

FINANCIAL  
STABILITY  
REVIEW

2010

## Abbreviations

CAD	current account deficit
CDS	credit default swap
CEE	Central and Eastern Europe
Department of Statistics	Statistics Department to the Government of the Republic of Lithuania
ECB	European Central Bank
EURIBOR	Euro Inter-bank Offered Rate
FDI	Foreign Direct Investments
FRS	Federal Reserve System
GDP	gross domestic product
HICP	Harmonised Index of Consumer Prices
IFAS	International Financial Accounting Standards
IMF	International Monetary Fund
ISC	Insurance Supervisory Commission
MFI	monetary financial institutions
n/a	not available
OMXR	Riga Stock Exchange Index
OMXS	Stockholm Stock Exchange Index
OMXT	Tallinn Stock Exchange Index
OMXV	Vilnius Stock Exchange Index
p. p.	percentage points
RoA	return on assets
RoE	return on equity
SC	Securities Commission
VILIBOR	Vilnius Inter-bank Offered Rate

## Countries

AT	Austria	LT	Lithuania
BE	Belgium	LU	Luxembourg
BG	Bulgaria	LV	Latvia
CY	Cyprus	MT	Malta
CZ	Czech Republic	NL	Netherlands
DE	Germany	NO	Norway
DK	Denmark	PL	Poland
EE	Estonia	PT	Portugal
ES	Spain	RO	Romania
FI	Finland	SE	Sweden
FR	France	SI	Slovenia
GR	Greece	SK	Slovakia
HU	Hungary	UK	United Kingdom
IE	Ireland	US	United States
IT	Italy		

Totals/ percentages in some tables and charts may not add up due to rounding ("Total" and 100%).

The Review is available in pdf format on the Bank of Lithuania's website [www.lb.lt](http://www.lb.lt)

The cut-off date for the data of the Review is 1 May 2010.

## CONTENT

Summary.....	5
I. CHALLENGES TO FINANCIAL SYSTEM.....	8
External challenges .....	8
Domestic challenges .....	12
Macroeconomic development scenarios .....	14
II. OUTLOOK FOR THE FINANCIAL SYSTEM .....	17
Financial system structure development .....	17
Banking System .....	18
Bank assets and loans .....	18
Banks funding and liquidity .....	21
Loan portfolio quality and debtors financial state.....	26
Corporate sector .....	28
Financial standing of corporate sector .....	28
Risk to banks .....	29
Real estate market.....	30
Households.....	32
Financial standing .....	32
Risk to banks .....	33
Household Stress Testing .....	33
Profitability and Efficiency .....	35
Capital Adequacy.....	38
III. RESILIENCE OF THE FINANCIAL SYSTEM.....	41
IV. FINANCIAL SYSTEM RISK MITIGATION MEASURES .....	47
V. ANNEXES AND TABLES .....	51
Annex 1. Bank Lending Surveys – what do they show us? .....	51
Annex 2: The banking system rescue expertise and prospects .....	55
Annex 3: Assessment of individual purchasing power: what are possibilities for buyers to purchase a house?.....	64
Table 1. Major financial stability indicators .....	66
Table 2. Key operational indicators of non-financial corporations .....	68
Table 3. Financial system of Lithuania .....	69

## BOXES

Box 1. How important are Scandinavian parent bank groups for the development and stability of financial systems in Lithuania and other Baltic states.....	11
Box 2. New indicators for monitoring bank liquidity .....	25
Box 3. Outlook of financial assets and liabilities of households .....	34
Box 4. International initiatives for strengthening capital adequacy and liquidity risk management .....	48

The Bank of Lithuania aims at ensuring operation of credit institutions of our state in a competitive but stable environment. The financial system, and commercial banks in particular, is an important link in the Lithuanian economy therefore a reliable and safe financial system is an important factor ensuring long-term and sustainable economic growth.

The primary objective of the Bank of Lithuania is to maintain price stability however modern central banking is hard to imagine without credible and effective operation of payment and securities settlement systems as well as that of the financial system of the whole country. The Bank of Lithuania conducts supervision of credit institutions and payment systems, assesses potential threats to effective and uninterrupted activity, carries out surveys of financial markets, collects and analyses statistical and other information and offers measures to avoid and mitigate threats to the stability of the financial system. These measures strengthen the resilience not just of individual credit institutions but of the financial system of the whole country to the internal and external economic shocks and ensure effective redistribution of limited financial resources.

As Lithuania's integration into the European Union and international financial markets gains momentum, due to growing interdependence between countries upon international capital flows it is impossible to ensure financial stability without international actions coordination. Therefore the Bank of Lithuania promotes international cooperation with central banks and supervisory institutions of other countries, especially those the registered banks of which are active in the Lithuanian market. Such cooperation aims at fostering financial stability, ensuring coordination of actions and decision making process, improve risk managing, exchange urgent information and seek to prepare better for potential crisis situation.

The main objective of the Financial Stability Review is to identify both internal and external threats to the domestic financial system, evaluate system's ability to withstand the effects of adverse internal and external shocks, appropriate incident response measures and recommendations to financial participants on how to improve risk control.

We hope that financial stability reviews add better understanding of potential risk to the Lithuanian financial system and its ability to offset it, and will also encourage discussions on the issues of financial stability between financial market participants, economists and all those interested in financial markets.

The Bank of Lithuania Board approved the Financial Stability Review (2010) in 17 June 2010

### General Assessment of Financial Stability

Although the stability of Lithuania's financial system is likely to improve in 2010, the uncertainty surrounding the global economic growth, as well as the speed of the domestic economic recovery remain high. Recovering global financial markets and stringent fiscal policy of the government led to an improved Lithuanian risk assessment, however it remains to be seen how markets are to respond to increasing supply of debt securities of heavily indebted governments. Higher sovereign risk may affect countries' access to financial markets and boost the borrowing risk premia for emerging market countries, Lithuania included. It all can limit possibilities to continue stimulating economic growth through higher public sector deficit. Limited possibilities for governments to stimulate economy and a loss of momentum in the financial intermediation market could cause a slower than expected economic growth in the euro area, and consequently, a lower demand for the Lithuanian export. On the other hand, stable economic growth in the East may offset negative trends observed in the Western markets; however uncertainty continues to be high.

Regarding the above mentioned factors, key external threats to the stability of the domestic financial system are related to

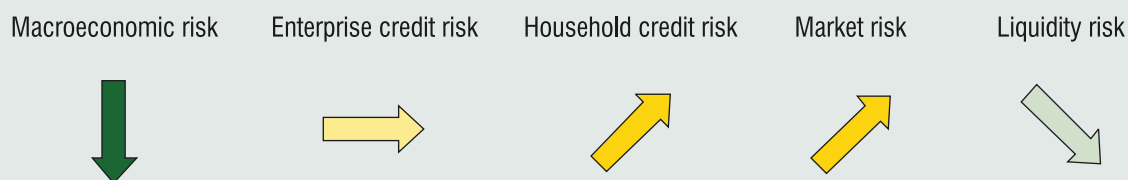
- a) sluggish foreign markets (the decrease in export demand);
- b) a sharp increase in risk premia in the global financial markets.

A year-on-year improvement was recorded in the domestic macroeconomic situation at the beginning of the year: a moderate economic growth is expected this year due to some positive developments that have been observed in the meantime in the tradable sectors. Unemployment remains high so far, but a gradual decrease is expected to start late this year or early next year. The number of enterprise bankruptcies reached its peak in the middle of the year; however, their dynamics suggests a decrease is starting. Also, because of some stabilisation in the real estate markets and decelerated price fall, the real estate prices are likely to remain stable after unsold assets are sold out and their supply diminishes. The situation related to the public finances has remained strained, although the public sector deficit is expected to gradually decrease as a result of spending cuts.

The presented scenario for the country's economic development is of a relative nature: the way it may develop will depend on the situation in global markets, which remains quite strained for the time being. Regarding the uncertainty surrounding the situation, key domestic threats to the country's financial system are related to:

- a) unsustainable fiscal policy following the fall of public revenues;
- b) continued stagnation in the real estate market.

The Lithuanian banking system has successfully adapted to the changing macroeconomic environment: a considerable rise was recorded in the banking system's capital adequacy ratios despite of record high losses; banks also have accumulated a significant amount of liquid assets. Last year the loan portfolio contracted due to the decrease in supply and banks' attempts to curtail assumed risks. The recovery of the domestic economy will lead to an improvement both in crediting and bank revenues. Although many banks recorded last year significant impairment of their loan portfolios, some of them had less conservative practices. Improving macroeconomic situation however should help to the banking system: the share of loans that recorded impairment should decline leading to a general improvement in the loan portfolio quality. Further impairment could be possible only in case the adverse economic development scenario materializes.



The macroeconomic risk decreased as the country had already lived through the major phase of the contraction. The enterprise credit risk has remained at an elevated level, but the likelihood of it to increase further is low; on the contrary, it is showing some signs of stabilisation. The enterprise credit risk therefore is most likely to remain unchanged this year. The growth of unemployment and the decline of income lead to the growth of household credit risk which is most likely to increase further this year before it starts to decline next year. Tensions in the government debt securities market were the major reason for the market risks with regard to banks' trade and investment portfolios to remain at an elevated level too. The liquidity risk declined following the increase in banks' liquid assets buffers. However, both prices for securities and interest rate dynamics will largely depend on how governments are to solve their debt problems, which in turn may have an impact on banks' capability to sell their liquid asset holdings immediately and without a loss in case of liquidity problems.

## Risk to country's financial stability declined

A number of factors were behind this: first, the government's efforts to stabilise financial situation and limit the growth of the budget deficit; second, recovering situation in the global financial markets, and the very first signals of the recovery in major export partners; third, stable situation of the largest domestic banks, as well as their capability to boost their capital base through additional contributions and absorb losses. Risk premia which declined nearly five times in 2009 indicate growing investor confidence in the Lithuanian economy and stability of the financial system.

*Fig. 1. Dynamics of domestic risk premia indicators*



Sources: Bloomberg and Bank of Lithuania calculations.

The tensions observed in Lithuania's interbank lending market in 2008 subsided somewhat. The economy stabilisation efforts, improved Lithuania's credit ratings and successful placement of some Lithuanian government bond issues led to rapid narrowing of the difference between VILIBOR and EURIBOR. VILIBOR volatility<sup>1</sup> also subsided notably in the second half of 2009 compared to the situation in early 2009. Nevertheless, the risk that a negative impact by protracted economic recovery or difficulties related to stabilisation of public finances in the euro area countries may have an impact on risk premia and general economic environment in Lithuania continues to be high. It also could contribute to the growth of tensions in Lithuania's interbank market and create conditions for the growth of interbank interest rates.

<sup>1</sup> Six-month historical volatility of VILIBOR.

## Despite the fact that the banking system has suffered a significant shock...

A pronounced contraction of the domestic economy and complicated financial situation of enterprises and households had an inevitable impact on operational results of banks, key providers of funds to the domestic economy. The main reasons behind the bank losses were losses from asset impairment which grew very rapidly accompanied by lower net interest income.

## ...the largest losses are already behind

The loan portfolio quality changes were largely driven by loans to enterprises. The lowest was the quality of loans to economic activities focusing on domestic consumption and therefore most dependent on business cycle fluctuations. Most bank losses that were incurred due to lending to tradable economic sectors are already behind. However, it is possible that lending to non-tradable economic sectors will continue to decline, although at a slower pace and a lower level, as domestic demand remains weak. The quality of loans to households was notably better compared to overall average of loan quality in the banking system. High unemployment level, which keeps growing further, and decreasing income however may lead to an increase in household insolvency cases, while banks may increasingly face delayed repayment of consumer loans or loans for house purchase. Especially high risk to banks is posed by households that have been issued loans for house purchase with high loan-to-value ratio when the real estate market have reached its peak. First, households with overdue loans and banks must do their best to find consensus and the way out from the situation, which would help them to adapt to the changes in the economic environment.

## The financial sector resilience has grown after an increase of liquid assets and capital reserves...

After banks notably boosted their reserves of liquid assets and raised more financial resources in the domestic market, a significant decline in liquidity risk was observed compared to the situation at the end of 2008. Liquidity risk stress-testing showed that banks' holdings of liquid assets are sufficient to meet their current liabilities and they are capable to absorb significant liquidity shocks. However, given the previous liquidity-related problems in late 2008 and an increased sensitivity of depositors

to negative information about bank operations, some of the banks could invest more into liquid assets reserves. This is particularly true both for banks that depend largely on deposit financing and banks with the lowest liquid asset holdings compared to current liabilities.

The growth of banks capital adequacy in 2009 was considered a positive development in view of attempts to safeguard the stability of the country's financial system. This helped to strengthen capital for risk hedging purposes, as well as the capacity of absorbing losses arising from operations during economic downturns. Also, the country's banking system continued to stand firm because of the growth of capital adequacy ratios in most of the banks. Higher capital adequacy ratio of the banking system has pushed up the additional losses absorption capacity in many banks.

### **...nevertheless, adequate capital reserve maintenance and further mitigation of risk remain a top priority for banking activity**

It is especially important for banks to maintain significant reserves that would allow to absorb potential bank losses. These issues are particularly critical for banks which have lower capital adequacy ratios and no financial investors who, if necessary, can increase the bank capital in short time.

### **Shrinking loan portfolio and decreasing net interest margins along with declining demand for financial services were followed by an increase in risk to banks' income**

Growing share of securities and contraction of loans helped to mitigate liquidity risks, but a relatively lower return on liquid assets had a negative effect on banks' profitability. In view of the above, domestic banks will have to look for possibilities to increase their operational income sufficient to cover their loan impairment losses. Also, banks should assess the liquid investment concentration risk and ensure efficient management of it taking into account the impact of interest rate changes on investment value and possibilities to sell these investments in critical situation.

### **Income recovery will depend on the situation both within domestic and global markets**

The recovery of banks' income is associated with increases in euro interest rates,

decreases in interest rates on deposits within domestic markets, plausible financial market activity, and recovery of the demand for financial intermediation services. Regarding net interest rates, the structure of banks' sources of income remained concentrated, though profit from trading activities went up significantly last year. It should be noted that income from trading activities depends largely on one-off transactions and therefore are often fluctuating.

### **The Bank of Lithuania pays much attention to strengthening of the capital adequacy of the domestic banking system ...**

All banks operating in the country have their own capital enlargement plans; in 2009 they conducted the internal capital adequacy assessment process (ICAAP) and formed the capital necessary to cover key and additional risks. Moreover, some of the banks have established individual capital adequacy ratios which are higher than 8 per cent, a minimum required ratio set by the Basel Committee on Banking Supervision and respective EU directives. The use of external sources for capital increase is an especially urgent issue for some of the banks in consideration of need for capital in 2009 due to notable deterioration of loan quality, limited access to money market and higher cost of financial resources. These banks managed to solve emerging problems on their own, however preparation and implementation of the strategy for credit risk, capital management, and capital increase is the major challenge for them.

### **...and enhancing sustainable financial intermediation**

In the nearest future the country's banking system is going to face the challenge of the loan portfolio diversification and learn from its mistakes in the past when crediting was directed largely to a few fast growing sectors. In the period of economic growth, loans to non-tradable economic activities accounted for the biggest share of the loan flow. Credits to both tradable and non-tradable economic activities were one of drivers of the economic downturn. The banks' strategy should focus on profit-making loan portfolio management in the long-run comprising the entire business cycle. To achieve this goal, the staff of commercial banks should be properly motivated and take crediting decisions with regard to a long-term risk and cash flows of the borrowers.



# I. CHALLENGES TO FINANCIAL SYSTEM

## External challenges

Global economy was in deep recession in the first half of 2009 before starting to recover in the second half. The growing impact of the global financial crisis on real economy led to the contraction of demand and investments, decline in international trade and in the activity of industrial and other economic sectors, as well as a rise of unemployment. Real GDP contracted across all industrialised and many emerging economies. In order to stabilise the situation, a number of countries that were hit by the crisis put in place measures to foster broad-based economic recovery. This helped to restore confidence in financial markets and supported economic recovery. The situation improved in most regions, although the pace of recovery varies among individual economies. The recovery of the US economy, compared to many other industrialized countries, was delayed, but its pace was among the strongest. Dwindling domestic consumption and the fact that some governments decided to cancel stimulus measures to counter the economic slowdown have contained the recovery in the euro area.

The global economy development prospects are more optimistic now compared to previous forecasts. Global real GDP growth is projected to go over 4 per cent both in 2010 and 2011. Further development of global economy is closely related with the stabilisation of financial system which is yet very fragile. Successfully implemented tools offering support to financial institutions helped to restore the stability in the banking sector and liquidity within the interbank market: liquidity in the banking systems of euro area, US and many other countries has improved. A notable improvement was also recorded in international capital and money markets. In some more rapidly recovering countries a gradual improvement was observed in lending to private sector. Further strengthening of financial institutions and improvement of their supervision however remain the primary task.

**Table 1. Real GDP development across world regions**

(annual percentage changes)

	2008	2009	2010*	2011*
World	3.0	-0.6	4.1	4.3
Euro area	0.6	-4.1	0.9	1.5
CEE countries	3.1	-4.1	2.0	3.7
USA	0.4	-2.4	3.0	2.4
Japan	-1.2	-5.0	1.7	2.1
Russia	5.6	-7.9	4.0	3.3

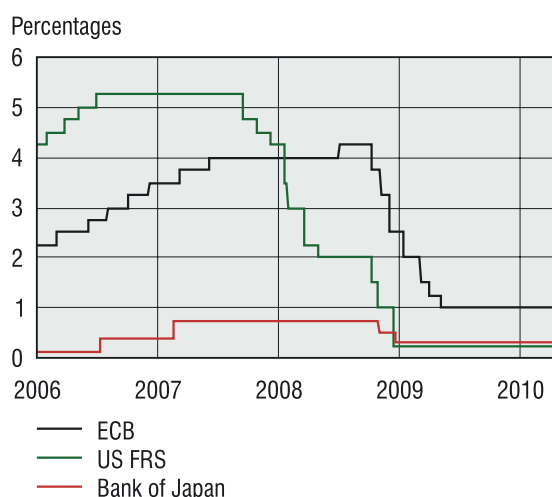
Source: IMF.

\* Forecasts.

Many world governments are highly concerned about the sustainability of public finances, while the growing public debt reduces possibilities to provide support, if necessary, to the financial sector. The economic downturn, support to financial system and protracted use of stimulus measures contributed to a pronounced growth of government debt. Deteriorating public finances lead to higher risk premia and have negative impact on the banking system, while attracted funds necessary for government debt financing crowds out investments by private sector. It became one of the most burning issues in the euro area and particularly in Greece which faces especially big problems. On the one hand, fiscal consolidation is an especially acute issue of economic policy, although the largest economies unanimously agree that withdrawing economic stimulus measures would halt the economic development and be pre-mature. On the other hand, further support to financial sector and economic growth will contribute to the growth of public sector deficit and may add to a sharp increase in risk premia, in particular for countries with lower credit ratings. Lithuania therefore is facing higher risk associated with the growth of interest rates.

In early 2010, central banks continued to adhere to the low interest rates policy. The ECB has kept the key interest rates unchanged since the middle of the last year, while interest rates of the central banks in the US, Japan and England have stayed close to zero for more than one year. However, by way of restoring confidence in financial markets quantitative monetary policy measures have been applied. Central banks increased money supply in the market through lending to credit institutions and buying private and public sector debt securities. In the first quarter of 2010, gradual withdrawal of some liquidity-support measures started.

**Fig. 2. Key interest rates of central banks**



Source: Bloomberg.



Rapid changes in the global economy were the major reasons for the continued fluctuations in foreign exchange markets. The euro strengthening trend observed in 2009 reversed and the euro started to lose ground against the US dollar at the end of the year. The euro depreciation was driven mainly by financial imbalances in the general government sector of the EU Member States. The average exchange rates of the CEE countries that have a free-floating exchange rate remained broadly unchanged, except for Poland, the national currency of which continued to appreciate.

### THE BALTIC AND SCANDINAVIAN COUNTRIES

The decline of real GDP in the Baltic States continued to decelerate, and a slight economic growth is expected in 2010. Most signs of recovery can be seen in the export-oriented sectors of economy, although domestic consumption remains weak, so far. Due to a strict fiscal consolidation policy the Estonian government sector budget deficit comprised in 2009 only 1.7 per cent of GDP. In Latvia, the budget deficit (9.0 % of GDP) was also below the limit set in the economy stabilisation program. For the time being Estonia complies with the convergence criteria set in the Maastricht Treaty, and therefore may be allowed to join the euro area in early 2011.

*Table 2. Main economic indicators in the Baltic States and Scandinavian countries in 2009*

(percentages)

	GDP	CAD	Inflation	Unemployment level
Estonia	-14.1	4.6	-1.9	13.8
Latvia	-18.0	9.0	-1.4	17.1
Lithuania	-14.8	3.4	1.2	15.6
Denmark	-4.9	3.8	1.2	6.0
Norway	-1.5	16.6	2.4	3.1
Finland	-7.8	1.4	1.8	8.2
Sweden	-4.9	7.2	2.8	8.3

Sources: Eurostat and national central banks.

Notes: Annual change in real GDP; CAD compared to GDP; inflation – annual change in consumer price index, end-of-period; unemployment rate, end-of-period.

The recovery of economies in the Nordic region in the middle of 2009 was driven by economy stimulus measures and recovering export markets. In the fourth quarter of 2009, Sweden's real GDP continued to decline compared to the previous quarter, and a moderate upsurge is expected in 2010. The situation in other Scandinavian countries keeps improving either.

### SITUATION IN SCANDINAVIAN PARENT BANK GROUPS

The profitability of the Scandinavian bank groups declined owing to a steep increase in credit losses, but most banks reported profit for 2009. The biggest losses were reported by Scandinavian parent banks in the countries that suffered an especially steep economic downturn and the biggest correction of real estate prices. Swedbank and SEB bank groups of Swedish capital reported that their euro loan portfolio impairment losses made up respectively EUR 2.4 billion and EUR 1.2 billion, a significant portion of which accounted for operations in the Baltic countries (61 and 78 % respectively). Worsening of the financial standing of the borrowers and declining collateral value were the main reasons behind credit losses in the Baltic countries. However, this big loss was also a result of a very conservative assessment of the credit risks for enterprises in this region. The Danske Bank group also reported significant losses, while losses incurred by Nordea and DnB NOR Bank ASA were relatively lower. Lower costs of financing and higher interest rate margins led to an increase in the net interest rate income, while buoying securities turnover and rising stock prices contributed to the growth of intermediation and investment portfolio management charges. All this resulted in a boost of banks' operational profit which was used to cover a big portion of credit losses and was the major reason behind the profit reported by most of the analysed banks.

*Table 3. Profitability of Scandinavian parent bank groups (RoE)*

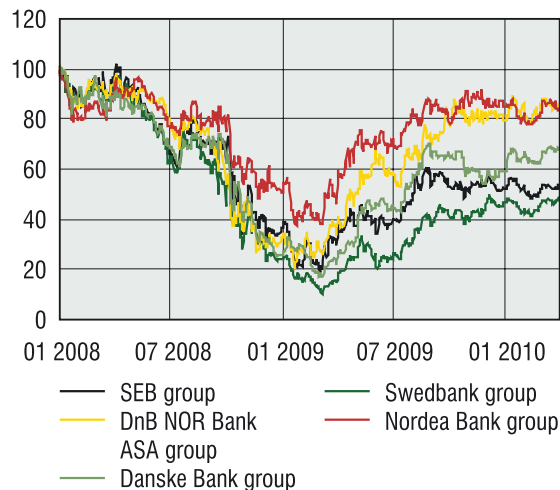
	2006	2007	2008	2009
SEB group	20.8	19.3	13.1	1.2
Swedbank group	19.3	18.9	15.2	-12.5
DnB NOR Bank ASA	19.5	22	12.4	10.6
Nordea group	22.9	19.7	15.3	11.3
Danske Bank group	17.5	15.1	1.0	1.7

Sources: bank groups' financial statements and Bank of Lithuania calculations.

Rising prices for the shares of Scandinavian parent bank groups show that investors expect higher earnings by these banks over the medium term. Banks will try to boost interest margins of current and new loans through more conservative approach towards credit and financial liquidity risk, while low key interest rates and improving expectations will contribute to a rise in credit demand. This is to fuel banks' operational income, although their profitability will largely depend on banks' financing costs and the amount of credit losses incurred by

them. The rise in prices for shares of banks controlled by Swedbank and SEB groups was relatively lower compared to other banks in the analysis, showing investors' reserved approach towards the earning prospects in banks with Swedish capital.

*Fig. 3. Developments in stock prices of Scandinavian parent bank groups*  
(1 January 2008 = 100)



Source: Bloomberg.

**The possibilities for parent bank groups to cover massive credit losses improved due to lower risk associated with financial assets, and strengthening of capital base.** In 2009, capital adequacy ratios grew in all groups controlled by Scandinavian parent banks. Moreover, the biggest growth of the capital adequacy ratio was observed in banks which suffered the biggest loan portfolio impairment losses in 2009. The said indicator for Swedbank and SEB groups improved to 13.5 per cent, while for Danske Bank it went up as high as 17.8 per cent. The losses of Swedbank and SEB groups may additionally go up to EUR 4.2 billion and stay within the limit of the minimal required capital ratio which is respectively 1.7 and 2.8 times higher than the actual amount of losses incurred by these bank groups in 2009.

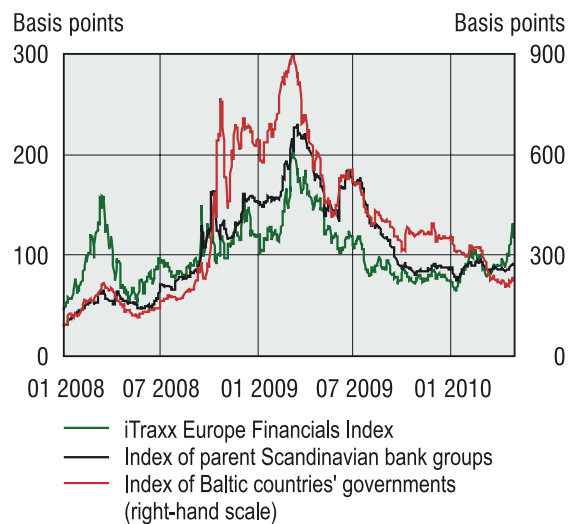
*Table 4. Dynamics of capital adequacy ratios of Scandinavian parent banks groups*

	2006	2007	2008	2009
SEB group	11.5	11.0	10.6	13.5
Swedbank group	9.8	9.3	11.2	13.5
DnB NOR Bank				
ASA group	10.0	9.6	9.5	12.1
Nordea group	11.4	9.3	13.0	17.8
Danske Bank group	9.8	9.1	9.5	11.9

Sources: Bloomberg and Bank of Lithuania calculations.

**The credit risk ratings for Scandinavian parent bank groups improved in 2009, although the risk associated with the borrowing costs and credit losses remain.** The CDS index of the Scandinavian parent banks<sup>2</sup> gradually fell in 2009 to the level which was lower than the credit risk index of the European financial institutions (iTraxx Europe Financials), which means more positive credit risk ratings for these banks.

*Fig. 4. Credit risk indices of Scandinavian parent bank groups, governments of the Baltic States, and largest European financial groups*



Sources: Bloomberg and Bank of Lithuania calculations.

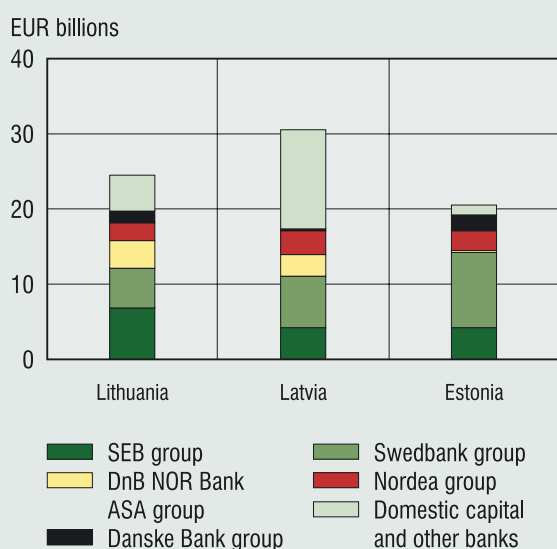
**In order to mitigate the loan portfolio risk and balance the loan to deposit ratio in individual geographical regions, the parent banks have changed their crediting policy in the Baltic States.** During the upswing phase in the Baltic countries' economic cycle Scandinavian bank groups pursued intensive crediting policy; however, the turmoil in the global financial markets and economic crisis made essential adjustments to the development plans of the parent bank groups. The growing borrowing costs in the global financial markets and higher financial liquidity risks encouraged the growth of the more stable financial recourses (deposits) share within the liability structure, while larger credit losses and higher risks associated with the borrowers prompted more conservative risk management and reduced financing to higher-risk borrowers. Given the relatively lower loan portfolio quality in the Baltic countries and imbalances between loans and deposits, it seems likely that banks will continue to adhere to similar crediting strategy in this region.

<sup>2</sup> Calculated as the average of interest rates on credit default swaps in SEB, Swedbank, Nordea, DnB NOR Bank ASA and Danske Bank groups.

### Box 1. How important are Scandinavian parent bank groups for the development and stability of financial systems in Lithuania and other Baltic states

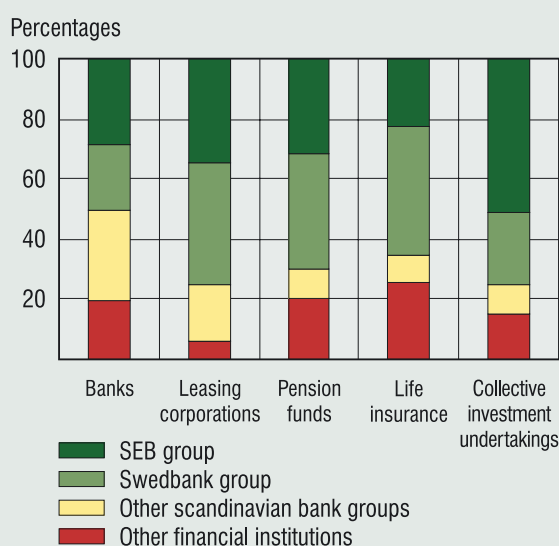
Scandinavian bank groups control the biggest share of the equity capital of the Baltic countries' banking system, therefore the financial situation of these banks is of the utmost importance to the development and stability of the Baltic countries' banking system. Swedbank and SEB groups are the biggest investors into the banking system in the Baltic states; they control around 50 per cent of the Baltic countries banking system's assets. Subsidiaries of these Swedish bank groups pursue intensive activities in all three Baltic countries, a home market for the said groups. Other important investors into the Baltic countries' banking system are Nordea and Danske Bank groups that have their affiliates in all three Baltic countries, and a Norwegian DnB NOR Bank ASA group, which operates via Bank DnB NORD A/S\*. At the end of 2009, Scandinavian bank groups together had around 75 per cent of the total Baltic countries banking system's assets under their control. In Latvia their share was slightly lower due to a significant market share of the local banks, while in Estonia, nearly all of the banking system was under the control of these bank groups.

**Fig. A. Assets controlled by Scandinavian bank groups in Baltic States**  
(end of 2009)



Source: Bank of Lithuania calculations.

**Fig. B. Market share of Scandinavian bank groups in individual financial system segments in Lithuania**  
(end of 2009)

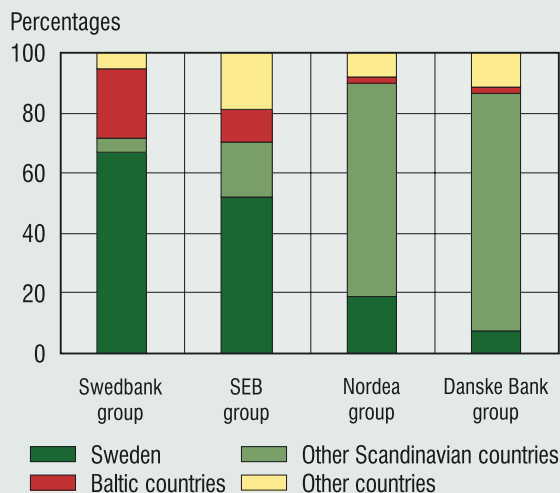


Sources: SC, ISC, Association of Lithuanian Banks and Bank of Lithuania calculations.

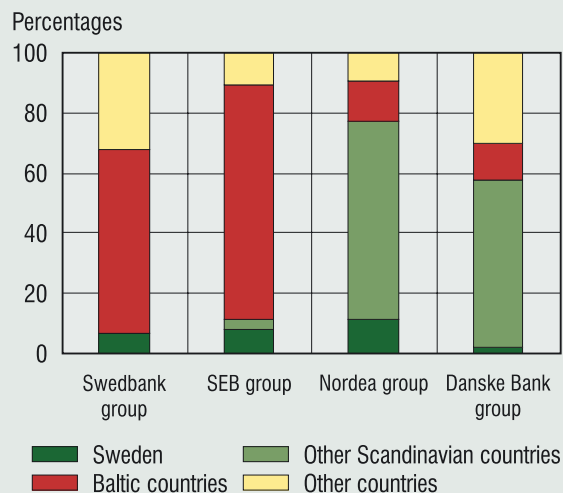
In Lithuania, the biggest share of the banking system assets was controlled by Scandinavian bank groups; however this share contracted over the year due to decreasing credit volumes. At the end of 2009, 80 per cent of the banking systems' entire assets were under control of banks with Scandinavian capital, while two biggest investors into the Lithuanian banking system, SEB and Swedbank, had 29 and 22 per cent respectively. Swedish capital bank groups, SEB and Swedbank, also held the biggest share in the leasing, life insurance and pension funds market; moreover, they were the owners of the largest share of investment capital. Consequently, the development strategy of the Scandinavian, in particular Swedish, capital parent bank groups are to have material influence on further development of Lithuania's banks and its financial system.

Nordea and Danske Bank parent bank groups reported that only a small portion of their income came from the operations in the Baltic countries\*\*, therefore economic situation in Lithuania and other Baltic countries has insignificant effect on the operational results of these bank groups. However, a significant share of Swedbank and SEB bank groups operational income was received from their operations in the Baltic countries, respectively 23 and 11 per cent of these bank groups income in 2009. The impact of the Baltic operations on the earnings of these bank groups was higher due to relatively larger loan portfolio impairment losses. Accordingly, 61 and 78 per cent of all Swedbank and SEB bank groups loan impairment losses were incurred from their operations in the Baltic countries.

**Fig. C. Geographical breakdown of operational income of Scandinavian bank groups**  
(end of 2009)



**Fig. D. Geographical breakdown of loan portfolio impairment losses of Scandinavian parent bank groups**  
(end of 2009)



The financial situation of the Swedish capital bank groups, namely Swedbank and SEB, major investors into Lithuania's and Baltic countries' banking system, depends on a significant extent of the economic situation in the Baltic states. However, the financial standing of these bank groups and their crediting policy largely determine the operational results of their subsidiaries in Lithuania and other Baltic countries, while the liquidity and credit risk of these banks are controlled at the level of the entire parent group. Such interdependence is very important when trying to evaluate both the financial standing of the parent banks and the stability of the financial system in Lithuania and other Baltic states.

