



LATVIJAS BANKA

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**FINANCIAL STABILITY REPORT**

**2007**

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## ABBREVIATIONS

CAR – capital adequacy ratio  
CIS – Commonwealth of Independent States  
CSB – Central Statistical Bureau of Latvia  
DENOS – securities settlement system of the LCD  
DVP – delivery-versus-payment  
ECB – European Central Bank  
EKS – electronic clearing system of the Bank of Latvia  
EU – European Union  
EU10 – countries which joined the EU on 1 May 2004  
EU12 – countries which joined the EU on 1 May 2004 and on 1 January 2007  
EU15 – EU countries before 1 May 2004  
FCMC – Financial and Capital Market Commission  
FOP – free of payment  
FRS – US Federal Reserve System  
GAP – repricing gap or difference between RSA and RSL  
GDP – gross domestic product  
HICP – Harmonised Index of Consumer Prices  
LCD – Latvian Central Depository  
LTV – loan to value  
MFI – monetary financial institution  
NBFS – non-bank financial sector  
NPLs – non-performing loans  
OPEC – Organisation of Petroleum Exporting Countries  
PNS – postal payment system  
RIGIBOR – Riga Interbank Offered Rate  
ROA – return on assets  
ROE – return on equity  
RSA – interest rate sensitive assets  
RSE – Riga Stock Exchange  
RSL – interest rate sensitive liabilities  
RWA – risk weighted assets  
SAMS – interbank automated payment system of the Bank of Latvia  
SJSC – state joint stock company  
UK – United Kingdom  
US – United States of America  
VaR – the maximum expected losses over a certain period of time and with a given probability (Value-at-Risk)  
VNS – securities settlement system of the Bank of Latvia

*Sources: the Central Statistical Bureau of Latvia, the Financial and Capital Market Commission, LURSOFT (Database of the Republic of Latvia Register of Enterprises), the Latvian Central Depository, Reuters, Latio Ltd., Ober Haus Real Estate Latvia Ltd., Ltd. Balsts, Arco Real Estate Ltd., the European Central Bank, Eurostat, the State Unified Computerised Land Register, the State Land Service, the Treasury of the Republic of Latvia and the Bank of Latvia.*

*Charts have been compiled on the basis of data provided by the relevant national central banks and the European Central Bank (Chart 1), Reuters (Chart 2), the State Unified Computerised Land Register (Chart 3.1), the State Land Service, Latio Ltd., Ober Haus Real Estate Latvia Ltd., Balsts Ltd., Arco Real Estate Ltd. (Chart 3.2), the Central Statistical Bureau of Latvia (Charts 3.3, 10–18, 21, 22, 61 and 62), MG Media Ltd. (Charts 3.4 and 3.5), the Bank of Latvia (Charts 4, 6–8, 18, 19, 23–25, 51–54.2, 63–75 and 78–82), the Financial and Capital Market Commission (Charts 9, 26–38, 50 and 60), Lursoft Ltd. (Chart 10), the European Central Bank (Chart 20), Eurostat (Charts 20 and 21), Latio Ltd. (Chart 22), bank lending surveys conducted by the Bank of Latvia (Charts 39.1.a–39.3.b), the Latvian Central Depository (Charts 76–79), the Treasury (Charts 80–82) and estimates prepared by the Bank of Latvia, also based on the Financial and Capital Market Commission data (Charts 5, 40–49 and 55–59). The table is based on the data of the Bank of Latvia and the Treasury of the Republic of Latvia.*

*Figures featured in the charts are rounded values.*

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## EXECUTIVE SUMMARY

Latvia's banking sector<sup>1</sup> remained financially sound in 2007. Despite the emerging signs of moderation in the growth of Latvia's economy, this was evidenced by still high earnings and profitability indicators as well as good quality of loans. In the second half of 2007, the government's anti-inflation plan, a more prudent bank lending policy and developments in the global financial markets facilitated deceleration of lending growth rates; domestic demand gradually subsided, and real estate prices experienced a change of trend – the steep growth was replaced by a moderate decline. From the financial stability aspect, the new trends are positive and welcome; however, considering the macroeconomic imbalances in the Latvian economy, serious risks to financial stability need to be reckoned with.

The major risks to financial stability in 2008 are associated with the banks<sup>2</sup> capacity to absorb the slowdown of economic growth. The risks are further aggravated by the fact that the slackening of economic growth in Latvia has occurred in the time of unfavourable developments in the external economic environment.

A slower domestic growth is expected to facilitate the easing of domestic and external imbalances. However, high levels of foreign debt, inflation and current account deficit, as well as the anticipated deterioration in the quality of the banking sector's loan portfolio magnify sensitivity of the Latvian economy to a less favourable assessment by foreign investors. This, in turn, might cause worsening of financing conditions for Latvian banks.

The slowdown of economic growth will first have an adverse effect on companies in the real estate business. Though the exorbitantly fast growth subsided somewhat in the second half of 2007, indebtedness of the sector sustained the high level recorded in the previous years. In the past years, the sharp rise in the sector's indebtedness was supported by dynamic expansion and high profitability of the industry. In the fourth quarter of 2007, the companies in real estate business witnessed a steep drop in profitability and interest rate payment coverage. The slowdown of economic growth, a further drop of real estate prices and a decrease in profitability of real estate companies are expected to weaken their debt servicing capacity. Though considering the gradual, albeit tangible decrease in residential property prices since mid-2007, the risk of a drastic price adjustment in real estate market has lessened, the actual and forecasted smoother adjustment of residential prices and an increased financial vulnerability of companies in the real estate business add to the possibility that bank credit risks might materialise as a result of developments in the real estate market. A slower growth of the economy is likely to impair profitability of non-financial corporations in other sectors as well, weakening their debt servicing capacity, to be reflected in an increase of NPLs.

As for the household sector, in 2008 debt servicing problems potentially are to be faced by more vulnerable borrowers, including those whose income depends on conjuncture in the real estate sector. The rapid decrease in the growth of household debt is a positive sign; however, the notable increase in the amount of interest paid by households was way above the increase of gross wages and salaries in 2007. Considering the slowdown in the economy, the growth rate of wages and salaries might go down in the near future. This is why, with inflation running high, the debt servicing burden of households might increase.

The risks to domestic financial stability are aggravated by external factors, including volatility in financial markets and the tense liquidity situation, as well as the economic developments in the euro area. This leads to an increase in investors' risk aversion as

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<sup>1</sup> For the purposes of this report, "banking sector" denotes all banks and branches of foreign banks registered in Latvia (21 banks and 4 branches of foreign banks at the end of 2007).

<sup>2</sup> For the purposes of this report, "banks" denote Latvia-registered banks that are providing financial services on their own behalf (21 banks at the end of 2007).

to riskier markets, including emerging markets, and also diminishes the role of external demand as a stabilising factor in the current situation of moderating economic growth in Latvia. These factors are the drivers of the increase of financing costs. In view of Latvia's heavy dependence on foreign capital for financing of the current account deficit, the increase of financing costs might possibly induce a further decline of lending growth and a slowdown of economic development.

There is a very low probability that in 2008 the existing risks might materialise to the extent that they have an impact on bank performance, including a drop of CAR below the minimum requirement. The bank liquidity has not decreased, earnings and profitability remain high, and this allows banks to absorb even a considerable deterioration in the quality of loan portfolio. The risks are mitigated by the increase of bank capital in 2007 as well as by the fact that the largest part of bank external liabilities is long-term financing from parent banks. However, with real estate prices continuing to melt and GDP growth still slowing down, the possibility that these risks materialise could become more topical. In this context, it is critical that the performance of external sector, i.e. exports, be enhanced, in order to provide extra support to the economy at the time when domestic market oriented sectors are on a downslide, and to improve the investors' assessment of the Latvian private sector's ability to meet its debt obligations.

## 1. RISKS RELATED TO THE MACROFINANCIAL ENVIRONMENT

### 1.1 External Economic and Financial Environment

#### *Main developments of external economic environment*

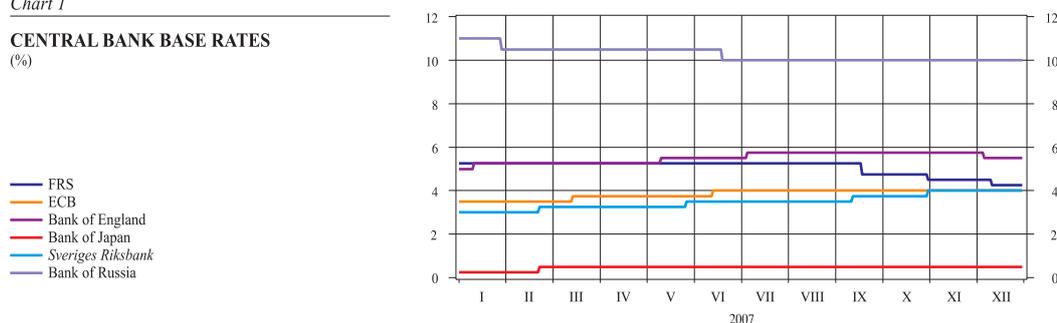
**In the first half of 2007, the global economy developed robustly, whereas in the second half of the year its growth was seriously affected by the US sub-prime mortgage market crisis and the subsequent global financial market fluctuations.**

At the beginning of 2007, the pace of the global economic growth was rather buoyant on account of the swiftly growing Asian economies; however, in the fourth quarter, some moderation started to be felt primarily due to decelerating US GDP growth. In the fourth quarter, economic growth slowed down also in the euro area countries, while rebounding in Japan. In the second half of the year, when the concerns about the US sub-prime mortgage market intensified, mutual confidence among banks and other financial institutions deteriorated and resulted in financial market liquidity shortages. Major central banks of the world provided increased liquidity to the market thus relieving liquidity stress. Nevertheless, the IMF experts predict that this financial market strain will continue, reflecting significant valuation problems of complex financial instruments.<sup>3</sup> Uncertainties about the size of financial institution losses are also of great importance, because financial instruments were not included in balance sheets, and loss records of some banks gave rise to concerns about potential financial problems of other banks. These concerns were intensified by the widely-accepted practice of the US credit institutions to base their mortgage portfolio financing on issuing mortgage-backed securities, thus exposing a large number of investors to credit risk. Moreover, in order to attract investors in possibly larger numbers, mortgage-backed securities were often broken down in groups with different risk ratings; this even to a larger extent reduced market participants' ability to assess the exposure of various financial institutions to losses resulting from the US sub-prime mortgage crisis.

The FRS did not raise the federal funds target rate in the first half of 2007; however, in the last four months of the year, this rate was reduced on three occasions (from 5.25% to 4.25%; see Chart 1). The primary objective of the FRS decisions was to offset adverse financial market sentiments. In order to reduce the risk of higher inflation, the ECB, on the other hand, raised the base rate twice by 25 basis points, to stand at 4.00%

<sup>3</sup> MF Global Financial Stability Report Market Update, 29 January 2008.

Chart 1

**CENTRAL BANK BASE RATES**  
(%)

in the first half of 2007. In the second half of the year, the ECB left its rates unchanged. The bank's capacity to alleviate the growing pressure of inflation via raising the key rate in the second half of the year was confined by the global financial market turmoil and projections regarding potential deceleration of growth in economic activity in the euro area countries. To make the inflation upsurge more moderate, the Bank of England conducted a restrictive monetary policy in the first half of the year and raised the official bank rate three times by 25 basis points, to stand at 5.75%. With the global financial markets experiencing turmoil and the UK future economic development outlook deteriorating, on 6 December the Bank of England cut the official bank rate by 25 basis points (to 5.50%). The Bank of Japan raised the base rate by 25 basis points (to 0.50%) on 21 February.

The US economic growth was volatile in 2007. Following a notable drop in the first quarter, the pace of growth accelerated, with export performance improving and private consumption remaining rather steady. After a decline in inflation in the first half of the year, an upsurge in energy prices caused the pressure on consumer price index to intensify. The growth rate continued on an upward trend in the third quarter, but in the fourth quarter a sharp drop mainly fuelled by smaller investment inflows in the US real estate market, declining corporate stock levels and decelerating growth of the US exports of goods was observed. With many financial institutions incurring losses due to the US real estate market crisis, US financial market resources were not so readily available. The indicator of US core inflation improved somewhat, yet due to rising oil and food prices the inflation risk was strong. Currently, the FRS experts predict a slowdown in the US economic growth in the first half of 2008 due to financial sector turmoil to be likely followed by stabilisation in the second half of the year on account of monetary and possibly also fiscal policies.<sup>4</sup> Nevertheless, base rate reductions and food and energy price rises may have an upside effect on the country's price level.

In 2007, a stable upward trend in economic activity continued in the euro area, with real GDP picking up 2.6%. The economic growth was primarily fuelled by domestic demand. Structural reforms were the driver behind employment expansion, making unemployment slip down to a 25-year low. Despite risk revaluation and uncertainty associated with potential effects of risks on real economy continuing in financial markets, the ECB experts project a 1.3%–2.1% GDP increase for the euro area in 2008. In the first three quarters of 2007, the average growth of HICP was 1.9%. However in the fourth quarter of the year, inflation amounted to a historical high (3.1% in December). A steep leap in energy and food prices and the anticipated effect on annual inflation of the year-old drop in energy prices were the drivers behind this rise. According to the ECB staff macroeconomic projections of March 2008, HICP annual inflation may amount to 2.6%–3.2% in 2008.<sup>5</sup> This projection may be adversely affected by further oil and food price rises.

According to the forecasts of IMF analysts, the GDP growth in the countries of Central and Eastern Europe is likely to slow down to 4.6% in 2008 (5.5% in 2007). Inflation

<sup>4</sup> Minutes of the Federal Open Market Committee, January 29–30, 2008, pp. 10–12.

