuania will pay substantially lower deposit insurance contributions and credit unions will pay slightly higher contributions in the first half of 2016, compared to the corresponding period of 2015. After assessing operational riskiness of credit institutions and the reduced base, from which contributions are paid, the contributions to the Deposit Insurance Fund paid by banks participating in the deposit insurance system of Lithuania declined by around 24 per cent on average in the first half of 2016, compared to the same period in 2015. During the same period, the annual *ex ante* contributions to the Deposit Insurance Fund paid by credit unions increased by around 7 per cent on average. Nevertheless, according to the amended Law on Insurance of Deposits and Liabilities to Investors, the annual rate of deposit insurance contribution paid by credit unions should increase by one fifth from 2016, i.e. from 0.25 to 0.3 per cent of the balance of covered deposits. However, the contributions became only equal in their relative size with bank contributions, since they were lower until 2016. Attention should be paid to the fact that the annual contribution to the Deposit Insurance Fund in 2016 increased by more than one fifth only for the most risky credit unions (they were assigned the maximum 150 per cent overall risk coefficient; see Chart 60).

In order to complete the creation of the Banking Union, the European Commission submitted a proposal to create the joint European Deposit Insurance Scheme (EDIS) on 24 November 2015.⁶⁸ According to the proposal submitted, the EDIS would unite the national deposit insurance systems, whereas depositors would continue to be covered by the same protection (EUR 100,000). According to the European Commission's proposal, which is not yet legally binding, but describes the EDIS vision, the participation in the EDIS would be obligatory to the euro area states, whereas other EU states would be allowed to join the EDIS, if they decided to join the Banking

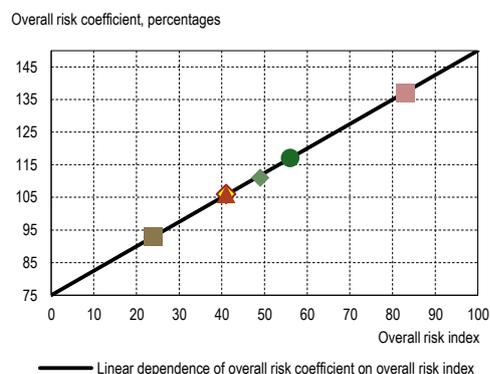
Table 7. Criteria and indicators assessed to determine operational riskiness of banks and the LCCU

Criterion	Indicator
Capital	Leverage ratio
	Common equity Tier 1 (CET1) ratio
Liquidity and funding	Liquidity coverage ratio (LCR)
	Net stable funding ratio (NSFR)
	High quality liquid assets to total assets ratio
Asset quality	Non-performing debt instruments to total debt instruments ratio
Business model and management	Risk-weighted assets to total assets ratio
	Return on assets ratio
Potential losses for the deposit guarantee scheme	Unencumbered assets to covered deposits ratio
Additional indicators	SREP average

Source: Bank of Lithuania.

Chart 59. Linear dependence of overall risk coefficients of banks and the LCCU on the determined riskiness of institutions

(Q3 2014–Q2 2015)

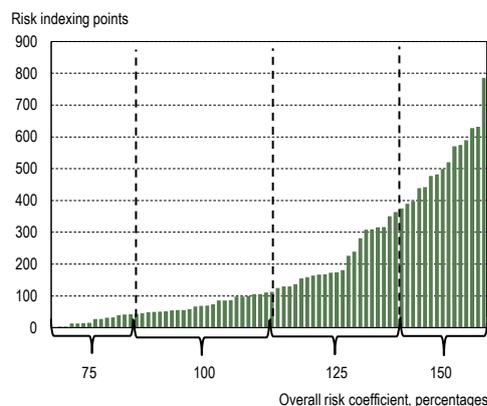


Source: Bank of Lithuania calculations.

Note: Signs in the chart denote various financial institutions, for which overall risk coefficients of certain size were determined.