\* Bank DnB NORD A/S is jointly controlled by Norwegian DnB NOR Bank ASA and German NORD/LB bank groups which hold respectively 51 and 49 per cent of shares in Bank DnB NORD A/S. Bank DnB NORD A/S has subsidiaries in Lithuania, Latvia, and Poland, and a branch in Estonia.

\*\* Operational income of Bank DnB NORD A/S, the biggest share of which was received from operations in the Baltic states, made up 6 per cent of total DnB NOR Bank ASA group's operational income, however the impact of Bank DnB NORD A/S on the earnings of DnB NOR Bank ASA is limited due to the size of the minority of NORD/LB bank group in Bank DnB NORD A/S.

## Domestic challenges

In 2009, after a buoyant growth over the last few years, Lithuania went into the biggest recession during the independence period, resulting from the adjustment of cyclical imbalances that had formed in the domestic economy and the impact of international financial and economical turmoil to the real economy. Since the start of the financial market turmoil, a soft landing scenario was forecasted for Lithuania's economy; however due to the turn of the financial crisis into the biggest economic depression after the World War II and the ongoing rapid adjustments of external and domestic economic imbalances Lithuania's economy had to face a hard landing scenario. Lithuania's real GDP contracted by 15 per cent in 2009 due to the dwindling consumption and investments, shrinking international trade and growing unemployment. All this led to the adjustments of economic imbalances: for the first time since the start of the data publication, the surplus on the current account

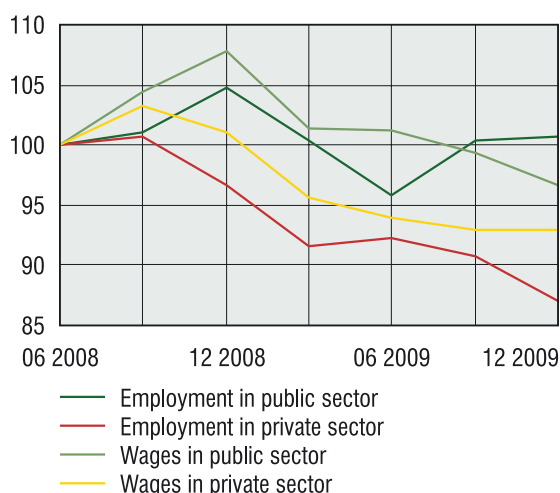
deficit was recorded in 2009 following a decline of real estate and stock prices, and a fast decrease of inflation and wages.

The fall of GDP was largely driven by a steep decline in the domestic demand, consumption and investments, while net export was the major factor that helped to contain the economic downturn. The major reasons behind the drop in real private consumption entailed reduction of wages, growing unemployment, declining crediting and increasing household savings as a protection against unexpected fall of income or losses in the environment of lingering uncertainty over the labour market prospects. The decline in domestic consumption prompted a steep fall in the activity of non-tradable and procyclical economic sectors, while the largest decline in real value added, which made up 43.3 per cent, was registered in 2009 in the construction sector. Domestic demand was also diminishing due to the declining investments which fell in 2009 nearly by 40 per cent, while the worst affected were investments into buildings and structures. Net ex-

port has contained the economic slowdown as export of goods and services compared to their import was falling at a slower pace.

**In response to deteriorating economic situation, private sector enterprises reduced the number of employees and wages.** This helped to scale down their operational expenses and boosted competitiveness of enterprises in tradable sectors. However, decline in households' consumption has made negative impact to non-tradable sectors. The dwindling of domestic demand was contained by more moderate reduction of wages and the number of employed in public sector. Structural changes in the economy and higher number of bankruptcies in the sectors worst affected by the slowdown<sup>3</sup> have prompted structural unemployment, while the labour market adjustment to the new conditions more as a result of growing unemployment rather than decreasing wages led to higher long-term unemployment level. However, given the necessity of structural changes in the economy, wage reduction could not offset in full the growing unemployment. Curtailing structural and long-term unemployment would be the most serious challenge over a long-term<sup>4</sup>.

**Fig. 5. Dynamics of unemployment and average wages in private and public sectors**  
(1 July 2008 = 100)

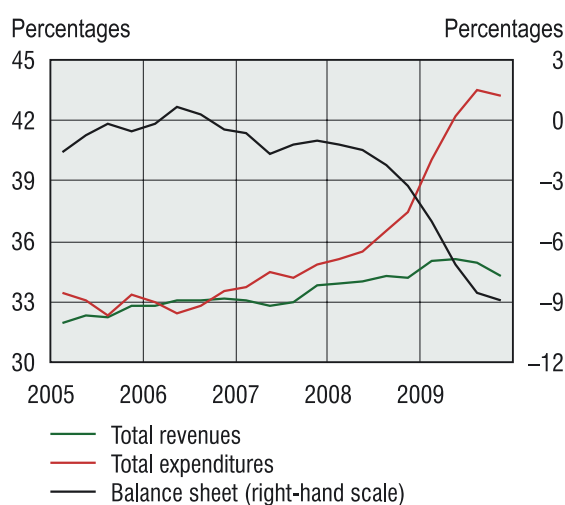


Source: Department of Statistics.

**Fiscal consolidation was an important factor that determined more positive assessment of Lithuanian sovereign risk and increased the government's access to international financial markets.** More positive Lithuanian sovereign risk assessment also helped to contain the borrowing expenses of Lithuania-operating financial and non-

financial corporations and households. The general government sector expenditure however was decreasing at a slower pace than the revenues, which led to the growth of the general government sector deficit to 8.9 per cent of GDP in 2009. It is expected that the general government sector deficit will slightly go down in 2010, but remain high due to the growing expenditure of the social security fund's expenditure, declining revenues of the general government sector and increasing interest payments on government debt.

**Fig. 6. General government revenues, expenditure and balance sheet**  
(four-quarter moving sums compared to GDP)



Sources: Department of Statistics and Bank of Lithuania calculations.

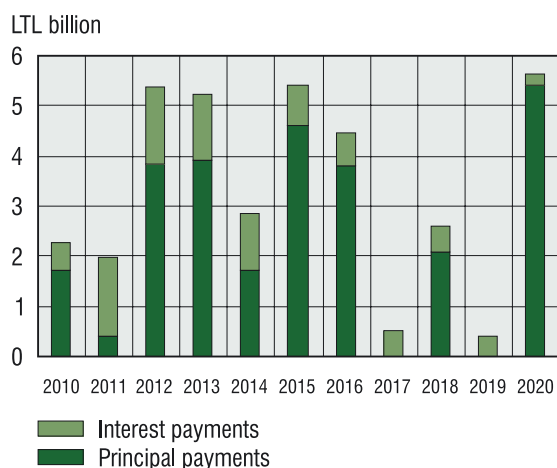
**Risks to the sustainability of public finances are caused by rising government debt and the uncertainty of consolidation measures taken.** In the end of 2009, the public sector debt totalled LTL 27.1 billion, accounting for 29.3 per cent of GDP. In 2010, the government debt is expected to further grow, however, expectations are that between 2010 and 2012 the public sector debt to GDP ratio will remain below the convergence criterion. The goal to achieve 3.0 per cent of GDP general government deficit target set by the Convergence Programme in 2012 will not be reached without any further consolidation. The interest payments on the public debt will constitute an extra burden in the near future. Most likely, interest expenditures will grow rapidly in 2011 and 2012, constituting around LTL 1.5 billion each year (an increase of approx. 60 % compared to 2009). The redemption of Eurobond issues is set for 2012 and is to request around LTL 5 billion. Therefore the consolidation of public finances by 2012 is especially important, as timely and targeted fiscal consolidation efforts would facilitate attracting funds in foreign markets and reduce the borrowing cost.

<sup>3</sup> In 2009, the largest number of bankruptcies was registered in manufacturing, transport, and construction sectors.

<sup>4</sup> The use of the EU funds for infrastructure programs, more intensive implementation of housing renovation programs, as well as mass emigration of former employees in sectors most affected by the crisis can help to curtail unemployment over the medium term.



Fig. 7. Government debt repayment timetable



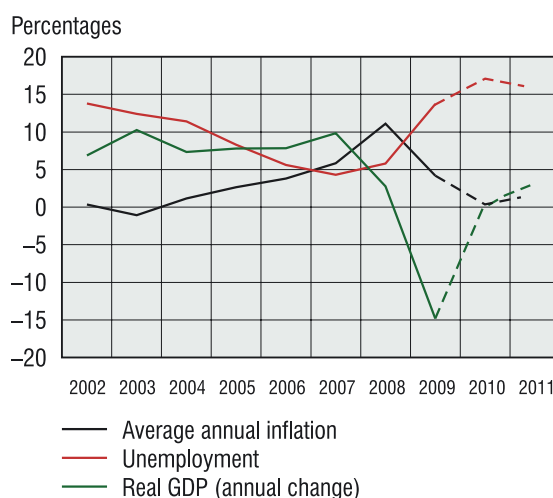
Source: Bloomberg.

## Macroeconomic development scenarios

According to the baseline macroeconomic development scenario, export growth would be the main factor behind the stabilisation of the economic situation and moderate growth later. Economic recovery of Lithuania's major export partners should add to the boost of the country's external demand and support the export growth trend that started in the middle of 2009. Subsequent growth of the global economy and the government's tight fiscal policy would contribute to a more positive sovereign risk assessment within the international financial markets, while increasing export volumes would mean larger investments into tradable economic sectors. Improving expectations of enterprises and households, as well as diminishing risk premia on interest rates would encourage the growth of crediting in individual sectors of economy. In the long run, these trends would create environment for the domestic demand recovery, although one could hardly expect a rapid recovery of investments into non-tradable sectors or private demand growth in the nearest future due to the continued wage cut trend, an increased propensity of households to save, and a high level of unemployment for some time. Continued uncertainty in the construction and real estate sectors, as well as the ongoing price correction is expected to have a negative impact on the construction growth for some time, but in a long run sustainable economic development and dwindling costs of construction should encourage to invest more into this sector. Weak domestic demand would further keep inflation down, but rising prices for food commodities and oil in the international markets would contribute to an increase in prices for these products. Although inflation

level should stay at a low level, deflationary processes would be unlikely.

Fig. 8. Development of GDP, unemployment level, and average inflation according to the baseline macroeconomic development scenario



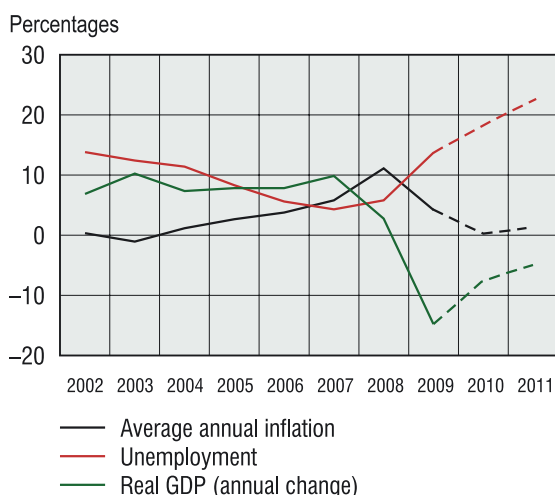
Sources: Department of Statistics and Bank of Lithuania calculations.

The risk of the double economic recession was identified as the biggest threat to the stability of the country's financial system over the medium term, which manifests itself in export decline, interest rate growth, and further fall of real estate prices. Increasing risks associated with public finances would contain governments' access to financial markets and further use of economic stimulus measures through boosting public sector deficit. Withdrawing of economic stimulus measures would have negative effect on the global economic growth prospects and reduce demand for Lithuania's export. Lower export would affect the recovery of Lithuania's economy as in the environment of weakening domestic demand export would be the main driving force behind the economic growth. Growing public finances sustainability risk would lead to an increase in sovereign risk premia which in turn would contribute to higher interest rates to private sector due to growing interest rate margins and interbank interest rates in local currency. Worsening expectations of enterprises and households, and tighter crediting conditions would lead to a further fall in real estate prices.

In order to access country's banking system resilience to adverse changes in the macroeconomic environment, the credit risk stress test is done<sup>5</sup>. Analysis of economic environment and financial system revealed that the export decline, interest rates rise and property prices fall are the main risk factor this time that can adversely affect the financial stability of the system.

<sup>5</sup> Stress test results are given in the third part of Financial Stability Review "Resilience of the financial system".

**Fig. 9. Development of GDP, unemployment, and average inflation according to adverse domestic macroeconomic development scenario**

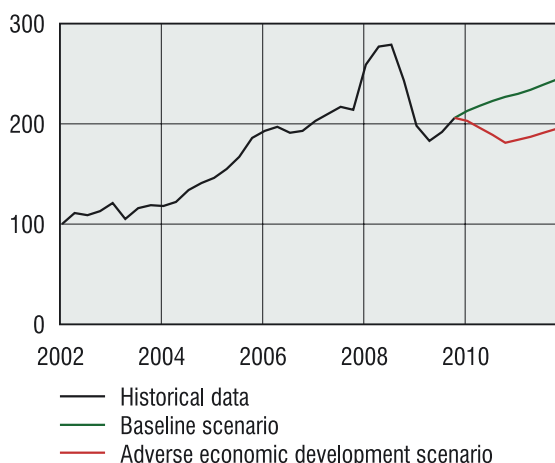


Sources: Department of Statistics and Bank of Lithuania calculations.

**1. Decline in export.** The baseline domestic economic development scenario is based on the assumption that the economic growth of Lithuania's main export partners will contribute to the boost of external demand and Lithuania's export. It is expected that export volumes in the end of 2011 will reach the 2008 level, i.e. the level before the start of the global economic downturn.

According to the double recession scenario, lower than expected economic growth of major export partners or adverse developments related to trade conditions or unfavourable changes in exchange rate in some other key trade partners that have floating exchange rate regimes in 2010 would lead to a 20 per cent decrease in export compared to the baseline scenario. Export would go down in 2010 by 11 per cent, falling to the level observed in 2006.

**Fig. 10. Dynamics of Lithuania's export index according to the baseline and adverse economic development scenarios**  
(1 January 2002 = 100)

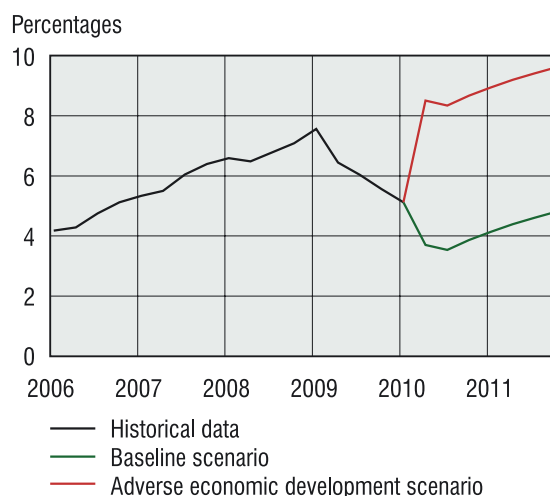


Sources: Department of Statistics and Bank of Lithuania calculations.

In the environment of weak domestic demand, lower export income would have negative impact on the overall domestic economic growth outlook. This could lead to dwindling investments, growing unemployment, worsening financial situation of enterprises and households, and extra losses for the banking system.

**2. Interest rate growth.** The baseline economic development scenario is based on the assumption that the stabilisation of the country's and global economic situation could prompt in 2010 the narrowing of the difference between short-term interest rates in litas and euro, that will come close to the difference average of the long-term interest rates in litas and euro, and remain at the same level for the entire testing period. Weighted interest rates on new loans to private sector<sup>6</sup> therefore will be going down in early 2010, with the trend to reverse later due to increasing euro interbank interest rates<sup>7</sup>, to reach the 5 per cent level in late 2011.

**Fig. 11. Dynamics of weighted average interest rates on new loans to private sector according to the baseline and adverse domestic economic development scenarios**



Source: Bank of Lithuania calculations.

In the event of adverse economic developments, the continued domestic and global economic recession would lead to the financing costs growth in the government and private sectors. Higher euro interest rate margin would translate into the 4 p. p. growth of interest rates on loans to private sector, while wider difference between litas and euro interbank interest rates would result in the 8 p. p. increase in the interest rates on litas denominated loans. In 2010, the level of

<sup>6</sup> Weighted short-term interest rates calculation is based on the assumption that 20 per cent of total new loans to private sector are issued in litas, while 80 per cent are issued in euro.

<sup>7</sup> The assumption for the development of euro interest rates is based on the euro interbank interest rate futures in February 2010.



weighted interest rates on loans to private sector would go up to 8 per cent, while in 2011 it would grow further to 10 per cent.

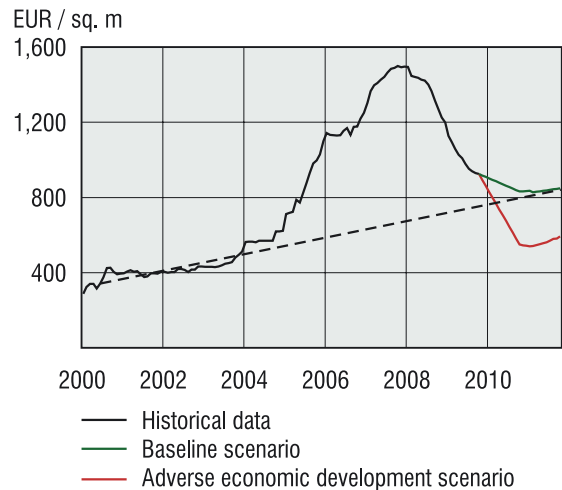
Higher interest rates on loans to private sector would increase the borrowing costs for private sector and reduce credit demand. Reduced crediting would lead over time to lower consumer spending, investments, and slower growth of the country's economy. Higher borrowing costs would also send debt servicing expenses up and hamper debtors' ability to fulfil their financial obligations. Eventually, this would result in a decrease in banks' profitability and an increase in credit losses.

**3. Dwindling real estate prices.** According to the baseline scenario, housing prices have been going back to the previously observed long-term growth trend, and stabilize at this level. In the environment of the ongoing real estate price correction, the price drop in 2010 would make up 10 per cent, while during subsequent years, following the economic stabilisation, the figures for the real estate price growth would be similar to the growth figures for the country's nominal GDP<sup>8</sup>.

In case of adverse changes in the macroeconomic environment, the economic slack in the real estate market would last longer and prices would go below the long-term growth trend. At the end of 2010, housing prices would fall to the level observed in 2004, prior to the formation of the real estate price bubble. From the current real estate price level (the first quarter of 2010)

to the end of 2010, the prices would go down by another 30 per cent, while a moderate growth of the real estate prices would be observed starting with 2011.

*Fig. 12. Real estate price developments according to the baseline and adverse economic development scenarios*



Sources: UAB "Ober-Haus" nekilnojamosis turtas and Bank of Lithuania calculations.

The ongoing slack in the real estate market would have negative impact on the public expectations and contain investments into non-tradable economic sectors, which in turn would affect the domestic economic activity. Falling real estate prices would also increase collateral value risk and lead to even higher losses in case of default.

<sup>8</sup> In the long-run, the real estate price growth should be similar to that of the country's nominal GDP.

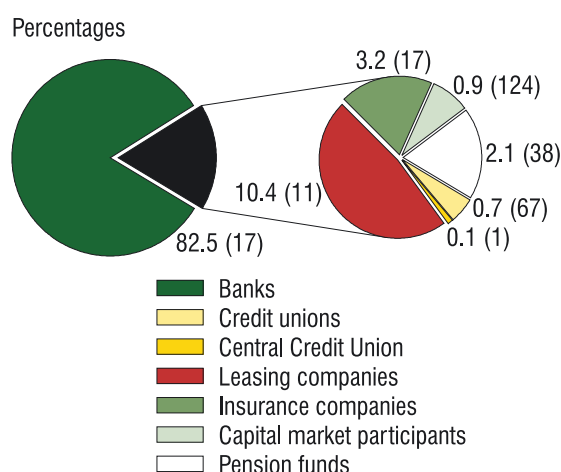
## II. OUTLOOK FOR THE FINANCIAL SYSTEM

### Financial system structure development

After a few years of a very rapid growth, the Lithuanian financial system<sup>9</sup> assets decreased by 7 per cent in 2009. The key factor behind the decline in the financial system assets was the reduction in the assets of banks and leasing companies while along the recovery of the Lithuanian and global stock markets, the market value of pension funds participants assets and these of other participants in the market increased over 2009. In 2009, with the slackening of the domestic economic activity, assets of the financial system again became larger than the GDP value.

The banking sector remained the most essential guarantee for the stability of the financial system. Notwithstanding the fact that assets of the banking system declined by 6.1 per cent in 2009, the asset share of the banks increased and accounted for slightly more than four fifths of the total Lithuanian financial system assets (see Table 3 in Annexes). Three largest Scandinavian capital banks (AB SEB bankas, Swedbank AB and AB DnB NORD bankas) not only controlled the largest share of the Lithuanian banking system assets, but also played an important role in the country's non-banking sector – leasing and life assurance markets. In 2009, their asset holdings accounted for 84 per cent and 44 per cent of the total assets of the leasing and life assurance markets respectively.

Fig. 13. Assets and participants of Lithuanian financial system in 2009



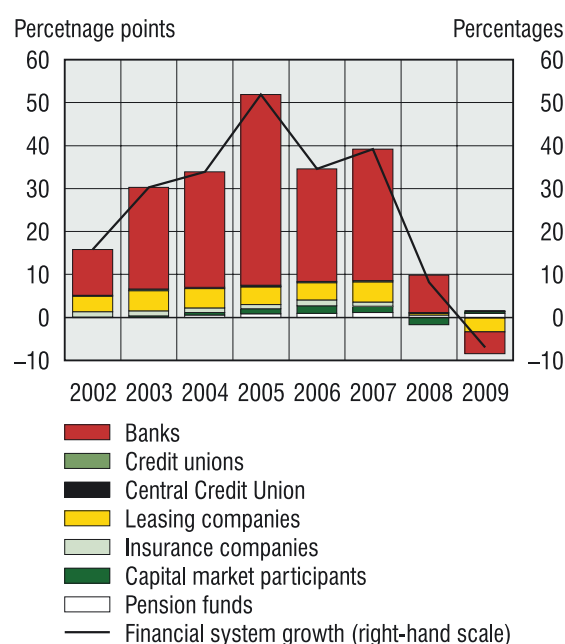
Sources: ISC, SC, Association of Lithuanian banks, and Bank of Lithuania calculations.

Note: Number of participants is indicated in brackets.

<sup>9</sup> In this report, the term „financial system“ comprises banks, credit unions, Central Credit Union, leasing companies that are members of the Lithuanian Leasing Association, insurance companies, capital market participants, and pension funds.

Over the last year, banking sector concentration reduced somewhat, however the major share of the banking assets and loans was still held in a few largest banks. From the end of 2008 to the first quarter of 2009, the market share of three largest domestic banks in terms of their assets shrank by 3 p. p. to 63 per cent, and the Herfindahl-Hirschman index<sup>10</sup> decreased by 85 points to 1,664 which points to medium concentration in the banking sector.

Fig. 14. Financial system growth factors (annual change)



Sources: ISC, SC, Lithuanian leasing association, Association of Lithuanian Banks, and Bank of Lithuania calculations.

As the banks of Lithuania started to apply tighter lending standards, credit unions and non-bank credit institutions took over a certain market share of commercial banks but the market share held by them remained very small anyway. Assets held by credit unions increased by 17.3 per cent and their share of assets grew by 0.9 p. p. Enterprises issuing fast consumer credits granted loans that amounts to LTL 37 million in 2009<sup>11</sup>. This accounted for as little as 0.044 per cent

<sup>10</sup> Hirschman-Hershtman index is the most frequently used measure of market concentration. This index is computed as follows:

$$HHI = \sum_{b=1}^n (x_b)^2,$$

where:  $x_b$  is the bank's market share by assets, and  $n$  is a number of banks. Values of the Herfindahl-Hirschman index are varying in an interval of  $(10\,000/n) \leq HHI \leq 10\,000$ . This index value would be the smallest if all components of the structure were equal, i. e., every bank had an equal market share. And the index value would be the highest, if one of the components accounted for 100 per cent of the entire structure, i.e., there was one bank operating in the market. In practice, the value of the Herfindahl-Hirschman index above 1,800 usually shows large concentration.

<sup>11</sup> Data presented only by the Lithuanian Fast Consumer Credits Association members.

of the financial system assets therefore the threat posted by these companies to the stability of the financial system is limited.

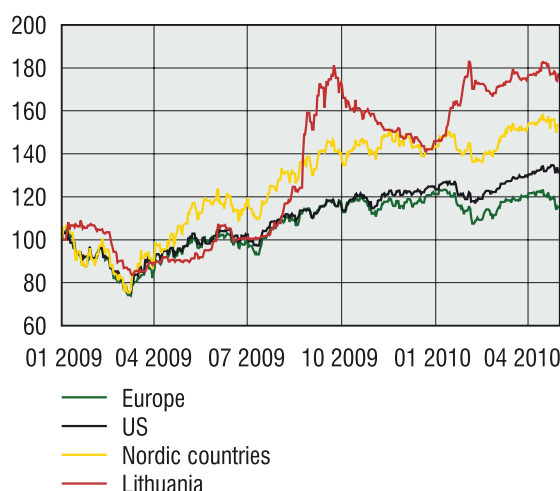
**Rapid decline in the sales of vehicles and passenger motor cars determined rapid decline in the amount of assets of leasing and non-life insurance companies.** The share of assets of leasing companies fell by 31 per cent and the decline in leasing of a vehicles and passenger motor cars was particularly evident. A marked reduction in the assets held by leasing companies was also determined by business activity losses in 2009, incurred due to the growing number of insolvent clients. Reduced income of leasing companies and increased losses contributed directly to the increment of losses of the banks managing those companies. Shrinking sales of vehicles and decreasing number of leasing contracts made direct impact on non-life insurance which declined by 23 per cent in 2009. Some non-financial enterprises and households because of deteriorating financial situation abandoned services provided by insurance companies: in 2009, the *insurance premium amount signed up* by these enterprises and a number of new insurance contracts signed continued to decline.

In 2009, with growing prices of shares in Lithuania and worldwide the asset share held by participants of pension funds and other participants of the capital market widened. Since the beginning of 2009, price indices of the European and US shares went up by about 20–30 per cent. Changes in investors' risk assessment and an improved outlook for economic growth of Lithuania and other Baltic States in the second half of 2009 determined a rapid growth of share prices in stock exchange of Lithuania. Increasing share prices determined rapid growth in the value of the assets of investment and pension funds. Assets of the second pillar pension funds grew by nearly 50 per cent and assets of foreign collective investment undertakings grew went up by as much as 88 per cent.

**Rising stock prices also had a positive impact on the growth of assets of non-life insurance companies.** Rising stock prices pushed up the demand for life assurance services, however, it was further decreased by reduced income of individuals which in turn reduced the number of new contracts and increased the number of terminated life assurance contracts. Positive performance of life assurance companies improved the profitability of the banks that managed the mentioned companies and made positive impact on the stability of the banking system.

**Fig. 15. Developments of indices in global equity markets**

(1 January 2009 = 100)



Sources: Bloomberg and Bank of Lithuania calculations.

## Banking System<sup>12</sup>

### Bank assets and loans

**Subdued lending was the main factor behind the movements in bank assets over the last year.** The largest contributor to the decrease in assets was reduced lending to non-financial corporations meanwhile portfolio of housing loans stayed almost unchanged in the course of the year. At the end of 2009, loan portfolio of the banking system made up 71 per cent of total assets, i.e. 7 p. p. less than one year ago. In the light of backward flow of the granted loans and still sluggish lending, the banks accumulated considerable reserves of liquid assets that were mostly invested into government bonds and bonds of financial institutions.

**The credit flow into the economy of Lithuania was negative in 2009. It is likely that credit market will also remain relatively inert in 2010.** Last year, the net value of loan portfolio<sup>13</sup> decreased by 14 per cent or by LTL 10 billion, of which LTL 3.9 billion constituted loan provisions determined by deterioration in quality of loan portfolio. It should be mentioned that loans issued by foreign owned banks (the first group banks<sup>14</sup>) and banks without foreign ownership (the second group banks<sup>15</sup>) of banks decreased at the same rate in 2009, i.e. by 14 per cent.

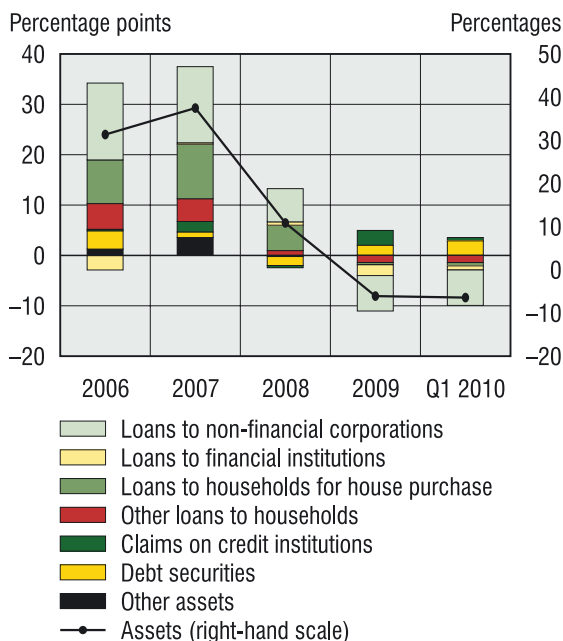
<sup>12</sup> In this chapter bank operations are analysed on the basis of financial and supervisory data.

<sup>13</sup> The net value of loan portfolio is equal to the gross value of loan portfolio (all loans issued) minus loan impairment.

<sup>14</sup> The first group includes banks with a major (over 50%) share of equity capital in hands of other foreign banks or financial institutions, and foreign bank branches. The first group includes: AB SEB bankas, "Swedbank", AB, AB DnB NORD bankas, AB PAREX BANKAS and all bank branches.

<sup>15</sup> The second group includes banks with a major share of capital equity owned by natural persons and non-financial corporations. The second group includes: AB bankas Snoras, AB Ūkio bankas, AB Šiaulių bankas, UAB Medicinos bankas, and AB bankas "FINASTA".

**Fig. 16. Contributions to the growth of the banking system assets**  
(annual changes)



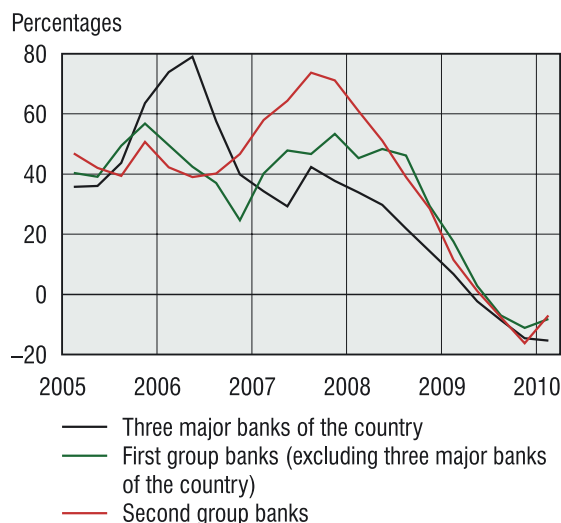
Source: Bank of Lithuania calculations.

Changes in credit market were driven by both the demand and supply factors: assessing the risk more cautiously banks applied tight lending conditions while a rapid economic downturn reduced the loan demand of enterprises and households. Changes in crediting provided by second group banks were determined, among other things, by the need to accumulate sufficient reserves of liquid assets – that decreased in the second half of 2008 – as well as by management of capital requirement due to lower capital adequacy ratio in some banks compared to the average of the whole banking system. Change in off-balance sheet crediting liabilities in the last quarter of the previous year shows that movements in loan portfolio should become stable in the coming quarters. According to the latest (April 2010) bank lending survey<sup>16</sup> the majority of banks are not going to change lending conditions by October of this year. Regarding that, it is likely that loan portfolio on gross basis (loan portfolio before loan provisions) will stop decreasing in 2010, however a year-on-year change will still remain negative.

**Negative credit growth was registered in many EU countries, however, this is a regular phenomenon during the downturn stage.** Decrease in loan portfolio in the EU was determined by the same factors as those in Lithuania: weaker economic activity reduced lending demand of enterprises and households while banks applied more

<sup>16</sup> Bank Lending Survey presents a summarised opinion of the holders of management positions in banks which does not necessarily reflect official views and assessments of the representing banks.

**Fig. 17. Change of loans given by banks of Lithuania**  
(annual change)

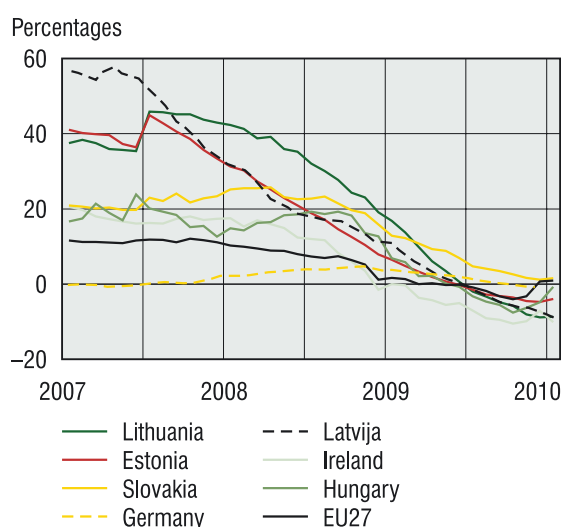


Source: Bank of Lithuania calculations.

conservative credit standards in order to reduce the undertaken risk. It should be mentioned that loan portfolio shrank mostly in those countries which registered stronger decrease in GDP.

Having in mind that the first group banks have possibility to attract the financing resources from their parent banks quite easily, the main factor determining credit supply of this group was stricter risk assessment and unwillingness to undertake additional risk under the unstable macroeconomic conditions.

**Fig. 18. Dynamics of the gross loan portfolio<sup>17</sup> of the EU countries**  
(annual change)



Sources: ECB and Bank of Lithuania calculations.

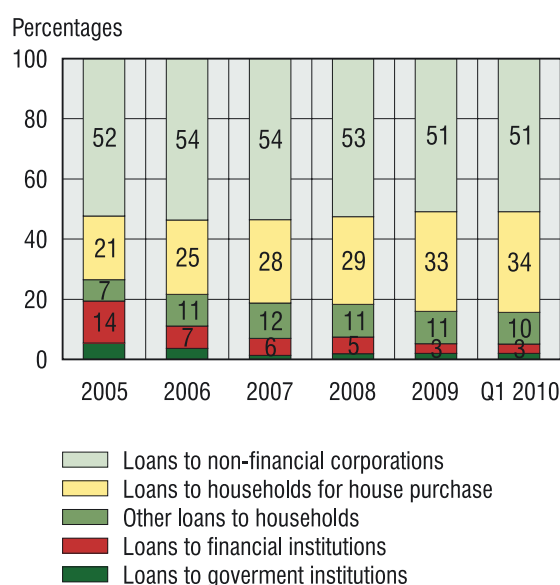
**Loans to enterprises decreased at a faster rate, compared to loans to households.** In absolute terms the decrease of loans to

<sup>17</sup> The gross loan portfolio comprises all loans issued before loan impairment.

enterprises was four times stronger than that of loans to households. Annual growth rate of loans to non-financial enterprises and loans to households gradually reduced since the end of 2008 and became negative in the middle of 2009. At the beginning of 2010, decreasing of loans to enterprises and households stabilised and stood at 17 per cent and 6 per cent respectively at the end of the first quarter. In 2009, the share of loans to households in the whole loan portfolio grew by 4 p. p. to 44 per cent. Housing loans on average accounted for one third of total loans, while loans to non-financial enterprises accounted for slightly more than a half of the total loan portfolio.