<sup>5</sup> ECB Monthly Bulletin, March 2008, p. 78.

rose significantly under the pressure from food and energy prices, and wages and salaries. In 2007, it recorded the highest average annual growth in Latvia (10.1%), Hungary (7.9%) and Bulgaria (7.6%). Duly accounting for a potential upward pressure from wages and salaries and inflation, in the course of the year *Narodowy Bank Polski* and *Česká národní banka* raised their base rates on several occasions (to 5.00% and 3.50% respectively). At the same time, *Magyar Nemzeti Bank* and *Národná banka Slovenska* conducted expansionary monetary policy, reducing interest rates in several steps (to 7.50% and 4.25% respectively).

In the future, national central banks of developed countries may incur risk balancing problems, as the lowering of interest rates is likely to induce higher inflation levels, while lower rates may slow down the pace of economic progress.

**The pace of growth in Latvia's major trade and financial partner countries is expected to slow down in the coming years.**

The economic growth in Germany lost momentum in 2007. It was in part determined by a raised VAT rate (from 16% to 19%) from the beginning of the year, financial market fluctuations and modest private consumption. Duly accounting for appreciation of the euro and high oil prices, experts of the *Deutsche Bundesbank* predict that in 2008 the pace of the German economic advance will continue on a downward trend (a decline from 2.5% in 2007 to 1.9% in 2008). Labour market reforms and rising wages and salaries are expected to fuel the growth in private consumption, while the decelerating pace of global expansion and appreciation of the euro, at the same time, will have an adverse effect on export growth.

The UK recorded a robust GDP growth in 2007. It was mainly driven by private consumption and gross fixed capital formation. However, the financial market turmoil deteriorated the outlook for economic growth. According to the projection data compiled by the UK HM Treasury, the GDP growth in the UK is likely to decelerate to 1.6% in 2008 (3.1% in 2007).

In 2007, the economic growth in Sweden was primarily driven by higher productivity, private consumption and gross capital formation. When the external economic environment deteriorated the economic growth slowed down. The appreciation of the Swedish krona against the US dollar had an adverse impact on the pace of export expansion at the end of the year. In response to the surging inflation, *Sveriges Riksbank* raised the refinancing rate by 0.25 percentage point four times in 2007 (to 4%). *Sveriges Riksbank* experts project that in 2008 the pace of GDP growth is likely to slow down to 2.1%.

The economic development in Finland moderated in 2007. Despite a persisting steady domestic demand, the global market volatility had a negative effect on the country's exports. Industrial output shrank (in production of wood, paper and electronic equipment). *Suomen Pankki – Finlands Bank* forecasts that the pace of GDP growth is going to moderate (from 4.4% in 2007 to 3.1% in 2008) and slow down in the coming years as well.

In 2007, Russia recorded sustained and stable economic development, primarily fuelled by domestic demand and a steep rise in investment. Investors' positive sentiments were still underpinned by Russia's growth potential and rapid income rise. The global financial market turmoil reduced somewhat the expansion of capital inflows and the appreciation of the Russian rouble. The Central Bank of the Russian Federation lowered the base rate in January and February, to stand at 10%. According to the forecasts by experts of the Ministry of Economic Development and Trade of the Russian Federation, the economic growth rate in Russia is expected to decelerate from 8.1% in 2007 to 6.6% in 2008.

Economic growth trends recorded for Estonia and Lithuania in 2007 were mixed. With the household consumption and exports shrinking, the Estonian economic development sharply lost momentum (from 11.2% in 2006 to 7.1% in 2007), whereas lay-offs at

some enterprises accounted for an upswing in unemployment. In Lithuania, on the other hand, the expansion in a number of sectors (including agriculture, forestry and hunting, trade, and construction) in the second half of 2007 supported acceleration in the GDP growth from 7.7% in 2006 to 8.8% in 2007. While unemployment in Lithuania was on a downward trend for a while now, labour shortage still figured as a pressing problem. In both countries, albeit in Lithuania to a lesser extent, inflation levels were on the rise due to higher food and energy prices. According to the forecasts by *Eesti Pank* and *Lietuvos bankas*, GDP growth in Estonia is likely to moderate to 4.3% and in Lithuania to 8.1% in 2008.

### *Development of global financial markets*

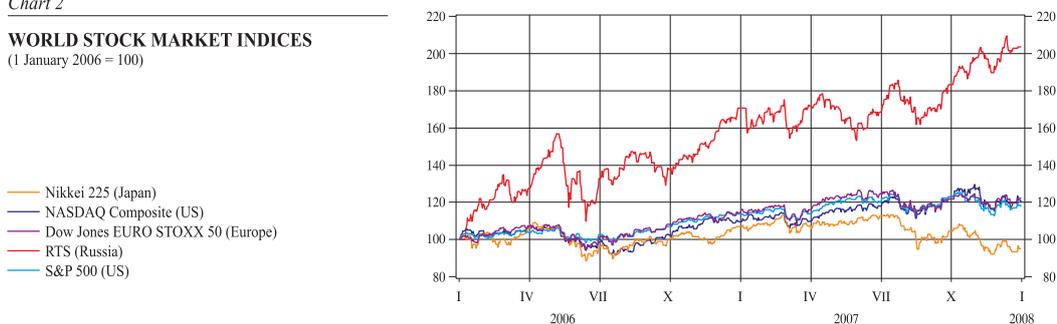
#### **The causes behind the global financial market turmoil were the outlook for the global economic development, projected corporate future income flows and housing market crisis in the US.**

The fluctuations of the US dollar signalled concerns about the US economic growth. In 2007, the US dollar depreciated against several major currencies. Its overall decline against the euro in 2007 was 11.5%. The year 2007 saw two major periods of US dollar depreciating against the euro – from the beginning of the year to the end of April, and from September to late November. In the first half of the year, a drop in the US dollar value was on account of a rather weak economic performance in the US and the restrictive monetary policy pursued by the ECB. In the second half of the year, fluctuations in its exchange rate were primarily fuelled by the sub-prime mortgage market crisis, global financial market turmoil caused by it, and market participants' expectations regarding base rate cuts of the US dollar and euro.

The outlook for the global economic development, projected corporate future income flows, interest rates and turmoil in the US financial market were among the core factors in forming investors' attitude regarding investment in equity securities. Despite the global stock markets recording several instances of substantially falling stock prices in 2007 (end of July-beginning of August, November, and end-December), in most cases stock prices rebounded and posted a pickup for the year overall. The European stock market index Dow Jones EURO STOXX 50 increased by 6.8%, and the US stock market indices S&P 500 and NASDAQ Composite grew by 3.5% and 9.8% respectively. The Russian stock market index RTS went up 19.2%. At the same time, stock prices on the Japanese stock market lost 11.1% (see Chart 2).

Chart 2

#### **WORLD STOCK MARKET INDICES** (1 January 2006 = 100)



Even though these indices record an overall rise, bank share prices experienced a drop in 2007, with the global financial market turbulence behind it. The share prices of Scandinavian banks whose subsidiaries actively operate also in the Baltic States incurred lesser price contractions, for compared with other financial institutions elsewhere in the world they incurred minor losses. Negative global financial market effects on share prices of those banks were offset by the steady economic development in Scandinavia. The Baltic State subsidiaries of Scandinavian banks earned high profits; nevertheless, in addition to other factors, market participants' concerns about macroeconomic risks in the Baltic States weighed heavily on share prices.

The oil price jump figured as a key inflation-driving factor of the global economy in 2007. Following a sharper drop, oil prices climbed at the beginning of January, rising overall from 59 US dollars to 97 US dollars per barrel. Factors on the supply and demand sides as well as speculative transactions of market participants were behind these oil price movements. In the first half of the year, the demand for oil products increased on account of a more dynamic growth of the global economy, seasonal factors and the US announcing its plans to double strategic oil reserve in the coming 20 years. In the second half of the year, by contrast, the demand weakened due to financial market turmoil. The oil product supply was limited and volatile, mainly affected by a variety of geopolitical factors, e.g. conflicts in Nigeria, aggravation of political situation in Iran, Turkish-Iraq conflict, hurricanes in the Atlantic Ocean and the Gulf of Mexico, and oil production-related OPEC stances.

### *External environment and Latvia's economic activity*

#### **The subdued economic development in the US, financial market turbulence and oil price hikes aggravated risks related to the external economic environment.**

The global economic and financial developments have a many-sided impact on the stability of Latvia's financial system. There are three main external risk factors (impact channels).

1. More prudential approach of foreign investors and an increase in financial costs. The financial sector turmoil in developed countries made investors increasingly cautious especially toward the high-risk markets, including those in emerging economies. As a consequence, the availability of financial resources has decreased, and the cost of borrowing, i.e. interest rates, has increased in the markets of both developed and developing countries. Higher borrowing costs rendered financing from Latvian banks more expensive – particularly those banks with no access to a parent company's funding and having to attract funds directly from global money markets via syndicated foreign bank loans. Duly accounting for substantial dependence of Latvia on foreign capital inflow to finance the current account deficit, higher costs of funding may act as an additional trigger for decelerating pace of lending and sluggishness of the economy.
2. Deceleration in economic growth in Latvia's major trade partners. The subdued economic activity in the US has had a negative impact on the growth in Latvia's major trade partner economies, EU countries among them. This, in turn, had a reducing effect on the demand for Latvian exports of goods and services, decelerating the pace of export growth somewhat and impairing the balancing effect the external demand has had in Latvia in situations of sluggish economic activity.
3. Oil and other commodity price rises in global markets. Additional risks are related to inflation, as a substantial upward trend has recently affected major commodity groups (food, beverages, agricultural raw materials, metals and mineral products in particular). In 2007, non-ferrous and precious metal prices went up. Global wood prices picked up in the first half of the year, while their sharp fall was registered in the latter half of 2007. Global prices are having a clear impact on Latvia's economy, as the latter is small and open, a price taker. The pricing of goods produced in Latvia depends on purchase prices of raw materials and the value added in the production chain.

This suggests that overall, given the current developments in the Latvian economy, adverse external economic and financial conditions figure as an additional stimulus for subduing the pace of the overheated Latvian economy.

## 1.2 Domestic Economic and Financial Environment

### *Overall macroeconomic conditions*

**The year 2007 was a turning point in Latvia's economic development. Domestic demand gradually weakened in the second half of the year, while the real estate market activity posted a substantial deceleration, supporting price adjustments.**

The first half of 2007 saw the steady growth in domestic demand persisting and signs of economic overheating intensifying. The expansion in private consumption was still boosted by the rapid rate of increase in lending and a substantial rise in employment and real income. At the same time, investment increased on account of growing corporate profits, dynamic expansion of crediting, foreign investment and inflow of EU funding. The sectors that focus on meeting the domestic demand grew at a faster pace than those involved in meeting the external one. As a consequence, the current account deficit in the balance of payments rose and, coupled with upward trends in inflationary pressures and overall macroeconomic imbalances, was the central factor behind more pronounced volatility, an underlying cause for Bank of Latvia's interventions in the exchange market, and notably higher interest rates on loans in lats.

In the second half of the year, however, the government inflation-curbing measures, a more prudent bank lending policy, and events in the global financial markets brought about a slowdown to bank lending growth and a gradual contraction of domestic demand; however, the pace of the latter accelerated substantially towards the end of the year.

The growth moderation trend primarily impacted the overheated real estate market and the construction sector, which had displayed a declining demand and real estate price falls since spring. The housing market depended substantially on buyers and their behaviour. Price declines were mainly recorded for standard apartments, apartments in new projects (to a lesser extent), single-family houses, and land for individual construction purposes. They were fuelled by a number of factors, among them restrictions on lending under the government anti-inflation plan, the Law passed by the Saeima of the Republic of Latvia on 17 May 2007 "On Amendments to the Law 'On Personal Income Tax' " (in effect as of 12 June 2007; see Box 1), housing price hikes reaching the maximum, more precautionous bank lending practices, rising interest rates on loans, steadily growing housing market supply due to housing purchased for speculative purposes entering the market, elevated inflation rates, worries about economic cooling, and also expectations of falling housing prices.

The retail trade turnover and imports also shrank notably, with the annual growth rate becoming negative at the end of the year. Similarly, a gradual deterioration in consumer confidence indicators was a signal of considerably contracting private consumption.

Meanwhile, the labour market recorded a marked rise in employment and a dynamic upward trend in wages and salaries in the second half of the year due, in part, to a broad-based legalisation of wages. However, a slight increase in unemployment in two concluding months of 2007 suggests that due to a weakening of the domestic demand some labour market adjustments – a more subdued real wage acceleration and rising unemployment rate – are in store.

At the end of 2007, improvements were recorded in the balance of payments' goods and services accounts as well as the current account. In 2008, a further moderate improvement in the current account is expected, as due to contractions in the domestic demand the growth in exports of goods and services is likely to outstrip that in imports, albeit at a slower pace than in 2007. Hopes for expansion in services exports are supported by the better performing transport, storage and communication sector in the second half of 2007 and at the beginning of 2008.

The improving balance of payments, stabilisation of inflation and higher productivity would be the factors signalling a gradual recovery of the economic balance and certain risk mitigation. The impressive leap in prices and costs will urge producers to enhance productivity, and in 2008 the gap between productivity and wage growth is expected to narrow gradually. At the same time, the upswing in inflation in 2008 is likely to exceed the level of 2007, as the surging administered prices, changes in excise tax rate on tobacco, and risks related to global fuel and food price hikes will exert a severe pressure on overall prices, while the lagged effects of contracting demand are likely to be felt only in the second half of the year.