Chart 60. Overall risk coefficients determined for credit unions according to the calculated risk indexing points

(Q3 2014–Q2 2015)



Source: Bank of Lithuania calculations.

⁶⁶ Board of the Bank of Lithuania Resolution No 03-7 of 14 January 2016 on Adopting the Description of the Procedure for Determining Operational Riskiness of Deposit Insurance System Participants.

⁶⁷ On 28 May 2015, EBA/GL/2015/10 guidelines on calculating the contributions to the deposit guarantee scheme were issued, as required by the Directive 2014/49/EU.

⁶⁸ Proposal of the European Commission 2015/0270 (COD) of 24 November 2015 on the Regulation of the European Parliament and of the Council Amending the Regulation (EU) No 806/2014 to create the European deposit insurance scheme.

Union. According to the European Commission's proposal, the European Deposit Insurance Fund would be accumulated gradually by 2024. The transition from national deposit insurance schemes to the European deposit insurance scheme will incur no additional expenses to the banking sector, since the target level of covered deposits of 0.8 per cent, which was established by the Directive 2014/49/EU on deposit guarantee schemes adopted by the EU on 16 April 2014, would not change and the contributions would continue to be determined according to operational riskiness of credit institutions. However, this proposal is still under consideration by responsible European institutions and the EDIS principles defined in the final proposal may differ from those presented in the European Commission's proposal of 24 November 2015.

RESOLUTION OF FINANCIAL INSTITUTIONS

The function of financial institutions resolution was assigned to the Bank of Lithuania in 2015. On 3 December 2015, the amendments to the Law on Financial Sustainability, the Law on the Bank of Lithuania and other related laws⁶⁹, which transposed the provisions of the Bank Recovery and Resolution Directive⁷⁰ to the law of Lithuania, came into force and the new resolution function was assigned to the Bank of Lithuania. From now on, the Bank of Lithuania, together with the Single Resolution Board, the EU-level resolution authority, and the national resolution authorities of the banks of other states operating in Lithuania, will be responsible for establishing the minimum requirement of own funds and eligible liabilities of banks and other important financial institutions, which could be written down for covering losses and converted to capital in case of the institution's failure, resolution planning and, if needed, the resolution itself. The said amendments to the laws provide a possibility to use various resolution tools, which allow reducing the negative impact on the economy, if individual banks or the whole banking system experience solvency problems.

After becoming the national resolution authority, the Bank of Lithuania started to participate in the activities of the Single Resolution Mechanism and the Single Resolution Board. It is one more important step (in addition to the single bank supervision conducted together with the ECB since the beginning of 2015) ensuring the full-fledged participation in the banking union, which enhances domestic financial stability. The Single Resolution Board is directly responsible for the resolution planning and implementation of resolution tools for significant banks supervised by the ECB and bank groups operating in several banking union states.

Instead of initiating the bankruptcy procedure to systemically important banks, they shall be resolved according to the plan prepared in advance. Resolution does not mean that banks will not be able to fail at all; it will be used primarily for ensuring uninterrupted performance of the critical bank functions, such as payment of funds and processing of payments. It will be possible to apply the usual bankruptcy procedures to those commercial bank activity areas that do not have systemic importance to stability of the financial sector and the domestic economy. In preparation for the resolution, the Bank of Lithuania or the Single Resolution Board will be entitled to require the financial institution to change structure, sell assets, limit or cease certain activities that are performed or planned to be performed, if the current business model is not suitable for a smooth resolution of the institution in the event of a crisis.

After implementing the Bank Resolution and Recovery Directive, the accumulation of the resolution fund was started by contributions paid by banks and significant investment companies. During the resolution of problematic financial institutions this fund would be used to ensure that the funds accumulated by the institutions themselves instead of the funds of the taxpayers are used to cover resolution-related costs. In 2015, the funds of EUR 10.1 million were collected from financial institutions to the

⁶⁹ The laws on the insurance of deposits and liabilities to investors, banks, the Central Credit Union, markets in financial instruments, financial institutions, credit unions, financial collateral arrangements, securities, joint stock companies, cross-border mergers of limited liability companies, administrative proceedings, participation of employees in the company after cross-border merger of limited liability companies, the Civil Code and the Code of Civil Procedure were amended.