*Fig. 19. Composition of the banking system loan portfolio*

(end of period)



Source: Bank of Lithuania calculations.

Due to significant share of loans related to real estate activity<sup>18</sup>, stagnation in this market and further fall in real estate prices is one of the major risks arising to the banking system. Strong credit growth of real estate and construction sectors as well as the loan for house purchase portfolio by mid-2008 conditioned the fact that loans related to real estate market accounted for 56 per cent of total loans given to enterprises and households at the end of 2009. Last year, the flow of loans related to real estate and other main business sectors was negative and similar lending trends of these sectors are expected to continue this year too.

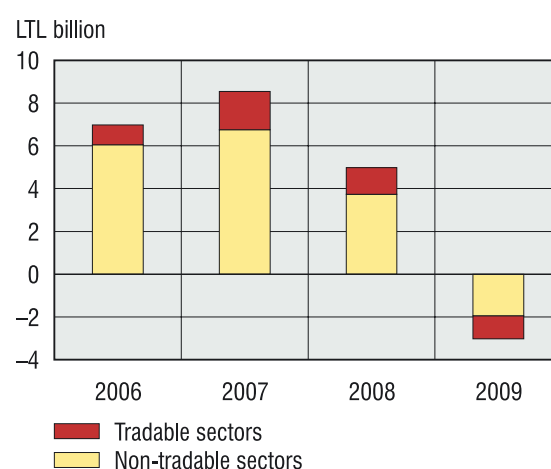
During the period of rapid economic growth, the major part of loans was given to non-tradable sector. From 2006 to 2008, credit flow to non-tradable sector was four times larger than growth rate of loans to

exporting and importing enterprises. Active lending to the non-tradable sector supported domestic consumption as well as the growth of real estate sector and the economy in general. Reduced credit flow to both non-tradable and tradable sectors was one of the factors inciting economic downturn. In order to reduce the dependence of the loan portfolio quality upon the domestic macroeconomic developments, the domestic banks ought to extend lending for the tradable sector.

In the coming years, the Lithuanian banking system will have to respond to the proper diversification of loan portfolio challenge and learn a lesson from the past mistakes by concentrating lending to several rapidly growing sectors. Banking strategy should be aimed at a profitable management of loan portfolio in a long-term encompassing the entire business cycle. To achieve this aim, it is important to ensure that the employees of commercial banks have right incentives and will take lending decisions with due respect to long-term risk.

*Fig. 20. Changes in the banking system loan portfolio of tradable and non-tradable sectors*

(annual change)



Source: Bank of Lithuania calculations.

Note: Tradable sector includes agriculture, fishery, mining and quarrying, manufacturing, transportation and storing. All the other activities belong to non-tradable sector.

In terms of individual borrowers, loan portfolios of domestic banks remained well diversified. At the end of the first quarter 2010, the average large exposure requirement<sup>19</sup> indicating credit risk concentration due to lending to interlinked individual borrowers amounted to 110 per cent of the capital, i.e. – 19 p. p. lower compared to the beginning of 2009<sup>20</sup>. Low concentration of borrowers reduced bank loss coverage risk

<sup>18</sup> Loans to Construction and Real estate, renting and other business activities.

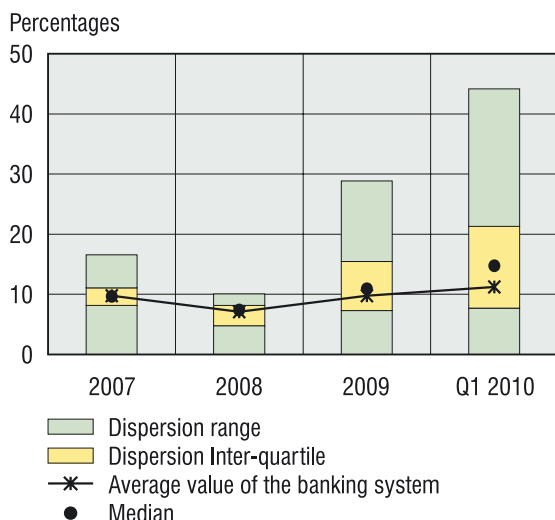
<sup>19</sup> The ratio of total bank loans to interlinked borrowers that exceed 10 per cent of the capital, and the bank's capital.

<sup>20</sup> In Lithuania, same as in the EU, a large exposure ratio required stands at 800 per cent.



in case of bankruptcy of one or several major debtors.

**Fig. 21. Dispersion of the securities and assets held by banks**  
(end of year)



Source: Bank of Lithuania calculations.

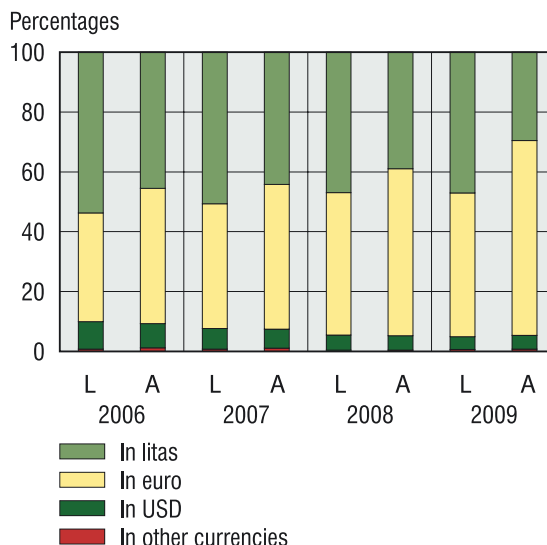
Note: Excluding indicators of foreign bank branches which started operation in 2009 and banks without securities.

Due to growing share of securities in the balance sheet of the banking system, market risk related to changes in securities prices became higher. Last year banks restored the securities portfolio used to ensure liquidity due to tensions in global and domestic financial markets in the end of 2008. At the end of the first quarter of 2010, the share of debt securities portfolio compared to total assets of the banking system accounted for 11 per cent (up by 4 p. p. compared to the first quarter of 2009). The largest share (94 %) of debt securities was composed of debt securities issued by banks and other credit institutions (mostly those of Lithuania, the European Union and countries of higher credit ratings<sup>21</sup>). Securities issued by non residents accounted for 52 per cent of the total securities portfolio at the end of the first quarter of 2010. Investment into securities issued by foreign countries and banks and short-term funds held in other banks are mostly kept for liquidity risk management. It should be noted that the projected fade out of support for the financial sector provided by the central banks of the major countries and growing need of the governments to finance budgetary expenditure with borrowed funds may increase long-term interest rates in international markets what in turn would negatively affect the value of bonds held by banks. Banks should also evaluate

<sup>21</sup> Higher credit rating countries are those countries that have been assigned a long-term rating by international rating agencies, such as Moody's Investors Service (not lower than Baa3) or Standard & Poor's, and Fitch Ratings (not lower than BBB-).

and manage properly the concentration risk of liquid investment.

**Fig. 22. Composition of the banking system<sup>22</sup> assets and liabilities by currencies**  
(end of year)



Source: Bank of Lithuania calculations.

Note: A – assets, L – liabilities.

Foreign currencies risk in the banking system remains low. Like in previous years, bank assets and liabilities were mostly denominated in litas and euro (about 95 % of assets and liabilities of the system), and in US dollars (4.5 %). A significant rise of interest rates on loans in litas in the first half of 2009 entailed an increase in the volume of euro loans issued, while some debtors converted litas loans into euro loans. As the US dollar remained relatively volatile, the value of both assets and liabilities denominated in this currency dropped somewhat in 2009. Because of that, the growth of the share of euro denominated assets was further observed in 2009, and, accordingly, the share of litas and US dollar denominated assets decreased. US dollar open position in the balance sheet was long, however, very insignificant (0.2 %). Open positions of all other foreign currencies were even lower. In view of Lithuania's aim to join the euro area by maintaining the fixed litas exchange rate against the euro, euro positions of the banking system should be basically treated as denominated in the future national currency<sup>23</sup>.

### Banks funding and liquidity

The banks operating in the country markedly increased liquidity buffers and attracted more financial resources in the domestic market thus reducing liquidity risk in 2009 com-

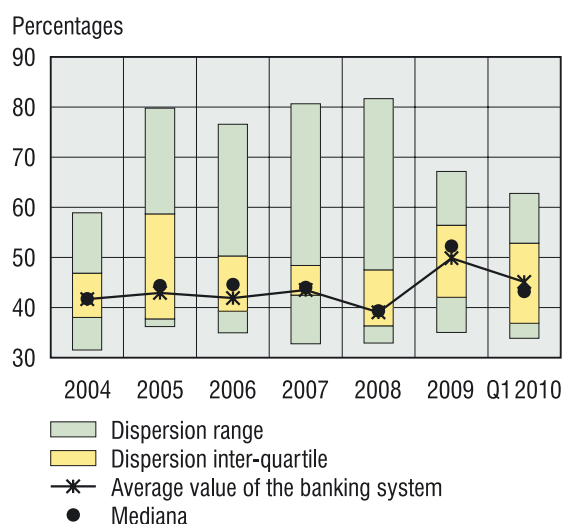
<sup>22</sup> Excluding foreign bank branches.

<sup>23</sup> As from December 2004 the open position in euro has not been limited.

pared to the situation in the end of 2008. In the last quarter of 2008, banking system deposits decreased by LTL 2.7 billion (6.7 %), however, total deposits increased by LTL 2.8 billion in 2009 offsetting all the deposits withdrawn earlier due to adverse conditions in international markets. Deposits of the first and second group banks changed differently in 2009. Deposits of the first group banks grew by LTL 1.4 billion (5 %) and deposits of the second group banks increased by LTL 1.4 billion (15 %). The relatively slower growth of deposits of the first group banks was determined by the possibility to borrow from parent banks. Seeking to attract additional financing resources the banks of the second group were actively competing in the deposit market by offering high interest rates. Such strategy enabled to enlarge significantly the volume of attracted deposits by the first group banks, however, it also increased the financing costs. Average liquidity ratio of the banking system increased by 11 p. p. in 2009 and reached 50 per cent at the end of the year. Assessing the sufficiency of the liquidity resources and the fact that additional liquidity has a negative impact on profitability, banks started to reduce credit resources which had not been actively used (first of all those provided by parent banks). Although the overall liquidity ratio became somewhat lower, it still remained historically high in the first quarter of 2010.

**Fig. 23. Dispersion<sup>24</sup> of banks' liquidity ratios**

(end of period)



Source: Bank of Lithuania calculations.

Note: Excluding liquidity ratios above 100 per cent of foreign bank branches that started their operation in 2007 and 2009.

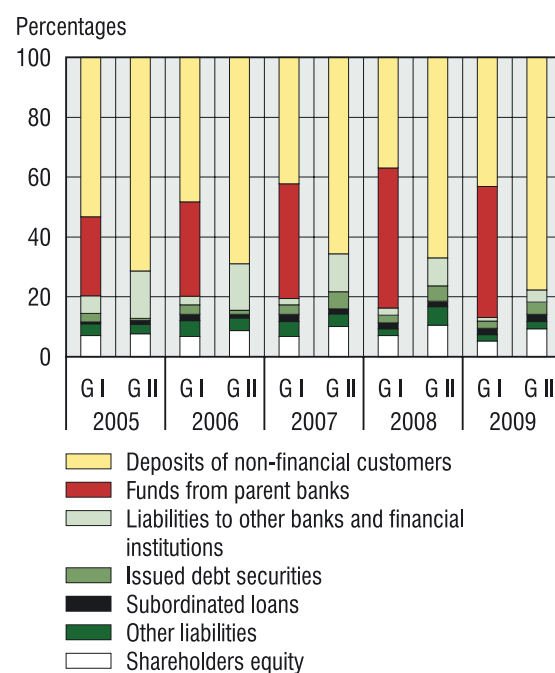
<sup>24</sup> Range is the difference between the largest and smallest value from the set, indicating the total dispersion of values. A quartile is any of three values dividing a sorted set of values into four equal parts in a way that each value shows 1/4th set of values. The second quartile or median is the central value dividing the set of values by half in a way that a half of values is bigger than the median and the other half is smaller than the median. The first (third) quartile divides the set of values in a way that 25 per cent (75%) of values are smaller than the first (third) quartile and the other part is bigger. The difference between the third and the first quartiles is inter-quartile.

In terms of duration, liabilities, equity and assets of the banking system were counter-balanced sufficiently well. Short-term (up to six months) bank liabilities made up 40 per cent of the total bank liabilities, i.e. 3 p. p. more than investment of the banks into short-term (up to six months) assets. In order to increase resistance to liquidity shocks, the banks, especially those belonging to the second group, should adequately diversify the structure of liabilities and pay stronger attention to longer-term financing sources.

The sources of the liquidity risk of the first and second group banks differ. The first group banks comprising the major part of the banking system may borrow from parent institutions and are less dependent on resources attracted in the domestic market and their volatility. Owing to a large share of deposits in the overall structure of liabilities, the second group banks are more sensitive to the situation in the deposit market of the country and have limited capability to attract additional financial resources in international markets. Deposits (of households, non-financial corporations and general government) are usually a stable and low volatility source of bank financial resources. Funds from parent banks should also be considered safe source of financing taking into account close relationship between parent and subsidiary banks and possibility, if required, to attract these financial resources over a short period of time.

**Fig. 24. Composition of the banking system liabilities**

(end of year)



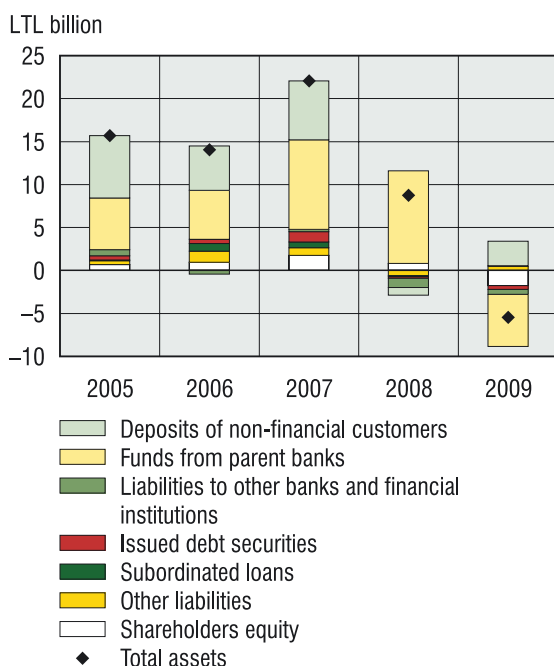
Source: Bank of Lithuania calculations.

Note: G I – first group banks; G II – second group banks.



Change in priorities for the attraction of financial resources of the banks operating in Lithuania should also be noted. During the time of rapid economic growth, newly granted loans were mostly financed from the funds of parent banks. Last year, the banks aspired to a more active financing of the operation inside the country with the financial resources attracted domestically. The ratio between the financial resources attracted from the residents of Lithuania and balance sheet liabilities<sup>25</sup> of the banking system grew by 6 p. p. last year and stood at 54 per cent at the end of 2009.

**Fig. 25. Movements in funding sources of the banking system assets**  
(annual rate of change)



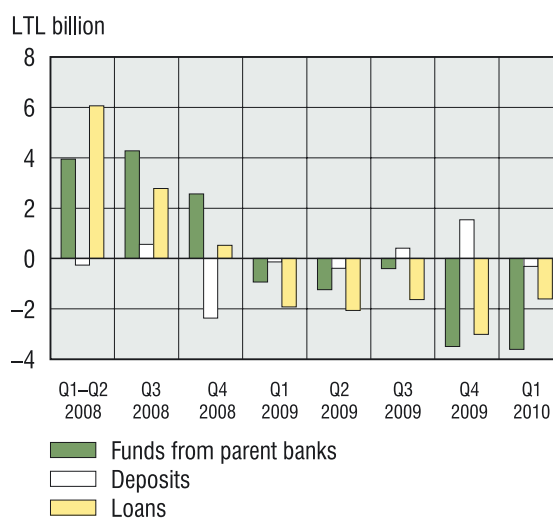
Source: Bank of Lithuania calculations.

**Financial flows generated by a shrinking loan portfolio of the banking system and the attracted deposits were used to reduce liabilities to parent banks.** The amount of funds provided by parent banks decreased by LTL 6 billion (16 %) in 2009 and accounted for 39 per cent of total balance sheet liabilities at the end of the year.

**Last year, bank credit risk became covered more by financial resources attracted domestically.** Between 2004 and 2008, loan to deposit ratio grew due to faster growth of loans granted by banks compared to the deposits accepted. In other words, the amount of granted loans financed from deposits was gradually reducing while the amount financed from financial liabilities attracted from external sources was gradually increasing. Loan to deposit ratio of the banking system started to decrease at the beginning

**Fig. 26. Change of deposits, liabilities to parent banks and loans of the first group banks**

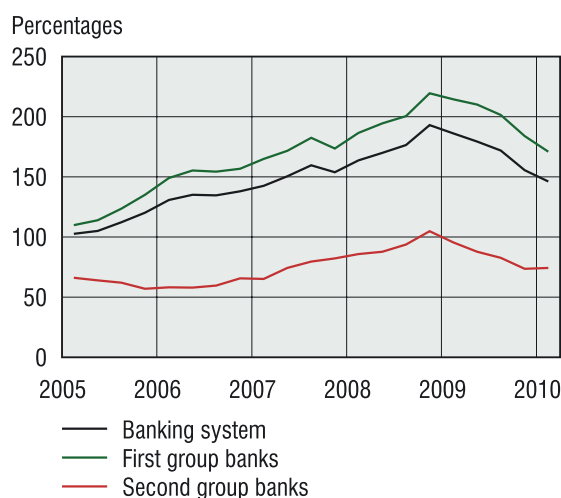
(change over the period)



Source: Bank of Lithuania calculations.

of 2009 which was determined by both the reducing loan portfolio and growing deposits. It is likely that the downward trend in the loan to deposit ratio will continue this year as well.

**Fig. 27. Banks' loan to deposit ratio**  
(end of period)



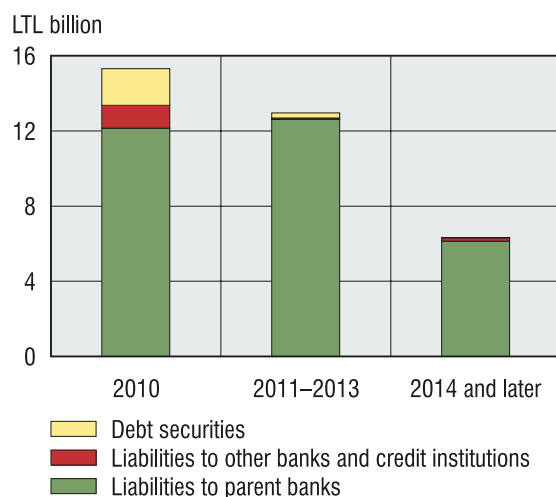
Source: Bank of Lithuania calculations.

**Refinancing needs of the liabilities does not pose a threat to the liquidity of the banking system in 2010.** The major part of current liabilities of banks (excluding deposits) consists of debts to parent banks, which bears a minimal refinancing risk. The liabilities to other (not parent) banks and financial institutions are relatively insignificant and basically aimed at the balancing of short-term liquidity fluctuations. A slightly larger share of such liabilities remains in the second group banks: liabilities to other banks and financial institutions totalled to 4 per cent of total liabilities (5 p. p. less than last year) at the end of the year. Some of required fi-

<sup>25</sup> Balance-sheet liabilities are the difference of banking assets and shareholders equity.

financing resources were attracted in securities market, however, debt securities issued by banks made up a rather small portion of total liabilities – it made up 3 per cent at the end of 2009. A certain share of the need for refinancing debt securities will likely be covered by issuing new securities in 2010.

**Fig. 28. Bank liabilities refinancing needs**  
(end of 2009 data)

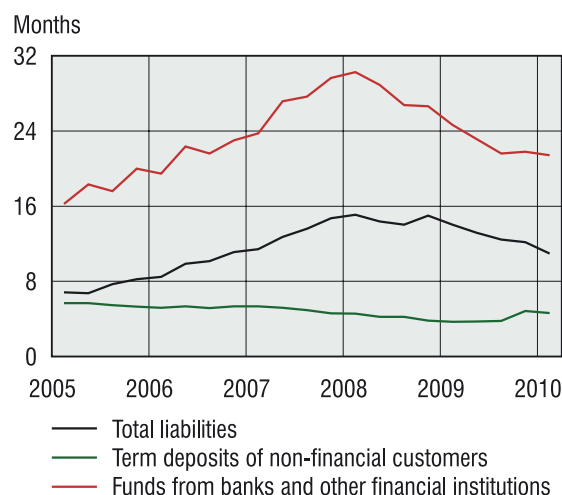


Source: Bank of Lithuania calculations.

**Shortening average maturity of the liabilities in 2009 did not increase liquidity risk.** The analysis of the banking system liquidity position in respect of maturity showed a shorter average maturity of the liabilities. Maturity shortened by three months in 2009 reaching twelve months on average. This was mainly driven by a lower long-term borrowing from banks (largely from parent banks) and from financial institutions. It should be noted that reduction of long-term financing from parent banks was strongly affected by alternative costs which became basically zero and which were previously incurred by banks due to specificity of obligatory reserves requirement in the context of high interest rates in the inter-bank market<sup>26</sup>. Last year, maturity of time deposits of the customers other than bank and credit institutions increased somewhat (from 3.8 months to 4.8 months).

Bank financing costs were significantly elevated at the end of 2008 and at the beginning of 2009 however in line with the improving situation in global markets and stabilisation of public finances in Lithuania financing costs started to decline rapidly

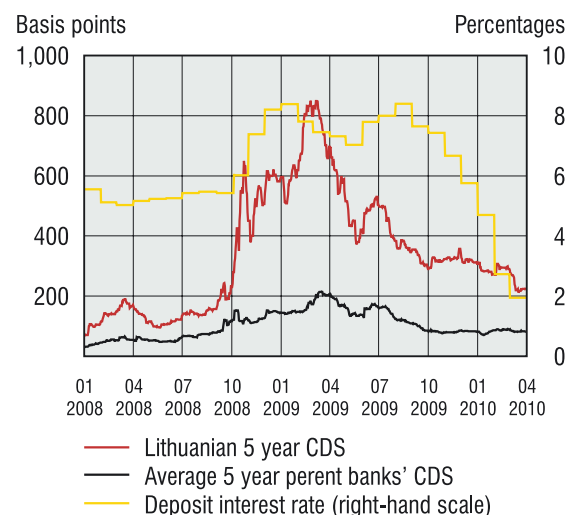
**Fig. 29. Average maturity of the banking system liabilities**



Source: Bank of Lithuania calculations.

**After the marked increase in liquid assets in 2009, the banks do not intend to compete actively for the private sector deposits in the coming six months.** More than a half of banks do not intend to increase the amount of the attracted deposits in the coming six months<sup>27</sup>. On the other hand, along with subdued lending and an intention to balance the loan to deposit ratio the first group banks intend to further reduce liabilities to their parent banks in the coming half of the year.

**Fig. 30. Dynamics of banks' funding costs**  
(end of period)



Sources: Bloomberg and Bank of Lithuania calculations.

Note: Interest rates on new deposits of households in litas with the maturity from 1 to 6 months.

<sup>26</sup> Bank liabilities maturing in more than 2 years are not included when calculating obligatory reserves. For the part of reserves held at the central bank, banks receive interest which is equal to ECB main refinancing operations rate (1% at the moment). After the ECB deposit facility rate decreased to 0.25%, banks' alternative costs for the funds held as obligatory reserves decreased considerably. Correspondingly, that undermined the incentives for banks to attract longer than 2 years maturity funding resources.

<sup>27</sup> According to the Bank Lending Survey, April 2010.

## Box 2. New indicators for monitoring bank liquidity

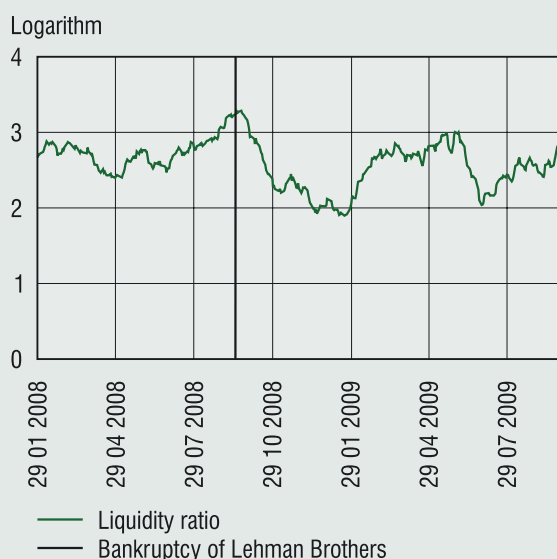
In 2009, the Bank of Lithuania, apart from other information sources, started to monitor new indicators of bank liquidity, developed from the data available in the Bank of Lithuania payment system LITAS-RLS. All the banks operating in Lithuania participate in this system for real time gross settlements in litas. The banks participating in the system have settlement accounts in the Bank of Lithuania through which they make payments. At the end of a day the Bank of Lithuania obtains the information about the movements in the accounts of banks, highest and lowest liquidity\* of a day and liquidity ratio\*\*. All obtained information can be compared with historical data and used for evaluation of emerging trends in the banking sector.

Liquidity ratio indicates changes in bank liquidity risk and to what extent banks use the funds in the Bank of Lithuania for their payments. Decline in liquidity ratio indicates that liquidity in the settlement account of a bank decreased and/or that it made high value payments\*\*\*. On the contrary, increment in liquidity ratio indicates that liquidity in the settlement account of a bank grew and/or that it did not make high value payments. Analysis of the highest and lowest liquidity of the banks enables to draw daily conclusions about the activity of the banks' operation in inter-bank market and their inclination to lend or borrow.

Taking into consideration the difference between the sources of bank liquidity risk of the first group banks and second group banks, these indicators are more helpful when monitoring changes in second group banks' liquidity. Immediate and accurate information obtained without imposing additional costs on banks is the main advantage of these indicators.

After testing informativeness of the new indicators, the Bank of Lithuania estimated the values of the indicators between 2008 and 2009, paying a particular attention to the impact of Lehman Brothers bankruptcy\*\*\*\* (as a systemic shock) on banking sector liquidity in litas and the consequent economic downturn. The received results enabled to come with an answer whether a material decline in deposits in October 2008\*\*\*\*\* could have disturbed daily payments in the payment systems of the Bank of Lithuania and how fast banks were able to restore liquidity balance. These results also provided additional information about the recovery and intensiveness of the inter-bank market.

**Fig. A. Changes in logarithm of the second group banks'\*\*\*\*\* liquidity ratio**  
(20-days moving average)



Source: Bank of Lithuania calculations.

The liquidity used for payments was high until Lehman Brothers bankruptcy and liquidity ratio logarithm was significantly above 0 – the point at which payments would be disturbed – and was between 2.5 and 3\*\*\*\*\*. After the bankruptcy of Lehman Brothers liquidity ratio started to decline rapidly and was below 2 between December 2008 and January 2009, however it stood well above 0. Notwithstanding the increased liquidity risk in the fourth quarter of 2008, the obtained results point to the absence of actual risk to the second group customers when making daily payments in the payment systems of the Bank of Lithuania.

In March 2009, the second group banks restored the liquidity ratio to the level reached before the systemic shock. Analysis of the highest and lowest daily liquidity (not shown in a chart) pointed that a number of the second group banks, after having restored their liquidity, got more actively involved in inter-bank market by lending free funds to the first group banks for short periods. This more active participation in the inter-bank market also explains a short-term decline in liquidity ratio in June 2009.

The Bank of Lithuania will continue to use these indicators for monitoring bank liquidity in the future.

\* Funds in a settlement account in the Bank of Lithuania.

\*\* Liquidity in a bank's account to the value of a submitted payment ratio. If liquidity ratio is  $\geq 1$  or the logarithm of liquidity ratio is  $\geq 0$  it means that the available funds were sufficient for paying the submitted orders. The lowest daily liquidity ratio of a particular bank is registered and used in the analysis later on.

\*\*\* Most often, inter-bank lending transactions.

\*\*\*\* Announced on 15 September 2008.

\*\*\*\*\* In October 2008 compared to September 2008, deposits of residents excluding those in MFI decreased by LTL 2.4 billion.

\*\*\*\*\* In this Box AB bankas „FINASTA“ is not included into the second group banks due to relatively low activity in the payments area.

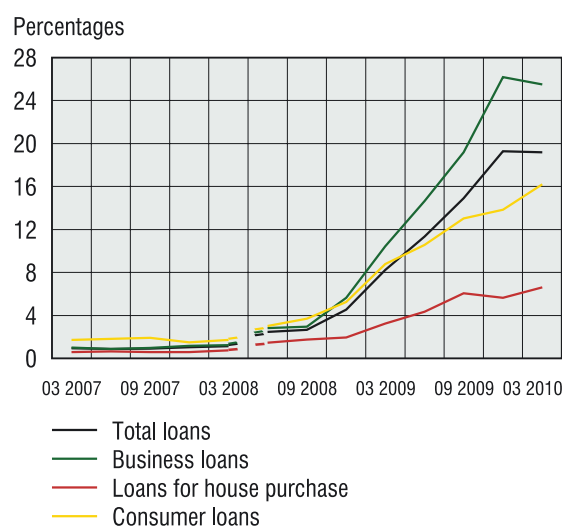
\*\*\*\*\* High liquidity ratio is largely explained by relatively high ratio of required reserves which accounted for 6 per cent on 6 November 2008.

## Loan portfolio quality and debtors financial state

Credit risk management was one of main challenges faced by the banking system in 2009<sup>28</sup>. In retrospective, the first changes in credit cycle became evident in 2008 while in 2009, the quality of banks' loan portfolio deteriorated sharply. Credit risk assessment practice applied by banks also became conservative: non-performing loans<sup>29</sup> grew by about 4 times and the ratio of non-performing loans reached 19.3 per cent at the end of the year. According to April 2010 Bank Lending Survey, one third of banks considered that the quality of their loan portfolio had reached the "bottom". Other banks projected further deterioration of the quality of loans (by all debtors) which should materialise in full in the middle of 2010 and subsequently.

**Fig. 31. Non-performing loans of the banking system**

(compared to a respective loan portfolio)



Source: Bank of Lithuania calculations.

Note: break in time data series since mid-2008 owing to change in the definition of non-performing loans.

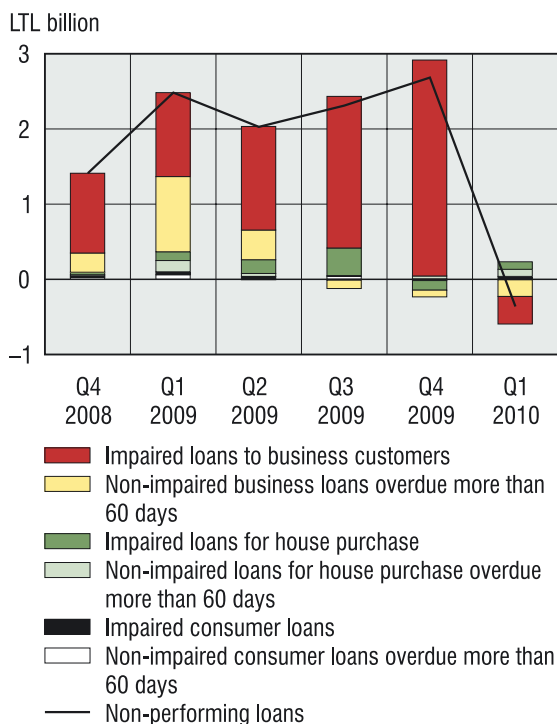
The quality of bank loans stabilised in the first quarter of 2010 and the non-performing loan ratio dropped to 19.2 per cent. Same as before, changes in the quality of bank loan portfolio were determined by business loans. Moreover, the banks wrote off, restructured or postponed payment of interest rates for a certain share of loans.

In 2009, loan impairment losses grew each quarter and reached the peak at the end of the year. A number of banks aimed at "cleaning the balance sheet" and suffering a larger share of loan portfolio losses in "off-year" 2009. Losses of bank system related to loan portfolio credit risk accounted to LTL 3.9 billion and were nine times larger compared to the previous year. It is also worth noticing that quarterly expenditure of the banking system for special provisions compared to loan portfolio increased from 0.5 per cent in the first quarter to 2.7 per

<sup>28</sup> Given that loans comprise the major share of bank assets, credit risk is the main individual source of risk. The economy development and, consequently, the financial standing of borrowers are crucial to the bank loan portfolio quality and suffered credit risk losses. The principles for the assessment of bank loans and loan impairment losses (specific provisions) are based on the current financial standing of borrowers and their capability to repay the debt. Specific provisions therefore show the current credit risk assumed by banks and incurred losses. As a result, indicators that are used to define the loan portfolio quality, for example, a ratio of non-performing loans to total loans or a ratio of loan impairment losses to total loans, reveal the present loan portfolio quality. Credit risk is characterised by a strong cyclicity, while indicators defining the loan portfolio quality are lagging indicators. This part of the Review presents the analysis of actually observed indicators of the bank loan portfolio quality. Potential losses in case of unfavourable and sudden events in the future, such as a material change of interest rates or a marked slowdown of the economic growth may be assessed best of all by stress testing. The results of stress testing are provided in Chapter III.

<sup>29</sup> The definition of non-performing loans was changed and, from the middle of 2008, non-performing loans are defined as the sum of non-impaired loans overdue more than 60 days and impaired loans (the ones for which specific provisions were made). Therefore, in this Financial Stability Review, bank loan portfolio quality data is basically analysed and provided as from the mid-2008. Indicators for previous years and their analysis are given in the Financial Stability Review of 2008.

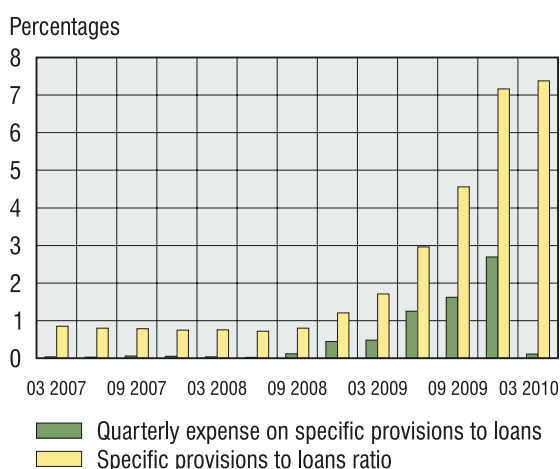
**Fig. 32. Contributions to the changes of banking system non-performing loans (quarterly change)**



Source: Bank of Lithuania calculations.

cent in the fourth quarter. Quarterly loss expenditure to loan portfolio ratio was just 0.1 per cent in the first quarter 2010. The gross loss of the loan portfolio to the non-financial sector measured as the ratio of specific provisions to loans from the beginning of 2009 grew by 6.2 p. p. to 7.4 per cent at the end of the first quarter of 2010.