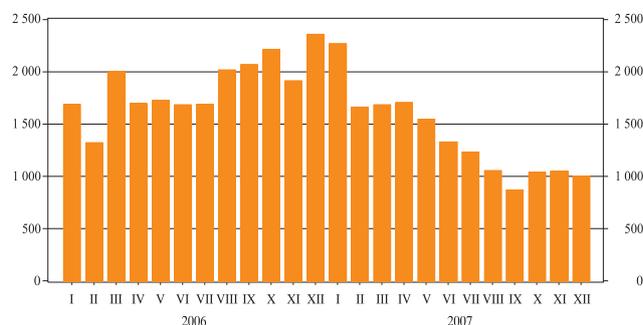
### **Box 1. Latvia's real estate market**

*The year 2007 marked a turning point in Latvia's real estate market where for the first time price drops replaced steep price rises of the previous years. The development of the housing market was determined by customers and their behaviour. By April, apartment prices had continued on an upward trend, with the demand weakening and prices abating afterwards. These movements primarily related to standard apartment prices, with those of apartments in new projects, single-family houses and land for private construction purposes less affected.*

*Occurrences in the real estate market in 2007 can conditionally be split into two phases: prior to and after passing amendments to legislation in connection with the measures under the anti-inflation plan. The dynamics of real estate transactions registered with the Land Register in Riga indicates that a trend of substantial decline has set in since May (see Chart 3.1).*

Chart 3.1

#### **REAL ESTATE TRANSACTIONS IN RIGA REGISTERED WITH THE LAND REGISTER**



*As of the rapid evolution of the property market, April can be described as its breaking point. So far, sellers had dictated market dynamics by offering their own prices that were also supported by enormous demand, benign bank lending policies and low mortgage lending rates. Concerns about overheating in the property market and the forewarning of the bursting bubble did not affect market participants' sentiments; however, real estate market experts acknowledged that housing prices, those of standard apartments in particular, were unreasonably high.*

*Following the effective date of legislative amendments, potential buyers lost much of their ability to borrow for house purchase, hence the supply exceeded the demand substantially, and, by the end of the year, price falls had been recorded not only for standard apartments but also for apartments in new projects and single-family houses.*

#### **Measures under anti-inflation plan**

*The legislative amendments related to the government's anti-inflation plan that became effective as of 1 July 2007 set forth new regulations for both the banks and real estate buyers.*

- *Initial down payment*

*The first down payment on credit for real estate purchase shall be in the amount of not less than 10% of the transaction value, while LTV (the loan-to-value ratio) of a mortgage-backed credit shall not exceed 90%. This provision later figured as the main obstacle for potential housing purchasers to obtain property.<sup>6</sup>*

- *Income statement issued by the State Revenue Service*

*To take out a loan whose amount exceeds the sum total of 100 minimum monthly wages (12 thousand lats in 2007, 16 thousand lats as with 1 January 2008), a statement verifying the borrower's official income shall be compulsory. This imposed a significant constraint on credit availability and reduced the number of real estate transactions.<sup>7</sup>*

- *Increasing the real estate stamp duty*

*As of 16 April 2007, a differentiated amount of stamp duty was set for registration of real estate depending on the number of such property already held by an individual. The stamp duty for registration of the first and second property rights with the Land Register is collected in the amount of 2% of the property value; for each next property unit the amount collected is 4% of the real estate value; the registration of the first two mortgage collaterals costs 0.1% of the loan agreement amount, whereas the duty for each next registration is 3% of the loan agreement amount. This made buyers, speculators in particular, to refrain from obtaining new residential property.<sup>8</sup>*

- *Amendments to the Personal Income Law*

*The revised law provides that, upon selling a real estate registered with the Land Register after 12 June 2007, the income tax in the amount of 25% of the difference between the property purchase and sales prices is to be collected in the case of the respective property having been held by the seller for less than 60 months after its registration with the Land Register.<sup>9</sup>*

*In general, the measures under the anti-inflation plan, aimed, inter alia, at dampening the real estate market dynamics, have achieved the aim: the number of speculative transactions has been restricted, the demand has contracted, investment flows have taken another direction, banks are more cautious in getting involved in the financing of this sector, and savings and income legalisation has been enhanced.*

*The anti-inflation plan was the key factor contributing to a shift in housing price dynamics. However, other factors, among them the solid gap between housing prices and household income levels, price fall expectations, interest rate hikes, elevated inflation, more prudent bank lending policies, real estate market uncertainties and unstable economic situation in the country, figured prominent as well. As a result of these changes, standard apartment prices in Riga dropped 4.7%–7.3% in 2007 (see Chart 3.2).*

*The new project developers were seriously threatened by an upside risk of falling demand. Buyers were hard to please, prices stopped rising and even declined, construction costs rose notably, financing became scarce and more costly, and quality of a part of on-going projects was poor. All these factors impaired the project profitability. The income of developers sharply contracted due to the lack of buyers, and other income sources had to be looked for. Simultaneously, banks tightened lending conditions, and, consequently, the funding needed for new project development shrank.*

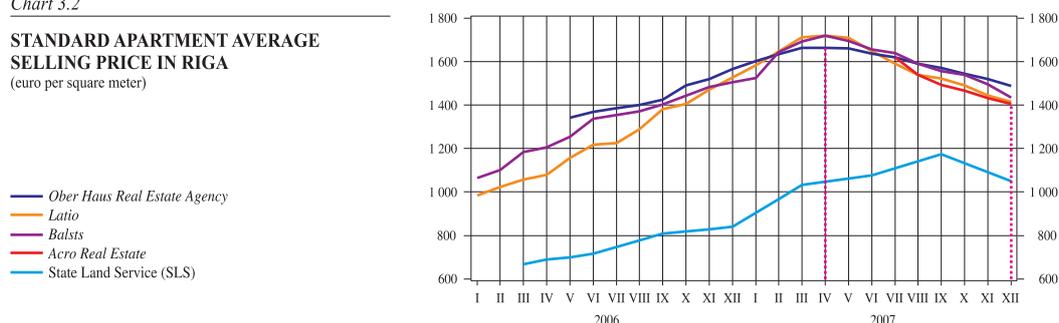
<sup>6</sup> Section 8, Part 10 of the Consumer Rights Protection Law.

<sup>7</sup> Regulations No. 411 of the Cabinet of Ministers of the Republic of Latvia as of 19 June 2007 "On Procedure for Issuing Income Statement to the Borrower by the State Revenue Service"; Section 8, Part 7 of the Consumer Rights Protection Law.

<sup>8</sup> Regulations No. 174 of the Cabinet of Ministers of the Republic of Latvia as of 6 March 2007 "On Amendments to Regulations No. 28 of the Cabinet of Ministers as of 23 January 2001 'On Stamp Duty for Execution of Notary Activities and Registration of Land and Property Rights with the Land Register'".

<sup>9</sup> Section 9, Part 1 (191).

Chart 3.2

**STANDARD APARTMENT AVERAGE  
SELLING PRICE IN RIGA**  
(euro per square meter)


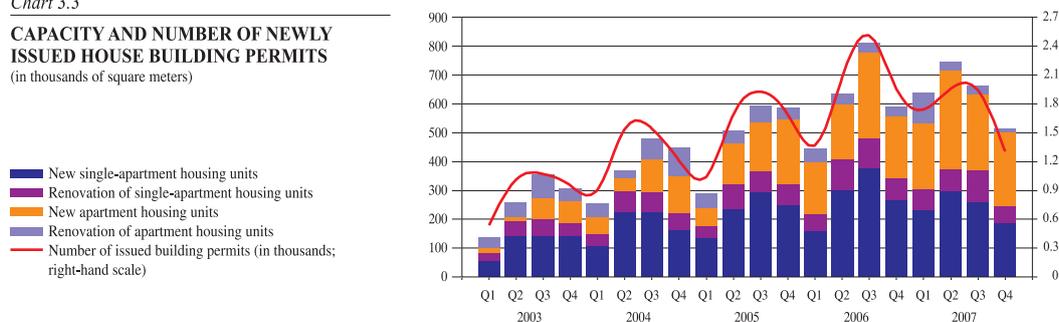
Sources: Latio Ltd., Ober Haus Real Estate Latvia Ltd., Arco Real Estate Ltd., Balsts Ltd., SLS (monthly average price, including apartment prices in new projects and standard block houses).

This resulted in a number of developers temporarily suspending project implementation or selling them.

Developers attempted to boost the demand for new apartments by various discounts and bonuses, offering additional services, trips, furniture and cars. The supply of new apartments in the secondary market expanded due to potential buyers (who had paid reservation fees) being unable to get financing from banks.

These above changes influenced the number of newly issued building permits in 2007 authorising both the construction of privately-owned housing units and apartment blocks (see Chart 3.3). In the first quarter of 2007, building permits posted a substantial year-on-year pickup, their number gradually decreasing in the subsequent quarters. Overall, compared with 2006, the number of building permits newly issued in 2007 decreased by 11.3%; however, residential space in units under construction expanded due to the capacity of building permits picking up 3%.

Chart 3.3

**CAPACITY AND NUMBER OF NEWLY  
ISSUED HOUSE BUILDING PERMITS**  
(in thousands of square meters)


### Rental Market

In contrast to apartment sales where falling prices and market sluggishness were observed, the rental market developed buoyantly, and its activity was dynamic in 2007. According to expert information, the potential apartment buyers postponed purchases because of initial deposit or high price required, whereas owners who had purchased apartments for speculative purposes stepped down in expectation of resumed price rises in the future. This brought the number of rental deals and the amount of rent to go up sharply in the second half of 2007. In 2007 overall, rental and lease transactions picked up 55%. Since the beginning of the year, the number of apartments for rent had increased by 70% and the amount of rent by 25%–30% on average. The year 2007 saw a new trend emerge in the rental market: apartments in new projects were let for rent, as they could not be traded at the desired price.

The gross rental yield curve<sup>10</sup> that reflects how profitable apartment rent is for the owner, i.e. the income of the owner if no credit was taken for the purchase of the apartment, shows that rental yields increase markedly when the apartment prices

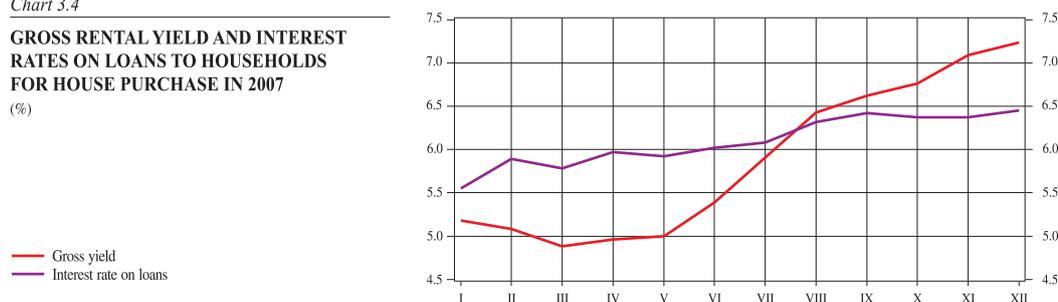
<sup>10</sup> Gross yield (per annum) = (average rent per square meter x 12 months) / average selling price per square meter) x 100.

fall. By March 2007, when housing prices continued to rise, yields had been on a downward trend. In the following months, however, when prices decreased and rent increased, gross rental yields rose from 4.88% in March to 7.24% in December (see Chart 3.4). It should be noted that although credit resources became more costly, the gross rental yield even exceeded the interest rates on loans granted for house purchase.

Chart 3.4

#### GROSS RENTAL YIELD AND INTEREST RATES ON LOANS TO HOUSEHOLDS FOR HOUSE PURCHASE IN 2007

(%)

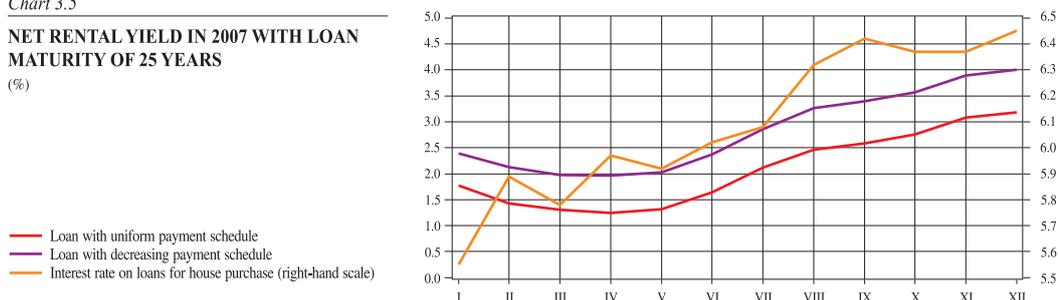


At the same time, the dynamics of net rental yield<sup>11</sup> indicates that if a loan for house purchase maturing in 25 years with a decreasing repayment schedule is taken and the apartment is let out, the profit of the owner projected for December 2007 would be 4% (see Chart 3.5). Under a uniform monthly payment schedule, the projected profit would be 3.18%.

Chart 3.5

#### NET RENTAL YIELD IN 2007 WITH LOAN MATURITY OF 25 YEARS

(%)



Note: The calculation of yields is based on the average rental price per square meter of standard apartments in Riga housing estates quoted in MG Media internet catalogue Rent in Riga; the interest rate is the weighted average interest rate on loans in all currencies to private persons for house purchase.

Rental market experts acknowledge that the wait-and-see stances of owners in part support the upsurge in rent prices, i.e. while the apartment cannot be sold at a profit, the rent is pushed up significantly to ensure mortgage loan payments. However in 2008, rent prices are likely to stabilise on account of the current standard apartment supply outstripping the demand. Duly considering this and a potential further price boost in credit resources, net rental yields may decelerate in the future, with long-term renting becoming a lucrative substitute for purchase.

### Monetary policy of the Bank of Latvia

**In 2007, the Bank of Latvia proceeded with the pursuit of a restrictive monetary policy, aimed at mitigating risk escalation in the future and adjustment of imbalances.**

In contrast to 2005 and 2006 when the minimum reserve ratio was raised or the minimum reserve base of banks was expanded, in 2007 the Bank of Latvia left these indicators unchanged, as they were already rather high, and instead used the interest rate instrument.