⁷⁰ Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council. OJ L 173, p. 190–348.

national resolution fund⁷¹ and transferred to the centralised euro area Single Resolution Fund in the beginning of 2016. Funds will be accumulated in this Fund from the annual contributions of euro area financial institutions until its size reaches no less than 1 per cent of the insured deposits of the banking union, i.e. around EUR 55 billion, over the 8-year transitional period (by 2024). The funds of the Single Resolution Fund will be used for the resolution of problematic institutions. During the transitional period, the Single Resolution Fund will consist of national compartments, whereas responsibility for resolution costs will be gradually merged until finally, after the transitional period, the national compartments will be fully merged into a single fund.

⁷¹ AB SEB bankas, Swedbank, AB, AB DNB bankas, AB Šiaulių bankas, AB Citadele bankas, AB bankas FINASTA, UAB Medicinos bankas, Central Credit Union of Lithuania and UAB FMJ Orion Securities.

STATISTICAL ANNEX. KEY FINANCIAL STABILITY INDICATORS

(2009–2015.; percentages)

Financial stability indicators	2009	2010	2011	2012	2013	2014	2015
Capital adequacy							
Capital adequacy ^{1,2}	12.9	14.8	14.2	15.7	17.6	21.3	24.9
Tier 1 capital adequacy ^{1,2}	9.3	10.8	12.0	14.6	17.1	20.9	24.3
Capital-to-assets ratio ¹	9.4	10.9	10.2	11.4	11.5	11.5	11.7
Asset quality							
Ratio of non-performing loans to total loans (excluding interbank loans) ³ :							
o/w loans to businesses	19.7	20.0	16.6	13.6	11.0	6.8	5.6
o/w loans for house purchase	26.7	25.8	21.1	16.9	13.4	10.3	8.4
o/w consumer loans	5.9	8.3	8.6	8.0	7.0	7.8	5.3
Ratio of impaired loans to total loans (excluding interbank loans) ³ :							
o/w loans to businesses	14.4	19.8	16.2	15.3	13.1	9.9	8.3
o/w loans for house purchase	15.7	16.7	14.0	11.4	8.5	7.2	4.2
o/w consumer loans	22.0	22.5	18.6	14.9	10.7	9.3	5.9
o/w loans for house purchase	3.9	5.7	6.0	5.6	4.9	3.9	1.7
o/w consumer loans	7.4	10.9	11.3	10.0	8.7	9.2	7.7
Income and profitability							
Return on equity ^{1,4}	-50.8	-3.9	15.8	7.7	8.9	8.1	9.0
Return on assets ⁴	-3.8	-0.3	1.4	0.9	1.0	0.9	1.0
Ratio of net interest income to total income	50.6	49.0	58.7	53.7	49.9	39.8	45.1
Ratio of services and commissions income to total income	14.8	18.9	19.8	22.9	27.3	26.7	29.1
Assets							
Ratio of loans (excluding interbank loans) to assets	66.3	66.4	65.3	67.5	65.7	69.4	71.1
Ratio of household loans to total loans (excluding interbank loans)	44.3	43.8	44.4	44.9	44.7	44.8	44.5
Ratio of non-financial corporation loans to total loans (excluding interbank loans)	52.3	50.6	48.6	47.9	46.2	47.1	48.7
Ratio of debt securities to assets	8.2	9.1	6.6	6.9	10.2	8.6	7.8
Liabilities							
Ratio of liabilities to assets	94.4	92.9	91.2	90.2	89.7	89.7	88.9
Ratio of deposits to total liabilities	48.2	58.7	57.7	64.2	68.4	75.2	81.0
Ratio of individuals' deposits to total deposits	61.3	57.6	58.5	55.9	58.9	60.2	60.8
Ratio of deposits of private non-financial corporations to total deposits	27.7	29.4	33.2	34.0	33.7	30.5	30.7

Source: Calculations of the Bank of Lithuania.