**Fig. 33. Impairment loss on loan portfolio of the banking system (end of period)**

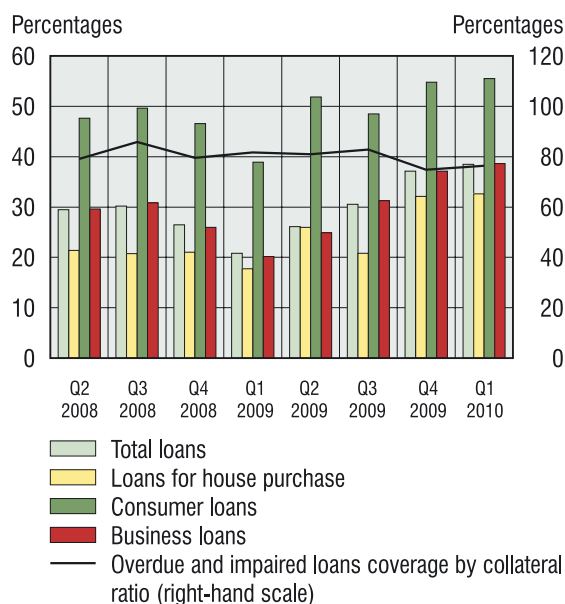


Source: Bank of Lithuania calculations.

**Strict risk assessment reduces banks' operational risk in the future.** Individual and corrective specific provisions made up on average nearly 40 per cent of the total non-performing loans. Since the beginning of 2009, the amount of impaired loans com-

pared to all non-performing loans grew by 7 p. p. i.e. to 82 per cent. Moreover, 76 per cent of the value of overdue and impaired loans was secured by collateral. That means that majority of banks were prone to assess the credit risk strictly.

**Fig. 34. Specific provisions to non-performing loans and the loan coverage ratio (end of period)**



Source: Bank of Lithuania calculations.

Coverage of all segments of loan portfolio by special provisions was growing in 2009 and at the beginning of 2010. The coverage of potentially non-performing loans by specific provisions was in line with the risk of the loan portfolio segment, i.e., riskier segments of the loan portfolio were attributed relatively more impairment losses owing to reduction in the value of loans. In this regard, here it is possible to single out one of the riskiest loan segments, i.e. consumer loans not covered by the collateral with the formed specific provisions making up 56 per cent of the respective portfolio of non-performing loans.

In other European Union member states the ratio of specific provisions to non-performing loans in 2009 fluctuated mostly between 50 and 70 per cent<sup>30</sup>. A weaker influence of the respective indicator in Lithuania was caused by technical factors, i.e. tighter than in other countries definition of non-performing loans<sup>31</sup>.

**Quality of loans of different banks is defined by former discretion of lending activity and trends, composition of bank debt-**

<sup>30</sup> Global Financial Stability Report, IMF, October 2010.

<sup>31</sup> Non-performing loans in Lithuania are defined as a sum of non-impaired loans overdue more than 60 days and impaired loans. Non-performing loans in other countries are usually defined as loans overdue more than 90 (60) days or impaired loans.



ors, loan collateral and an applied practice of risk assessment. Non-performing loan ratio fluctuated from 8 per cent to 45 per cent in the first quarter of 2010. In general, average quality of the second group banks was lower, i.e. non-performing loan ratio was higher compared to that of the first group banks. This was largely caused by differences between the first group banks' and the second group banks' loan portfolio. The first group banks extended relatively more loans for house purchase while the share of these loans in the second group banks is marginal. On the other hand, the second group banks hold relatively larger amount of consumer loans. Having in mind that the quality of business loans in both the first group banks and the second group banks was quite similar, the quality of the entire loan portfolio was largely determined by the share of loans for house purchase of higher quality and riskier consumer loans in bank loan portfolios. Notwithstanding that, loan impairment losses of the second group banks compared to loan portfolio were 1.7 times lower compared to the losses of the first group banks. This shows that the second group banks were less conservative in assessing the amount of potential losses incurred due to non-performing loans than the first group banks.

To sum it up, the banks will continue to incur impairment losses in 2010, however they will be significantly lower than in previous year. All banks have to acknowledge the sustained losses in due course. This is one of the main principles revealing the actual financial standing of the banks, ensuring a possibility to take necessary measures supporting financial stability and forming basis for future activity. Moreover, the banks will have to address some socially urgent issues, such as postponement of payments for overdue loans, restructuring, takeover management and realisation of the assets of insolvent customers. Importance and risk of these issues are increased even more by intentions to amend the provisions of laws aggravating recovery of loans from the assets of natural persons<sup>32</sup>. Search for dialogue between debtors and creditors and common solution should be the main road to dealing with such issues.

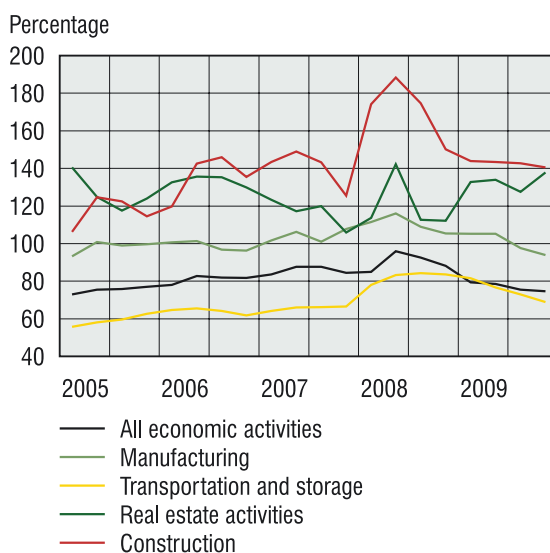
<sup>32</sup> At the time when the Review was conducted, amendments to the Civil Code were put forward proposing to extend restrictions for recovering debt from a natural person's assets setting an amount (LTL 15 thousand) when recovering of a debt from the property belonging to a debtor where the debtor lives might be started. Under the specified conditions the court might be permitted to establish a term from 1 to 2 years not allowing recovery of a debt from the last housing where a debtor or his family live; that restriction would be applied when the last housing is mortgaged voluntarily and a creditor demands to discharge indisputable liabilities.

## Corporate sector

### Financial standing of corporate sector

**Financial standing of the corporate sector have stabilised recently.** Economic downturn in the domestic market and markets of trade partners resulted in the reduced consumption and declining business income. Expectations of the population and business, reaching historical low, determined a drop in corporate investment and reduction in need for financing there by borrowed funds. On the other hand this improved financial leverage. Liabilities and equity ratio that shows the financial leverage, due to fallen financial debts and debts to suppliers in the end of 2009 reached its lowest point (75 %) over the past four years. However, individual economic activities remained strongly indebted.

Fig. 35. Dynamics of economic activities financial leverage



Sources: Department of Statistics and Bank of Lithuania calculations.

Standings of non-tradable and tradable sectors recently have clearly diverged: although income of the sectors orientated towards domestic consumption will hardly recover next year, a faster growth of the tradable sectors can be expected.

**The changing environment of activity made the strongest impact on the economic activities orientated towards domestic consumption.** The number of bankruptcies grew most rapidly among construction, transport and storage enterprises and the likelihood that they will go bankrupt<sup>33</sup> was the highest. Having in mind that as well as adverse future prospects, the commercial banks of the country were most cautious when evaluating enterprises of above mentioned economic activities.

<sup>33</sup> Ratio of initiated bankruptcy procedures and number of companies.

**Table 5. Ratio between the four-quarter sum of initiated bankruptcies and the number of enterprises at the end of the period.**

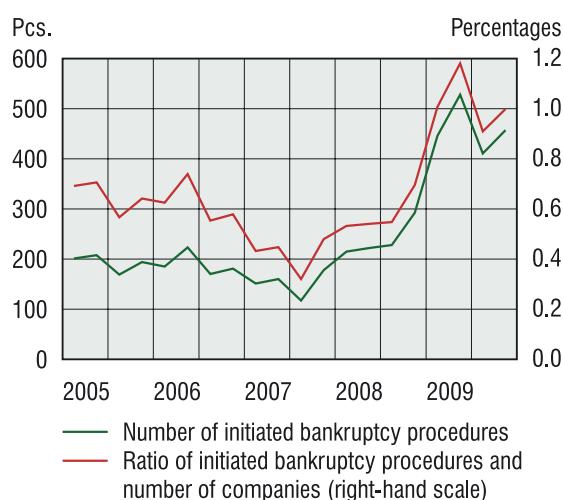
(percentages)

	2008	2009			
	Q4	Q1	Q2	Q3	Q4
Manufacturing	3.9	4.7	5.9	6.0	6.0
Wholesale and retail trade	1.9	2.0	2.4	2.5	2.9
Construction	3.6	4.4	6.0	6.7	7.1
Transportation and storage	2.1	3.3	5.0	5.8	6.8
Real estate activities	0.8	1.4	1.8	2.2	2.4
All economic activities	2.3	2.7	3.3	3.7	4.0

Sources: Department of Statistics, Department of Enterprise Bankruptcy Management under the Ministry of Economy and Bank of Lithuania calculations.

Compared to the first half-year, the number of initiated bankruptcy procedures decreased in the second half of 2009.

**Fig. 36. The number of initiated bankruptcy procedures over the quarter and its ratio to the number of enterprises at the end of the period**

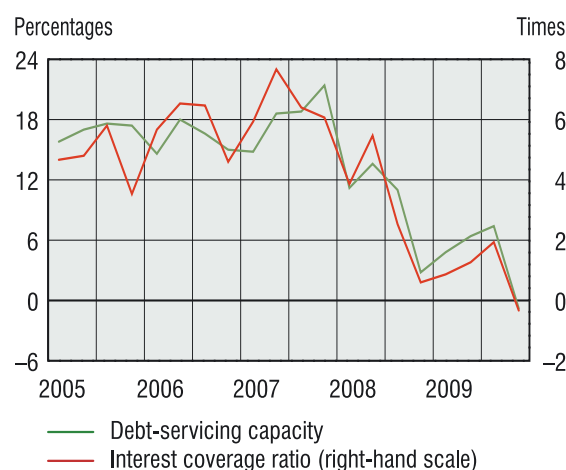


Sources: Department of Statistics, Department of Enterprise Bankruptcy Management under the Ministry of Economy and Bank of Lithuania calculations.

**Capabilities to cover debts declined.** In 2009, earnings before taxes, depreciation and amortisation covered on average two times smaller share of financial liabilities compared to 2008 and interest coverage ratio<sup>34</sup> was on average three times lower. No significant developments are expected in the future. Notwithstanding decreasing liabilities and interest rates that fell to the level registered before economic downturn, capability of the enterprises to operate profitably will remain limited what in turn will result low solvency ratios.

<sup>34</sup> The interest coverage ratio is defined as operating profit/loss plus financial income in relation to financial costs.

**Fig. 37. Changes in debt-servicing capacity and interest coverage ratio**



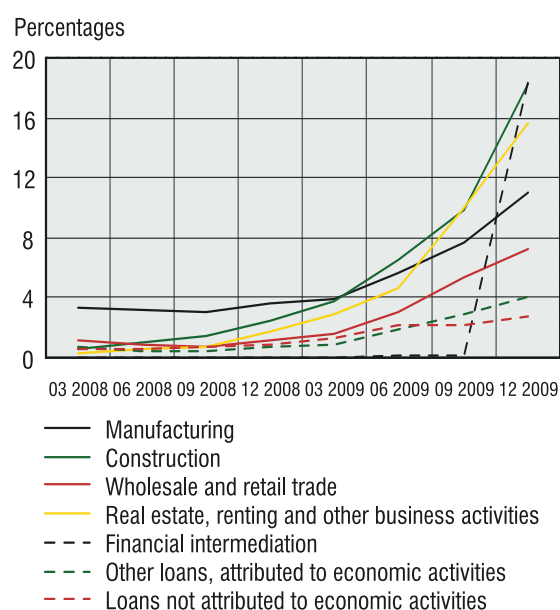
Sources: Department of Statistics and Bank of Lithuania calculations.

Note: Debt-servicing capacity is profit before tax, amortisation and depreciation as a percentage of financial liabilities.

### Risk to banks

The gross loss of bank loan portfolio to enterprises grew in all economic activities. The lowest quality was that of loans to economic activities focusing on domestic consumption and therefore most dependent on business cycle fluctuations. The banks sustained relatively highest losses owing to construction and real estate activities. Moreover losses on loans to financial sector grew rapidly. That sector largely credited consumption needs of individuals and purchases of vehicles, manufacturing equipment and real estate by companies. Relatively high losses were incurred on loans to manufacturing and trade economic activities. The banks also tracked higher risk of

**Fig. 38. Specific provisions to loans as share of banking system loan portfolio (by economic activities)**



Source: Bank of Lithuania calculations.



loans to hotels and restaurants economic activities. Meanwhile average losses on other bank loans were below 4 per cent. Quality of loans to agriculture and energy sectors was evaluated as the best.

**The banks are likely to have already incurred the larger share of losses due to loans to tradable sectors however quality of loans to non-tradable sector will likely to continue deteriorating.** The largest share of loans was given to non-tradable sectors – about 70 per cent of loans were given to legal entities. More favourable trends have not been observed yet in that sector which depends on the domestic demand changes.

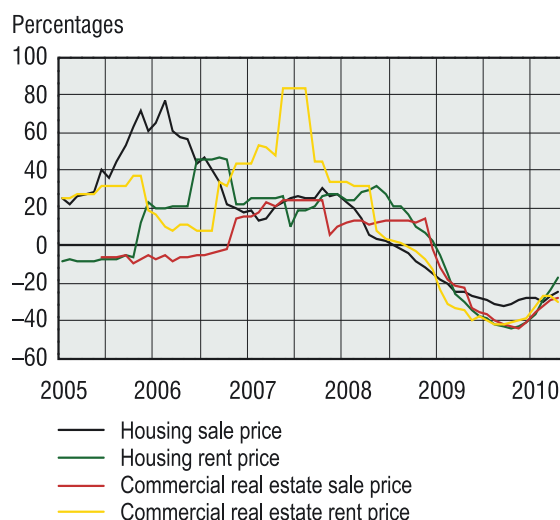
### Real estate market

**Real estate market has both a direct and indirect impact on the banking system.** Direct impact channel comes to light when, trying to sell the assets taken over from insolvent customers one confronts with weaker market activity and lower value. Seeking to decrease the risk posed by direct impact channel many banks established real estate management companies. Those companies, by assessing the costs of monitoring and management as well as potential income from rent and sale, seek for optimal use of the assets held. Indirect impact channel comes to light when uncertainty over the future development in the market and pessimistic expectations reduces both supply of and demand for loans, therefore income from interests received by the banks is shrinking.

**Prices continued to fall in the real estate market.** House sale prices in the market fell for the second consecutive year and by the beginning of May 2010 dropped by 45 per cent from their peak at the end of 2007 (over 2009, house prices fell by 27 %).

*Fig. 39. Real estate sale and rent price dynamics*

(monthly data)



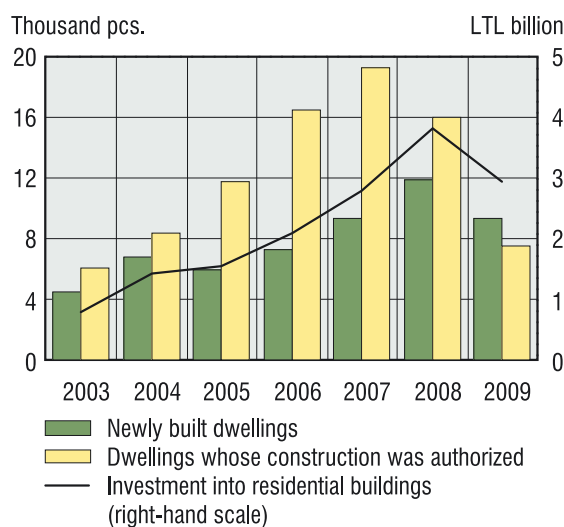
Sources: UAB "Ober-Haus" nekilnojamosis turtas and Bank of Lithuania calculations.

**Residential and commercial property rent prices reached their peak later than sale prices however due to faster adaptation to economic developments, the prices dropped from their peak by similar extent – between 46 and 48 per cent.** Rent market is likely to adapt more flexibly to economic developments because usually housing purchased for investment purposes or secondary housing is rented.

**In 2009, the number of dwellings whose construction was authorized reduced twice which indicates that strong rebound in supply of newly built residential property is not expected in the near future.** Many real estate developers currently try to sell the flats whose construction was started during the economic upturn. This is also proved by the number of newly built flats which became lower by more than 20 per cent over a year. Presumably, the real estate developers most often tried to accomplish the projects with relatively high level of completeness, meanwhile, many newly started projects or those which were not started at all were terminated at early stages.

*Fig. 40. Number of newly built dwellings and dwellings whose construction was authorized, and investment in residential buildings*

(annual data)



Source: Department of Statistics.

The number of new advertisements about the sale of real estate, which indirectly reflects supply, remained unchanged in 2009 and was close to the level of 2008. On the other hand, business trends in the construction area (construction confidence indicator) grew moderately at the beginning of 2010 after staying at a particularly low level throughout 2009. Consequently, further evidence of stabilisation and improvement in the real estate market can be expected.

Last year, the demand for statistics of housing on sale in the market was observed

among the participants of the real estate market. Several organisations produced approximate calculations however demand for accurate and reliable statistics did not abate. The Bank of Lithuania continued its initiative set up in 2008 seeking to start preparation of new dwellings vacancy rate statistics in the near future.

It should be noted that the commercial real estate market was supplemented with a few accomplished projects however the construction of many of them had been started after ensuring long-term tenants or owners therefore this additional space did not made any significant impact on the commercial space vacancy rate. A more substantial impact was made by vacated space owing to bankruptcies of enterprises and optimisation of operating costs. Commercial space vacancy rate, following rapid growth at the beginning of 2009, got stable at the end of the year and accounted for approximately 17 per cent of total space of tenancies.

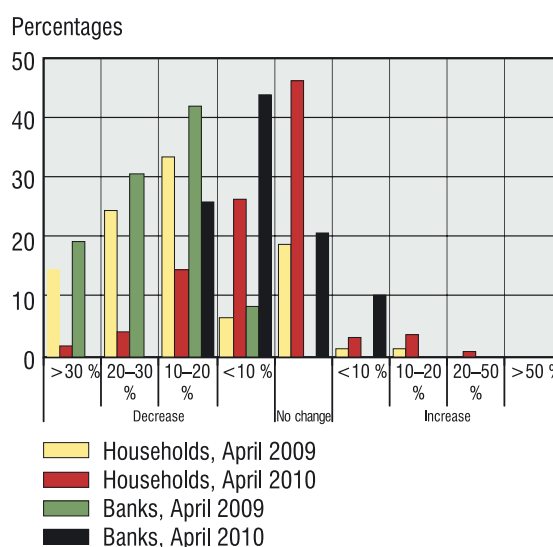
Recently, housing affordability index<sup>35</sup> has improved considerably and the share of the income of individuals allotted for repayment of a loan shrank to the acceptable level<sup>36</sup>.

The greatest contribution to the housing affordability index was made by falling real estate prices and interest rates on new loans which basically remained at the same level. Those were predominant factors offsetting the negative effect of decreasing individuals' wages on housing affordability. Looking ahead, due to inertia of personal income trends and stabilisation of housing prices housing affordability should stabilise at a steady level or decrease somewhat however no drastic changes are expected.

In the context of the households and banks expectations about future prospects of real estate market, reduced pessimism can be observed. The banks are more optimistic about prospects of real estate sector: fall of prices should be lesser and a standstill in the market should last shorter (more than 50 % of the banks that participated in the Bank Lending Survey believe that the standstill in the real estate market in Lithuania should end by the end of 2011). Opinion expressed by the households with housing loans supports the opinion of banks that real estate prices will remain unchanged in the coming twelve months. **According to historical data changes in asset prices lag behind the general economic cycle therefore in case of economic situation improvement in the second**

**half of the year, one should not expect positive movements in the real estate market before the beginning of next year.** Need for renewal of housing stock is observed in the country since many people live in old non-renovated houses, whose energy effectiveness is low. That need could be satisfied in a long run by renovating the present housing stock and offering new high quality housing to the market.

Fig. 41. Expectations of house price developments over the next 12 months

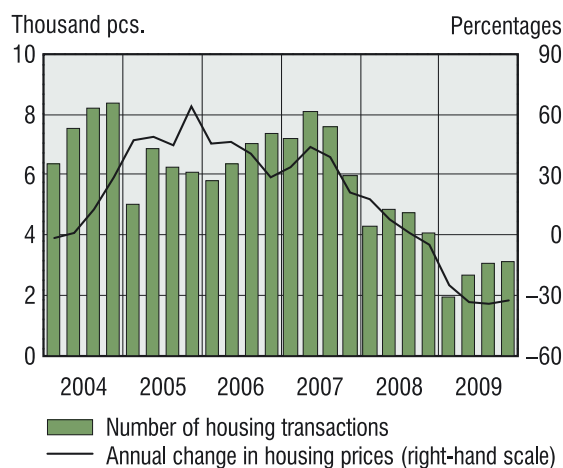


Sources: Household Surveys conducted on behalf of the Bank of Lithuania and Bank Lending Survey conducted by the Bank of Lithuania.

With moderate seasonal fluctuations, the number of housing transactions concluded in the real estate market is falling since the spring of 2007.

According to the end of 2009 data of the State enterprise Centre of Registers (VĮ „Registrijų centras“) housing prices fell from their peak by 40 per cent – according to transaction statistics the highest price was registered in the first quarter of 2008.

Fig. 42. Dynamics of house prices and number of transactions (quarterly data)



Source: VĮ „Registrijų centras“.

<sup>35</sup> Since last year calculation of housing affordability index was improved taking into account different downpayment rates applied for different periods (for more information on housing affordability index calculation changes see Annex 3).

<sup>36</sup> Not more than 30 per cent of household income.

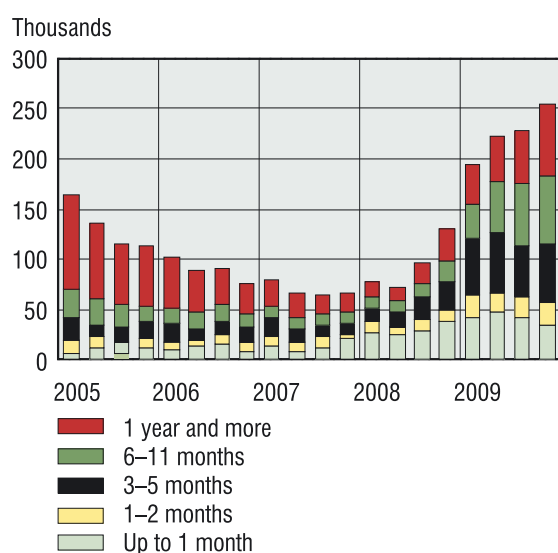
Although prices reached their peak approximately one quarter later compared to supply prices, however, as the residents began serious negotiations over prices and other qualitative housing supplements, transaction prices, compared to supply prices, adapted to the changing economic situation during a shorter period of time.

## Households

### Financial standing

**In the context of an increased level of unemployment and decreased wages, a part of households encountered financial problems.** According to the data of the Lithuanian Labour Exchange, the number of jobless for more than 3 months tripled as compared with 2008. Situation in the labour market is expected to remain tight. At the end of 2010 projected level of unemployment will reach 17.1 per cent, and nominal and real wages will decrease by 7.9 per cent and 8.3 per cent respectively. **Therefore risks of further unemployment growth and decreasing income remain very urgent for the solvency of households.**

*Fig. 43. The number of unemployed by duration of unemployment (quarterly data)*



Source: Department of Statistics.

It should be noted that according to the Republic of Lithuania Law on the Recalculation and Payment of Social Payments in effect on 1 January 2010, unemployment insurance compensations paid to individuals who lost their jobs were almost halved and may not exceed LTL 650. Having in mind that an average payment of a loan

amounted LTL 1,040<sup>37</sup>, even a short-term loss of job will aggravate fulfilment of liabilities for the households having financial liabilities.

The deteriorated financial standing of households made a negative impact on household savings. The share of households with housing loans who save continued to shrink. On the other hand risk was reduced by accumulated financial assets (see Box 3).

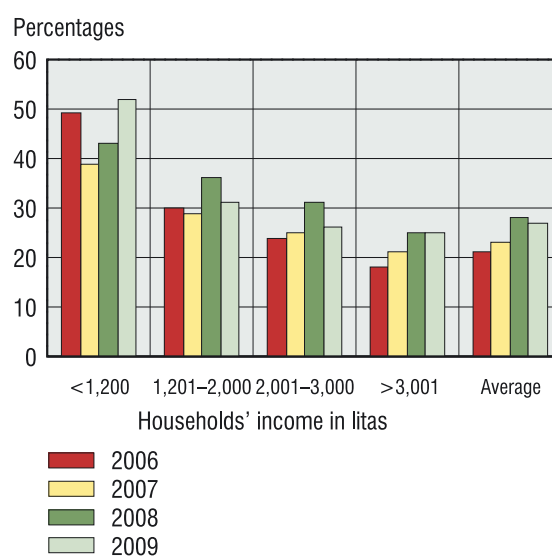
*Table 6. Share of indebted households that do not save (percentages)*

	Do not save	Of whom have no financial assets	Of whom delays payments
2006	53.2	n/a	4.0
2007	58.9	11.1	7.3
2008	66.0	15.7	11.9
2009	73.0	14.2	15.5

Sources: Department of Statistics, Household Surveys conducted on behalf of the Bank of Lithuania and Bank of Lithuania calculations.

**Lower inter-bank interest rates decreased the funds allotted for repaying household loans, however, due to simultaneously decreasing income the burden of the repayment of households loans basically did not change.** On average 27 per cent of household income were allotted for repayment of loans for house purchase and this indicator, compared to the last year results basically did not change<sup>38</sup>. However, in 2009 the income share for the loans for house purchase repayment of households earning the lowest income (up to LTL 1,200) expanded materially.

*Fig. 44. Share of household income allotted for repayment of loans for house purchase*



Source: Household Surveys conducted on behalf of the Bank of Lithuania.

<sup>37</sup> Survey of Households with Housing Loan published on April 2010 [http://www.lb.lt/eng/economy/financial\\_stability/surveyhh.htm](http://www.lb.lt/eng/economy/financial_stability/surveyhh.htm)

<sup>38</sup> According to Survey of Households with Housing Loan, April 2010.

**Households tried to decrease their liabilities.** Decrease of consumption and other loans portfolios was the main factor behind the reduction of total indebtedness of households. Owing to shorter terms of loan repayment and smaller loan amounts individuals are able to reduce liabilities of that kind faster.

**Table 7. Indebted households**  
(percentages)

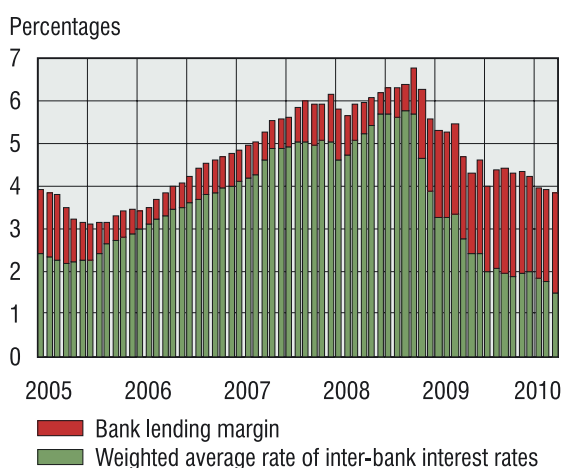
	2006	2007	2008	2009
Share of households with loans for house purchase	7.4	9.8	11.2	11.3
Share of individuals with consumer or other loans*	17.6	20.1	24.3	21.7

Sources: Department of Statistics and Bank of Lithuania calculations.

\*Ratio of the number of loans to the number of individuals from 20 to 65 years, which indicated what share of individuals that potentially may borrow have loans.

**Last year, interest rates of 85 per cent of new loans for house purchase were fixed for up to one-year term.** Short interest rate fixation period is more attractive to households owing to on average lower interest paid, however, they are more volatile what in turn makes a rapid impact on bank debtors' debt repayment expenditure and financial standing of the banks. Households, who are avoiding undertaking a risk of interest rate volatility and sensitively responding to changes should think of long-term interest rate fixation.

**Fig. 45. Contributions to average weighted interest rates on new loans for house purchase for households<sup>39</sup>**  
(monthly data)



Sources: [www.euribor.org](http://www.euribor.org) and Bank of Lithuania calculations.

### Risk to banks

**The quality of loans to households was notably better compared to overall average**

<sup>39</sup> Difference between weighted interest rates on new housing loans for households with initial rate fixed up to 1 year and weighted interest rates of 12-month EURIBOR and VILIBOR shows bank lending margin.

**of loan quality in the banking system.** This was mostly due to better quality of loans for house purchase. The share of non-performing loans for house purchase made up 6.6 per cent of total loans for house purchase in the first quarter of 2010 and was 3 times better compared to the overall average of the system. A relatively better quality of loans for house purchase was entailed by both, generally higher requirements to borrowers for house purchase and a more stringent discipline and responsibility of such borrowers supported by a possibility of such borrowers to lose housing in case of a failure to fulfil their obligations.

Quality of consumer loans deteriorated at a more rapid pace. From the beginning of 2009, the share of non-performing consumer loans increased more than three times to 16.2 per cent. Although consumer loan risk is generally valued as high, quality of consumer loans was better than total average quality of bank loans from the beginning of mid-2009. Moreover consumer loan risk is offset by higher interest rates since repayment of these loans is usually not secured with a collateral and the only source is personal income.

**High level of unemployment and decreasing income should determine a growing number of household insolvency cases.** According to bank data, the number of customers with overdue payments was increasing among natural persons with loans for house purchase. As the downturn continues, the financial reserves accumulated by individuals facing difficulties are reducing therefore the banks are likely to more often encounter consumer and housing non-repaid loans.

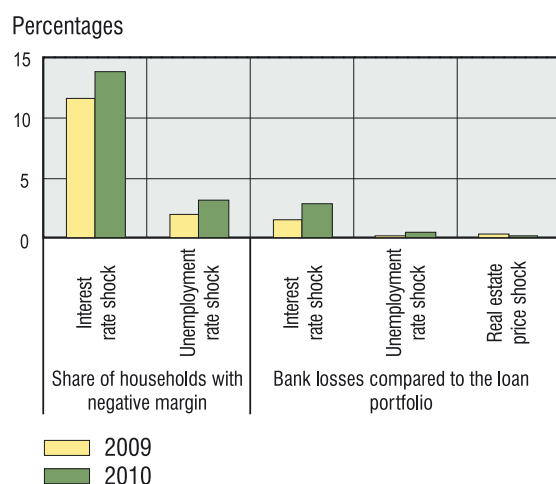
### Household Stress Testing

Sensitivity analysis of household budget stress testing shows that the share of households with negative margin<sup>40</sup> increases more rapidly due to rising interest rates than due to growing unemployment level<sup>41</sup>. Such a situation develops due to different transmission principles of the analysed shocks. The unemployment level affects only some individual households by reducing the income of a person who had lost the job to the average amount of an unemployment insurance payment. The shock of rising interest rates affects all households without exceptions by increasing the interest paid on a loan for house purchase by a respective amount.

<sup>40</sup> Household margin is difference of income and expenditure, i.e. balance free income.

<sup>41</sup> While testing households under adverse scenario export shock is substituted by unemployment level shock, as decreasing demand for goods produced in the country decreases need for labour force therefore unemployment rises.

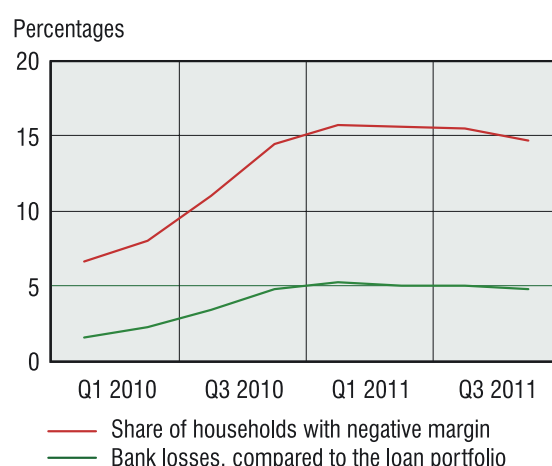
**Fig. 46. Shock-induced changes in a share of households with a negative margin and bank losses compared to loan portfolio**



Source: Bank of Lithuania calculations.

It should be mentioned that in 2010 compared to the previous year both households and banks are under stronger impact of a negative macroeconomic scenario, when changes of similar size were simulated.

**Fig. 47. Changes in a share of households with a negative margin and bank losses in comparison to a loan portfolio in case of adverse economic development scenario**



Source: Bank of Lithuania calculations.

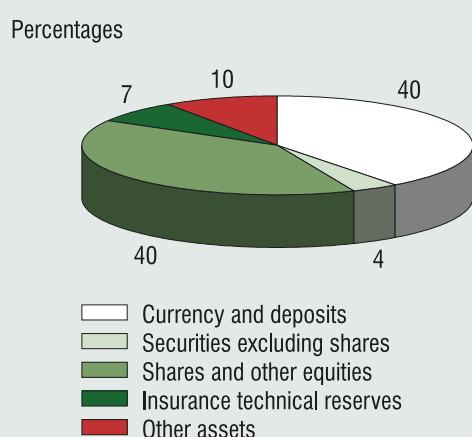
Under adverse macroeconomic situation in a country, a number of individuals having a negative margin would grow by around 15 per cent and the losses incurred by banks would reach 5 per cent of the loans for house purchase portfolio given to households.

### Box 3. Outlook of financial assets and liabilities of households

Financial assets managed by households in the first quarter of 2009 reached their highest value throughout to whole period of monitoring since the end of 2003. However, until the end of 2009 these assets lost 15 per cent of their value. Over the year, compared 2009 fourth quarter data to the respective period last year, the value of financial assets managed by households shrank by 3 per cent.

**Fig. A. Structure of financial assets of households**

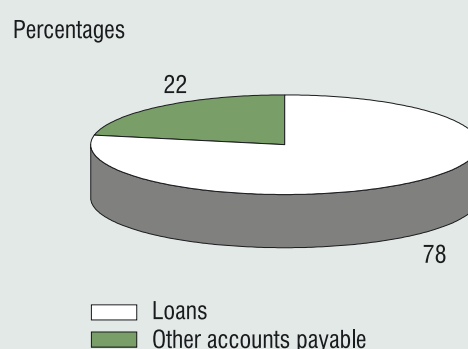
(end of 2009)



Source: Bank of Lithuania calculations.

**Fig. B. Structure of financial liabilities of households**

(end of 2009)



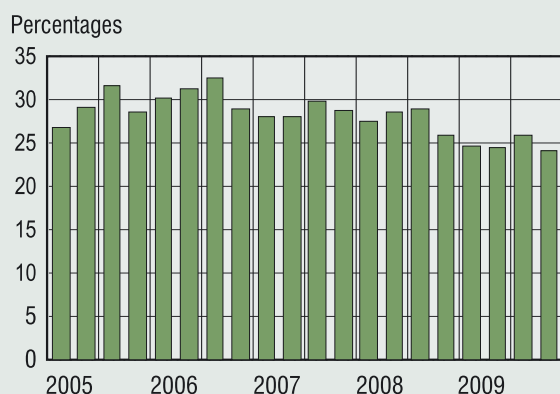
Source: Bank of Lithuania calculations.