In the latter half of February, public concerns about the stability of the lats arouse, and lats were extensively exchanged for foreign currency. The pace of crediting continued

<sup>11</sup> Net yield (per annum) = (average rent per square meter x average apartment space x 12 months x loan maturity in years – aggregate interest rate on credit) / (average selling or market price of apartment x loan maturity in years) x 100.

to be brisk, inflation soared at rather high levels, and potential for a sharp downturn of the economic growth in Latvia intensified. On 24 March, the Bank of Latvia raised the refinancing rate from 5.00% to 5.50%, and on 18 May from 5.50% to 6.00%. The raising of refinancing rate aimed at higher lats borrowing costs under sustained containing of the aggregate demand. On these dates, the interest rate on marginal lending facility was raised from 6.00% to 6.50% and from 6.50% to 7.50% respectively. The interest rate on deposit facility remained unchanged (2.00%). The widening of interest rate corridor reflected growing macroeconomic risks in Latvia.

### *Domestic financial market developments*

**The high inflation rate and amplifying overall macroeconomic imbalances combined with lower rating assigned to Latvia by rating agencies were the drivers of domestic financial market volatility and a substantial rise in lats interest rates.**

As of domestic exchange market, the dynamics of the lats exchange rate was notably conditioned by heightened interest of investors about shifts in Latvia's economic performance indicators in 2007. Aggravation in financial market tensions was caused by rumours about devaluation of the lats and reinforced by downgraded forecast of Latvia's credit rating. On 19 February 2007, the rating agency Standard & Poor's lowered Latvia's credit rating forecast from neutral to negative, which as a rule is perceived as an actual one-point decline by the financial market.

On 19 and 20 February, this brought the lats exchange rate sharply down in the interbank market where it fluctuated between 6–53 points below the official euro selling rate set by the Bank of Latvia until mid-March. In the second half of March, the amount of lats sold grew, with banks overall selling 236 million lats to the central bank. Non-resident MFIs reduced their lats position steeply by selling this currency to Latvian banks, which, in turn, sold a part of these resources to the Bank of Latvia.

As a result, financial market participants experienced a shortage of lats, but in April the exchange rate of lats appreciated rather buoyantly within the Bank of Latvia's intervention band. From the middle of May to the beginning of July, banks bought 336 million lats from the Bank of Latvia. In the remaining part of 2007, the lats exchange rate soared high within the Bank of Latvia's intervention band, with an exception of a short-lived drop in the second half of September, which again was followed by a gradual appreciation of lats. In 2007, banks bought net 159 million lats from the Bank of Latvia.

Temporary exchange market problems, high inflation and the downgrading of Latvia's credit rating forecast by several rating agencies also affected the securities market. By the beginning of October, the RSE capitalisation index OMX Riga had recorded a 15.3% rise against the level at the beginning of the year, as profit indicators of Latvian stock companies were good despite substantially higher costs. In October, the global stock market developments triggered sales activities in the Latvian corporate equity market, and at the end of the year, the stock price level was below that at the beginning of the year. Overall, OMX Riga dropped 9.2%.

The volatile lats exchange market and fluctuations of the bank lats liquidity associated with it had an impact also on the situation in the domestic money market by supporting a rise in lats money market rates. The average weighted interest rate on overnight transactions in lats amounted to 4.97% in 2007 (by 177 basis points in excess of the 2006 level). Lats money market rates on longer term transactions also went up, with 6-month RIGIBOR picking up 450 basis points (to 8.98% on average on an annual basis) and 12-month RIGIBOR growing by 453 basis points (to 9.11%) and reaching the maximum in October 2007. Consequently, the lats money market rates increased at a faster pace than did the euro money market interest rates. Interest rates on loans in lats to resident households and non-financial corporations increased faster than the respective interest rates on loans in euro.

## 2. FINANCIAL POSITION OF THE BANKING SECTOR

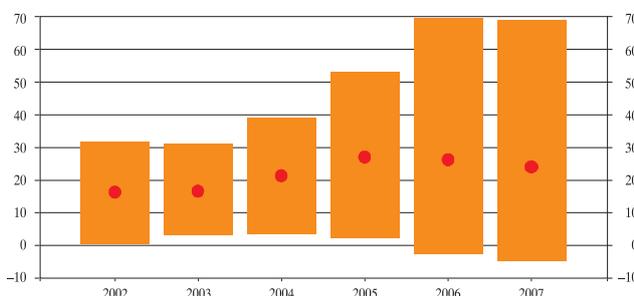
### 2.1 Profitability of the Banking Sector

**In 2007, profitability of the banking sector remained high.**

In 2007, the banking sector profit reached an all-time high again. Unaudited profit amounted to 371 million lats, representing a year-on-year increase of 105 million lats or 40%. The profit of three largest banks accounted for more than a half of all banking sector profit. Although the overall profit increased, several banks reported lower profit figures year-on-year.

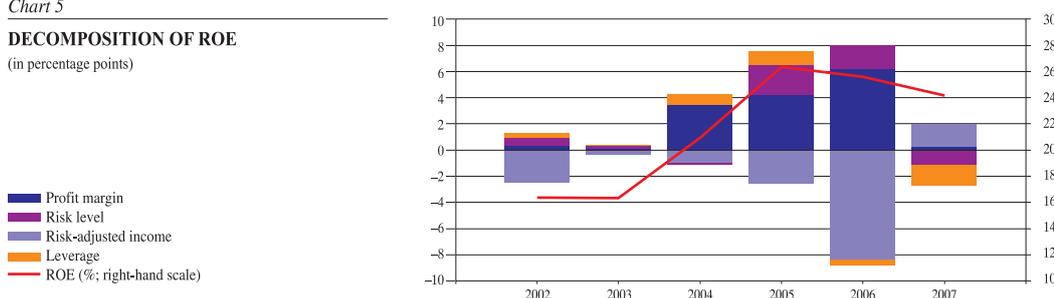
ROE and ROA of banks continued on a slightly downward trend, yet remaining at a rather high level. At the end of 2007, ROE was 24.2% (see Chart 4), whereas ROA stood at 2.0%.

Chart 4  
DISPERSION OF BANKS' ROE (%)



ROE edged down as a result of a lower level of risk and leverage ratio. Risk diminished because of lending deceleration. Asset growth outpaced that of lending. The leverage ratio decreased on account of a significant increase of own funds in 2007. Operating income and pre-tax profit grew to an almost similar extent. Therefore, the profit margin increased only slightly and its contribution to the ROE growth was minor (see Chart 5). The developments concerning the factors contributing to the decrease of the ROE suggest that banks became more prudent and toned down their risk appetite in 2007, which is positive from the perspective of financial stability.

Chart 5  
DECOMPOSITION OF ROE (in percentage points)



	Profit margin	Risk-adjusted income	Risk level	Leverage
ROE =	$\frac{\text{Pre-tax profit}}{\text{Operating income}} \times$	$\frac{\text{Operating income}}{\text{Risk-weighted assets}} \times$	$\frac{\text{Risk-weighted assets}}{\text{Assets}} \times$	$\frac{\text{Assets}}{\text{Capital and reserves}}$

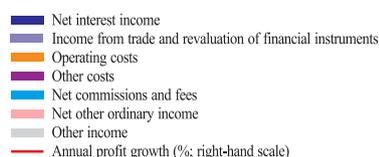
Interest income remained the main contributor to the growth of profit (see Chart 6). The annual increase of net interest income amounted to 48%. The growth of interest expenditure (98%) outpaced that of the interest income (71%). The ratio of net interest income to total income decreased to 32% {34%}.<sup>12</sup> Interest income from loans granted to non-MFIs accounted for 80% of all interest income, representing a slight increase of this contribution during the year.

<sup>12</sup> The respective indicator of the previous year provided in braces.

Chart 6

**CONTRIBUTION OF PROFIT AND LOSS ACCOUNT ITEMS TO ANNUAL PROFIT GROWTH**

(in percentage points)

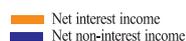


The share of net non-interest income in operating income continued to shrink, as the growth rate of net non-interest income was lower than that of the net interest income (see Chart 7). Net commissions and fees and other similar income accounted for more than a half of the net non-interest income.

Chart 7

**COMPOSITION OF NET OPERATING INCOME**

(%)



Interest expenditure formed the largest share of the total expenditure and increased rather significantly during the year, amounting to 52% {43%}. With foreign bank financing growing considerably, the share of interest on liabilities to MFIs in total interest expenditure expanded significantly and amounted to more than a half of all interest expenditure, almost equalling the operating costs which were the second biggest expenditure item. The operating costs grew by 35% in 2007, with their share in total expenditure shrinking to 30% {36%}. 8.2 million lats was written off as loss, which is slightly less than in 2006. Bank provisions for doubtful debts and liabilities, on the contrary, expanded considerably.

The cost-to-income ratio<sup>13</sup> decreased (45.6% {47.6%}), suggesting that the cost-efficiency of the banking sector had improved.

In 2007, weighted average interest rates on new loans to resident non-financial corporations and households and new deposits from this segment continued to rise, amounting to 7.6% and 5.6% at the end of the year respectively (see Chart 8). As in the previous year, the overall margin on new business<sup>14</sup> averaged 2.3 percentage points, yet in the fourth quarter it declined to 1.9 percentage points.

The narrowing of the overall margin impaired the profitability of banks; nevertheless, several big banks slightly increased their margins, therefore, the overall margin could grow.

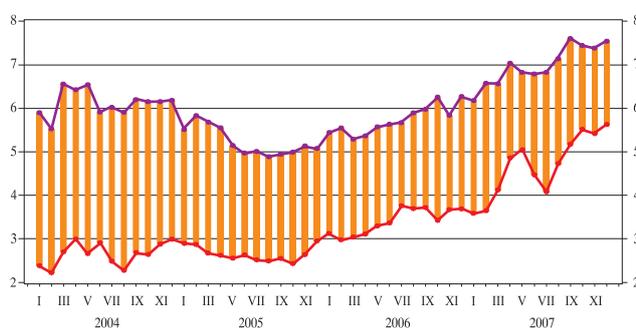
<sup>13</sup> The cost-to-income ratio has been calculated based on the ECB methodology: (operating costs + intangible and fixed asset depreciation and disposal)/(net interest income + income from dividends + net commissions and fees + profit/loss from trades of financial instruments + financial instrument revaluation result + other ordinary income - other ordinary expenditure + adjustment for impairment of available-for-sale financial assets) x 100.

<sup>14</sup> Overall margin has been calculated by subtracting the weighted average deposit rate from the weighted average lending rate of the respective month (in all currencies).

Chart 8

**DEVELOPMENT OF WEIGHTED AVERAGE INTEREST RATES ON NEW LOANS AND DEPOSITS (%)**

— Weighted average interest rate on loans  
 — Weighted average interest rate on deposits  
 ■ Overall margin (in percentage points)



## 2.2 Capital Adequacy of Banks

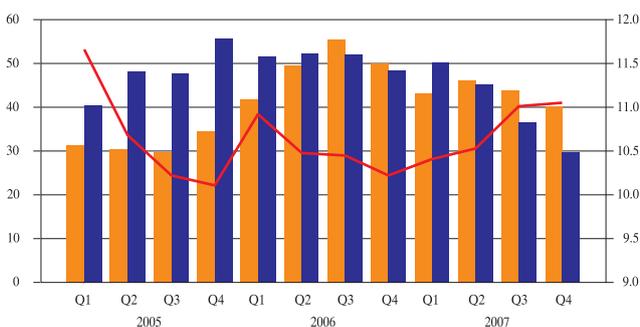
**In 2007, the capital adequacy of banks and tier 1 capital CAR improved.**

The growth rate of RWA was lower than that of own funds; therefore, the CAR of banks and tier 1 CAR improved and amounted to 11.1% and 9.8% at the end of the year respectively {10.2% and 8.8%} (see Chart 9).

Chart 9

**ANNUAL GROWTH OF RWA AND OWN FUNDS AND CAR DEVELOPMENTS (%)**

■ Own funds  
 ■ RWA  
 — CAR (right-hand scale)



### Box 2. Supervisory review process (second pillar) as a credit risk management instrument

*Economic cyclicality has a diverse impact on the financial sector, and one of the areas affected is the lending policy of banks and the quality of their loan portfolios. In periods of buoyant economic growth, demand for loans as well as the number of borrowers able to meet the lending standards set by banks increases. With the economic growth decelerating, banks become more prudent in granting new loans and may face deterioration of the quality of previously granted loans, if the financial position of borrowers is adversely affected. The principle of prudence<sup>15</sup> calls for taking into account this economic cyclicality and for building reserves in periods of upswing, which would help to maintain the financial stability when the growth decelerates.*

*Two main instruments for accumulation of such reserves at the disposal of supervisory authorities and banks are provisions for doubtful debts and capital.*

*Latvian banks prepare their financial statements in compliance with the provisions of Article 75 of the Law "On Credit Institutions", i.e. based on the International Financial Reporting Standards and International Accounting Standards (hereinafter – IFRS/IAS). According to the IAS 39, loans are most often measured at their amortised cost using the effective interest rate. Loan impairment losses may be recognised only when there is an objective proof of a loss event. Losses expected from future events are not recognised regardless of their probability. All that results in a situation where the loan losses recognised in financial statements (accumulated provisions) are not always sufficient from the point of view of the supervisory authority to cover the expected losses inherent in loans, and the amount of provisions recognised in financial statements is influenced by the economic cyclicality.*

<sup>15</sup> See principles 8 and 9 of the "Core Principles for Effective Banking Supervision" of the Basel Committee on Banking Supervision.