Notes: 1) the indicators provided were calculated on the basis of individual supervisory financial statements of banks and cover all banks and foreign bank branches operating in the country; 2) from the beginning of 2008, financial data are collected using EU FINREP statements. This may have an impact on the value of some indicators. It must be taken into account when a longer time series is analysed; 3) a short-term period is a period of up to one year.

¹ Excluding foreign bank branches.

² Based on the Rules for the Calculation of Capital Adequacy approved by Board of the Bank of Lithuania Resolution No 138 of 9 November 2006.

³ From the middle of 2014, non-performing loans are the loans overdue for more than 90 days or it is established that the borrower most probably will not comply with all of its credit obligations, if the collateral is not realised, notwithstanding the number of days of existence or delay in repayment of the overdue amount. The new definition of non-performing loans is not comparable to the previous one.

⁴ Net profit (loss).

GLOSSARY

Associated credit union member: credit union member is such that does not have voting right in a credit union meeting and cannot be elected to credit union management and regulatory bodies, commissions, committees and services. Associated credit union member could be subject to other restrictions.

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

Credit risk: the risk that the counterparty will not settle the full value of an obligation — neither when it becomes due, nor at any time thereafter.

Debt security: a promise on the part of the issuer (the borrower) to make one or more payment(s) to the holder (the lender) on a specified future date or dates. Such securities usually carry a specific rate of interest (the coupon) and/or are sold at a discount to the amount that will be repaid at maturity. Debt securities issued with an original maturity of more than one year are classified as long-term.

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, based on the interest rates published by a representative panel of the most active participants of the interbank market.

Financial stability: the condition in which the financial system — comprising financial intermediaries, markets and market infrastructures — is capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process, which are severe enough to significantly impair the allocation of savings to profitable investment opportunities.

Gross domestic product (GDP): a measure of economic activity, namely 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 that make up GDP include household final consumption, general government final consumption, gross fixed capital formation, changes in inventories, and imports and exports of goods and services (including intra-euro area trade).

LITAS-MMS (payment system): the payment system for making retail payments. The system was launched on 29 January 2007. It is maintained and operated by the Bank of Lithuania.

Monetary financial institutions (MFIs): financial institutions, which together form the money-issuing sector of the euro area. These include the Eurosystem, resident credit institutions (as defined in 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 for their own account (at least in economic terms) to grant credit and/or invest in securities. The latter group consists predominantly of money market funds, i.e. the funds that primarily invest in short-term and low-risk instruments with a maturity of up to one year.

SEPA-MMS: payment system for making retail payments. The system was launched on 8 December 2015. It is maintained and operated by the Bank of Lithuania.

Single Euro Payments Area, SEPA: the euro payments area, which is defined as an initiative to use uniform payment instruments for settlement in euro. Both domestic and cross-border SEPA payments in euro are executed by applying standardised payment formats and uniform payment processing rules. SEPA covers 34 states — the EU Member States, Norway, Iceland, Lichtenstein, Switzerland, the Principality of Monaco and the Republic of San Marino.

Single Resolution Board: a EU institution approving decisions of the single resolution mechanism, directly responsible for the resolution of credit institutions under the ECB's supervision and cross-border groups working within the banking union, acting in accordance with regulation (EU) No 806/2014.

Systemic risk: the risks that, if materialised, have the potential to impair the functioning of the entire financial system to an extent that the financial stability and the growth of domestic economy suffer materially.

The primary objective of macroprudential policy: to contribute to the protection of the stability of the financial system, including enhancement of the resilience of the financial system and reduction of the formation of systemic risk, thereby seeking to ensure a sustainable contribution of the financial sector to economic growth.