Since the autumn of 2008, households started to more actively invest into long-term bonds, investment funds and shares issued by the Government of Lithuania or foreign states. Over the year, the value of long-term securities, excluding shares, held by households almost doubled, net property in pension funds and insurance reserves grew by 48 per cent and 18 per cent, respectively. Household investment into long-term securities were prompted by a low risk and large return proposed, while net equity in pension funds and insurance reserves jumped due to periodic contributions and profitable activities of funds. However, this growth was outweighed by a somewhat decreased value of short-term deposits, short-term securities, long-term loans given to foreign countries and other types of financial assets.



According to Financial Accounts of Lithuania, financial liabilities of households, which were comprised mainly of loans (78 %), started to decline marginally since the third quarter of 2008, however, their structure remained unchanged. Financial leverage of households measured as indebtedness to GDP ratio, decreased from autumn 2006 with moderate seasonal fluctuations. In the upcoming year, due to expected moderate change of both indebtedness of households and GDP, financial leverage indicator is likely to decrease, however, unessentially.

**Fig. C. Household indebtedness and annual GDP ratio**  
(quarterly data)

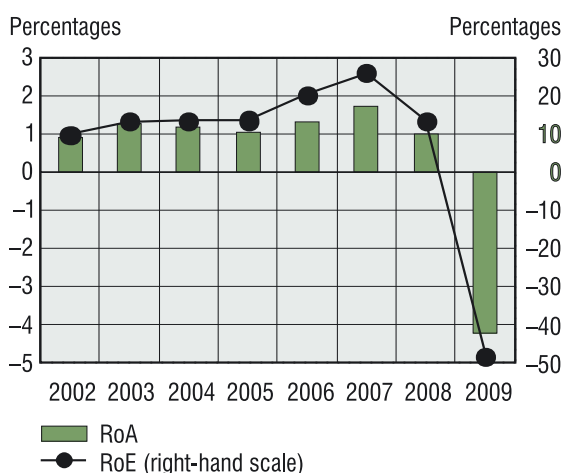


Sources: Department of Statistics and Bank of Lithuania calculations.

## Profitability and Efficiency

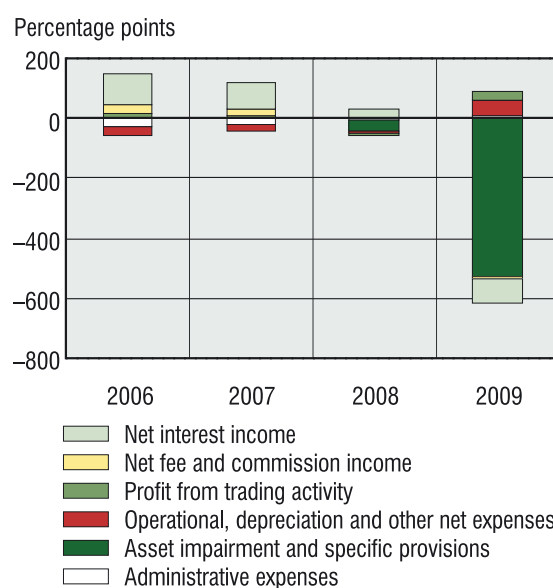
In 2009 the banking system business bore a loss for the first time since 2001, and with-in a year losses amounted to LTL 2.98 billion<sup>42</sup>. It is worth noticing that the sum of losses incurred in the previous year was only insignificantly less compared to the total profit earned in 2002–2008. The average annual banking system profitability indicators RoE and RoA turned to negative. At year-end RoE made up –48 per cent, while RoA dropped to –4.5 per cent.

**Fig. 48. Profitability of the banking system**



Source: Bank of Lithuania calculations.

**Fig. 49. Contributions to the development of the banking system profit<sup>43</sup>**  
(annual change)



Source: Bank of Lithuania calculations.

In 2009 the business of the majority of domestic banks, excluding some foreign bank branches and two banks of the second group, incurred losses. The banking business performance was influenced by the loan val-

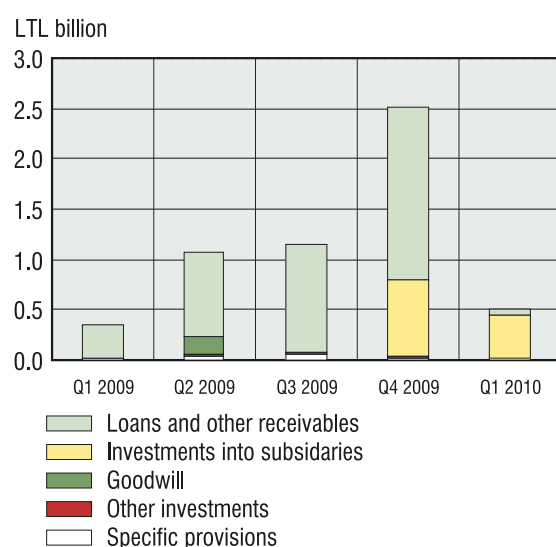
<sup>42</sup> An LTL 3.67 billion loss incurred by the banking system was reduced by a LTL 691 million (EUR 200 million) contribution of the parent bank of AB SEB bankas when covering a part of the AB SEB bankas loss.

<sup>43</sup> Beginning with 2008, the banking system financial reporting has been prepared by using new FINREP financial report forms prepared in line with General Guidelines for Consolidated Financial Reporting approved by the Committee of European Banking Supervisors (CEBS). Due to a changed grouping of bank's income and costs, the data of 2007 and prior to that, compared to previous reports, were regrouped to ensure historical comparability of data to a maximum.

ue determination practice chosen by individual banks. The largest losses were incurred by the banks whose loan portfolio assessment was the most prudent. Consequently, the banks with positive business results assessed the loan value reduction losses in a more optimistic way.

**The main reasons behind bank losses were buoyantly rising losses due to the asset impairment accompanied by lower net interest income.** In 2009 the banking system assets impairment losses rocketed 9 times. The bank assets impairment losses were largely incurred because of the assumed credit risk, also the bank business results were markedly impacted by the depreciation of investment into subsidiaries and intangible assets (prestige). In 2009 expenses of banking system assets impairment and specific provision expenses reached LTL 5.1 billion, and 4/5th of this indicator were attributed to loan impairment losses. It is possible to observe that loan impairment losses were increasing every quarter of 2009, and the highest losses were incurred at the year-end. In the first quarter of 2010 loan impairment losses were already relatively insignificant. Notwithstanding this, at the end of 2009 and beginning of 2010, the banking system business results were markedly aggravated by the impairment of investment into subsidiaries recorded by the equity approach.

*Fig. 50. Breakdown of the banking system assets impairment and of the expenses on specific provisions  
(end of quarter)*

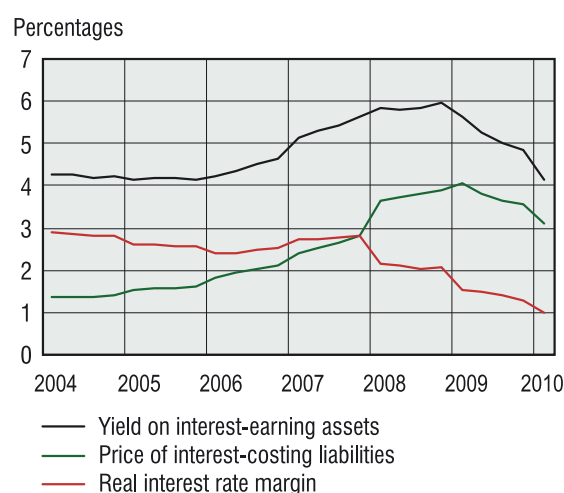


Source: Bank of Lithuania calculations.

**In 2009 income from the main banking activities<sup>44</sup> shrank by 17 per cent.** This trend was observed also in the first quarter of 2010. Net interest income curtailed per an-

num by 35 per cent. This shift was entailed by a narrowing real interest margin<sup>45</sup> and total shrinkage of the loan portfolio. When in 2009 the competition for financial resources attracted in the domestic market strengthened, deposit interest rates (particularly in litas) increased, at the same time the risk premium of borrowing (in euro) from parent banks was also stepping up. Meanwhile income from interest-earning assets decreased because of particularly low base euro interest rates, a large share of euro denominated loans and frequent revaluation of loan interest rates. The real interest margin was curtailing within 2009 and reached its lowest point over the reporting period. All these factors were behind a 18 per cent shrinkage of the banking system interest income throughout 2009 against only a 7 per cent decline of interest expenses of banks. At the beginning of 2010 the real interest margin was on a reducing pattern. However, recently contracting interest rates of deposits and other bank liabilities will stimulate the growth of real interest margin within the coming quarters.

*Fig. 51. Real interest margin*



Source: Bank of Lithuania calculations.

Because of a decreased financial services demand, the banking system earned 7 per cent less net fees and commissions income. However, in the context of recovered global financial markets and increased prices of securities, profit of Lithuanian banks from the trading activity boosted by almost 4 times, but from a low level reached in 2008.

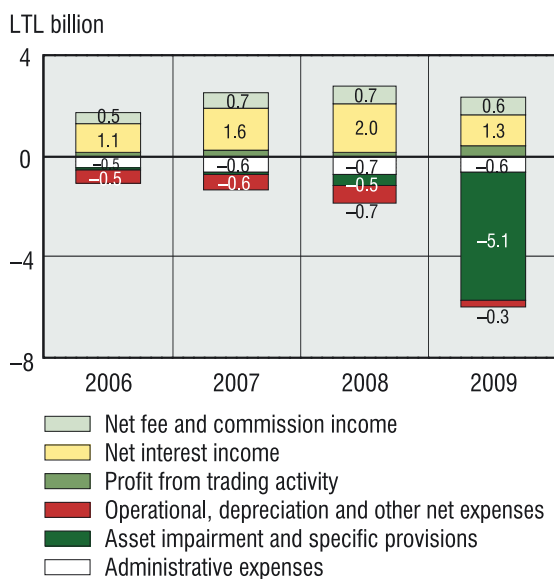
Profitability growth drivers are not always assessed as equally positive in terms of risk, e.g., an increasing asset risk pushes the bank profitability up but exercises an effect on the growth of risk assumed by the bank as well. The decomposition of RoE (pre-tax and asset impairment losses) into

<sup>44</sup> Net interest income, net fees and commissions income, as well as profit (loss) and trading activities.

<sup>45</sup> Net interest margin was calculated as the difference between the ratio of interest income to interest-earning assets, and the ratio of interest expenditure to interest-costing liabilities.



Fig. 52. Annual income and expenses of the banking system



Source: Bank of Lithuania calculations.

components helps to reveal more in detail the reasons behind bank profitability changes<sup>46</sup>. It should be noted that opposite to the previous Financial Stability Reviews, value impairment expenses are not included here because of their crucial impact on the 2009 performance results and regarding the task of a more precise assessment of the effect of other factors.

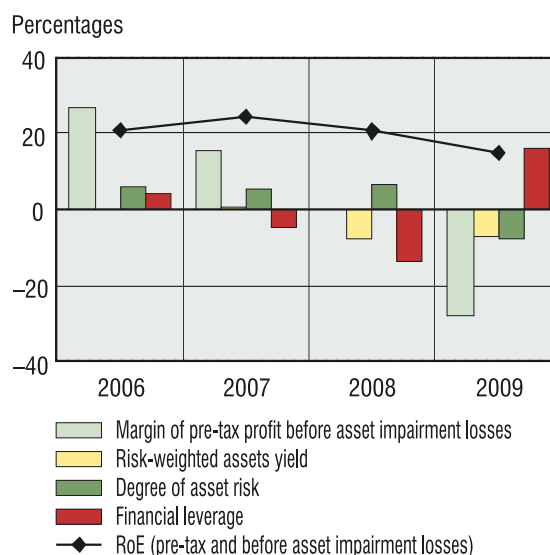
In 2009 the bank profitability (pre-tax and asset impairment losses) reduction was caused by a decreased activity effectiveness and yield on assets<sup>47</sup>. In terms of financial stability, both, a lesser activity effectiveness and thinner yield on assets suggest that the banks' possibilities to accrue financial resources from the activity moderated. The profitability reduction was also stimulated by the asset risk diminution suggesting that the risk arising from the bank activity declined somewhat. However, a rise of the financial leverage was the sole factor positively impacting profitability, but at the same time showing that the part of shareholders equity (not borrowed funds) shrank compared to total assets.

<sup>46</sup> According to the presented formula, RoE (pre-tax profit and asset impairment losses) can be broken into four components: pre-tax profit and value impairment losses showing what is the proportion of net profit in the profit from the main activity; risk-weighted assets income; asset risk scope and financial leverage showing the overall level of debts.

$$\text{RoE} = \frac{\text{Pre-tax profit before asset impairment losses}}{\text{Net interest, commissions and trading activity income}} \times \frac{\text{Net interest, commissions and trading activity income}}{\text{Risk-weighted assets}} \times \frac{\text{Risk-weighted assets}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholders' equity}}$$

<sup>47</sup> Risk-weighted assets yield may be treated as banks' income for the assumed risk.

Fig. 53. Decomposition of RoE (pre-tax profit and asset impairment losses)

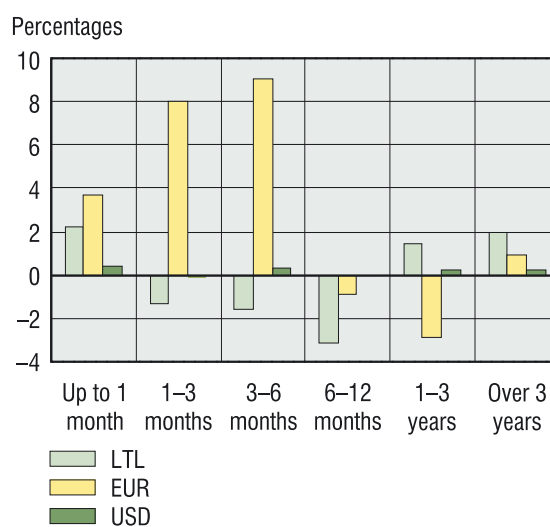


Source: Bank of Lithuania calculations.

Note: foreign bank branches are excluded.

Recovery of the bank income is associated with a rise of interest rates in euro, decreased rates of deposits in the domestic market and revival of the financial markets activity and demand of financial intermediation services. According to the data of the first quarter of 2010, the euro interest rate gap of the banking system was positive in the period of up to 6 months. Moreover, the gap in euro for the periods of 1–3 months and 3–6 months was rather significant. In this context, the future interest rate in euro growth will exercise a positive impact on earned net interest income (e.g., if interest rates of assets and liabilities in euro rise equally by one percent-

Fig. 54. Banking system interest rate gaps for the main currencies<sup>48</sup> in the first quarter of 2010.



Source: Bank of Lithuania calculations.

<sup>48</sup> The interest rate gap is calculated as the difference of the sum interest rate change sensitive assets and off-balance claims, and the sum of interest rate change sensitive balance and off-balance liabilities.

age point, annual net interest income would increase approximately LTL 0.1 billion). It is worthwhile noticing that currently base and inter-bank rates in euro are historically low, therefore, with a recovery of the euro area economy they will increase.

The litas interest rate gap of the banking system was positive in the period up to 1 month and negative in the period from 1 month to 1 year. Therefore, a parallel change of the litas interest rate curve would entail quite a moderate effect on net interest income of the banking system. However, in the second half of 2009, interest rates of new liabilities of deposits with banks were decreasing more than of assets, and this will also have a positive influence on net interest income earned by banks.

**While accommodating to a changed environment of the domestic economy, it is important for banks to improve business effectiveness by enhancing management systems and procedures, and by optimizing the distribution of resources.** If an increase of the bank business efficiency within the economic swing period was ensured by rising income, the current situation necessitates to reduce costs. In 2009 the banks had already undertook measures for the restriction of expenses. In 2009 administrative expenses shrank on average by 15 per cent, other operational expenses became thinner by 4 per cent. Notwithstanding these shifts, the bank performance effectiveness indicator reflecting the ratio of fixed expenses and income deteriorated somewhat and at the end of 2009 made up 54 per cent.

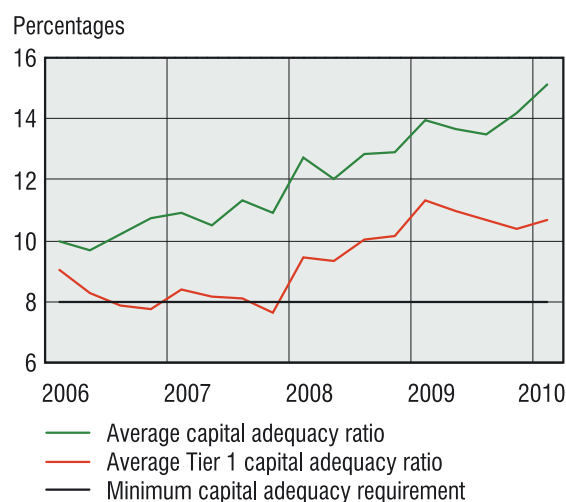
**Ensuring a profitable banking business and increasing income is a challenge to be encountered in 2010.** Regarding the fact that the impairment banking assets may have a further negative effect on the bank performance, the banks should primarily ensure a rise of net interest income and of services and commissions income. In the background of a recovering domestic economy in the future, the demand of financial intermediation services will strengthen, competition among banks will also step up. Therefore, it is important to avoid the previous year situation when the lending price depended more on the tasks of capturing a certain share in the market. A sound assessment of the debtors' credit risk and appropriate determination of the lending price formation and margin are the cardinal elements of a sustainable banking business.

### Capital Adequacy

**The increase of bank capital adequacy ratios is a positive development in the context of ensuring stability of Lithuania's financial system. This strengthened the coverage of**

**risk by capital and the capability of banks to absorb losses arising from operations during an economic downturn.** The growth of the average capital adequacy ratio of the banking system has been observed since 2006. Throughout 2009 this indicator stepped up by 1.3 p. p. to 14.2 per cent, and in the first quarter of 2010 – to 15.1 per cent. For the whole banking system the growth of the capital adequacy ratio was driven by the banking system regulatory capital (own funds)<sup>49</sup>, which increased since the beginning of 2009 by 3.5 per cent.

*Fig. 55. Capital adequacy of the banking system.*



Source: Bank of Lithuania calculations.

**Shareholders of domestically operating banks paid much attention to ensuring the bank safety by raising the capital of managed banks.** The bank capital was increased by both, external funds and internal contributions of banks when allocating undistributed profits of the previous year and converting a part of subordinated loans into capital. In terms of financial stability, positive assessment is given to the fact that the main capital<sup>50</sup> growth factors were Tier I capital elements, such as authorised and reserve capitals, mandatory reserve and general reserves to cover asset losses. Without an impact of the incurred loss on capital in

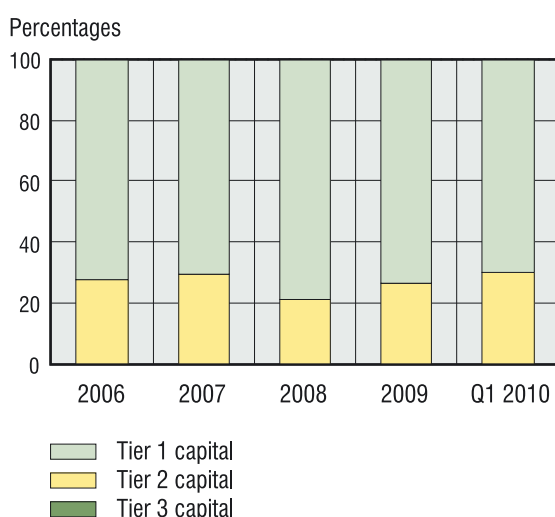
<sup>49</sup> Regulatory capital (own funds) is the capital calculated for banking supervision purposes. Its composition is defined in Resolution No. 138 "General Provisions for the Calculation of Capital Adequacy" of the Board of the Bank of Lithuania of 9 November 2006.

<sup>50</sup> The bank capital is formed from Tier I, Tier II and Tier III capitals. Tier I capital is the bank's core capital which includes the most reliable and stable components of the shareholders' equity, the most important of which are authorised capital, share premium, reserve capital, retained profit from the previous year not planned to be paid as dividends, a part of audited retained profit of the current year, general reserves to cover asset losses, mandatory reserve. Tier II capital comprises less stable components of shareholders' equity or long-term loan capital, i.e., reserves for various purposes, as well as a part of subordinated loans (issued for more than 5 years). Tier III capital consists of a net trading book profit and shorter-term loan capital, i.e., subordinated loans with the shortest maturity of 2 years.

2009, Tier 1 capital boosted by 31 per cent per annum. The capital of some other banks was increased by other instruments as well: by attracting subordinated loans, issuing a hybrid capital instrument – debt securities of indeterminate duration. Year-on-year Tier 2 capital expanded by 15 per cent. Not a single bank paid dividends in 2009. Moreover, until the end of the first quarter of 2010, the main shareholder Skandinaviska Enskilda Banken AB (SEB) of AB SEB bankas covered a part of losses of its subsidiary in Lithuania by additional LTL 1.04 billion (EUR 300 million) contributions (see footnote 42).

**Losses of the banking business in 2009 were behind changes of the capital structure of the banking system.** In the first quarter of 2010, Tier 1 capital made up 71 per cent of the banking system capital, while from the beginning of 2009 its share shrank by 8 p. p. However, Tier 1 capital adequacy ratio stepped up to 10.7 per cent within the same period.

*Fig. 56. Capital structure of the banking system  
(end of period)*

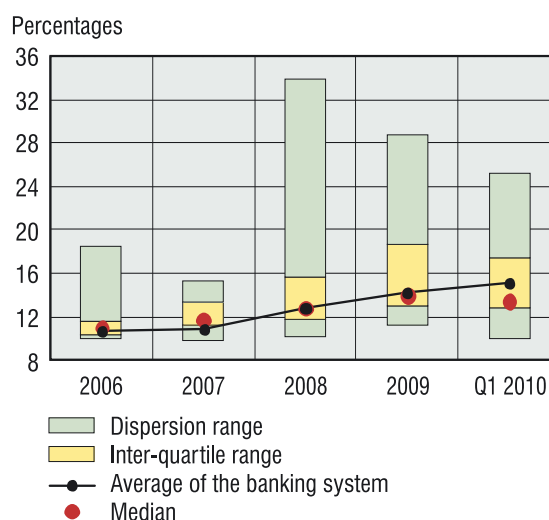


Source: Bank of Lithuania calculations.

**Capital adequacy ratios increased in the majority of banks.** Since early 2009 until the first quarter of 2010, the median of the capital adequacy ratios stepped up by 0.6 p. p. to 13.4 per cent, and the 1st (lower) quartile grew by 1.1 p. p. In other words, the capital adequacy ratio of only two banks was smaller than 12.8 per cent.

**The major share of bank capital requirement emerges due to credit risk.** In the first quarter of 2010, credit risk capital requirement made up 85 per cent of total capital requirement. It should be noted that since the beginning of 2009, the share of market risk capital requirement increased by 2.4 times, i.e. up to 8.5 per cent of total capital requirement.

*Fig. 57. Dispersion of banking capital adequacy ratios  
(end of period)*



Source: Bank of Lithuania calculations.

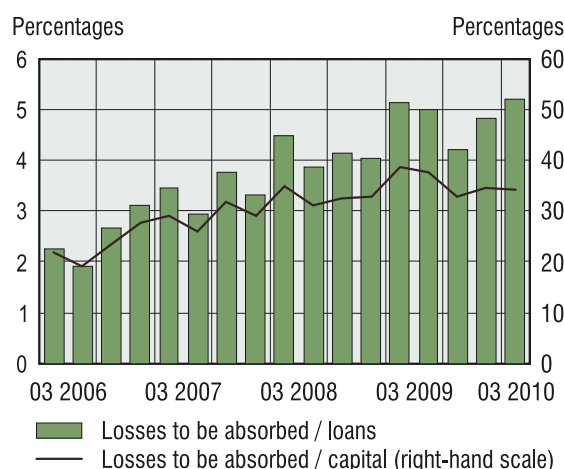
**During the period under review, the development of average capital adequacy ratios of the first and second group banks was different.** Since early 2009, the average capital adequacy ratio of the first group banks increased by 3.1 p. p. to 16.1 per cent. The average capital adequacy ratio of the second group banks grew by 0.6 p. p. in 2009, but in the first quarter of 2010 it curtailed by 1 p. p. and at the end of the period made up 12.1 per cent. Generally speaking, a smaller value and slower growth of the average capital adequacy ratio of the second group banks were largely determined by the fact that these banks do not have a strong main investor capable of increasing share capital substantially quickly. Because of this reason, it is somewhat more difficult for the second group banks to attract capital from external sources, compared to the banks of the first group. Also, different factors were behind changes of average capital adequacy ratios in the first and second group of banks. Since the beginning of 2009 to the first quarter of 2010, regulatory capital of the first group banks increased slightly, while capital requirement decreased, therefore, the average capital adequacy ratio became larger. Capital of the second group of banks expanded by 12.1 per cent per annum, however, the capital requirement increase was even more intensive. Therefore, the average capital adequacy ratio of the second group of banks curtailed. To compare with the first group banks, a somewhat lower average capital adequacy ratio of the second group banks is also determined by capital adequacy provisions because the second group banks issued less credits to satisfy house purchase needs of the population. Therefore, the ef-

fect of more liberal asset risk weights<sup>51</sup> was relatively weaker, while the impact of the capital requirement for operational risk was somewhat stronger. The second group banks are characterised by wide dispersion of capital adequacy ratios. This group includes banks with both highest and lowest capital adequacy ratios in the banking systems.

In order to assess the capital adequacy of banks, the Bank of Lithuania performed sensitivity tests reflecting an additional amount of losses that could be absorbed by banks. In other words, it was assessed what could be the largest amount of losses to be incurred by banks without posing any threat to business and by implementing the capital adequacy ratio requirement set by the Board of Bank of Lithuania (without regarding other prudential requirements of the banking business)<sup>52</sup>.

**With a rise of capital adequacy ratio of the banking system, additional losses absorption capacity of the banks increased.** It is possible to observe that additional losses absorption capacity of the banking system was gradually improving since the beginning of 2006. Regardless a material impairment of the bank assets in 2009, in the first quarter of 2010 possible additional losses absorption capacity of the banking system was 9 per cent larger than at the start of the previous year and amounted to LTL 2.5 billion. The banking system was capable of absorbing credit risk related losses more or less equal to 1/3rd of the banking system capital. Opposite to the previous situation, in 2009 additional losses absorption capacities of banks are associated not only with the growth of pos-

*Fig. 58. Losses to be absorbed by the banking system.  
(end of period)*



Source: Bank of Lithuania calculations.

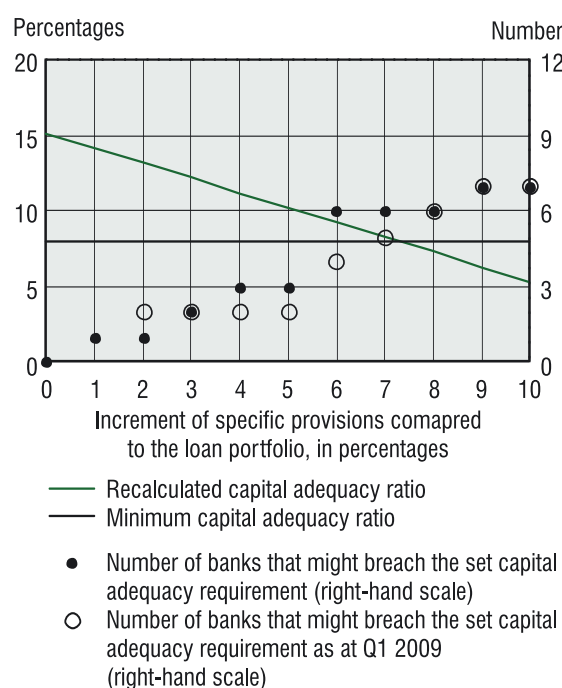
<sup>51</sup> For example, 35 per cent risk weight is applied for positions fully insured by residential real estate property.

<sup>52</sup> When making these calculations, no regard is given to the actual credit risk assessment approach applied by banks, but the calculation results are impacted by individual minimum capital adequacy ratios set for separate banks. Also an assumption is made that the capital requirement does not depend on calculated losses that could be additionally absorbed.

sible additional loss absorption volume but also with a reduced (because of repayments and incurred specific provisions) main share of assets confronted with credit risk, i.e., loan portfolio. To compare with early 2009, in the first quarter of 2010 the ratio of possible additional absorption losses and loan portfolio grew by 1/3rd to 5.3 per cent.

**The assessment of results by individual banks suggests that capital adequacy of some banks operating in the country is extremely sensitive to quality changes of the loan portfolio.** Based on the data of the first quarter of 2010, at the level of the banking system, the ratio of special provisions to loan portfolio would increase on average by 5.3 per cent so that the banking system capital requirement exceeded the level of capital reserves. With other conditions unchanged, the ratio of specific provisions to loan portfolio would increase by 5.3 per cent, in the first quarter of 2010 three banks would have failed to implement the capital adequacy requirement set by the Bank of Lithuania. In the environment of ceteris paribus, a year ago also three banks would have failed to fulfil this requirement.

*Fig. 59. Effect of the banking system's credit risk losses on the capital adequacy ratio  
(with other indicators unchanged, data for Q1 2010)*



Source: Bank of Lithuania calculations.

It is worthwhile noticing that domestically operating banks have their own independent capital increase plans. All banks performed internal capital adequacy assessment process and evaluated not only main (credit, market and operational) but additional (liquidity, reputation, concentration, etc.) types of risk and accumulated the capital required for their coverage.



### III. Resilience of the Financial System

Stress testing results should be analysed and interpreted with a particular care and due regard to the assumptions made, as well as technical restraints of the data and model applied. Stress testing takes no account of potential actions of banks, supervisory or government authorities that might mitigate the effects of unfavourable events. Moreover, credit risk stress testing excluded reaction functions of the banks themselves and the impact of contributions of these functions to the banking system capital adequacy. Simulation of financial instability periods is also impeded by the fact that relationships between the main macroeconomic indicators that existed under normal circumstances change considerably.

#### LIQUIDITY RISK STRESS TESTING

Liquidity risk stress testing was performed in order to assess the resistance of banks in Lithuania to negative liquidity shocks, i.e., unexpected and sizeable reduction of financial resources of banks. This test covered all operating banks, excluding foreign bank branches in Lithuania<sup>53</sup> that did not finance their activities by deposits or their assets were less than EUR 5 million.

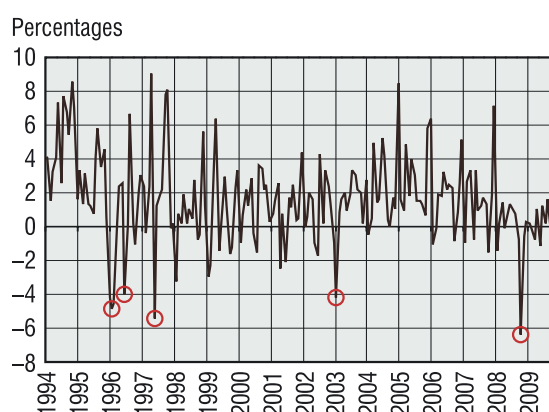
The aim of the liquidity risk stress testing is to assess the balance sheet reconciliation by terms, structure of liquid assets and short-term (current) liabilities and define whether the financial stance of a bank allows at a particular date of time to stand an effect of a determined size negative shock. The liquidity risk stress testing is based on the sensitivity test principle aimed at the evaluation of the domestic financial system's resilience to unfavourable short-term one-off liquidity shocks. When performing a liquidity stress testing, no regard is given to the potential actions of central bank and other government institutions that might improve the liquidity situation of commercial banks. The effect of a shock is neutralised by realising liquid assets and, on the basis of individual scenarios, by additional funding provided by parent banks. Also, it had been assumed that banks did not have any possibility of attracting other financial resources to offset a decrease in financial resources triggered by a liquidity shock. In cases when lacking financial resources are compensated by selling liquid assets, it is assumed that some asset classes, for example, country's debt securities, would be sold at a price 35 per cent lower than the market value.

The liquidity risk stress testing was carried out on the basis of the bank data as at the end of the first quarter of 2010. Stress testing results were based on the liquidity ratio set for the supervisory purposes, recalculated after a shock, and its comparison with the regulatory requirement (30 %). In case the recalculated post-shock liquidity ratio exceeded the liquidity ratio requirement, the conclusion was made that the banks would hardly face any liquidity problems.

The following 3 key scenarios were used for the liquidity risk stress testing that differed according to the reaction of parent foreign banks. Each scenario analysed liquidity shocks of two degrees (rapid falls in deposits): 10 per cent and 20 per cent.

According to the first scenario an assumption was made that, in case of a liquidity shortage, the banks of the country have no opportunities to borrow from their parent banks or attract other financial resources, therefore, insufficient financial resources are compensated by selling liquid assets. A part of the assets is sold at a lower than market price. According to the second scenario, an assumption was made that foreign parent banks managing the banks of the country compensate 50 per cent of the decrease in deposits with their subsidiaries by providing short-term funding. Insufficient financial resources are compensated by selling liquid assets. A part of the assets is sold at a lower than market price. According to the third scenario, an assumption was made that foreign parent banks managing the banks of the country compensate fully the shortage of liquidity in their subsidiaries by providing short-term funding. Domestic capital banks compensate the shortage of financial resources by selling liquid assets. A part of these assets is sold at a lower than market price.

*Fig. 60. Monthly changes of deposits with Lithuanian banks*



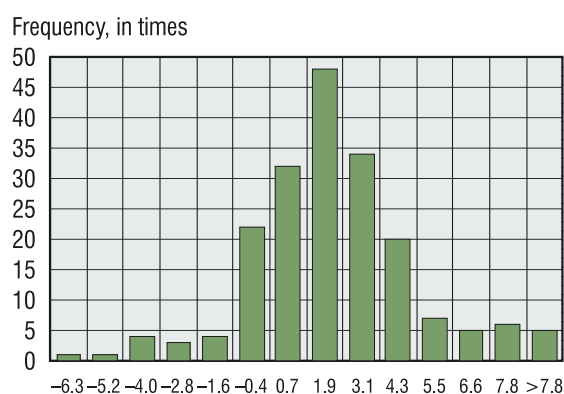
Source: Bank of Lithuania calculations.

<sup>53</sup> Allied Irish Banks, p.l.c. Lithuanian branch, BIGBANK AS branch, MP Bank hf. Baltic branch, Skandinaviska Enskilda Banken AB, Vilnius branch, Svenska Handelsbanken AB Lithuania branch.



The choice of the degree of liquidity shocks is based on the observations of the factual monthly changes of deposit balances with the banks in Lithuania. Historical data suggest that over the period from 1994 to 2009, the largest monthly decrease (by 6.3 %) in the amount of deposits of residents and non-residents (excluding other banks) with the banking system of Lithuania was recorded in October 2008. In that time, in the context of an increasing turmoil in the global financial markets, growing doubts about the financial standing of some of the Swedish banks operating in the Baltic region, anxiety arose among the depositors of the banks of Lithuania as well. Larger deposit outflows from the banking system were also observed during the banking crisis at the beginning of 1996 and early 2003 as well. At year-end of 2002 and beginning of 2003, after the spread of incorrect information about problems in one of the largest banks in Lithuania, a rush on banks commenced and in January 2003 deposits with this bank shrank by 11 per cent.