*Directive 2006/49/EC of the European Parliament and of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions introduces the provisions of Basel II into the EU legislation. The main advantage of those provisions is higher risk sensitivity. Yet this advantage also has a side-effect: in periods of rapid economic development, the regulatory minimum capital requirements are reduced because of lower risk, and they are increased when the economic growth accelerates.*

*When the financial position of borrowers deteriorates as a result of decelerated economic growth, banks have to increase the provisions and capital recognised in their financial statements or mitigate risks. Risks can be mitigated by putting limits on new loans, reviewing the terms and conditions of outstanding loans, which may, in turn, have an adverse effect on the real economy. This means that accumulation of provisions for doubtful loans and regulatory minimum capital requirements has a pro-cyclical nature, i.e. the provisions and capital requirements change depending on the particular stage of economic development, resulting in a further increase of cyclicity. Supervisory authorities have to be aware of such problems when setting the regulatory requirements, and banks have to consider them in the risk management process.*

*Regulation for calculation of minimum capital requirements provides that in cases when the provisions made by a bank in compliance with the IFRS/IAS and recognised in the financial statements are insufficient to cover the expected losses corresponding adjustments have to be made to the own funds calculation.*

- 1. Banks using the internal rating based approach (IRB) in determining the capital requirement for a credit risk exposure reduce their own funds by the difference between the amount of expected loss as per the bank's estimate and the provisions made in compliance with the IFRS/IAS*
- 2. Banks using the standardised approach in determining the capital requirement for a credit risk exposure reduce their own funds by the difference between the provisions made based on supervisory requirements and the provisions made in compliance with the IFRS/IAS.*

*Yet these adjustments are only a partial solution to the problem of the pro-cyclical effect on the financial stability; therefore, alongside with the transition to the new capital requirement calculation procedure the supervisory review process (the so-called second pillar) is also introduced. The second pillar involves two interlinked processes: an internal capital adequacy assessment made by banks and a supervisory review and evaluation by the supervisory authorities.*

*In the internal capital adequacy assessment process, banks have to determine the amount of capital they require to cover all significant risks inherent in their current and planned business. When assessing the credit risk, banks should check whether compliance with the regulatory minimum capital requirements is sufficient for the bank's capital to cover all potential losses associated with the credit risk (e.g. they should evaluate the concentration risk in mortgage lending, sectoral concentration in the loan portfolio). When establishing the size of capital required to cover the risks and evaluating the potential impact of external factors on their business, banks may use scenario analysis and stress tests.*

*Supervisory authorities evaluate whether the internal capital adequacy assessment conducted by the bank ensures sufficient capital to cover all material risks inherent in its current and planned business. If a supervisory authority discovers that the bank's own funds are insufficient to cover the inherent or expected operational risks, it may instruct the bank to maintain larger own funds than required by the regulatory minimum capital requirements.*

*Second pillar measures are real statutory instruments that may help neutralise the pro-cyclical tendencies affecting the IFRS/IAS and regulatory minimum capital requirements.*

### 3. CREDIT RISK

#### 3.1 Financial Vulnerability of Non-financial Corporations

**In most of the major economic sectors, the debt obligations of non-financial corporations reached an all-time high, which, along with rising interest rates and deteriorating profitability, increased the financial vulnerability of non-financial corporations. Sectoral confidence indicators pointed to expected weakening of the economic activity.**

The overall macroeconomic development in the most part of 2007 had a positive effect on the financial position of non-financial corporations; nevertheless, deceleration of the economic growth observed in the second half of the year and particularly in the fourth quarter, shrinking domestic demand, rising costs and decline of the real estate market resulted in a significant reduction of profit margins.

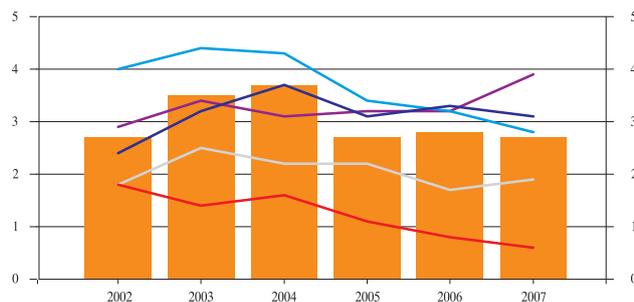
At the same time, abundant investment inflows (including those in the previous periods) pushed the debt obligations of the non-financial corporations of most major sectors of the economy to the highest level ever experienced. In combination with tightening of the lending standards, it led to higher financing costs. The expected deceleration of the economic growth can deteriorate the financial position of non-financial corporations, particularly in sectors with a high level of interest-bearing debt.

The favourable macroeconomic conditions in 2007 stimulated active business and establishment of new non-financial corporations. The number of newly-registered businesses was the highest in the period of the last 13 years. At the same time, the number of insolvency petitions filed with the Register of Enterprises of the Republic of Latvia increased marginally. Nevertheless, it did not signal any sudden worsening of the situation in the second half of the year. In most of the sectors, the ratio of submitted insolvency petitions to the number of non-financial corporations working in that sector did not increase in 2007 (see Chart 10). The only exception was the construction sector, where the number of insolvency cases increased considerably and where the number of non-financial corporations has grown significantly during the last years.

Chart 10

**NUMBER OF INSOLVENCY CASES REGISTERED WITH THE REGISTER OF ENTERPRISES AGAINST THE NUMBER OF NON-FINANCIAL CORPORATIONS (%)**

■ Total  
— Transport, storage and communication  
— Manufacturing  
— Real estate activities  
— Trade  
— Construction



In the first nine months of 2007, indebtedness of the non-financial corporations of the major sectors was much higher than in the corresponding period of the previous year.

With the debt reaching the highest level observed in the last years, insolvency risks in real estate activities increased in the first nine months of 2007 (see Chart 11). The share of short-term debt followed an upward trend, pointing also to growing liquidity risks. This sector also reported the steepest drop in profitability and interest payment coverage.

In 2007<sup>16</sup>, interest payments of the sector were twice as high as in the previous year. Moreover, with the profit margin narrowing in the third quarter and the profit itself shrinking considerably in the fourth quarter, the interest payment coverage decreased notably (see Chart 12). The interest payment coverage was more than twice smaller than in 2006. The decrease was particularly high in the third and fourth quarters, when profit after interest was even slightly lower than the amount of interest paid.

<sup>16</sup> According to the CSB quarterly survey data.

Chart 11

**FINANCIAL INDICATORS OF REAL ESTATE SECTOR OF THE FIRST NINE MONTHS (%)**

Debt-to-equity  
Liquidity  
Interest payment coverage  
Return on sales (right-hand scale)

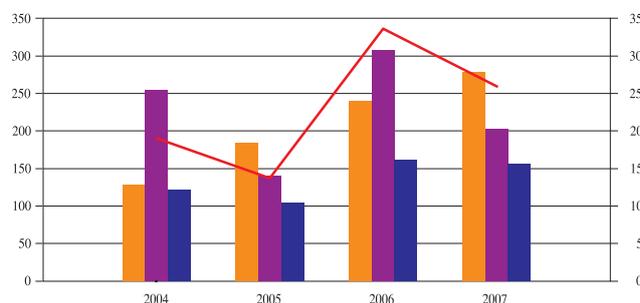
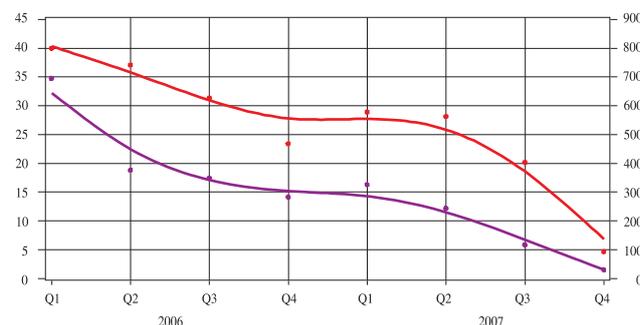


Chart 12

**FINANCIAL INDICATORS OF REAL ESTATE SECTOR IN 2006 AND 2007 (quarterly data; %)**

Return on sales  
Interest payment coverage (right-hand scale)



High profits in trade and construction in the first three quarters facilitated the use of own funds to cover the financing needs. Therefore, the level of indebtedness and solvency in these sectors remained at the level of the corresponding period of the previous year (see Chart 13). Moreover, the construction sector continued to benefit from large inflows of credit funds in the form of advance payments from customers and supplier credit, suggesting that dynamic development of the sector continued. In the manufacturing sector, debt financing was used to finance the rapidly growing investment, resulting in higher indebtedness, mainly on account of interest bearing debt. Overall, the use of interest bearing debt expanded in the non-financial corporations sector (see Chart 14), pointing to an increasingly higher sensitivity towards any changes in lending standards and a growing role of borrowing from financial institutions in the non-financial corporations sector financing.

Chart 13

**DEBT-TO-EQUITY RATIO OF NON-FINANCIAL CORPORATIONS IN THE THIRD QUARTER (%)**

Total  
Transport, storage and communication  
Manufacturing  
Real estate activities  
Trade  
Construction  
Electricity, gas and water supply

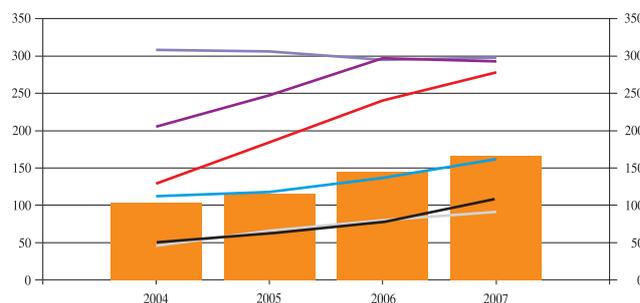
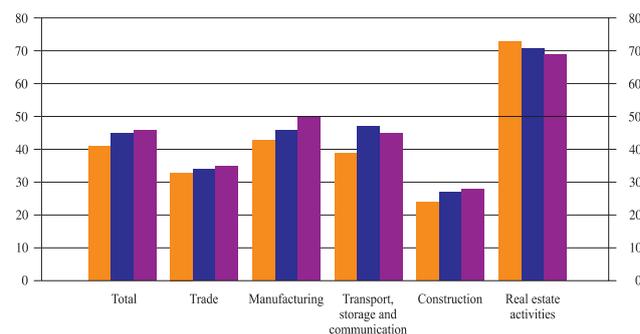


Chart 14

**SHARE OF INTEREST BEARING DEBT IN TOTAL DEBT IN THE THIRD QUARTER (%)**

2005  
2006  
2007



Profitability of the non-financial corporations deteriorated in the fourth quarter and their financial vulnerability increased. For several years, the non-financial corporations sector developed buoyantly and the profit growth outpaced that of interest payments; therefore, the earnings-to-interest payments ratio of non-financial corporations was growing steadily (see Chart 15). In the first half of 2007, the financial statements of non-financial corporations (except non-financial corporations engaged in the real estate sector) still showed no significant evidence of a reversal of this trend. In the third quarter, profitability declined slightly in manufacturing, whereas in the fourth quarter it dropped significantly in most sectors of the economy, resulting in a decrease of interest payment coverage (see Chart 16). Available data indicate that, for instance, the aggregate earnings before tax of non-financial corporations operating in manufacturing were slightly larger than the amount of interest paid in the fourth quarter. The profit of non-financial corporations engaged in the real estate sector, in turn, amounted to 30% of the interest paid.

The quarterly financial indicators of 2007 show that the overall growth rate of net turnover remained high in the second and third quarters, yet a slight deterioration of profitability mirrored lower demand. The fourth quarter was marked by an even more rapid narrowing of the profit margin, with the turnover growth also decelerating.

Decreasing of the profit margins against the background of persistently dynamic economic activity can be explained by growing competition, whereas the shrinking of margins alongside with decelerating growth point to growing risks related to deterioration of the macroeconomic environment.

Chart 15

#### INTEREST PAYMENT COVERAGE OF NON-FINANCIAL CORPORATIONS (%)

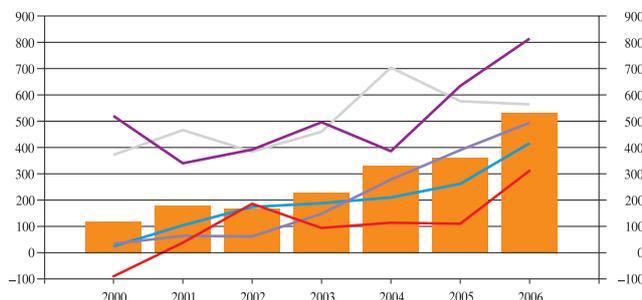
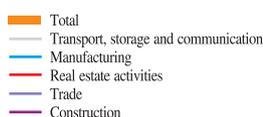
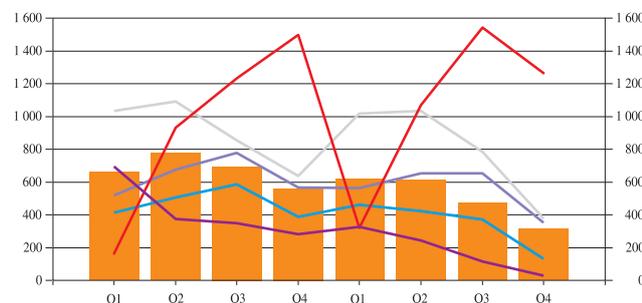
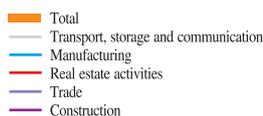


Chart 16

#### INTEREST PAYMENT COVERAGE OF NON-FINANCIAL CORPORATIONS IN 2006 AND 2007 (%)

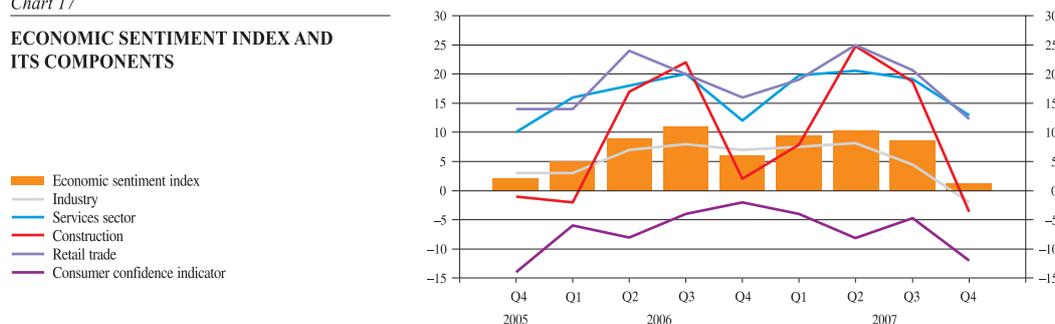


The confidence indicator in manufacturing weakened significantly in the second half of 2007 and reached the lowest level since 2001 (see Chart 17). In the fourth quarter, the component of the confidence indicator characterising the demand for the industry output contracted considerably. At the same time, inventories accumulated and the expectations of production activity decreased. Moreover, the fourth quarter survey on factors obstructing production in manufacturing provided a more critical judgement under the reply categories "insufficient demand" and "financial difficulties", while the role of "labour shortage", the most important obstructing factor, has slightly decreased. The construction confidence indicator was also lower than in the corresponding period

of the last two years, although recently, in the first half of the year it was at an all-time high. In the second half of the year, confidence indicators deteriorated in retail trade and services sectors as well. Yet this deterioration was not as significant as in manufacturing and construction, and the confidence indicator remained positive.

Chart 17

#### ECONOMIC SENTIMENT INDEX AND ITS COMPONENTS



### 3.2 Financial vulnerability of households

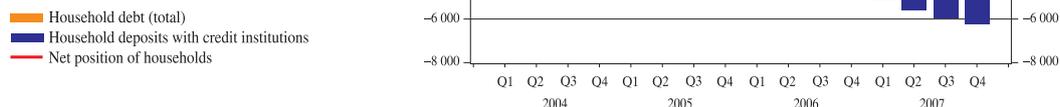
**The growth of household debt decelerated, yet the financial vulnerability risks did not increase.**

Household lending growth decelerated; nevertheless, the negative net position of households vis-à-vis MFIs<sup>17</sup> continued to increase and amounted to 20.7% {14.3%} of GDP at the end of 2007 (see Chart 18).

Chart 18

#### HOUSEHOLD DEPOSITS WITH MFIs AND NET POSITION VIS-À-VIS MFIs; LIABILITIES TO MFIs AND LEASING COMPANIES

(at end of period; in millions of lats)

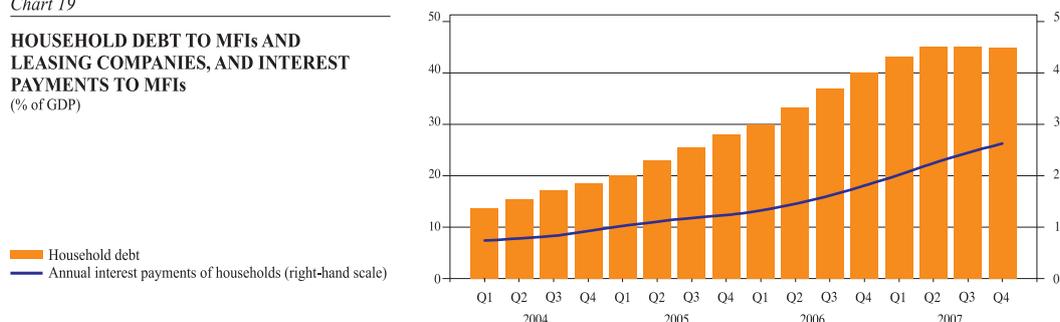


The ratio of household debt to MFI's and leasing companies to GDP continued to expand rapidly in the first half of 2007, whereas in the second half of the year it stabilised and stood at 44.9% {40.1%} at the end of the year (see Chart 19).

Chart 19

#### HOUSEHOLD DEBT TO MFIs AND LEASING COMPANIES, AND INTEREST PAYMENTS TO MFIs

(% of GDP)



As the growth rate of household lending remained persistently high in the recent years as compared to other EU Member States, household indebtedness in Latvia now has become broadly similar to that of the euro area average (see Chart 20). At the end of 2007, the ratio of household debt with MFIs to GDP amounted to 80% {71%} of the

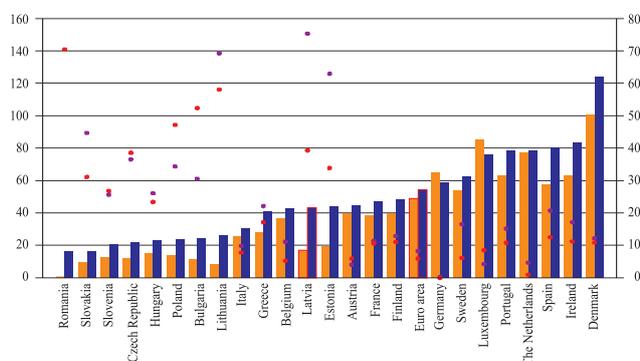
<sup>17</sup> Household liabilities to credit institutions and credit unions did not exceed the deposit holdings.

respective euro area average. In 2006, Latvia's growth rate of household debt was the highest in the EU, yet in 2007 Latvia was outpaced by some EU12 countries (Romania, Lithuania, Bulgaria, Poland).

Chart 20

#### HOUSEHOLD DEBT TO MFIs AND THE GROWTH RATE OF HOUSEHOLD DEBT TO MFIs (% of GDP)

■ Household debt in 2004  
■ Household debt in 2007  
● Growth rate of household debt in 2006 (%; right-hand scale)  
● Growth rate of household debt in 2007 (%; right-hand scale)



Note: When calculating the ratio of debt, the value of GDP projected for 2007 was used for some countries.

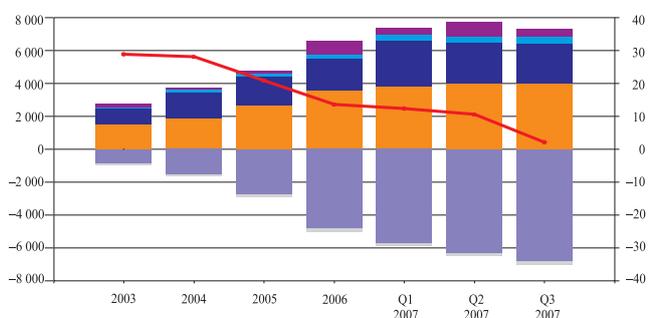
Financial accounts data provide an indication as to the total financial assets and liabilities of households and their developments. The latest available CSB financial accounts statistics are the data of 2006, whereas the preliminary data for the first three quarters of 2007 are the Bank of Latvia's estimate.

In 2006, with the strong expansion of deposits and securities and other equity holdings of households, the financial assets of households increased by 38%. Nevertheless, on account of the exceptional debt expansion peaking at 74%, net financial assets of households and their ratio to GDP decreased (see Chart 21).

Chart 21

#### FINANCIAL ASSETS AND LIABILITIES OF HOUSEHOLDS (in millions of lats)

■ Currency and deposits  
■ Securities and other equity  
■ Insurance technical reserves  
■ Other financial assets  
■ Borrowings  
■ Other financial liabilities  
— Net financial assets (% of GDP; right-hand scale)



According to the Bank of Latvia's estimate, total financial assets of households increased very slowly in the first nine months of 2007, whereas the debt in absolute terms continued to grow significantly. As a result, the ratio of net financial assets of households to GDP contracted to 2% at the end of the third quarter, which may be one of the lowest ratios in the EU. The debt ratio to GDP, which is comparable with other euro area countries, in combination with negligible financial assets of households in Latvia aggravate the financial vulnerability of households, as they are short of assets which could be used as additional debt financing in a financial turmoil.

Bank loans for house purchase account for the largest part of the household debt. At the end of 2007, the number of such loans reached 153 000, representing a year-on-year increase of 16.2%. Less than 17% of households had resorted to bank loans for house purchase. Prices of housing in standard apartment blocks decreased in the second half of 2007; nevertheless, the average loan for house purchase continued to expand and amounted to 30.8 thousand lats. The increase was determined by new mortgage loans with the average size significantly exceeding the average outstanding mortgage loan in the bank loan portfolio.

Against the background of still rising euro interest rates on lending and the rates remaining high as well as banks widening the margins on new loans, household interest payments increased. Interest payments increased by 82% as compared to 2006, and their ratio to GDP climbed to 2.6% {1.8%} in 2007 (see Chart 19). Household income also continued to grow. The annual increase of gross wage and salary totalled 32%, yet the growth rate was significantly lower than that of debt service costs.

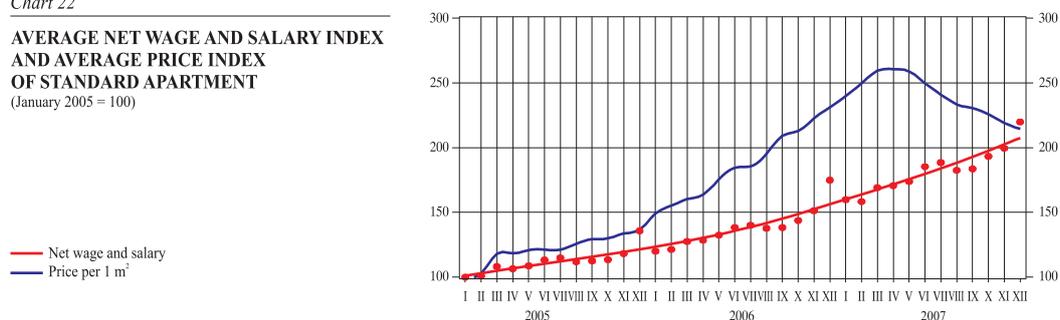
With the economic growth decelerating, the growth of wages and salaries could slow down in the near future, resulting in a further increase of household interest burden. The particularly strong increase in consumer goods prices and utility service tariffs at the end of 2007 and the beginning of 2008 exerts an additional downward pressure on further growth of the real wage and salary. Potential rise of unemployment in the future could also be an additional factor increasing the financial vulnerability of households.

The most significant risks in the household sector could be caused by debt service problems potentially faced by financially most vulnerable borrowers in 2008, including those who borrowed for speculative purposes as well as those employed in sectors relating to the real estate market demand.

Considering the sharp increase of real estate prices from the beginning of 2005 to mid-2007, which was significantly higher than that of the average wage and salary (see Chart 22), the number of households that could afford to purchase housing could be expected to decrease, exerting a downward pressure on demand. Nevertheless, before mid-2007 when the anti-inflation plan approved by the government took effect, market activity was very high.

Chart 22

**AVERAGE NET WAGE AND SALARY INDEX  
AND AVERAGE PRICE INDEX  
OF STANDARD APARTMENT**  
(January 2005 = 100)



Consequently, part of households taking loans at the turn of 2006 and the beginning of 2007 were too optimistic in their perception of the real estate market outlook. Among those were probably households that borrowed and purchased real estate for speculative purposes. It is particularly the above-mentioned households that could face debt service problems in the nearest future.

### **Box 3. Amendments to laws and regulations concerning household insolvency**

*Insolvency Law took effect on 1 January 2008. The Law introduces significant innovations in the field of insolvency regulation. One of them is the introduction of a new legal instrument: insolvency proceedings of a natural person. The objective of the instrument is to help the natural person to restore solvency or cancel the debt obligations without prejudice to the creditor interests. Natural person insolvency proceedings have been introduced in several other EU Member States, e.g. Estonia, Ireland, United Kingdom, Finland, Germany, Sweden, Czech Republic as well as in the US, Australia, New Zealand, Canada and other countries.*

*The Law provides that insolvency proceedings may be applied to a natural person in two cases: 1) if the individual is unable to meet due debt obligations exceeding 50 minimum monthly salaries; or 2) if the individual provides proof that he will be unable to meet debt obligations becoming due in a year's time and exceeding 100 minimum monthly salaries.*

*An insolvency petition may be filed only by the natural person himself or a liquidator in main proceedings in another country in case of cross-border insolvency. The most significant document to be attached to the insolvency petition is a schedule for selling the assets of the natural person and satisfying creditor claims. Insolvency petitions are reviewed by the court. The costs of insolvency proceedings are covered by the debtor.*

*All debtor income, movable and immovable property is used to pay off the debt in insolvency proceedings. The debtor may only keep the things necessary for the subsistence of his or her own person and that of the dependents. The Law provides that the maximum duration of insolvency proceedings of a natural person is seven years. If during that time the debtor complies with the agreed insolvency settlement schedule, fulfils all responsibilities and complies with the restrictions stipulated in the Law (e.g. a natural person may not dispose of his property without prior authorisation of the insolvency practitioner, except for certain things worth less than one minimum monthly salary), he is eligible to apply for relief from the outstanding debt obligations.*

*There are certain restrictions as to when a natural person may not be rendered insolvent (e.g., if insolvency is intentional or the result of gross negligence on behalf of the natural person within the last three years prior to the day of filing the insolvency petition).*

### 3.3 Banking Sector Loan Portfolio Shifts and Quality

**The year 2007 was a turning point in lending development. The growth of outstanding loans granted by the banking sector decelerated continuously throughout the year. Loan quality remained high, yet more recently the amount of loans past due increased. In line with the real estate market adjustments, bank dependence on the developments on this market grew.**

With a view to reducing the imbalances of the Latvian economy, the government adopted an anti-inflation plan in spring 2007. The measures of this plan were primarily aimed at dampening the lending growth and real estate market activity. They had a significant impact on financing opportunities to purchase housing and expensive cars, as the potential borrowers were requested to provide own co-financing amounting to at least 10% of the deal amount and submit an official proof of the legality of income.

Banks also became more prudent in granting loans to companies engaged in real estate development or sales. They requested larger and better quality collateral and reduced the maximum rate of the project costs potentially financed by borrowing.<sup>18</sup>

In 2007, the growth rate of the overall loan portfolio of the banking sector declined to 37.2% {56.2%}, including that of the loans granted to resident non-MFIs to 34.0% {57.3%}. Both the growth of household loans and credit to non-financial corporations decelerated gradually (see Chart 23).

After the launch of the anti-inflation plan, the absolute growth of loans granted to residents decreased suggesting that the rate of decline of the lending growth accelerated (see Chart 24).<sup>19</sup>

<sup>18</sup> Article 8 of the Consumer Rights Protection Law.