*Fig. 61. Histogram of monthly changes of deposits with Lithuanian banks in 1994–2009*



Source: Bank of Lithuania calculations.

A summarised analysis of the monthly changes in deposits indicates that within recent 16 years there were only 6 months when the shrinkage of deposits in the banking system was more than 4 per cent. Having this in mind, a 10 per cent decrease of deposits is unlikely, while the decrease of deposits by 20 per cent is considered as a very low probability event.

Actual operation of the banking system of Lithuania in the autumn of 2008 suggested that, as the banks encountered a decrease in deposits, parent foreign banks supplied additional liquidity. In October 2008, for instance, the increase of borrowing from parent banks covered as much as 90 per cent of the reduction of deposits. The duration of the major part of the funding supplied was over one month, i.e. it was not included into current liabilities. Notwithstanding the

above, the second and the third scenarios contain aggravating assumptions concerning a partial compensation of the decrease in deposits and extremely short period of time of such funding, i.e. up to one month.

*Table 8. Results of the liquidity risk stress testing*

(based on banks' Q1 2010 results; in percentages)

	Deposit decrease	
	10	20
Scenario 1: Recalculated average liquidity ratio of the banking system	36.6	26.6
compared with the factual liquidity ratio of Q1 2010	-8.5	-18.5
compared with the recalculated liquidity ratio of Q4 2009	-5.1	-5.5
compared with the recalculated liquidity ratio of Q1 2009	2.6	2.4
Scenario 2: Recalculated average liquidity ratio of the banking system	39.6	33.6
compared with the factual liquidity ratio of Q1 2010	-5.5	-11.5
compared with the recalculated liquidity ratio of Q4 2009	-5.0	-5.2
compared with the recalculated liquidity ratio of Q1 2009	2.5	2.2
Scenario 3: Recalculated average liquidity ratio of the banking system	42.3	39.5
compared with the factual liquidity ratio of Q1 2010	-2.8	-5.6
compared with the recalculated liquidity ratio of Q4 2009	-4.8	-4.9
compared with the recalculated liquidity ratio of Q1 2009	2.4	2.0

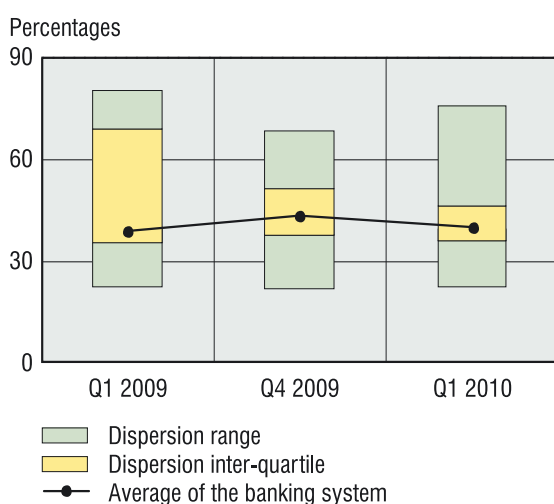
**Liquidity risk stress-testing results suggest that the majority of banks hold sufficient reserves of liquid assets to meet their current liabilities and to be capable to absorb highly pronounced liquidity shocks.** Should customer deposits shrink by 10 per cent, the average banking system liquidity ratio would exceed the 30 per cent regulatory requirement. Extremely low probability and more sizable amount deposit withdrawal shocks, in case they were not covered by borrowings from parent banks, may result in a lower average banking system liquidity ratio than the regulatory requirement. Stress testing results confirmed that the lending facility provided by parent banks ensures liquidity of the banking system and reasonably sufficient resilience to unexpected liquidity shocks. In case at least a half of the largest decrease (20 %) of customer deposits were covered by short-term borrowing from parent banks, the average banking system liquidity ratio would be over 30 per cent. Compensation of a major share of the shrinkage of deposits with banks by short-term borrowing from parent banks would ensure a substantially higher average bank-

ing system liquidity ratio than the regulatory requirement.

Testing suggests that an abrupt 10 per cent reduction of deposits may result in a lower than the requirement recalculated liquidity ratio in three out of eleven banks undergoing testing. Three largest banks of the country might absorb the decrease in deposits by 10 per cent without any additional borrowing from parent banks, by retaining the liquidity ratio close or above 30 per cent. Should deposits decrease by 20 per cent without covering this reduction by more extensive borrowing from parent banks, the liquidity standing of the majority of tested banks would be smaller than the requirement.

The comparison of the results of different periods' liquidity risk stress testing revealed that in the course of the year the banking system liquidity stance was improving. In the first quarter of 2010, the recalculated banking system average liquidity ratio exceeded a respective period ratio a year ago. However, it was somewhat lower, compared with the end of 2009. The liquidity risk stress testing was accompanied by a reverse liquidity risk testing aiming to assess the deposit shrinkage amount in the banks to spend all liquid assets of banks (i.e., the liquidity ratio would be equal to 0). This testing targeted at the determination of limits of a possible deposit curtailment in Lithuania's banks. Calculations are not based by some scenario. The reverse liquidity risk testing is performed on the basis of individual data of separate banks.

*Fig. 62. Deposit change to result in 0 per cent liquidity ratio of banks (end of period)*



Source: Bank of Lithuania calculations.

**Reverse liquidity risk testing results proved that banks' holdings of liquid assets ensure the capabilities of banks to absorb even extremely sizeable negative liquidity shocks. Based on data of the first quarter of 2010, the banking system deposits would**

plummet 40 per cent on average for the banking system reserves of liquid assets to be fully spent. For the deposit withdrawal in the most sensitive bank, a respective indicator would be 23 per cent. In three systemically important largest banks of Lithuania the mentioned indicator was high and made up more than 36 per cent.

## Credit risk stress testing

**The banking system credit risk stress testing was performed with the aim to evaluate the banking system resilience to unfavourable changes of the macroeconomic environment.** The effect of unfavourable environmental changes was assessed on the basis of the first quarter 2010 reporting data collected by Lithuanian commercial banks for financial and supervisory purposes<sup>54</sup>. The credit risk testing was performed by a macroeconomic scenario analysis method allowing the investigation of a long-term effect of unfavourable shocks on key indicators of Lithuania's macroeconomic stance and quality of loans of financial institutions.

**The credit risk stress testing of Lithuania's banking system was conducted in cases of the baseline and adverse economic development scenarios.** The February 2010 average period macroeconomic forecasts of the Bank of Lithuania were used as the baseline scenario of the development of the Lithuanian macroeconomic environment. An adverse economic development scenario was simulated by the help of a structural macroeconomic projections model adding unfavourable macroeconomic environmental shocks to the most expected scenario of the economic development of Lithuania. The influence of the chosen stress testing scenarios on the banking system stability was assessed from the perspective of a two-year period, i.e. from the first quarter of 2010 to the end of 2011.

*Table 9. The most important risk factors and the size of shocks*

Risk factor	Shock size
1. Decrease of export volumes	-20 %
2. Growth of interest rates	5 p. p.
3. Drop of real estate prices	-20 % <sup>55</sup>

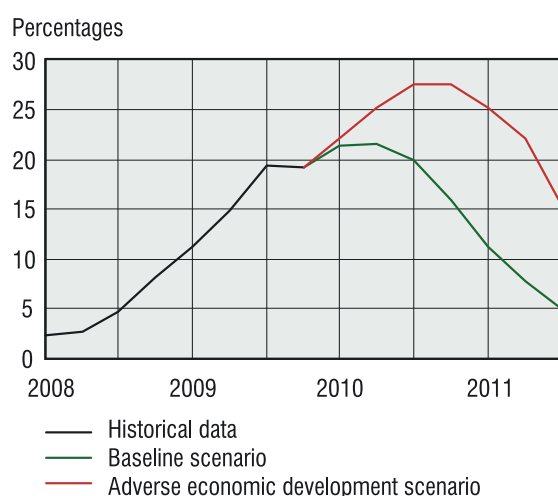
When conducting the baseline and adverse economic development scenarios, the dynamics of non-performing loans to enter-

<sup>54</sup> In the first quarter of 2010 these banks held 80 per cent of the loan market as a whole and had attracted 90 per cent of the total amount of the banking system deposits. Foreign bank representative offices and branches were not tested because their credit risk is managed at the level of the whole parent bank group.

<sup>55</sup> In case of adverse economic development scenario the total drop of real estate prices from Q1 2010 to the end of 2010 make up to 30 per cent.

prises of the main economic activity sectors<sup>56</sup> and households was assessed. The estimated dynamics of the non-performing loans to the loan portfolio ratio suggests that in the case of the baseline scenario of macroeconomic environment development of the country, the worst quality of loans to enterprises was in the second quarter of 2010 which started to improve afterwards. A planned quality improvement of the loans to households portfolio is going to occur relatively later. In the case of an adverse economic development scenario, the loan quality will tend to deteriorate till mid-2011.

*Fig. 63. Non-performing loan dynamics in case of the baseline and adverse economic development scenarios*



Source: Bank of Lithuania calculations.

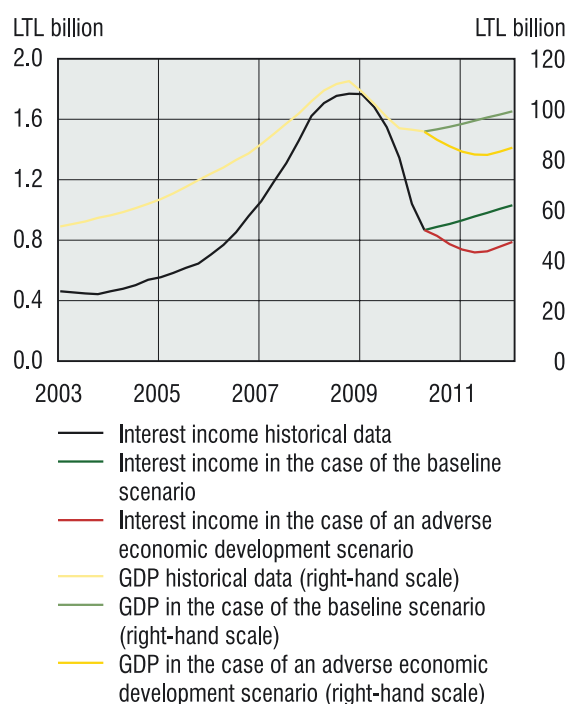
Credit risk losses were calculated with a view to assess whether the planned profit before loan impairment losses and available capital reserves will allow to accumulate a required amount of provisions without breaching the minimum capital adequacy requirement set for supervisory purposes. The testing results reveal that in the context of a deteriorating loan portfolio quality and diminishing collateral value, banks will be forced to form additional provisions for the coverage of credit losses<sup>57</sup>.

Actual losses incurred by banks may in any period of time exceed the expected loss. Therefore, the testing also covered the assessment of the bank economic capital, i.e., unexpected losses size which depends from the loan portfolio concentration of an in-

dividual bank and of loss correlation risk<sup>58</sup>. When comparing the estimated economic capital with available capital of the bank, the assessment was made about the bank capacity to absorb losses incurred by unfavourable changes in the macroeconomic environment.

**In order to assess the banks' capacity to absorb expected credit losses from the profit of the main activity, net interest and commissions income was calculated in the case of each testing scenario.** In the case of the baseline scenario an assumption is made that a recovering country's economy and more intensive crediting of the banks of some sectors will push commercial banks interest income up. In the case of an adverse economic development scenario an assumption is made that net interest income will further decline in 2010 because of a continuing narrowing of credit volumes and high price of financial resources thus aggravating possibilities of banks to cover possible loan portfolio devaluation losses<sup>59</sup>.

*Fig. 64. Dynamics of Lithuania's nominal GDP<sup>60</sup> and net interest income*



Sources: Department of Statistics and Bank of Lithuania calculations.

The effect of changes of an unfavourable macroeconomic environment on the size of net commissions income is of a lesser extent and occurs indirectly through a decreased financial services demand. In the case of the

<sup>56</sup> Loans to these sectors (real estate, manufacturing, trade, construction, transport, hotels and restaurants, agriculture) comprise the major share of the portfolio of analysed bank loans to the private sector. Thus, testing was performed with more than 90 per cent on average of the portfolio loans to non-financial enterprises and households.

<sup>57</sup> When assessing the demand for additional provisions, a conservative assumption was made that the loss given default in respect of all loans was 50 per cent, although the actual indicator for some categories of loans (e.g. housing) was smaller.

<sup>58</sup> The probability that the size of the loan portfolio loss will exceed the calculated unexpected loss size (economic capital) is not more than 1 per cent.

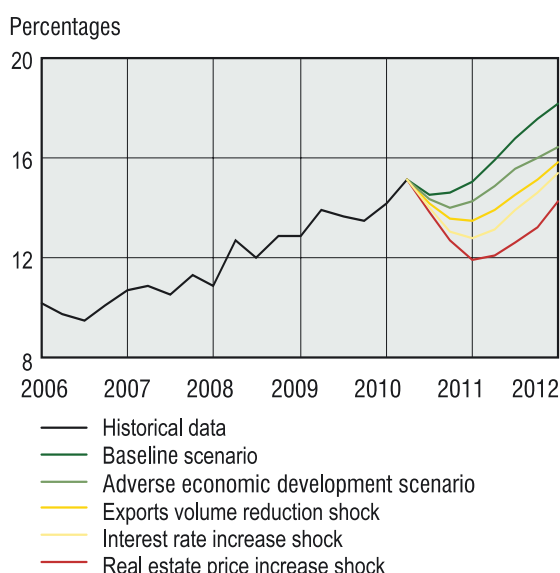
<sup>59</sup> When assessing the dynamics of net interest income, no regard was given to possible behavioural changes of banks, for instance, changes of the bank managed assets and composition of the loan portfolio.

<sup>60</sup> The four-quarter moving average.

baseline scenario an assumption is made that services and commissions income remain at the level of 2009, while in the case of an adverse economic development scenario services and commissions income drop because of shrinking financial services and credit demand.

**Credit risk stress testing results suggest that the banking system has sufficient capital reserves for covering credit risk losses in the case of the baseline and adverse economic development scenarios.** Banks actions in strengthening the capital base and mitigating risk of managed financial assets were behind an increasing capital adequacy ratio of the banking system. This strengthened the banking system resilience to unfavourable macroeconomic environment changes and enhanced possibilities for covering additional credit losses. Testing results reveal that in the case of the baseline scenario the average<sup>61</sup> capital adequacy ratio of banks will curtail by 2 p. p. because of still soaring loan portfolio impairment losses. A recovering country's economy will push commercial banks income up in 2011 and an improving financial position of borrowers as well as a gradually growing value of collateral will entail a shrinking amount of provisions to cover credit losses.

*Fig. 65. Dynamics of the average capital adequacy ratio of Lithuanian commercial banks*

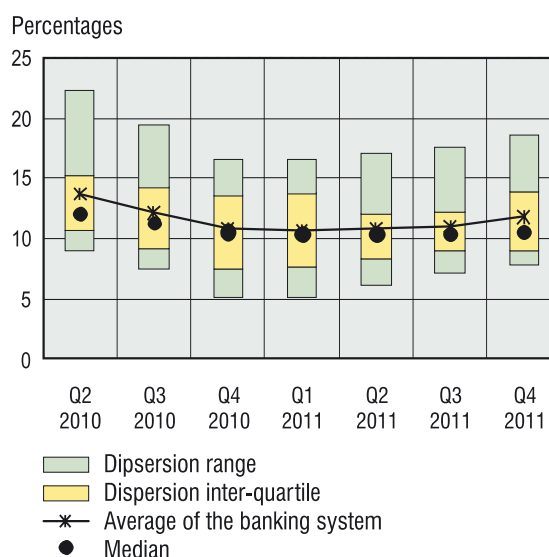


Source: Bank of Lithuania calculations.

In the case of adverse economic development scenario, capital adequacy ratios of individual banks would curtail from 4 to 8 p. p., however, the average banking system capital adequacy ratio would further be higher than the capital minimum set in line with su-

pervisory requirements. However, the result analysis by individual banks shows that some banks whose average capital adequacy ratio is smaller than the average ratio might encounter a capital increase requirement. In the context of an unfavourable macroeconomic environment, in 2010 banks may be pressed to additionally attract capital in the amount of LTL 600 million to cover possible credit risk losses.

*Fig. 66. Dispersion of capital adequacy ratios of Lithuanian commercial banks in the case of adverse economic development scenario*



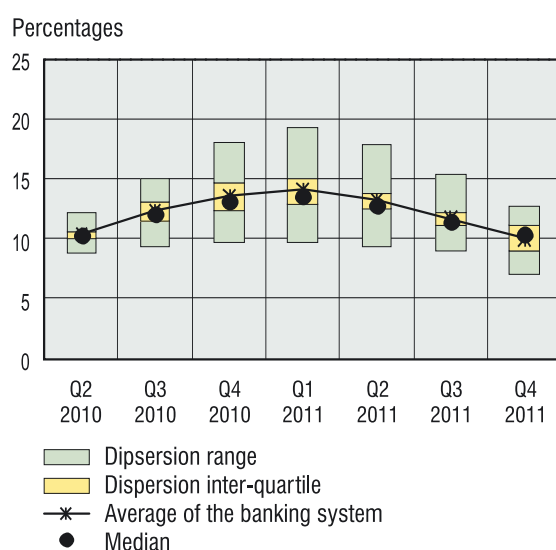
Source: Bank of Lithuania calculations.

Testing results evidence that the banks have accumulated sufficient capital reserves to cover unexpected credit losses in case of unfavourable macroeconomic environment changes. In the case of an adverse economic development scenario, capital requirement may increase to 14 per cent, however, it would remain smaller than currently accumulated capital reserves.

**For the banks holding scantier capital reserves to cover possible credit losses, further capital strengthening and maintaining it at a proper level is important in improving the banking system stability against projected so far marked loan portfolio impairment losses.** Given the bank performance incurring losses, the primary pursue for the banks should be to attract from external resources funds that strengthen Tier I capital. The recovery of financial markets and improving institutional investors' tolerance of risk currently form a sufficiently favourable environment and time for the distribution of capital instruments. Search and finding of strategic investors into capital would not only strengthen the capital adequacy but would also ensure an additional and cheaper funding and a better diversified structure of financial resources.

<sup>61</sup> A weighted capital adequacy ratio of Lithuania's commercial banks.

**Fig. 67. Estimated dispersion of economic capital in case of adverse economic development scenario**  
(percentage of risk-weighted assets)



Source: Bank of Lithuania calculations.

**The banks that accumulated sufficient capital reserves to cover possible credit losses should pursue a harmonised loan portfolio development.** In order to reduce the dependence of the quality of loan portfolio upon the domestic macroeconomic developments, the banks in Lithuania should

extend stronger crediting for the tradable economic activity sector enterprises. This would form conditions for a sustainable economic recovery in Lithuania. In a longer period, the banks should pursue to accumulate larger capital reserves during the economic cycle upsurge, so that in the occurrence of a downturn they might direct financial funds to financial sectors that suffered less from crises, rather than directing them for the capital increase.

Stress testing results must be treated with caution as to the assumptions made and technical restrictions of the model itself. Also, regard should be given to the fact that in the context of a rapidly changing national economic environment, the scenario of a further macroeconomic development of the country is difficult to forecast precisely. It is also difficult to assess the impact of probable macroeconomic shocks on the quality of bank loan portfolio. It should also be noted that presented testing results describe the situation which might develop if – in case of unfavourable macroeconomic environment changes – the banks would not increase their capital and take any other actions to improve the situation over the review period. These results also do not take into consideration the fact that the banks have their own capital increase plans.



## IV. FINANCIAL SYSTEM RISK MITIGATION MEASURES

After the assessment of the main reasons, scope and related consequences behind the global financial crisis last year international and domestic financial sector supervision and regulation institutions put an effort in preparing and starting to apply various risk mitigation measures aiming to prevent similar type of problems in the financial sector in the future. Objectives of risk mitigation measures begun or planned to be applied are the following: to reform the financial sector supervision and regulation architecture, enhance rules regulating the activity of financial institutions and to better prepare for a possible management of financial crises of a different nature. The financial system risk mitigation instruments applied internationally will inevitably influence Lithuania's financial sector improving effective monitoring of rising risks and enhancing a possible crisis management mechanism. Alongside internationally implemented financial sector risk mitigation measures, last year the Bank of Lithuania and other relevant national institutions also developed and implemented a number of risk mitigation measures at the national level.

Responding to changes in the economic environment and banking sector, as well as international incentives to more actively and efficiently regulate the financial sector activities, the Bank of Lithuania and other national institutions last year implemented various financial system risk mitigation measures. Given that last year banks operating in Lithuania did not address the Bank of Lithuania for financial support, the applied risk mitigation measures were directed to the banking supervision, regulation and preparation for a possible crisis management. Implementing a stricter banking supervision, the Bank of Lithuania reduced potential liquidity and credit risks by further encouraging commercial banks to hold higher liquid asset and capital reserves than established by requirements and conduct an efficient risk management. Regarding rising loan impairment losses, the banks were also encouraged to raise capital reserves.

On 1 April 2009 the Provisions for the Organisation of Internal Control and Risk Assessment (Management) approved by the Bank of Lithuania Board came into force. By this document, credit institutions have been obligated to reassess their risk management processes, to revise prudential as well as other business aspects. The document comprises key principles to be followed by credit institutions to ensure an effective operation of the internal control system and risk assessment (management) and to guarantee a safe and stable operation.

Depositors' confidence in domestic banks and simultaneously supply of liquid funds was increased by the Seimas of the Republic of Lithuania decision to prolong the maximum insurance claim amount that was in force till November 2009 in the case of a insured event by compensating depositors 100 per cent of the deposit reaching EUR 100 thousand or its equivalent in litas. With a view of increasing the inter-bank market transparency and competition of the country and to weaken pressure on the inter-bank interest rate, in 2009 the Bank of Lithuania started a public disclose of inter-bank interest rates, VILIBOR quotations of individual banks.

Improving the preparation for the management of financial crises, in recent years the Bank of Lithuania further strengthened the cooperation with central banks and supervisory authorities of foreign countries and enhanced internal risk assessment procedures. Since foreign banks own a significant share in the financial system of Lithuania, international cooperation is of a particular importance for an adequate implementation of the financial system crises prevention and for the preparation of their management. The Bank of Lithuania preventative works in the area of crises management covered supervision of commercial banks operating in Lithuania, performance analysis of the banking system as a whole, enhancement, oversight and stress testing of the payment system. Also, the Bank of Lithuania closely cooperated with other national institutions on the basis of the Financial Crises Prevention and Management Plan approved by the Government of the Republic of Lithuania, which defines potential procedures for financial crisis prevention and management, as well as the procedure for the cooperation and exchange of information between relevant institutions supervising the financial system.

In July 2009 the Seimas of the Republic of Lithuania adopted the Republic of Lithuania Law on Financial Sustainability. The Law provides the measures of intervention into the banking sector that could be taken by the state to enhance the financial stability and credibility of the banking system, when appropriate. This document envisages possibilities for the issue of state guarantees, repurchase of banking assets and acquisition of a share of the bank capital. It also provides a possibility of taking over a bank's shares for public needs. According to the Law on Financial Sustainability, intervention measures are applied taking into account the Bank of Lithuania's assessment of the banks' financial position and proposals regarding the applicable measures to strengthen sta-

bility of the financial system. Last year the Bank of Lithuania further analysed the national banking sector and exchanged information with other relevant authorities in line with provisions of the Law on the Prevention and Management of Financial Crises.

On 10 December 2009 the Bank of Lithuania Board approved Minimum Remuneration Policy Requirements for Employees of Credit Institutions elaborated in accordance with the European Commission recommendations regarding the financial services sector remuneration policy and the Committee of European Banking Supervisors "High-level Principles of Remuneration Policies". Based on these requirements, domestically operating banks and foreign bank branches are obliged to prepare and present to the Bank of Lithuania a policy for setting a variable pay policy for their employees which must comply and encourage an effective risk management and long-term interests of the banking business. The aim of these requirements is to limit bank employees' incentives to attain maximum performance results within a short period of time frequently

without a proper evaluation of the risk of various transactions to the banking stability in a long-term perspective.

Given the last year loan impairment losses, domestically operating banks should also implement different risk mitigation measures on their own discretion. Primarily, these measures should be associated with a proper crediting policy. The plans for loan portfolio developments should be in line with the economic growth rates of the country, and wages of the employees issuing loans should depend on the created value added within a long-term period. It is important that in making the risk costs assessment and accumulating reserves of liquid assets and capital, the banks would use the whole cycle data on incurred losses and fluctuations of liabilities and would be ready to absorb different unlikely but sizeable shocks without external funding. Also, the banks should periodically envisage and test various action programmes aimed at ensuring business continuity in the case of a local or international financial crisis.

*Table 10. Proposals for increasing resilience of the banking system, households and enterprises to different economic shocks*

Proposals
In order to reduce the dependence of the quality of loan portfolio on the domestic macroeconomic developments, banks operating in Lithuania should be more active in lending for tradable economic sectors.
The banks' strategy should focus on profit-making loan portfolio management in the long-term comprising the entire business cycle. To achieve this goal, the staff of commercial banks should be properly motivated and take crediting decisions with regard to a long-term risk and cash flows of the borrowers.
The banks should achieve a high liquid assets diversification level mitigating the dependence of the value of the investment portfolio upon unfavourable events in various securities markets and by ensuring a possibility of realising these assets in an operative manner and incurring no losses.
In order to increase resistance to liquidity shocks, the banks, especially those belonging to the second group, should also adequately diversify the structure of liabilities and pay stronger attention to longer-term financing sources (e.g., bonds).
The banks must ensure a timely recognition of incurred losses because this is one of the most important factors allowing the disclosure of a real financial stance of a bank and ensuring a possibility of timely measures needed to strengthen the financial stability, as well as forming preconditions for a successful business in a long-term perspective.
Capital increase in the banks with a smaller than the average capital adequacy ratio is an important element to ensure the financial safety of banks because a probable growth of loan impairment remains the key risk in order to meet capital adequacy requirements.
Given the banking losses in 2009, and a weaker economic activity, the primary goal for the banks should be to attract additional capital reserves from external resources by paying the strongest attention to the increase of Tier I capital.

#### **Box 4. International initiatives for strengthening capital adequacy and liquidity risk management\***

The crisis revealed some weaknesses of the current financial system: 1) too high financial leverage and insufficient reserves of capital to compensate losses; 2) too intensive growth of lending, small collateral requirements, non-assessed risk of liquidity and credit quality; 3) insufficient liquidity reserves, over-aggressive short-term borrowing and long-term lending policy of banks; 4) inappropriate long-term risk management due to an erroneous structure of the bank staff and top management remuneration; 5) insufficient bank reserves taking no account to a cyclical behaviour of financial markets; 6) high systemic risk arising because of the interdependence of financial institutions and sensitivity to the same-type economic shocks.

The key objective of the reform of risk mitigation requirements is to ensure short-term and long-term banking sector sustainability, and to turn the financial system to an economy stabilising power. International organisations are currently considering various banking business risk regulation changes: 1) it is proposed to accumulate reliable Tier I capital to cover probable losses; 2) to include into the

capital adequacy computation all material risks related with trade transactions and complex financial derivatives; 3) to limit the amount of the financial leverage created by the banking sector; 4) to reach an agreement regarding international liquidity ratios and their assessment; 5) to strengthen at a systemic level the supervision of important banks, to obligate the banks to assume a part of risk caused to other institutions; 6) to strengthen risk management models; 7) to obligate the banks to a better disclosure of assumed risk and available capital adequacy; 8) to enhance international banks' rescue methods.

Improving the quality of Tier I capital, it is proposed to include only share capital, retained earnings and other unlimited term instruments having no dividend accumulation feature and redemption incentives. Tier III capital is intended to be abrogated, market risk as well as credit and operational risk shall be considered when calculating Tier II capital requirement. In order to increase transparency, the banks should indicate in their reports a precise capital structure. Greater attention should be given to the management of credit risk caused by the counterparty – the banks should allocate some capital for the coverage of probable losses occurring due to the deterioration of the counterparty credit rating.

According to currently valid requirements, the bank share capital may form just several percentages of the value of risk-weighted assets. This allows to achieve a very high financial leverage, sometimes exceeding capital as much as 50 times. To ensure a better risk management and transparency, an attainment is made to create a general financial leverage ratio which will finally resolve the problem of different accounting systems. In order to avoid an abrupt financial leverage drop deepening the economic downturn during a crisis, when calculating capital adequacy it is proposed to use bankruptcy probabilities recalculated for the whole economic cycle or to use larger, crisis period, probabilities.

Presently, more than 25 different liquidity ratios are used world-wide. For a possibility to compare them, an international minimum liquidity standard should be set – the banks should hold the amount of funds that in the case of an unfavourable situation in the market they might be capable of performing their activities at least 30 days.

Encouraging the banking business funding by medium-term and long-term borrowing, it is envisaged to calculate a net stable funding ratio. Available stable funds should be comprised of the bank capital, hybrid instruments (longer than 1 year maturity) and the deposit share estimated by a certain coefficient. The net stable funding would include risk-weighted assets and off-balance sheet liabilities.

**Fig. A. Proposed international liquidity ratios**

$$\text{Liquidity ratio} = \frac{\text{High quality liquid asset reserves}}{\text{Projected 30 days cash flow requirement}} \geq 100\%$$

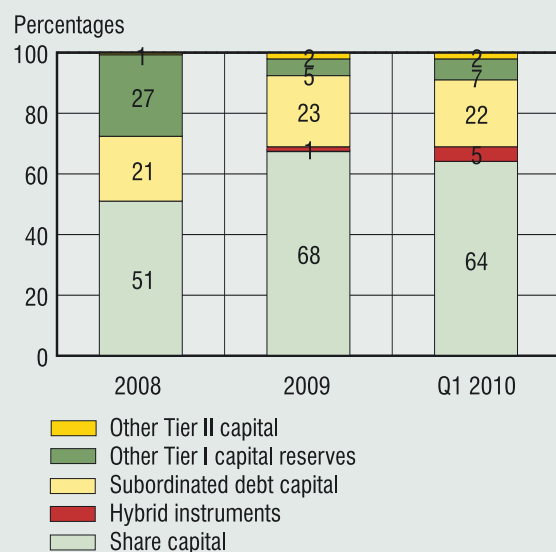
$$\text{Stable funding ratio} = \frac{\text{Available stable financing}}{\text{Required stable financing}} > 100\%$$

Source: Bank of International Settlements.

In Lithuania the ratio of the banking system shareholders' equity to assets shrank from 9.2 per cent to 8.4 per cent from the beginning of 2009 until the first quarter of 2010. The financial leverage growth was basically driven by the performance loss incurred in 2009 which materially reduced shareholders' equity. In Lithuania the major part of the bank capital is composed of Tier I share capital, while the share of hybrid instruments attributable to Tier II capital is insignificant. The composition of capital structure of banking system in Lithuania before regulatory deductions is provided in Figure B.

If the proposed changes for the capital increase are implemented, during an economic upswing the banks should accumulate larger capital reserves that might be used in the future in resolving unforeseen crises. Empirical evidence shows that the behaviour of the banks in Lithuania and other countries was opposite – during the crisis they raised capital adequacy ratio, while during the economic upswing – reduced it (see Fig. C). Such a behaviour of financial institutions pushed cyclical economic fluctuations up even more. Recently the bank profitability world-wide has returned to a pre-crisis level, so the changes proposed should ensure that the banks would use profits to strengthen capital and liquidity reserves rather than to allocate these funds to pay bonuses and dividends.

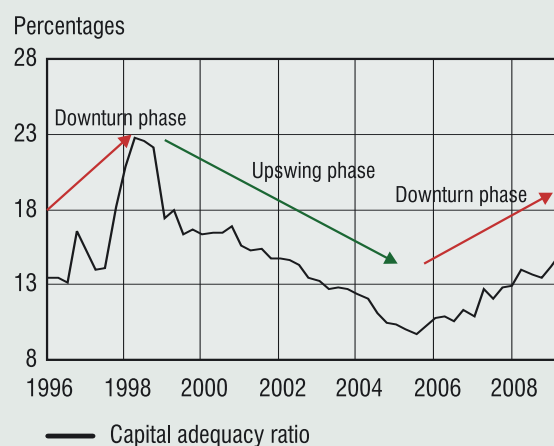
**Fig. B. Capital structure before regulatory deductions**



Source: Bank of Lithuania calculations.

\* More in detail about planned changes: Basel Committee on Banking Supervision, 2009. International framework for liquidity risk measurement, standards and monitoring. <http://www.bis.org/publ/bcbs165.htm>. Basel Committee on Banking Supervision, 2009. Strengthening the resilience of the banking sector. <http://www.bis.org/publ/bcbs164.pdf>

**Fig. C. Capital adequacy procyclicality**



Source: Bank of Lithuania calculations.

## V. ANNEXES AND TABLES

### Annex 1. Bank Lending Surveys – what do they show us?

The tenth semi-annual Bank Lending Survey prepared by the Bank of Lithuania will be published in October 2010. The accumulated amount of data allows to better understand developments in the bank lending policy and its drivers in 2006-2010. The accumulated information also permits to find a synergetic link between changing bank credit standards and bank loan volumes being an important economic activity catalyst.

#### SURVEY OBJECTIVE AND STRUCTURE

Following an example of central banks of other countries, in 2006 the Bank of Lithuania started to carry out periodic bank lending surveys. These surveys are aimed at the collection of additional information on changes of the lending policy pursued by banks and the reasons behind these developments, changes of the borrowing demand, expectations dominating in financial markets, and at the identification of the main risks<sup>62</sup> of the financial institutions' business. The most important value added of the executed surveys is a possibility of a direct collection from the national credit institutions of information on the applied or envisaged to be applied non-interest bearing loan conditions. The information on bank credit standards helps to set a real price of issued loans that is not limited by the interest rate size alone but which in principle determines the lending supply and at the same time volumes of issued loans. Opposite to the data on volumes of issued loans or interest rate changes, the survey results provide a possibility to separately assess the loan supply and demand factors and their impact on the market equilibrium. The Bank Lending Survey results allow to assess the effect of the monetary policy on the national economy and at the same time provides additional information when making regulatory decisions to stimulate (during an economic slowdown) or restrict (when there is danger for an economic overheating or the occurrence of an asset price bubbles) credit volumes. The decision of banks to tighten credit standards in the phase of an economic downturn may weaken the effect of reduced policy interest rates in order to bolster up investment and

consumption. However, when central banks make attempts to restrict an over-intensive and unsustainable economic growth by pushing interest rates up, eased bank credit standard may outweigh a restrictive monetary policy impact and further entail a heating effect on the economy. Lithuania applies the currency board arrangement and it has no possibility to directly effect market interest rates, therefore, commercial banks' crediting policy making an impact on the price of loans and money supply at the same time, entails a profound influence of the national economy. The decision of banks to tighten or ease credit standards in the case of Lithuania is of a very great importance also regarding the fact that the banking sector is a dominating sector in the structure of the country's financial system (assets held by banks make up 83 % of total assets of the system). The private sector possibilities (particularly of small and medium-sized enterprises and households) to attract financial resources from other financial market participants are limited because of an undeveloped enterprise bonds market and other alternative financial resources.