<sup>19</sup> A negative rate of change of outstanding loans points to real deceleration of growth, excluding the effect of increasing base.

Chart 23

**ANNUAL GROWTH RATE  
OF LOANS GRANTED BY BANKING  
SECTOR**  
(%)

- Loans to domestic households
- Loans to domestic non-financial corporations
- Loans to domestic financial institutions
- Loans to non-residents

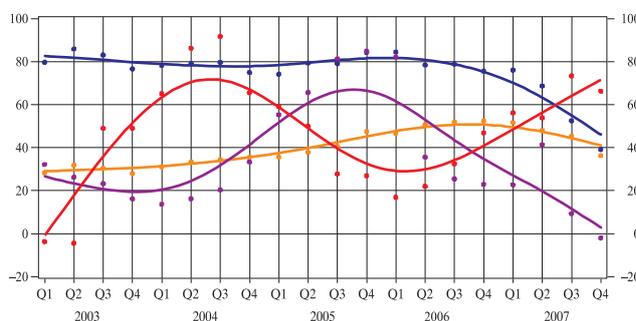
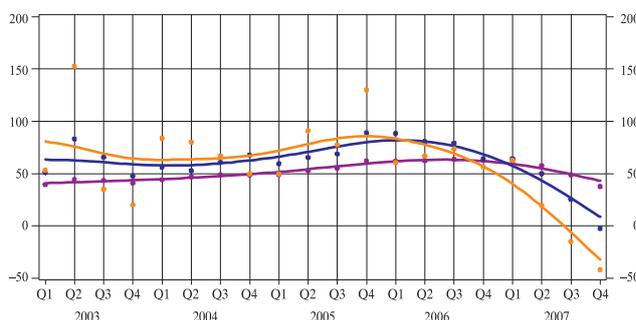


Chart 24

**ANNUAL RATE OF CHANGE OF LOANS  
GRANTED TO RESIDENT NON-FINANCIAL  
CORPORATIONS AND HOUSEHOLDS**  
(%)

- Growth of annual change in stock
- Growth of quarterly change in stock
- Growth of stock outstanding



The growth of real estate related loans (lending to real estate activities, construction, household loans for house purchase) decreased considerably (see Charts 25 and 26).

Chart 25

**ANNUAL GROWTH RATE OF SELECTED  
TYPES OF LOANS IN RESIDENT LOAN  
PORTFOLIO**  
(%)

- Corporate mortgage loans
- Household loans for house purchase
- Consumer credit
- Commercial credit
- Industrial credit

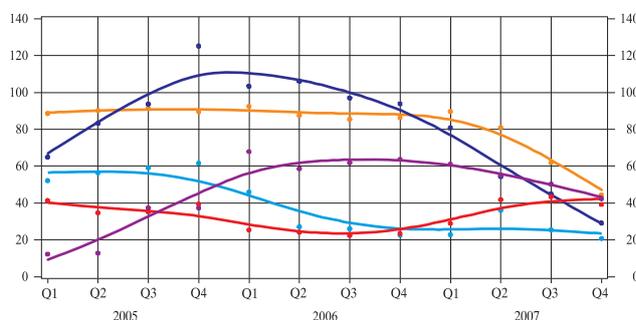
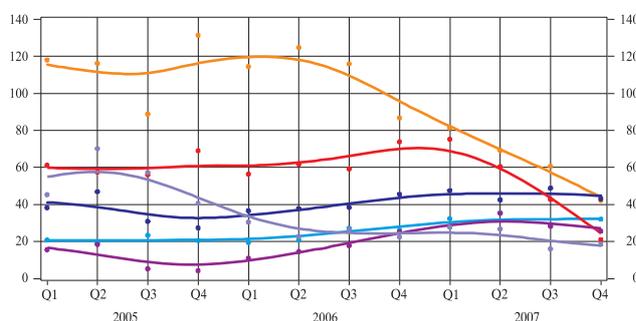


Chart 26

**ANNUAL GROWTH RATE OF LOANS  
GRANTED TO THE MAIN SECTORS  
IN RESIDENT LOAN PORTFOLIO**  
(%)

- Manufacturing
- Real estate activities
- Transport, storage and communication
- Trade
- Construction
- Agriculture, hunting and forestry

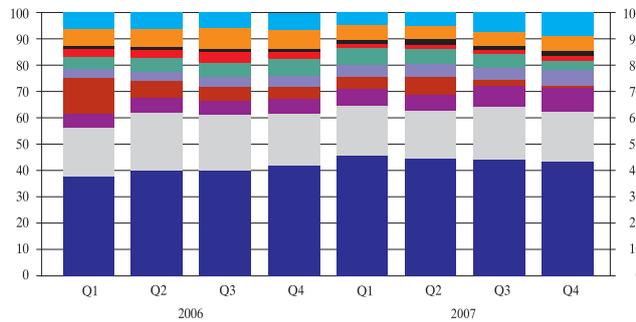


Household loans for house purchase and lending to real estate activities were the major contributors to the loan stock increase. The growth of lending to these segments decelerated significantly; nevertheless, their weight in the absolute growth remained unchanged (see Chart 27).

Chart 27

**INCREASE PROFILE OF RESIDENT LOAN PORTFOLIO BY MAJOR LENDING SEGMENTS**

- (%)
- Household loans for house purchase
  - Manufacturing
  - Trade
  - Household loans for purchase of consumer goods
  - Other household loans
  - Real estate activities
  - Financial intermediation
  - Construction
  - Transport, storage and communication
  - Other lending to non-financial corporations

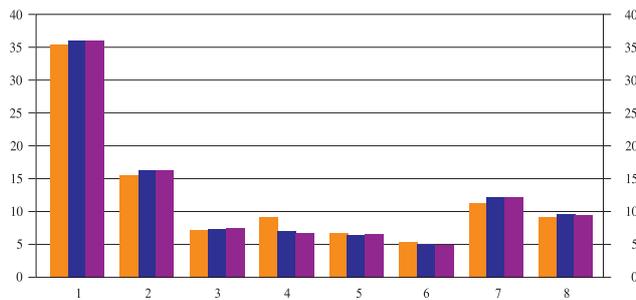


Despite of lending growth deceleration, the concentration of the banking sector loan portfolio in segments directly or indirectly related to real estate continued to grow in the first three quarters of 2007, thus increasing the bank exposure to real estate market related risks (see Chart 28). Nevertheless, in the fourth quarter the growth of the banking sector loan portfolio concentration in real estate market related segments stopped.

Chart 28

**STRUCTURE OF LOANS GRANTED TO RESIDENTS BY LENDING SEGMENT**

- (%)
- 1 Household loans for house purchase
  - 2 Real estate activities
  - 3 Manufacturing
  - 4 Financial intermediation
  - 5 Trade
  - 6 Construction
  - 7 Other sectors of economy
  - 8 Other household loans
- Share of segment at the end of 2006  
■ Share of segment at the end of September 2007  
■ Share of segment at the end of 2007



At the end of December, exposure to real estate loans exceeded 10% of the assets in six Latvian banks. The total assets of those banks accounted for 56% of the overall banking sector assets (see Charts 29 and 30). Exposure to real estate loans exceeded 15% of the assets only in one bank.

Chart 29

**THE SHARE OF DOMESTIC LOANS GRANTED TO REAL ESTATE ACTIVITIES IN BANK ASSETS**

(number of banks)

- < 5%
- 5-10%
- >10%

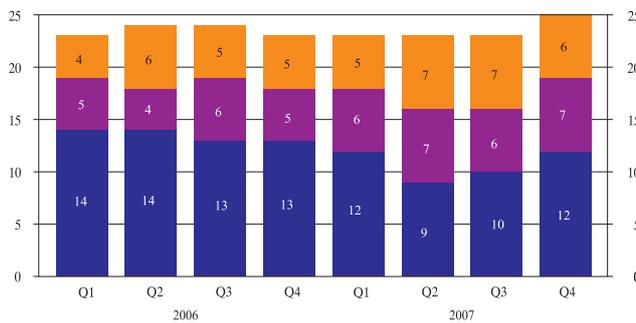
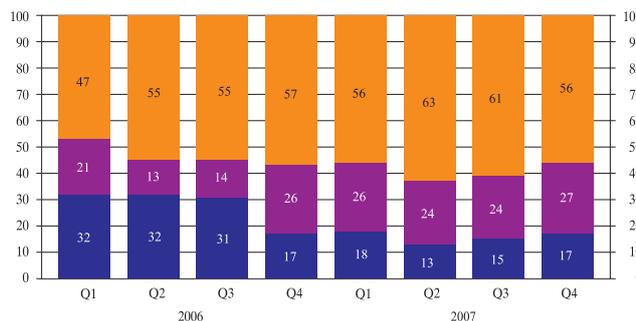


Chart 30

**BREAKDOWN OF BANKS BY THEIR SHARE OF LOANS GRANTED TO REAL ESTATE ACTIVITIES IN BANK ASSETS**

(the share of respective bank assets to total banking sector assets; %)

- < 5%
- 5-10%
- >10%



Price adjustments in secondary housing market dampened the activity of the new housing market as well, as buyers expected a price drop also in this segment and became more demanding as to the quality of the new housing. The given circumstances and the high indebtedness of the real estate development corporations impair the debt service capacity of those corporations. Growing financial vulnerability of real estate development related corporations aggravates the credit risk of banks, particularly those with high loan portfolio concentration in the real estate sector.

Loans granted to real estate activities reflect only the direct exposure of banks to the real estate market developments. In the longer term, the developments in this market will inevitably affect also the development of the construction sector and household loans for house purchase as real estate serves as collateral for those loans. As household loans for house purchase are usually granted with fairly long maturities and primarily with a floating interest rate, the size of the respective monthly loan payments is interest rate sensitive. Rising euro rates increase the debt service costs for households, which could potentially lead to deterioration of the quality of household loans.

At the end of December, total outstanding loans granted to real estate activities, construction and household loans for house purchase exceeded 45% of assets in five Latvian banks (see Chart 31). Moreover, the assets of those five banks totalled 44% of the Latvian banking sector assets, representing a significant increase over the end of 2006 (see Chart 32).

Chart 31

**THE SHARE OF DOMESTIC LOANS GRANTED TO REAL ESTATE ACTIVITIES, CONSTRUCTION AND TO HOUSEHOLDS FOR HOUSE PURCHASE IN BANK ASSETS**  
(number of banks)

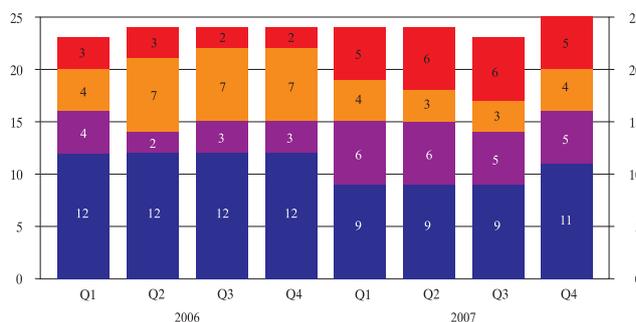
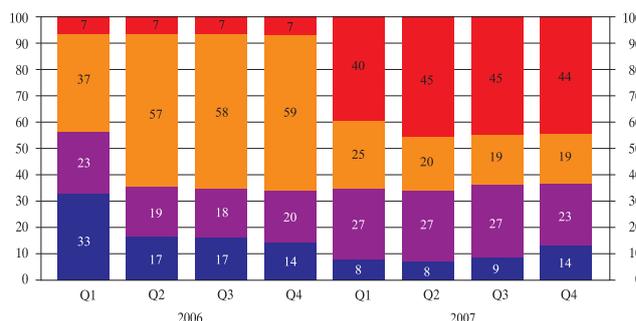


Chart 32

**BREAKDOWN OF BANKS BY THEIR SHARE OF LOANS GRANTED TO REAL ESTATE ACTIVITIES, CONSTRUCTION AND TO HOUSEHOLDS FOR HOUSE PURCHASE IN BANK ASSETS**  
(the share of respective bank assets to total banking sector assets; %)



With a view to limiting the growth of concentration in real estate related sectors, banks tightened their lending policies applied to corporations engaged in real estate development or sales. New projects mostly were refused funding. Banks continued to fund the ongoing projects of existing customers, while showing more prudence in monitoring the project progress and the cash flows of developers. The results of the bank lending survey also point to further tightening of the bank lending standards in the second half of 2007 (see Box 4).

Although NPLs in absolute terms increased in 2007, their volume remained low (see Chart 33). The share of NPLs in the total loan portfolio of the banking sector amounted to 0.4% (see Chart 34). Specific provisions covered over 130% of the NPLs.