The Bank Lending Survey is the formal way to learn about banks' assessment of the general stance of the economy and individual business sectors and their future prospects. Banks' expectations are an important leading indicator of the lending market and economic activity in general. This is confirmed by Lithuania's case during several recent years when deteriorating bank expectations about the economic situation and real estate market prospects caused a stronger tightening of credit standards and a weaker lending supply at the same time. However, over-optimistic expectations about prospects of the real estate market in 2003–2007 entailed too lax real estate sector credit standards and inflated the price bubble till the very end of 2007. Many economists agree that economic fluctuations "are born" in credit markets, while the synergy of asset price and bank lending is the main reason behind the occurrence of economic cycles (Niehans, 1992).

Results of an econometric research done by economists Lown, Morgan and Rohatgi (2000) show that on the basis of the outcome of the Senior Loan Officer Opinion Survey performed by the Federal Reserve Bank of the USA there is a strong correlative link between tightening credit standards and decreasing credit volumes or a slower economic growth (and vice versa). The research confirmed that a change of credit standards was a significant independent variable in forecasting the growth of the loan portfolio and GDP. Also, the USA data analysis revealed

<sup>62</sup> Currently an increasing number of central banks is performing specialised risk surveys. One part of the Bank Lending Survey, April 2010 was specially devoted for the assessment of rising risks. A further expansion of the risk surveys overwhelming a wide range of the financial sector enterprises is planned to be done in the future.



that an abrupt tightening of credit standards caused a credit crunch which stimulated "spiral" processes of the loan shrinkage, an economic slowdown and further tightening of credit standards. Results of the research of the euro area bank lending changes performed by Berg et al. (2005) suggest that the period of easing credit standards (from the 4th quarter of 2002 to the 3rd quarter of 2004) was followed by a more intensive economic activity period (from the 2nd quarter of 2003 to the 2nd quarter of 2004). This research allows making an assumption that changes of the bank credit standards is a prominent leading indicator of credit and economic cycles.

It should be noted that bank lending surveys also have certain drawbacks. Primarily, this is a qualitative survey reflecting a subjective view of respondents. Because of a relatively small national banking sector and a rather strong bank concentration, the respondent range in Lithuania is relatively modest (respondents are 12–14 banks). However, respondents are all banks active in the lending activity. Another Bank Lending Survey deficiency is a probability of biased answers, as the bank representatives may provide to the Bank of Lithuania, being also a supervisory institution, "embellished" responses. This problem is minimized by ensuring confidentiality of the bank answers and not using the received information for supervisory purposes.

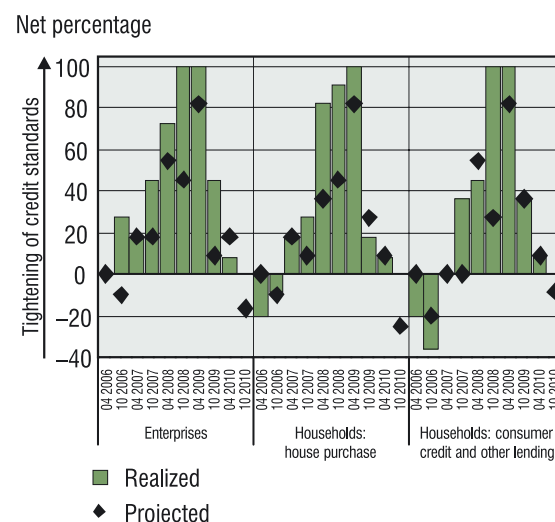
The survey respondents are high-level commercial bank employees directly involved in the issue of loans. Respondents are requested to answer questions about changes of credit standards over the past six months, about credit demand and are also asked to indicate an expected change of these categories within the coming 6 months. Also, the survey covers additional questions related with recent economic changes affecting the credit market and general financial stability. The survey respondents are all banks active in the domestic lending market (presently all commercial banks and 4 foreign bank branches are surveyed). The number of respondents is permanently equal to 100 per cent. Results of answers to the main questions are presented as a net percentage – the difference between the share of banks reporting that credit standards have been tightened and those reporting that they have eased their lending conditions.

## RESULTS OF THE LITHUANIAN BANK LENDING SURVEYS

Figures 68 and 69 present key results of the bank lending surveys performed by the Bank of Lithuania. When summarising the results of all surveys conducted up to now,

the analysed period may be divided into several stages: till the beginning of 2007 bank lending conditions were easing, from 2007 to the first half of 2008 the banks started to assess potential debtors with more caution, and from the second half of 2008 banks kept tightening credit standards very markedly for some periods in turn. Results of the last surveys reveal that the banks stopped tightening credit standards and within the coming six months have already got intentions to ease them somewhat.

Fig. 68. Changes of credit standards

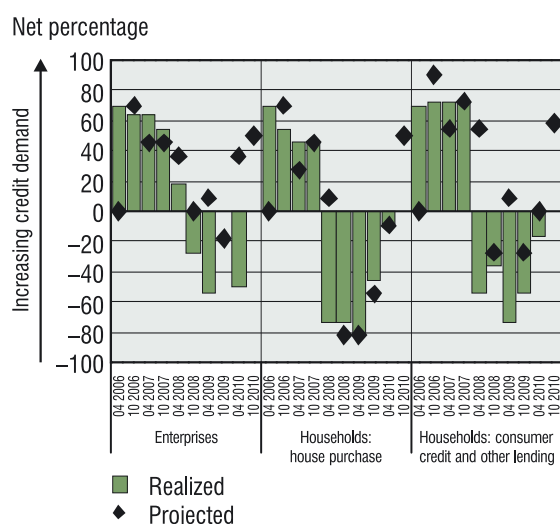


Sources: Bank lending surveys conducted on behalf of the Bank of Lithuania and Bank of Lithuania calculations.

When summarising changes of the credit demand, it is also possible to single out several stages of the borrowing intensity: the loan demand was buoyantly increasing till October 2007, afterwards the growth of borrowing demands slackened, and starting with October 2008 shrinkage of loans and credit lines to enterprises was observed.

The main reasons indicated by banks behind tightening of credit standards within several recent years were a more cautious risk perception and increasing price of funding resources. This was mainly entailed by a rapid downturn of separate economic sectors and of the Lithuanian economy, accompanied by undefined future expectations. The decrease of the household borrowing demand was largely driven by increasing unemployment, shrinking income, weaker consumer confidence, relatively higher consumer expenses not related to housing, as well as by unfavourable prospects of the housing market. The enterprise borrowing demand was pushed down by revoked or postponed investment plans, and it was pushed up by a growing demand of reserves and financing of working capital and debt restructuring, as well as by lesser possibilities of the usage of alternative funding.

Fig. 69. Credit demand changes



Sources: Bank lending surveys conducted on behalf of the Bank of Lithuania and Bank of Lithuania calculations.

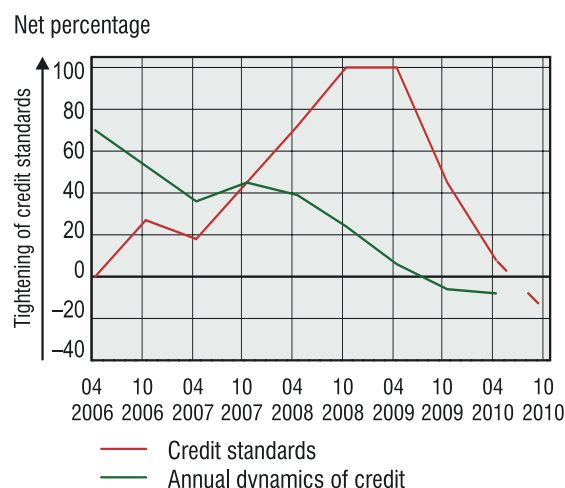
It is not difficult to observe that the stages of tightening credit standards and decreasing loan demand coincide rather precisely with each other and are followed by macroeconomic development changes. It is normal that in the environment of more optimistic economic growth expectations, enterprises and households tend to borrow intensively. At the same time, observing a good quality of loans and competing intensively in the credit market, the banks apply more favourable credit standards. Based on the expertise of recent years, reverse processes are also highly evident. In the context of economic overheating and economic slowdown as well as aggravating loan quality, the bank lending turned to be more cautious. In addition, shaping expectations of a decreasing economic activity and increasing unemployment are also behind a reduction of the household and enterprise demand for credits.

#### THE EFFECT OF CREDIT STANDARDS APPLIED BY BANKS ON THE GROWTH OF THE LOAN PORTFOLIO AND NATIONAL ECONOMY

The analysis of the results of the bank lending surveys conducted by the Bank of Lithuania confirms their reliability. The loan portfolio growth started to shrink more buoyantly from the second half of 2008 – during the period when credit standards were tightened markedly. Slower loan portfolio shrinkage at the start of 2010, compared to 2009 coincides with the smaller tightening of credit standards indicated by banks in the last several surveys.

When comparing changes of credit standards against the growth of GDP, the connection between these two indicators is also rather evident. From 2006 to early 2008,

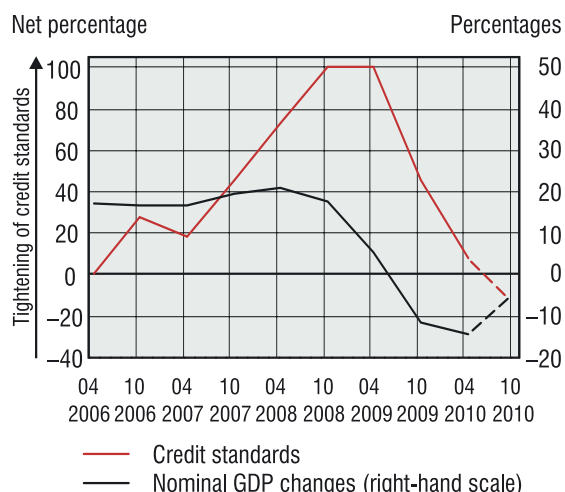
Fig. 70. Changes of credit standards and loan portfolio



Sources: Bank lending surveys conducted on behalf of the Bank of Lithuania and Bank of Lithuania calculations.

the bank credit standards were unchanged or tightened somewhat. During the same period the growth rate of GDP of the country was among the most intensive in the European Union. From the first half of 2008 the bank crediting policy began to change. A changing economic environment stimulated credit institutions to be more cautious in assessing the customers' insolvency and economic downturn risk. A marked credit standard tightening was followed by a slackening national economy and the sharp GDP drop.

Fig. 71. Changes of credit standards and GDP

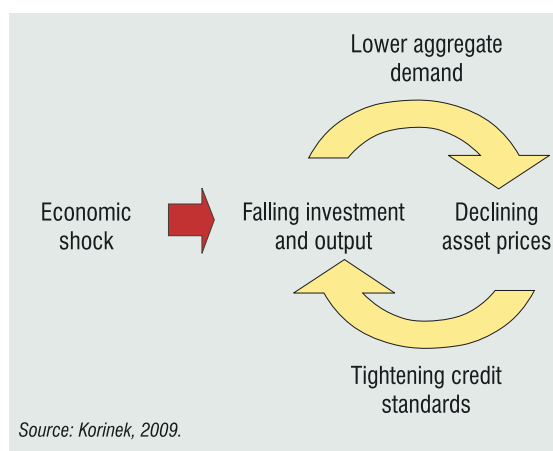


Sources: Department of Statistics and Bank of Lithuania calculations.

It is quite easy to observe that changes of credit standards, credit demand and loan portfolio entail a pro-cyclical impact on the economy of the country. A robust credit growth coincides with the economic development and simultaneously pushes it to grow even more rapidly. Narrowing credit volumes often coincide with the slowdown of economic growth and urge the weakening of the economic activity. Synergy of a slowing down economy, shrinking aggre-

gate demand, decreasing asset prices and tightened credit standards is called in the literature on economics the financial amplification (Korinek, 2009) (see Fig. 72).

Fig. 72. A simplified model of the financial amplification



The relation of the four main elements (investment and GDP, aggregate demand, asset prices and credit standards) shown in the figure reflect a simplified continuous synergy of the real and financial sectors. For example, because of certain reasons individual economic agents are confronted with financial restrictions and start to limit their consumption or investment by simultaneously reducing the national economic activity expressed in terms of GDP. This makes a negative effect on the aggregate demand. A reducing demand urges the curtailment of prices of different types of assets. Reducing asset prices decrease the wealth of asset owners and collateral held by banks. All these facts push credit institutions to tighten credit standards and increase the credit price which continues to weaken the economic activity, aggregate demand and asset prices, thus creating a repeating and amplifying cycle (Bernanke and Getler, 1989).

It is worthwhile observing that an economic shock may effect any element of this process: economic activity, aggregate demand, asset prices or access to lending. For instance, negative processes that strengthen the effect may be provoked by the burst of the real estate price bubble that would diminish the value of the property held by asset owners and banks (as collateral). This would force the banks to be more cautious in assessing risk, tighten credit standards and at the same time decrease credit volumes. A smaller financial inflow into the economy would weaken the economic activity, aggregate demand which would entail a further negative effect on real estate prices. Recent events in Lithuania's economy illustrate well the operation of this process: observing decreasing real estate prices, income

of enterprises and rising unemployment, domestically operating banks aimed to limit rising risk by making new loans granting conditions more stringent. A changed credit policy accompanied by a reducing borrowing demand of enterprises and households, cut down volumes of newly issued loans. Shrinking credits suppressed the economic activity of different business sectors and at the same time of the overall economic activity – this had a negative effect on aggregate demand which stimulated a further drop of real estate prices. It's worthwhile mentioning that an opposite direction of amplification process exists as well. Growing economy pushes aggregate demand up, thus exercising a positive impact on the growth of asset prices. An increasing value of assets mitigates the bank risk and bolsters them to ease credit standards, and this contributes to a more intensive crediting and further stimulating the economic activity.

The main problem of the financial amplification is pro-cyclicality. This process stimulates the economic growth during a favourable period but strengthens the economic downturn during the economic slowdown. Cyclicity of the development of these processes (as well as of the economy as a whole) is partly inevitable. However, a negative amplification may be softened by using financial reserves accumulated by enterprises, households and government institutions. The global financial crisis and global economic downturn forced to consider the economic cyclicity and its stimulating factors. No wonder that changes of the risk management, regulation of financial institutions and principles of the management of public and private finances are treated as the most important goals of the major institutions forming the architecture of the global economy in the future.

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## Annex 2: The banking system rescue expertise and prospects

This annex reviews the banking system crises raised in the countries of Asia, Europe and Latin America. The annex presents the main factors behind crises, the role of central banks and other market participants in searching the best ways for resolving the crisis. Pros and cons of the measures applied and a probable impact of these measures on a further economic growth are dealt with therein.

### THE ORIGIN OF CRISES

A sound, developed and smoothly operating financial system is important for a successful development and growth of the national economy. But what happens when the banks – financial intermediaries – are confronted with difficulties? Is it possible to predict approaching problems, to avoid them or reduce the scope of potential losses?

By their origin, financial crises are divided into the sovereign debt, currency and bank crises. It often happens that the crisis emerging in the banking sector turns into the sovereign debt and currency crises or vice versa. A crisis may rise when countries are attaining several incompatible objectives at a time (for example, to maintain a stable currency rate and implement an imbalanced fiscal policy) or not applying sound banking system regulation measures. Incompatible objectives result in an unstable multiple equilibrium of the currency, interest rates or capital markets. For example, if exchange rates of several currencies are fixed and interest rates are different because of various reasons (administrative costs, expectations, etc.), speculative possibilities occur – to borrow in the currency with a smaller interest rate and to invest by using another currency. Earlier or later financial markets get back to a stable equilibrium. This process may be gradual. However, in the context of pronounced imbalances a probability that the process will occur suddenly and a crisis will emerge increases.

A greater probability of crises is related with the mobility of capital flows. On the basis of a historical expertise, the countries that used to control capital flows were more capable to maintain the financial system stability (e.g., Chile, Brazil). Cash inflows into the country contribute to a buoyant growth of the economy and the formation of asset price bubbles (e.g., an abrupt growth of real estate prices). However, with a change of the investment environment and a marked reduction of cash inflows or even turning to cash outflows, a painful but almost inevitable process of the economy to balance oc-

curs. This process is necessary for a return to a long-term, sustainable rate of the economic growth.

The economists C. Reinhart and K. Rogoff (2009) observe that during a crisis the phrase "this time is different" is heard frequently. This is said about almost every banking and sovereign or internal debt crisis. However, the crisis occurrence reasons appear to be very similar, while the results of the crises unmanaged in due time are expensive.

Effective ways of dealing with the major part of banking crises is not a piece of news, but quite often they are not applied in advance. Unwillingness or incapability to see circumstances leading to a crisis are generated by a rather short memory of market participants, desire of earning a large profit within a short-term period, absence of a direct responsibility and a possibility of transferring risk to other investors whose understanding about it is poorer.

Owners and top management of systemically important financial institutions often rely on historical expertise and believe that in order to ensure the stability of the national financial system the government will take all possible measures to solve liquidity or solvency problems of an important bank, i.e., it will provide guarantees, liquidity loans, will implement programmes for the redemption of a poor quality assets, etc.

Banking crises differ from other crises in that problems in the banking sector are most frequently observed and solved belatedly. If the bank shares are traded in the stock exchange and the market is believed to be efficient and precisely reflecting available information, the bank stance may be judged from its share price changes.

On the other hand, share prices are affected by the completeness of information provided by banks and the efficiency of the market supervision institutions. Therefore, market participants may sometimes rely on incomplete or even misleading information. Rather often non-professional investors take decisions by making imprecise interpretations or even not grasping to the full the provided information. Thus, due to the information asymmetry or manipulation market participants frequently do not have reliable information on the quality of the bank loan portfolio and its fair value. In such a case prices of bank shares do not mirror the fair value and probability of insolvency of a financial institution.

Due to the nature of their business and the main resource of profit – maturity transformation of financial resources – financial institutions are inclined to crises. An ordinary banking business model is to assume short-term liabilities (borrow in the inter-bank market or attract deposits) and to ex-



tend longer-term, higher interest rates generating loans. An economic shock may worsen possibilities for borrowers to implement their liabilities to the bank as well, while a short-term disruption of inter-bank lending markets or an unexpected withdrawal of deposits of legal or natural entities may become a reason for the occurrence of a sudden liquidity crisis if the bank does not hold a sufficient amount of liquidity reserves. With this in regard, sources of the risk suffered by banks may be divided into two groups: 1) arising because of liabilities held and 2) related with the structure and quality of assets. When analysing and assessing banking crises, it is obligatory to understand whether the bank is confronted with liquidity or solvency problems.

The liquidity crisis means that the bank suffers a short-term problem of the imbalanced cash flows. It can be easily resolved by additional borrowing. Such a bank is solvent, i.e. its liabilities do not exceed the value of its assets, and its further prospects pose no concerns. If the bank is incapable of borrowing and balancing its cash flows, it becomes insolvent in no time. In such a situation the bank shareholders must without any delay increase the capital or the state must take bank rescue measures, for instance, a central bank may provide liquidity assistance or the state may issue bank debt guarantees.

Unfavourable asset price adjustments are most frequently behind solvency crises. The major share of the bank assets is formed by loans, but they are not marked-to-market. An aggravating loan quality gradually reduces the fair value of the asset holdings. However, it is very complicated to determine the exact date when the bank liabilities become higher than its assets (i.e., the bank becomes insolvent) or when capital adequacy requirements are breached. The World Bank points to the fact that rather often due to expectations of a bank's loan portfolio recovery after the country's economy becomes stronger, the optimal time of the intervention into the problem bank is missed rather frequently. Also, the willingness to take decisive actions may be restricted by an insufficient amount of funds available by public financial institutions. If the crisis persists, the amount of funds needed to resolve occurring problems continues to grow. During a financial crisis in Japan (from 1990) a term "zombie bank" saw the daylight. This is a name for a financial institution whose economic capital is negative (theoretically this institution is insolvent). Lending policy conducted by such a bank is highly limited and it can fulfil its own liabilities because of the provided financial aid or government guarantees only. In the latest Global Financial Stability Report (April 2010) the International

Monetary Fund notes that recently the majority of banks have strengthened their capital base and potential loan impairment losses curtailed. Meanwhile, it warns that in some countries a slow resolving of issues related with problem banks may push the number of "zombie banks", thus entailing negative repercussions for the economic recovery rates.

## DEPOSIT INSURANCE SCHEMES

Public insurance of deposits is sometimes criticized because of the transfer of private institutions' financial and moral responsibility vis-a-vis depositors to the state. Regardless this, deposit insurance strengthens the confidence in the banking system and reduces a possibility for the occurrence of a liquidity crisis.

In Lithuania State enterprise "Deposit and Investment Insurance" has set for banks a 0.45 per cent annual insurance premium ratio. It is calculated from the amount of money on the depositors' accounts. The maximum amount of the insurance compensation was increased on 1 November 2008 from EUR 22,000 to EUR 100,000 equivalent in litas. Theoretical risk assessment and pricing models suggest that with a rise of liabilities of the insurance undertaking, the size of insurance premiums should also be reviewed.

Many countries apply the limit of cumulative sums of the insurance fund. In Lithuania the law also provides that if the ratio of the deposit insurance fund to total deposits insured exceeds 4 per cent, the annual insurance premium may be reduced to 0.001 per cent. At the present moment, the amount of funds accumulated in the fund is increasing, and with regard to the fact that accumulated reserves strengthen the financial system stability, it would be worth considering a possibility not to limit the amount of accumulated funds in the deposit insurance fund.

## REORGANIZATION OF BANK LOANS

Supervision of quality of loans and decisive restructuring to reduce potential losses must be an ordinary activity of the bank aiming at a successful business. The importance of loan restructuring is becoming more urgent during a crisis period. Not being capable of earning profit, the banks loose internal reserves to restore capital which because of aggravating loan quality continues to decrease. In order to balance cash flows of a bank, the issue of the bank loan restructuring must be seriously addressed. The reduction of the number of non-performing loans by refinancing customer liabilities held and issuing loans to enterprises with vague



business prospects pushes bad loan losses up even more. D. F. Scott (2002) draws attention to the fact that quite frequently top management and shareholders of banks are making attempts of avoiding the bad loan restructuring; therefore, it is imperative to ensure the absence of a solely cosmetic-like loan restructuring.

Debt restructuring methods such as the prolongation of the loan repayment term, decrease of interest rates or taking over of the collateral are used most often. However, the banks are free to apply other measures as well. Sometimes writing-off of a part of the debt increases a probability of the repayment of the remaining part of the loan. This method can be applied if the value of the remaining loan expected to be repaid exceeds the income after the loan impairment.

The bank may write-off current debts of an enterprise on the basis of a debt-equity swap. In doing so the bank decreases its bad loan losses and gains a possibility for additional earnings in case the share price increases. However, investment into other enterprises is not the core banking activity and being both, a creditor and a shareholder the bank may get into conflicts of interests: a creditor is willing to have its lent funds back, while a shareholder – to maximise expected returns even though it leads to additional risks to be assumed.

### ASSISTANCE POSSIBILITIES OF SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS

On the basis of the experience of different countries, the principal bank crisis resolution possibilities, their pros and cons are presented in Table 11.

*Table 11. The banking system rescue measures*

Measures	Pros and cons
Liquidity loan	<ul style="list-style-type: none"> <li>+ Helps to deal with short-term liquidity problems arising because of depositors panic, failure to manage operational risk, etc. However the bank issued a loan must be solvent.</li> </ul>
	<ul style="list-style-type: none"> <li>– Does not help to solve problems related with the loan portfolio quality and capital inadequacy.</li> </ul>
Change of the banks' reserve requirement ratio	<ul style="list-style-type: none"> <li>+ Helps to deal with short-term liquidity problems of the banking system.</li> </ul>
	<ul style="list-style-type: none"> <li>– Does not help to solve problems related with the loan portfolio quality and capital inadequacy.</li> </ul>
State guarantees	<ul style="list-style-type: none"> <li>+ The measure does not require monetary funds or the requirement is postponed.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Increases confidence in banks and the banking system.</li> </ul>
	<ul style="list-style-type: none"> <li>– Generates moral hazard problems for banks.</li> </ul>

Measures	Pros and cons
Redemption of the bank assets (usually of a poorer quality)	<ul style="list-style-type: none"> <li>+ Reduces the bank's capital requirement.</li> </ul>
	<ul style="list-style-type: none"> <li>– The probability of additional losses due to poor quality of asset decreases.</li> </ul>
	<ul style="list-style-type: none"> <li>+ In case of more capital needed, it is easier to perform the due diligence and sell the bank.</li> </ul>
	<ul style="list-style-type: none"> <li>– The bank's usage of funds received is difficult to control.</li> </ul>
	<ul style="list-style-type: none"> <li>– A large amount of state funds is needed.</li> </ul>
	<ul style="list-style-type: none"> <li>– The State assumes credit risk.</li> </ul>
	<ul style="list-style-type: none"> <li>– A problem of adverse selection arises, i.e., banks will try to sell to the State the most risky asset holdings.</li> </ul>
	<ul style="list-style-type: none"> <li>– A smaller shareholders' motivation to fulfil their liabilities.</li> </ul>
Participation of the State in the bank capital	<ul style="list-style-type: none"> <li>– State indebtedness may increase.</li> </ul>
	<ul style="list-style-type: none"> <li>+ The State acquires a possibility to directly control the bank activities.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Depositors' confidence in banks strengthens.</li> </ul>
	<ul style="list-style-type: none"> <li>– Assistance of the State creates moral hazard problems.</li> </ul>
Taking over of a bank's shares for public needs	<ul style="list-style-type: none"> <li>– State indebtedness may increase.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Ensures bank business continuity.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Depositors' confidence in banks strengthens.</li> </ul>
	<ul style="list-style-type: none"> <li>– Possible deposit redistribution inside the banking system.</li> </ul>
	<ul style="list-style-type: none"> <li>– State assumes all potential bank losses.</li> </ul>
	<ul style="list-style-type: none"> <li>– Bank business efficiency may reduce.</li> </ul>
Private sector solutions	<ul style="list-style-type: none"> <li>+ Effective way to restructure the bank and strengthen its financial position.</li> </ul>
	<ul style="list-style-type: none"> <li>+ State funds are not used.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Private sector has expertise in managing a bank; it can ensure the bank's business efficiency and continuity in the best way.</li> </ul>
	<ul style="list-style-type: none"> <li>– Implementation may be rather difficult, particularly during international banking crises, when risk aversion increases.</li> </ul>
Transfer of public sector deposits into problem banks	<ul style="list-style-type: none"> <li>+ Improves the liquidity position of banks confronted with problems.</li> </ul>
	<ul style="list-style-type: none"> <li>– Deteriorates the liquidity position of banks from which deposits are transferred.</li> </ul>
	<ul style="list-style-type: none"> <li>– Enlarges the risk of public sector deposits.</li> </ul>
	<ul style="list-style-type: none"> <li>– Does not solve the problem of capital adequacy of banks, is suitable for the resolution of liquidity problems only.</li> </ul>
Transfer of deposits from a problem bank into other banks	<ul style="list-style-type: none"> <li>+ Quickly resolves banks' problems.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Strengthens depositors' confidence in banks.</li> </ul>
	<ul style="list-style-type: none"> <li>+ Involves private capital, reduces the required state funds.</li> </ul>
	<ul style="list-style-type: none"> <li>– Additional financial resources and legal arrangements are needed.</li> </ul>

Measures	Pros and cons
Purchase and assumption	+ Quickly resolves banks' problems.
	+ Strengthens depositors' confidence in banks.
	+ Involves private capital, reduces the required state funds.
	+ More time is available for the evaluation of the quality of remaining bank assets, which might increase the realisation value if compared to the fire sale of assets.
	- If the best customers leave the bank under restructuring, the franchise value of the bank being sold reduces.
	- Additional resources for the evaluation and administration of non- transferred assets are needed, it is difficult to maintain the best employees.
	- If the crisis persists, prices of bank assets may deteriorate further, thus the cost of restructuring might increase.

To sum up, any state aid to rescue a private bank generates moral hazard, thus private sector solutions should be sought. When choosing the best method to resolve a crisis, the involvement of the private capital should be to the utmost, its costs – the smallest and benefits to the financial system should be the largest.

Furthermore, legal and supervisory environments are obligatory to be enhanced on a permanent basis and financial authorities (banking supervision institution, central bank, deposit insurance fund, etc.) must have a coordinated action plan. Coordinated exercises reveal key deficiencies, controlling of which in the environment of a real crisis is time consuming and may deepen the scope of the problem and amount of funds required to recover the stability of the national financial system. Harmonisation of legal acts allowing an efficient restructuring of problem banks is also an important measure ensuring the financial stability.

### BANK PURCHASE AND ASSUMPTION TRANSACTION

The purchase and assumption (P&A) transaction is one of the methods for the bank take-over and restructuring. This method is widely applied by the Federal Deposit Insurance Corporation<sup>63</sup> in USA and other countries worldwide. Since the beginning of the financial crisis in early 2008 till April 2010, 210 banks were restructured in the USA using the P&A transaction. A possibility to apply this method has been recently realised in Latvia. This method will most probably be applied for the resolution of issues related to a further management and selling of AS PAREX BANKA taken over by the state of Latvia.

The main P&A advantage is that this method allows customers to further use bank services uninterrupted. With proper advance preparations it is possible to restructure a problem bank, i.e., to decompose the bank assets into two parts and transfer insured deposits into another bank, within a very short period of time – usually one weekend. An expeditious purchase and assumption of a problem bank weakens a possibility of the break out of depositors' panic and failure of the financial sector operation. Compared to a possibility of announcing the bank bankruptcy, this method allows to reduce expenses of the deposit insurance institution by transferring a part of the problem bank assets and liabilities to a private entity. This is also beneficial for the bank taking over assets and liabilities – it is provided with an opportunity to further develop the business of a bankrupt bank in a certain geographical region and customer segment.

According to P&A method, after taking over problem bank shares for public needs, the bank is without any delay decomposed into two parts: "good" assets and insured deposits, and "bad" assets and other liabilities. The example of the balance sheet of a problem bank is shown in Table 12.

Table 12. Possible Problem Bank Balance Sheet

Balance sheet of Bank A			
"Good" assets	230	Insured deposits	250
"Bad" assets	40	Other liabilities	60
		Equity	-40
Total	270	Total	270

The best quality assets managed by a problem bank (cash, funds with the central bank, high-ranking securities and good quality loans) and insured deposits are transferred to a stable financial institution taking over these assets. This can be done without any delay. However, being delayed in search of a taking over financial institution or in negotiations with it, it is possible to create as a starting point a state administered "bridge bank". In case of a difference between the value of transferred good assets and liabilities for insured deposits are negative, it is covered by the deposit insurance fund.

When analysing the structure of bank assets, the fact that the market value of the problem bank assets may be less than the one indicated in the bank balance sheet must be born in mind. For example, the average estimated price of restructuring of 154 banks in the US by P&A method fluctuated around 30 per cent of the value of the balance sheet assets (see Table 13).

<sup>63</sup> For more information about US Federal Deposit Insurance Corporation (FDIC) see: [www.fdic.gov](http://www.fdic.gov)

**Table 13. The restructuring costs of banks in the US by P&A method**  
(per cent of bank assets)

Year	Minimal	Maximal	Median	Average	Bank number
2009	2.4	75.1	27.8	28.6	130
2008	10.4	54.7	34.4	32.4	24

Sources: FDIC and Bank of Lithuania calculations.

Note: restructured banks are the banks to whom FDIC presents estimated losses.

A negative impact on the value of loans is exercised by unfinished projects needed a further funding, poorer information of a new bank about the current debtors, additional loan administration costs, possible negative adjustment of the price of real estate used as collateral, and other factors.

In the case of Bank A, probable "good" assets make up LTL 230 million. Therefore, when transferring deposits the deposit insurance fund should cover the difference of LTL 20 million occurring due to the fact that the value of high quality assets is lower than liabilities to insured depositors (see Table 14).

**Table 14. Transfer of "good" assets and insured deposits**

P&A transaction – deposit transfer			
"Good" assets	230	Insured deposits	250
Contribution of the deposit insurance company	20		
Total	250	Total	250

After transferring deposits, administration of bad quality assets is performed according to ordinary bankruptcy procedures. Primarily, the deposit insurance fund credit claims are satisfied, and when it has the funds used for the deposit transfer back, liabilities to other creditors are also satisfied in turn. If liabilities exceed funds received after the liquidation of poorer quality assets, the remaining creditors (holders of bank debt securities, uninsured depositors, etc.) get back only the part of the money lent to the bank. Bad quality assets and other liabilities are shown in Table 15.

**Table 15. Administration of "bad" assets and other liabilities and liquidation of the bank**

Balance sheet of the administered Bank A			
"Bad" assets	40	Contribution of the deposit insurance company	20
		Other liabilities	60
Total	40	Total	80

In order to realize as much as possible larger share of the problem bank assets, loans of a similar structure (loan repayment term, collateral size and type, interest rate, sector, etc.) may be grouped and sold. This

increases the asset liquidity and allows the investors having different strategies and risk aversion to choose from the asset class the one that is most suitable to their investment strategy and time horizon.

In order to implement P&A transaction, a team of qualified staff and additional infrastructure are needed. Key P&A team functions are the identification of the bank asset quality and risk associated, analysis of financial statements, administration of IT systems of the problem bank, segregation of insured deposits, resolution of various legal issues, protection of taken over assets, staff administration, etc. A part of the enumerated functions may be outsourced, but the central bank, bank supervision institution and deposit insurance fund should be active participants of the P&A team.

## BANKING CRISES RESOLUTION TECHNIQUES: ASIAN COUNTRIES

Experience from other countries indicates that if banks face liquidity or solvency problems it is important to take proper actions as soon as possible to restore confidence in the financial markets.

Evidence from the World Bank's response to the 1997–1998 financial crisis in Indonesia, South Korea and Thailand confirmed that one of the primary problems faced by banks is related to the liquidity shortage. In such case it is important for the national central bank to have pre-defined rules and, if necessary, be ready to supply liquidity to commercial banks. If measures taken by central bank are insufficient and shareholders of commercial bank are incapable of solving the arising problems on their own, the government must interfere and stabilize the situation. There are four major mechanisms to restructure problem banks: 1) state guarantees; 2) suspending bank operations or imposing a moratorium on them; 3) buying-out bank's assets; or 4) taking over the bank shares for public needs.

The most adequate mechanism is chosen with regard to the circumstances that may vary as each mechanism may have different impact on the banking system. Timely takeover of a bank or support for transferring insured deposits and a respective share of the bank's assets to another, sound financial institution helps to regulate arising tensions and avoid a wider-scale financial crisis. Meanwhile, suspending operations of problem banks frequently end up in higher uncertainty within the market and can cause liquidity problems in other banks that had been known for reliable operations before.

There were no state-provided individual deposit insurance schemes in Indonesia and Thailand up to 1997, and the governments'

efforts to halt the run on banks by temporarily imposing moratorium on the most vulnerable banks did not produce expected results. In Thailand alone, operations of 58 financial institutions were suspended. The country's enterprises lost access to some of their financial assets, and in an attempt to retain the working capital they had to halt loan repayment; an increase in the number of intentional bankruptcies, in other words, strategic bankruptcies, was observed. To insure against further losses enterprises also started withdrawing deposits from other financial institutions thus causing a contagion effect.

In order to stop the panic, the countries began: 1) to provide state guarantees for bank liabilities; 2) wind up insolvent banks and pay out insurance compensations for deposits; 3) transfer deposits to other banks; or 4) provide wide-scale liquidity support to banks for them to be capable to meet their liabilities. The Indonesian case proved the need to avoid using the fourth model as the very complicated control of supportor given leads to a pronounced increase in the crisis management expenses.

In 1998, the Thai central bank established that the difference between a maximum interest rate paid on insured deposits and the average interest rates of the same maturity paid by five major domestic banks should not be higher than 3 p. p. This was done to avoid aggressive competition of vulnerable banks in the deposit market, a sharp rise in interest rates, migration of depositors from sound to vulnerable banks and, as a result, risks being transferred to the government.

It should be noted that a balance between political will, practical skills, and knowledge must be found to successfully manage a crisis. The last but not the least important is to identify precisely the situation in the banking system and the size of potential losses. The Thai central bank being responsible for the supervision of financial institutions, government support to banks and liquidating closed banks during the Asian crisis had also encountered problems in recognizing bank insolvency and therefore suggested bank capital boosting schemes instead of the bank liquidating measures in hope that the situation in problem banks would improve over the time.

The experience of South Korea revealed that delegating responsibility of dealing with the financial sector crisis to the existing market supervising authority may lead to a conflict of interests as such an authority is often related to the environment that could have contributed to pushing the banking system into the critical situation. That means that there might be reasons to understate or

do not reveal the true scale of the crisis at all.

The investigation by D. F. Scott (2002) shown that the data in regular financial statements during the Asian crisis did not seem to focus on cash flows (the same was observed in other countries in the past), and indicators monitored by supervising authorities did not show actual quality of bank loan portfolios and capital adequacy condition. The statements of banks that applied intensive lending to related persons policy were of particularly low quality. Having a possibility to manipulate accounting data, banks used to indicate lower numbers of non-performing loans and thereafter to influence the capital adequacy ratio overseen by supervising authorities.

In Korea, an independent audit company was hired to prevent discrepancies between actual and book value, which surfaced during the crisis, and to find out actual asset value as well as potential problems related to financial operations. Banks were requested to submit their plans for further operations, and a feasibility study for the further development of the financial system was prepared and a financial analysis model allowing forecasting bank profitability and the need for capital injections was created.

## EXPERIENCE FROM LATIN AMERICA

In late 2001, when the liquidity crisis erupted, Argentina introduced deposit withdrawal restrictions and set the withdrawal limit at USD 1,000 per month from one account. Restrictions were imposed not only on time deposits, but demand deposit accounts either. In the middle of 2002, some of the restrictions eased, except for the restrictions related to the cash withdrawals from deposits. The government submitted a proposal to accept five or ten-year government securities instead of deposits the overall value of which would be USD 8.5 billion. Depositors who turned down the offer were proposed bank certificates that could be used to finance large transactions (to buy real estate, automobiles, etc.). This was expected to boost demand which fell significantly during the crisis.

In the beginning, these restrictions were applied only to problem banks, although later they were imposed on other banks too. The Argentine experience showed that in case when a bank run starts only due to a few small problem banks, it would be advisable to nationalise them immediately rather than impose deposit withdrawal restrictions on all the banks.

After Argentina announced the default on USD 95 billion in bonds and devaluated its currency, a panic also started among de-



positors of the smallest banks in neighbouring Uruguay. Many Argentines contributed to it by withdrawing their money held in accounts in Uruguayan banks. To stop the panic the government imposed the restrictions on USD 2.2 billion deposits in two banks. In the first half of 2002, the banking sector lost about 33 per cent in deposits, therefore a short-term moratorium on banking operations was expected to stabilise the situation. However, the prolonged banking holidays pushed the depositor confidence in banks even lower. At that time the country was in an economic recession for the third consecutive year, and the exchange rate of peso against the US dollar was twice lower than before the downturn. To stabilise the situation the government introduced guarantees for transactional accounts and USD deposits; insolvent banks were closed, and a loan from IMF, worth USD 1.5 billion, was used to support sound banks.

The experience of the above mentioned Latin American countries shows that banking holidays are highly ineffective and time-consuming and may undermine confidence in a country's financial system. For this reason, this method for dealing with bank crises should be avoided.

## EUROPEAN EXPERIENCE

The review of the banking crisis in Scandinavia in 1988–1993, performed by the central bank of Norway, revealed that easing regulatory requirements to financial institutions, rapid growth of credits, a steep increase in real estate prices and their subsequent fall were major reasons for the crisis.

The use of hybrid capital led to the deterioration of banking capital quality. This type of capital allows boosting crediting volumes, but has limited ability to absorb potential losses while a bank is still operating; losses can be covered only during the winding-up process.

Due to a rapid growth of their loan portfolios and fierce competition over the market share, more than 80 per cent of loans were issued by Norwegian banks to sectors that depend on the domestic economic cycle. Increasing risk has been understated, while decelerating economic growth added to further build-up of problems in the banking sector.

The countries preferred different measures to solve the problems. Norway, unlike Sweden and Finland, did not have any program for buying out bank assets and providing state guarantees. The focus was on strengthening bank capital and boosting market consolidation. This was entrusted to two bank insurance funds, the operational rules of which additionally to their major

function which is related to deposit compensation, provided for possibilities to invest into private banks' capital. During the crisis only one bank was closed and liquidated in Norway, while all the other were taken-over by larger and solvent banks (Moe, Solheim and Vale, 2004).

In the environment of continued crisis and depleting banks-owned guarantee funds, as well as growing aversion of investors to put their money into banks, the Government Bank Insurance Fund was established in 1991 to keep confidence in the domestic financial system and avoid sharp decline in credit supply, as well as to strengthen the capital base of the country's banking system. Capital injections could be made on very strict conditions which included replacing bank management and board of directors, writing down share capital to cover incurred losses, reducing operating costs, and restraining the growth of bank's assets. This had to ensure that there was no competitive advantage for the banks participating in the government support program over rival banks. The Norwegian experience showed that bank take-over and recapitalisation can be effective measure for a bank restructuring.

Government guarantees allows restoring confidence in the financial system and carries the need for public expenditure forward, therefore it might be an attractive alternative to the countries that have difficulties managing their public finances. On the other hand, government guarantees may cause moral hazard. Having received government support and in strive to restore their profitability, problem banks may start implementing high-return but high-risk projects, which would further boost potential government expenditure necessary to handle the crisis.

In 1992, Finland announced its decision to take all measures necessary to ensure the stability of its financial system; the banks therefore were issued government guarantees for their liabilities. The government participated in boosting banks' capital, and took over bad assets from problem banks to give them to the central bank-controlled asset management company.

Sweden's government also announced a government guarantee program in 1992, while its central bank resorted to huge foreign exchange reserves to provide liquidity support.

To sum up, the Scandinavian experience indicates that the lowest costs for handling the crisis among the three Nordic countries were observed in Norway. This was determined by the measures used to address the crisis, such as refusing government guarantees or "bad" assets buy-out programs, but bolstering private sector solutions and sale of problem banks.



In late 2008, three governments approved state aid package to Dexia bank. To ensure the reliability of an international bank, Belgium, France and Luxembourg implemented a complicated rescue plan which included a capital injection of EUR 6 billion, a government guarantee program up to a maximum of EUR 150 billion, an emergency liquidity support from the central bank of Belgium, and a guarantee package for a nominal amount of EUR 16 billion to a fund managing bad assets.

German banks that were investing aggressively into the US-issued and mortgage-backed poor quality financial instruments, hedge funds, and other high-return and high-risk instruments also suffered damages during the current crisis. The financial turmoil had led to huge losses, and German banks were forced to apply to government for capital injections and liquidity support.

The IMF noted that the main problem for banks in Germany was decentralised supervisory system, heterogeneous deposit insurance scheme, and non-existent restructuring plan for problem banks. To ensure continued stability of the financial system attempts will be made to encourage further consolidation of the banking system and strengthen the central bank role in supervising the banking system.

In 2008, Latvian Parex bank encountered liquidity problems due to imbalances of short-term liabilities and long-term loans (loans related to real estate projects accounted for 44 %). Compared to 2007, deposits in Parex bank declined by 36 per cent during the crisis. As the liquidity ratio continued to diminish very fast, a decision was made to impose temporary restrictions (for seven months) on the withdrawal – up to LVL 35 thousand per month of deposits by private clients. The amount to be withdrawn by corporate clients was limited to LVL 35 thousand, LVL 350 thousand, or unlimited, depending on the number of employees. The Ministry of Finance decided to place a deposit of over LVL 300 million with Parex bank for the acquisition of short-term government securities that meet collateral eligibility criteria for a liquidity loan to be received from the Latvian central bank. By the end of 2009, the government had deposited with the bank an amount equal to LVL 622 million, as a liquidity support, while the capital injection by the government exceeded LVL 195 million. An international consulting company has been hired to work out the bank's restructuring plan. The highest quality assets and liabilities of the bank will be likely separated and sold to a private investor.

The consolidation of the banking sector in Ireland was supported by government guarantees and bank capital injections. To stabilise the banking system and ensure credit supply the government took actions focused on the improvement of quality of bank balances. In 2009, the National Assets Management Agency (NAMA) was founded. In order to scale down potential future losses on bad loans, the agency purchased some of the banks-held loans, the repayment of which was guaranteed by real estate or land. According to the estimate in February 2010, the book value of the loans to be taken over made up EUR 82.5 billion. The agency is to purchase both performing and non-performing loans. This has been done to avoid risk of banks transferring to the government only the lowest quality assets. The loan stock to be purchased from a bank can not exceed the value of long-term economic value of assets, and the price paid on loans would be lower by approximately 35 per cent compared to their book value. Expectations are that up to 40 per cent of the loans purchased would be capable of generating cash flows, and these cash flows would be sufficient to cover interest on government bonds and the agency administration costs. The assets purchase program has been financed through issuing government bonds. Although this will boost the overall government debt, the latter will be financed by selling the purchased assets. To guarantee its protection and in order to share potential losses, the government will pay to banks 5 per cent on the transaction amount in subordinated debt securities that will be bought out only in case the NAMA does not have extra losses. The program is planned to be in use from 7 to 10 years, and the agency is expected to receive back all the funds paid.

There was an obvious necessity to stabilise the Ukraine's financial sector too. In response to the economic crisis, the Ukrainian central bank adopted a decision in late 2008, requesting domestic commercial banks to fulfil all deposit liabilities only on maturity (regardless of the currency of deposits). The decision was approved in defiance of the Ukrainian legislation, according to which deposits have to be payable on first demand. Domestic commercial banks were instructed to keep communicating with clients and encouraging them to renew their deposits. Some measures have been mentioned allowing higher interest rates for each additional month, etc. Banks were instructed to monitor closely ATMs operations and giving out cash both to their clients and clients of other banks, as well as report to the Ukrainian central bank on unusually steep increase in cash withdrawals.

## COST OF BANKING CRISIS

The data provided by the IMF Research Department on 42 banking crises during 1970–2007 indicate that the average percentage of non-performing loans make up 25 per cent during the crisis period, while the average size of deposit outflow over one month accounted for 11.2 per cent. The most rapid deposit outflow of 26.7 per cent over one month was observed in Argentina (1989); and the share of non-performing loans peaked at 75 per cent in Bulgaria (1996) and 62.4 per cent in the Ukraine (1998). In case of banking crisis, the amount of capital injections by governments account for 6 per cent of GDP, meanwhile the total costs of crisis resolution make up 13 per cent of GDP in a given country on average (Laeven and Valencia, 2008). The IMF also notes, that during the crises, i.e. as in Indonesia in 1997, around 1/3 of all deposits withdrawn earlier are deposited back into more sound banks in a country after a short period of time.

## ACTIONS TO BE TAKEN TO PREVENT BANKING CRISIS IN FUTURE

The world's major economies, the Group of Twenty (G20), are currently considering changes to rules on credit agencies, bank capital injections, and bank supervision. Attempts have been made to create a mechanism capable to make banks to adhere to anti-cyclical policy, i. e. to increase available capital in periods of economic growth to be able to use it later, during recession or in critical situation, to finance the building-up losses.

Requirements to increase capital would help to limit aggressive lending policy cases, reduce the probability of property prices "bubbles", and help to avoid wide-scale government interference when saving the country's financial system. Implementing international bank liquidity ratio will also ensure more effective banking supervision and provide a possibility to improve the assessment of banks-assumed risks.

To ensure stability in the global financial system a proposal was made to tighten con-

ditions for credit default swaps and instruct financial institutions that are critical for the entire financial system to work out plans of business continuity and potential liquidation during a crisis. Following the initiative of the European Commission the European Systemic Risk Board has been established to start its activities in the middle of 2010.

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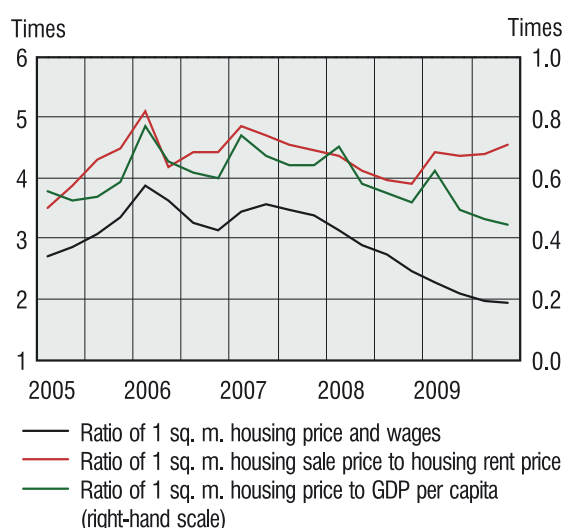
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### Annex 3: Assessment of individual purchasing power: what are possibilities for buyers to purchase a house?

To answer this question (what are possibilities of buyers to purchase a house) household expectations and financial possibilities (purchasing power) should be evaluated. The housing affordability index has been given much attention lately as an indicator capable to reveal key factors that have impact on purchasing power, such as housing prices, household income and borrowing conditions in the country. Housing affordability indicators are of two types: while calculating the first ones lending standards for housing loans are not taken into account, and while calculating the second type indicators which are based on an assumption that households most often apply to financial institutions for housing loans do take into account the lending standards.

Only indicators that combine housing prices and household income are viewed as housing affordability indices calculated irrespectively of the crediting conditions in the market. This group of indicators thus includes the ratio of average wage to housing prices, the ratio of housing prices to GDP per capita, the ratio of average rental pay to average housing sale price. The analysis of these ratios allows measuring individual purchasing power.

Fig. 73. Housing affordability calculated irrespectively of lending standards in the market



Source: Bank of Lithuania calculations.

The following formula is used to calculate the housing affordability index taking into account lending standards in the market and based on the international practice<sup>64</sup>:

$$HAI = \frac{DI \cdot Q}{P \cdot LTV \cdot \frac{IR}{1 - (1 + IR)^{-12 \cdot Y}} \cdot \frac{1}{QI}}, \quad (1)$$

Where: HAI is housing affordability index;  
DI is average household income (we would use average net wage of households published by the Department of Statistics in our calculations);

Q is a number of the household members (based on the assumption that a household consists of two working individuals);

P is the house price (It is assumed that a household seeks to acquire a 60 sq. m. dwelling at an average price);

LTV is a part of the dwelling value to be paid by a bank loan;

IR is a monthly interest rate (weighted interest rate on new housing loans, published by the bank of Lithuania, by currency structure);

Y is a loan repayment period (based on the results of the Survey of Households with a Housing Loan the maturity of loan is mainly set at 20 years);

QI is household income share used to repay loan.

Susanne Trimbath and Juan Montoya<sup>65</sup> have proposed a slightly different formula for calculating housing affordability, where the figure received indicates the household income share to be paid for the housing loan.

$$QI = \frac{P \cdot LTV \cdot \frac{IR}{1 - (1 + IR)^{-12 \cdot Y}}}{DI \cdot Q}, \quad (2)$$

Recently, changes in risk assessment done by banks were followed by changes in the loan to collateral ratio applied to borrowers<sup>66</sup>. Using different down-payment criteria for different periods may cause some problems, as lower down-payment means higher loan amount for the household to be repaid, i.e. higher share of the household income to be used. Intuitively, lower down-payment may reduce the house purchase burden for a household as households rarely have enough savings for a required down-payment. To avoid the above mentioned problem and take into account the importance of a down-payment, an amendment is made to the formula for calculating housing affordability. This amendment allows to calculate the time (T, which will be deducted from the total loan maturity) during which a household should save for the down-payment (it is assumed that a household allocates 30% of its income (IS=0.3), and does it in the form of a monthly time deposit with a fixed interest rate).

$$T = \frac{\lg\left(\frac{DI \cdot IS - (1 - LTV) \cdot P \cdot IR}{DI \cdot IS}\right)}{\lg(1 + IR)}, \quad (3)$$

<sup>65</sup> Trimbath S. and Montoya J. „Housing Affordability in Three Dimensions: Price, Income and Interest rates”.

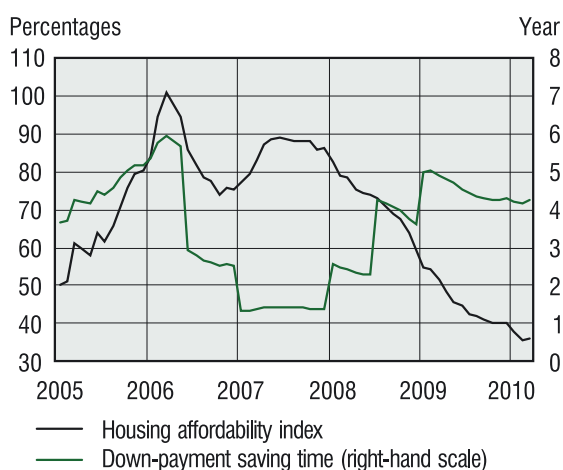
<sup>66</sup> Based on expert assessment and the bank lending survey results.

<sup>64</sup> National Association of Realtors.

Such time penalty shortens potential loan maturity, since higher down-payment means longer saving period before applying to a bank for a loan. Shorter loan maturity leads to an increase in the size of a regular payment and in turn reduces housing affordability.

$$QI = \frac{P \cdot LTV \cdot \frac{IR}{1 - (1 + IR)^{-12(Y-T)}}}{DI \cdot Q} \cdot (4)$$

Fig. 74. Housing affordability index<sup>67</sup> and down-payment saving time



Source: Bank of Lithuania calculations.

After calculating housing affordability index one can see that households' possibilities to purchase housing have improved significantly since 2008 and are approaching a standard and acceptable affordability level that will correspond the economic development level and the situation. Decreasing real estate prices and interest rates on new loans, which basically remained at the same level, largely influenced the housing affordability index and counterbalanced the negative impact made by lower wages.

The growing required down-payment resulted in longer time needed to save the down-payment amount and shorter loan repayment period, but lower loan amount and reduced regular monthly payment. Lower payments have improved the housing affordability index; meanwhile, the necessity to save higher down-payment amount made it more difficult to purchase house. Moreover, unemployment level which grew significantly in the country in 2009 and therefore curtailed plans of households to take housing loans is ignored when calculating the index.

<sup>67</sup> Calculated using Formula 4.

**Table 1. Major financial stability indicators**  
(percentages)

Financial stability indicators	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Capital</b>										
Capital adequacy <sup>1, 2</sup>	16.3	15.6	14.8	13.3	12.4	10.3	10.8	10.9	12.9	14.2
Tier 1 capital adequacy <sup>1, 2</sup>	12.7	12.7	12.1	11.1	10.2	8.9	7.8	7.7	10.2	10.4
Capital-to-assets ratio <sup>1</sup>	10.5	10.2	10.9	10.5	9.5	7.9	7.6	7.9	9.2	7.9
<b>Asset quality</b>										
Ratio of non-performing loans to total loans (excluding interbank loans) <sup>3</sup>	27.5	19.8	19.9	10.1	9.2	-2.5	0.7	2.9	...	...
there form:										
loans to businesses <sup>3</sup>	...	...	...	...	...	0.57	1.04	1.18	...	...
loans for house purchase <sup>3</sup>	...	...	...	...	...	0.57	0.54	0.60	...	...
consumer loans <sup>3</sup>	...	...	...	...	...	1.37	1.90	1.49	...	...
Ratio of non-performing loans to total loans (excluding interbank loans) <sup>4</sup>	...	...	...	...	...	...	...	...	4.55	19.29
there form:										
loans to businesses	...	...	...	...	...	...	...	...	5.64	26.17
loans for house purchase	...	...	...	...	...	...	...	...	1.94	5.64
consumer loans	...	...	...	...	...	...	...	...	5.23	13.84
Ratio of impaired loans to total loans (excluding interbank loans) <sup>4</sup>	...	...	...	...	...	...	...	...	3.41	15.77
there form:										
loans to businesses	...	...	...	...	...	...	...	...	4.37	21.99
loans for house purchase	...	...	...	...	...	...	...	...	1.31	3.94
consumer loans	...	...	...	...	...	...	...	...	2.66	6.44
Ratio of impaired loans overdue for more than 60 days to total loans (excluding interbank loans) <sup>4</sup>	...	...	...	...	...	...	...	...	1.14	3.53
there form:										
loans to businesses	...	...	...	...	...	...	...	...	1.27	4.18
loans for house purchase	...	...	...	...	...	...	...	...	0.63	1.70
consumer loans	...	...	...	...	...	...	...	...	2.57	7.40
Ratio of loan impairment losses to total loans (excluding interbank loans) <sup>5, 6</sup>	3.99	2.83	1.42	0.81	0.86	0.89	0.89	0.74	1.20	7.16
there form:										
loans to businesses <sup>6</sup>	...	...	...	...	...	1.03	1.07	0.89	1.46	9.71
loans for house purchase <sup>6</sup>	...	...	...	...	...	0.22	0.23	0.30	0.41	1.81
consumer loans <sup>6</sup>	...	...	...	...	...	1.62	1.51	1.18	2.44	7.58
Ratio of loan impairment losses and non-performing loans <sup>2, 3, 5, 6</sup>	39.5	41.7	26.8	33.8	39.9	146.5	92.5	72.2	26.5	37.1
<b>Income and profitability</b>										
Return on equity <sup>1, 7</sup>	5.01	-1.20	9.80	13.37	13.52	13.58	20.29	25.93	13.54	-48.42
Return on assets <sup>7</sup>	0.41	-0.17	0.93	1.26	1.20	1.04	1.32	1.71	1.01	-4.23
Ratio of net interest income to total income	54.3	51.6	48.9	46.3	48.1	50.8	52.0	55.8	62.2	50.4
Ratio of gain (loss) on sale and foreign exchange operations to total income	11.9	9.6	14.8	10.8	8.6	8.3	9.0	8.1	3.2	14.1
Ratio of personnel expenses to total non-interest expenses	45.9	43.0	44.7	41.0	40.5	41.2	41.4	43.6	42.4	39.8
<b>Liquidity</b>										
Liquidity ratio (ratio of liquid assets to current liabilities) <sup>8</sup>	49.7	48.0	42.0	42.4	41.7	42.9	41.9	43.5	39.0	49.9
Ratio of liquid assets to total assets <sup>8</sup>	32.4	32.4	29.3	27.7	28.3	26.9	24.1	21.9	18.6	23.7
Ratio of current liabilities to total liabilities <sup>7</sup>	72.9	75.0	77.9	72.4	74.2	67.5	61.9	54.2	51.4	50.5
Three months Differential of VILIBOR and EURIBOR; basis points <sup>9</sup>	385	196	62	59	49	5	7	230	700	320
Ratio of deposits to total loans (excluding interbank loans)	154.1	147.5	136.8	107.6	102.5	88.2	77.8	66.4	53.5	66.9
Ratio of short-term liabilities to banks to total liabilities to banks <sup>10</sup>	99.9	92.2	85.1	81.8	70.7	60.3	51.0	37.0	39.8	41.1



Financial stability indicators	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Assets</b>										
Ratio of loans (excluding interbank loans) to assets	45.1	47.1	51.3	60.6	64.0	67.3	70.9	74.1	79.6	72.8
Ratio of household loans to total loans (excluding interbank loans)	9.7	9.9	13.8	18.0	23.8	28.3	35.2	39.2	40.0	43.9
Ratio of non-financial corporation loans to total loans (excluding interbank loans)	67.6	66.6	67.5	64.9	59.1	51.7	53.3	51.3	52.3	50.4
Ratio of debt securities to assets	14.3	16.3	19.6	14.6	11.4	11.4	11.4	9.1	6.7	9.2
Ratio of government debt securities to assets	10.2	12.9	15.2	11.9	9.3	7.9	8.4	4.4	3.2	5.9
Ratio of government debt securities to total securities	71.6	79.3	77.4	81.2	82.2	69.7	73.7	48.0	47.8	64.0
Ratio of loans to non-residents to total loans (excluding interbank loans)	4.7	5.0	3.9	2.2	1.0	1.4	1.8	2.0	2.3	3.1
<b>Liabilities</b>										
Ratio of liabilities to assets	89.5	90.1	89.5	90.2	91.3	92.8	92.9	92.7	92.4	94.0
Ratio of deposits to total liabilities	77.6	77.2	78.5	72.3	71.9	64.0	59.4	53.1	46.1	51.8
Ratio of resident deposits to total deposits	95.9	95.4	94.9	93.9	92.4	90.6	91.3	91.3	94.6	94.7
Ratio of individuals deposits to total deposits	55.5	59.6	56.9	54.9	51.3	51.7	55.0	56.9	63.1	60.3
Ratio of deposits of private non-financial corporations to total deposits	27.2	28.8	31.1	31.4	33.6	36.1	32.3	31.0	27.7	27.7
Ratio of liabilities to banks to total liabilities	10.7	14.0	15.0	22.8	22.5	30.6	32.5	37.7	47.0	40.8
Ratio of liabilities to banks of parent bank groups to total liabilities	...	...	...	...	...	78.9	88.3	92.6	94.7	95.4
Ratio of liabilities to banks of parent bank groups to total liabilities	...	...	...	...	...	24.1	28.7	34.9	44.5	39.0
Ratio of liabilities to banks of parent bank groups to total liabilities to non-residents	...	...	...	...	...	66.1	71.5	77.0	85.3	84.3
<b>Assets and liabilities of non-residents</b>										
Ratio of non-residents' assets to total assets	20.3	18.3	13.0	11.0	15.6	16.1	16.5	14.8	11.9	17.4
Ratio of non-residents' liabilities to total assets	17.9	18.7	18.3	25.1	26.1	33.9	37.3	42.0	48.3	43.5
Ratio of net non-residents' liabilities to assets	-2.5	0.5	5.3	14.1	10.6	17.8	20.8	27.2	36.4	26.1
<b>Foreign exchange rate risk</b>										
Ratio of foreign currency denominated assets to total assets <sup>11</sup>	53.7	51.3	45.3	49.1	57.2	61.7	55.9	57.3	64.5	72.9
Ratio of foreign currency denominated loans to total loans (excluding interbank loans) <sup>11</sup>	66.8	60.9	51.5	54.6	58.3	65.8	52.8	55.6	64.6	73.9
Ratio of foreign currency denominated liabilities to total liabilities <sup>11</sup>	54.1	52.3	44.5	46.0	45.5	51.6	51.9	56.2	63.3	61.6
Ratio of foreign currency denominated deposits to total deposits <sup>11</sup>	...	...	...	...	...	...	...	27.3	29.1	34.0
Ratio of net open position in foreign currency to regulatory capital <sup>1, 2</sup>	3.76	1.94	-1.47	10.80	-1.88	-0.96	-1.39	-2.43	0.39	0.84

Source: Bank of Lithuania calculations.

Notes: 1) The indicators were calculated based on individual supervisory financial statements of banks (i. e. statements consolidated on international and cross-sectoral levels have not been used) and covers all the banks operating in the country and foreign bank branches, unless otherwise stated; 2) From early 2008 financial data have been compiled using EU FINREP statements. This may have 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 up to one year.

<sup>1</sup> Excluding foreign bank branches.

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

<sup>3</sup> From the end of 2005 until late 2008, non-performing loans were defined as loans with regular payments overdue more than 60 days (this indicator also used to cover impaired loans overdue more than 60 days).

<sup>4</sup> From the middle of 2008, non-performing loans are defined as loans with regular payments overdue for more than 60 days, but they however are not impaired loans or impaired loans (for which specific provisions were made). The new definition of non-performing loans is not comparable with the previous one.

<sup>5</sup> Up to 2004, special provisions used to cover provisions against general portfolio risks.

<sup>6</sup> Special provisions cover provisions against assets measured on consolidated and individual basis.

<sup>7</sup> Net profit (loss).

<sup>8</sup> Definitions of liquid assets and current liabilities are available in the Rules for Calculation of Liquidity Ratio as approved by Resolution No. 1 of 29 January 2004 of the Board of the Bank of Lithuania.

<sup>9</sup> End-of-period data.

<sup>10</sup> Up to the end of 2007, the indicator covers funds from banks and other financial corporations. From 2000 to 2007 funds from financial corporations and funds from banks and financial corporations declined from 10 to 3 per cent.

<sup>11</sup> Euro loans and liabilities account for the largest share of loans and liabilities denominated in foreign currencies. Foreign exchange risk should be assessed taking into account the currency board regime and fixed litas and euro exchange rate.

Table 2. Key operational indicators of non-financial corporations

Type of economic activity <sup>1</sup>	Profitability <sup>2</sup>		Financial leverage <sup>3</sup>		Interest rate payment indicator <sup>4</sup>		Debt servicing capacity <sup>5</sup>		Bankruptcy probability <sup>6</sup>	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Forestry and fishing	2.0	-1.2	n/a	n/a	3.8	4.3	n/a	n/a	9.7	6.8
Mining and quarrying	25.9	4.3	28.5	42.0	5.7	1.9	222.1	65.1	1.6	2.8
Manufacturing	2.3	0.2	105.4	93.9	2.2	1.1	37.1	27.5	3.9	6.0
Energy supply	1.9	-12.1	41.0	38.8	2.1	-10.6	82.1	5.3	0.5	1.0
Water supply	3.6	1.4	34.7	34.1	2.8	1.7	59.3	62.0	1.6	1.5
Construction	6.4	-4.9	150.2	140.5	4.7	0.0	47.3	3.4	3.6	7.1
Wholesale and retail trade	3.4	0.9	177.1	158.2	2.6	1.4	43.4	22.5	1.9	2.9
Transport and storage	2.0	-0.7	83.6	68.9	1.7	0.7	45.9	44.0	2.1	6.8
Accommodation and catering	-0.4	-7.1	204.8	252.1	1.0	-0.3	11.3	59.9	2.7	3.2
Information and communication	12.4	7.9	80.3	72.2	4.7	3.3	83.5	74.6	0.6	1.7
Real estate operations	16.6	-12.6	112.2	137.8	1.6	0.7	13.2	3.5	0.8	2.4
Professional scientific and technical activities	5.3	-26.7	19.1	15.4	1.2	0.6	39.3	-32.5	0.8	2.0
Education	5.3	11.5	78.8	35.2	2.0	10.2	57.9	171.0	0.0	1.2
<b>Total</b>	<b>3.9</b>	<b>-1.2</b>	<b>88.1</b>	<b>74.6</b>	<b>2.2</b>	<b>0.7</b>	<b>40.0</b>	<b>19.8</b>	<b>2.3</b>	<b>4.0</b>

Sources: Department of Statistics and Bank of Lithuania calculations.

<sup>1</sup> Abbreviations for some economic activities are used.

<sup>2</sup> Ratio of profit before taxes to sales; during period; percentages.

<sup>3</sup> Ratio of liabilities and own capital; end of period; percentages.

<sup>4</sup> Ratio of costs of financial and investment operations, and economic activities to income from financial and investment operations; during period; times.

<sup>5</sup> Ratio of profit before taxes, amortization, and depreciation during period to end of period financial debts; percentages.

<sup>6</sup> Ratio of the number of initiated bankruptcy procedures during the year to the end of period number of enterprises; percentages.

Table 3. Financial system of Lithuania

	2007					2008					2009				
	number	assets				number	assets				number	assets			
		LTL million	%	as % of GDP	Compared to GDP, %		LTL million	%	Annual rate of change, %	Compared to GDP, %		LTL million	dalis, %	Annual rate of change, %	Compared to GDP, %
<b>Banks</b>	14	80,990	80.5	37.5	82.1	16	89,785	82.5	10.9	80.7	17	84,273	82.7	-6.1	91.3
Banks, excluding foreign bank branches	9	74,334	73.9	36.0	75.3	9	73,693	67.7	-0.9	66.3	9	69,098	67.8	-6.2	74.8
Foreign bank branches	5	6,656	6.6	56.3	6.7	7	16,056	14.8	141.2	14.4	8	15,175	14.9	-5.5	16.4
<b>Credit unions</b>	67	655	0.7	41.8	0.7	67	795	0.7	21.3	0.7	67	933	0.9	17.4	1.0
Central Credit Union	1	142	0.1	29.1	0.1	1	137	0.1	-3.0	0.1	1	205	0.2	49.4	0.2
<b>Leasing companies</b>	11	10,857	10.8	45.1	11.0	11	11,337	10.4	4.4	10.2	9	8,437	8.3	-25.6	9.1
<b>Insurance market</b>	18	3,486	3.5	26.9	3.5	17	3,487	3.2	0.0	3.1	15	3,345	3.3	-4.1	3.6
Life assurance companies	6	1717	1.7	38.4	1.7	6	1537	1.4	-10.5	1.4	6	1850	1.8	20.4	2.0
Non-life insurance companies	12	1769	1.8	17.5	1.8	11	1951	1.8	10.3	1.8	9	1495	1.5	-23.4	1.6
<b>Capital market participants</b>	118	2,696	2.7	63.6	2.7	124	993	0.9	-63.1	0.9	126	1,424	1.4	43.3	1.5
Financial brokerage companies	13	141	0.1	-1.0	0.1	12	54	0.0	-61.6	0.0	10	41	0.0	-23.5	0.0
Management companies	13	83	0.1	54.2	0.1	14	83	0.1	0.0	0.1	13	78	0.1	-6.1	0.1
Open-ended investment companies	1	21	0.0	-40.3	0.0	1	6	0.0	-72.8	0.0	1	7	0.0	16.1	0.0
Investment funds	33	1,241	1.2	57.2	1.3	34	381	0.4	-69.3	0.3	34	440	0.4	15.6	0.5
Foreign collective investment undertakings	58	1,211	1.2	97.1	1.2	63	470	0.4	-61.2	0.4	68	858	0.8	82.5	0.9
Holding investment companies	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>Pension funds</b>	37	1,791	1.8	82.9	1.8	38	2,311	2.1	29.1	2.1	38	3,342	3.3	44.6	3.6
Pillar II pension funds	28	1,687	1.7	86.4	1.7	29	2,251	2.1	33.4	2.0	29	3,262	3.2	44.9	3.5
Pillar III pension funds	9	104	0.1	40.5	0.1	9	61	0.1	-41.4	0.1	9	80	0.1	30.5	0.1
<b>Financial system</b>	266	100,618	100.0	39.1	102.0	274	108,847	100.0	8.2	97.9	273	101,958	100.0	-6.3	110.4
<b>Stock exchange capitalisation</b>	...	26,950	...	-9.9	27.3	...	11,999	...	-55.5	10.8	...	14,906	...	24.2	16.1
Listed equities	...	23,796	...	-1.6	24.1	...	9,004	...	-62.2	8.1	...	11,116	...	23.5	12.0
Listed debt securities	...	3,154	...	-5.0	3.2	...	2,995	...	-5.0	2.7	...	3,790	...	26.5	4.1

Sources: ISC, SC, Lithuanian Leasing Association, Association of Lithuanian Banks, Statistics Department and Bank of Lithuania calculations.

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