Chart 33

**LOANS AND NPLs**

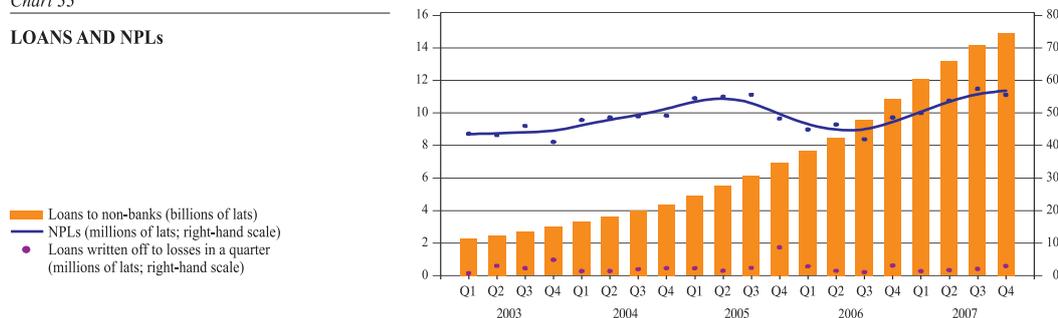
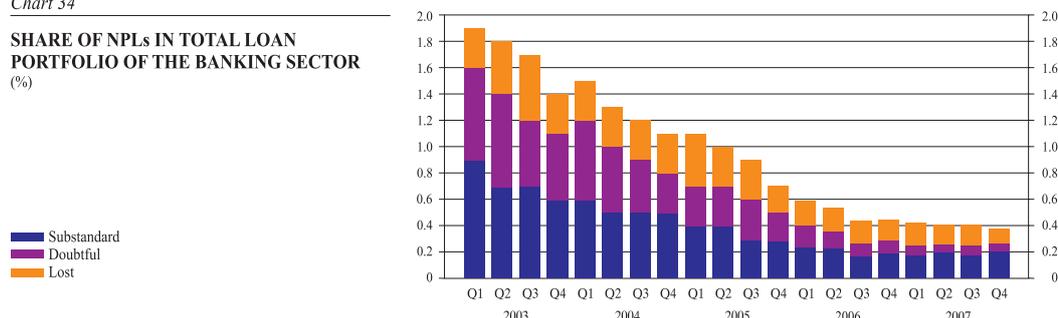


Chart 34

**SHARE OF NPLs IN TOTAL LOAN PORTFOLIO OF THE BANKING SECTOR (%)**



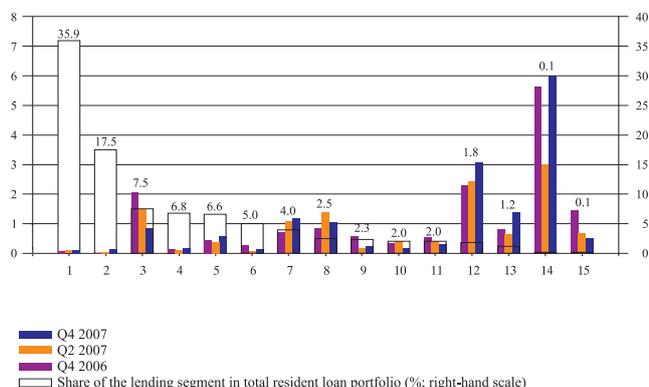
The loan quality indicators by lending segment suggest that the quality of both loans granted to major economic sectors and household loans for house purchase has hardly deteriorated (see Chart 35). Impairment of the loan quality is reported for consumer loans granted to households (for purchase of consumer goods and payment card and overdraft credit).

Chart 35

**NPL DEVELOPMENTS IN MAIN LENDING SEGMENTS**

(share of NPLs in outstanding loans; %)

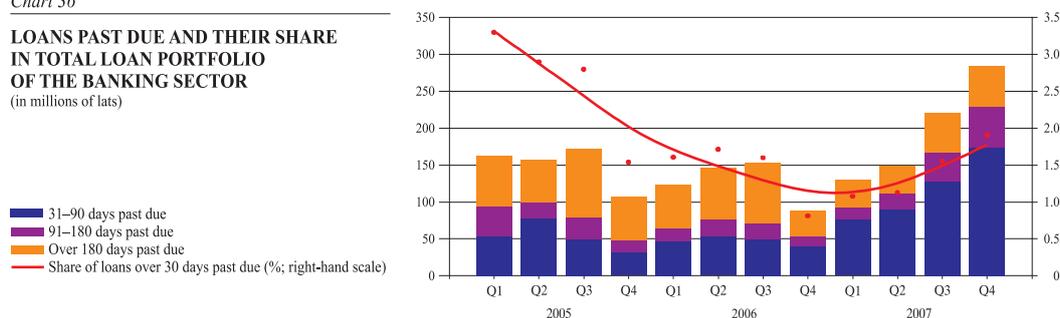
- 1 Household loans for house purchase
- 2 Real estate, renting and business activities
- 3 Financial intermediation
- 4 Manufacturing
- 5 Trade
- 6 Construction
- 7 Household loans for purchase of consumer goods
- 8 Transport, storage and communication
- 9 Agriculture, hunting, and forestry
- 10 Other community social and personal service activities
- 11 Credit card and overdraft credit to households
- 12 Electricity, gas and water supply
- 13 Hotels and restaurants
- 14 Fishing
- 15 Mining and quarrying



Loans past due over 30 days have reported a strong increase pointing to potential growth of the NPLs in the future (see Chart 36). Those loans amounted to 285.0 million lats {88.5 million lats} at the end of 2007. As the rate of expansion for loans past due was higher than that of the total loan portfolio, their share in the loan portfolio grew to 1.9% {0.8%}. Loans past due over 90 days increased to 111.8 million lats {48.4 million lats}, whereas their share in the total loan portfolio grew to 0.7% {0.4%}. According to the "Regulations on Income and Expense Accounts of Credit Institutions and Credit Unions" of the FCMC, all accrued income past due over 90 days should be derecognised from the profit and loss account and specific provisions in the amount of 100% should be made for the above income, while the loan should be classified as non-performing. This means that the NPLs can be expected to grow, particularly in the segments characterised by rapidly expanding loans past due (loans granted to real estate activities and household loans for house purchase).

Chart 36

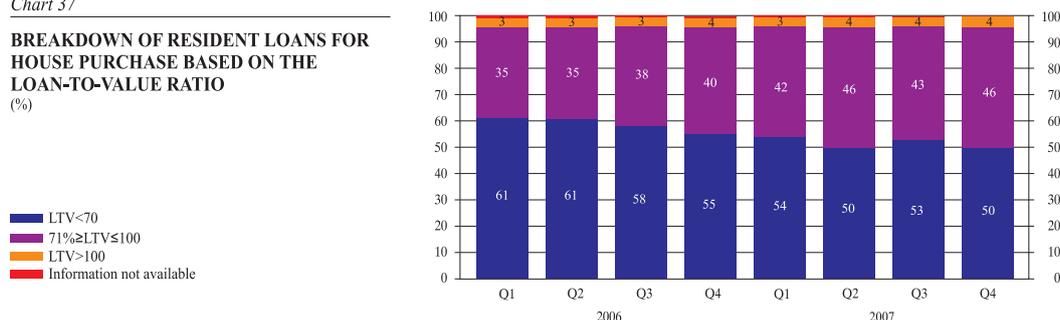
**LOANS PAST DUE AND THEIR SHARE  
IN TOTAL LOAN PORTFOLIO  
OF THE BANKING SECTOR**  
(in millions of lats)



The LTV ratio in the biggest segment of mortgage lending (household loans for house purchase) overall remained broadly conservative, i.e. for more than a half of this category loans the LTV ratio was below 70% (see Chart 37). Nevertheless, the share of loans with the LTV of 70%–100% expanded significantly in course of 2007. This suggests that, with the prices of real estate remaining high, households compensated the price rise by larger borrowings approaching 90% of the value of the real estate collateral, which means that the requirements of Article 8 of the Consumer Rights Protection Law have been complied with.

Chart 37

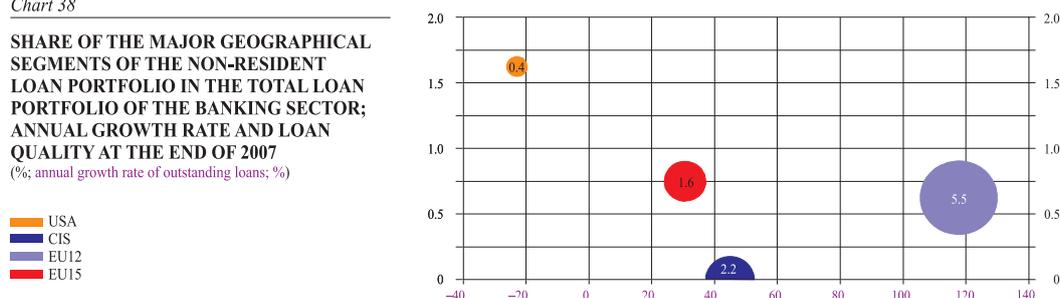
**BREAKDOWN OF RESIDENT LOANS FOR  
HOUSE PURCHASE BASED ON THE  
LOAN-TO-VALUE RATIO**  
(%)



For the first time, the annual growth rate of lending to non-residents at 66.3% {46.9%} was higher than that of the resident loan portfolio. Thus the share of loans granted to non-residents within the total loan portfolio of the Latvian banking sector reached 12.1% {10.0%} at the end of December. The largest share of the non-resident loan portfolio was still comprised of loans granted to residents of EU12 countries, with their share in the total banking sector loans amounting to 5.5% {3.5%} at the end of 2007 (see Chart 38). Borrowers from those countries also accounted for the largest share of the lending growth. The quality of the portfolio of loans granted to residents of the CIS countries remained especially high, as the share of NPLs in those loans was insignificant.

Chart 38

**SHARE OF THE MAJOR GEOGRAPHICAL  
SEGMENTS OF THE NON-RESIDENT  
LOAN PORTFOLIO IN THE TOTAL LOAN  
PORTFOLIO OF THE BANKING SECTOR;  
ANNUAL GROWTH RATE AND LOAN  
QUALITY AT THE END OF 2007**  
(%; annual growth rate of outstanding loans; %)



Overall, the considerable deceleration of lending growth from mid-2007 in combination with the sharp drop in domestic demand reported in the fourth quarter of 2007 increases the probability of a more rapid slow-down of the economic growth, thus aggravating

the credit risk of banks. Considering the growth of overdue loans, it is especially important to monitor borrower solvency and potential developments of the loan portfolio quality.

#### Box 4. Bank lending survey

Aware of the importance of bank loans in the economic development of Latvia, the Bank of Latvia introduced a bank lending survey in 2007, inviting the participation of the biggest banks according to the size of the portfolio of loans granted to resident non-financial corporations and households. The main objective of the survey is to identify any changes in the bank lending standards and provisions, gain information on factors influencing both demand and supply of loans as well as the planned changes in lending standards and provisions.

Nine banks participated in the survey for the first half and 10 banks for the second half of 2007. Total loans granted to resident non-financial corporations and households by those banks amounted to 92% and 93% of the overall Latvian bank portfolio of the particular types of loans respectively.

#### Lending standards

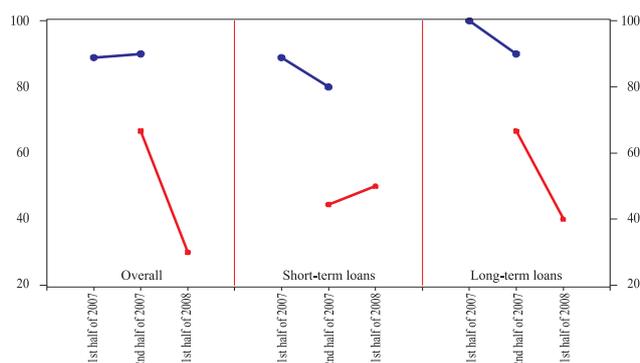
The majority of banks reported tightening of the lending standards applied to non-financial corporations and household loans for house purchase in 2007.

Tightening of the lending standards applied to non-financial corporations was induced by various risk perception factors, like the outlook for particular sectors or companies (mentioned by all banks), economic activity expectations and risk relating to the underlying collateral (see Charts 39.1 ab). Banks tightened the lending standards using the traditional price instruments: bank margins on risky loans were raised (mentioned by all banks) as well as on standard loans (net 90% and 78% of all banks respectively).

Chart 39.1.a

**CHANGES IN LENDING STANDARDS APPLIED TO LOANS OR CREDIT LINES GRANTED TO NON-FINANCIAL CORPORATIONS**  
(net percentage of banks reporting tightening of the lending standards)

— Actual  
— Bank forecast



Note: Net percentage of banks is the difference between the share of banks reporting tightening of the lending standards and banks reporting easing of the lending standards. For example, in a situation involving 10 replies from banks, where two banks report significant tightening of the lending standards, three report slight tightening, one replies that they are broadly unchanged, four report slight easing and none report significant easing, the net percentage reporting tightening of the lending standards would be  $(2 + 3 - 4 - 0) : 10 \times 100 = 10$ .

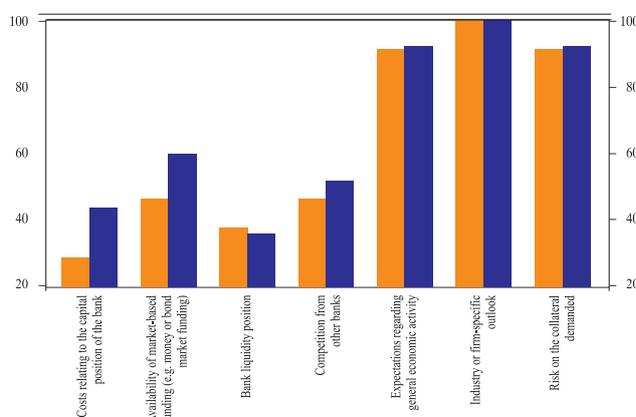
Forecast for the reporting period is the net percentage calculated from the replies to the question "Please, present your views as to any expected changes in the lending standards of your bank applied to corporate loans and credit facilities in the next six months" received in the previous survey.

Chart 39.1.b

### CHANGES IN LENDING STANDARDS APPLIED TO LOANS OR CREDIT FACILITIES GRANTED TO NON-FINANCIAL CORPORATIONS

(net percentage of banks reporting positive impact of the specified factors on tightening of the lending standards)

1st half of 2007  
2nd half of 2007



*Lending standards were tightened for household loans for house purchase in 2007 (see Chart 39.2.a): all banks reported tightening in the first half of the year, and further net tightening was reported for 80% banks in the second half of the year. Economic activity expectations and housing market outlook are major factors contributing to tightening of the lending standards. The net percentage of banks reporting financing costs and balance sheet restrictions as factors contributing to tightening of the lending standards remained high throughout 2007 (see Chart 39.2.b).*

Chart 39.2.a

### CHANGES IN LENDING STANDARDS APPLIED TO HOUSEHOLD LOANS FOR HOUSE PURCHASE

(net percentage of banks reporting tightening of the lending standards)

Actual  
Bank forecast

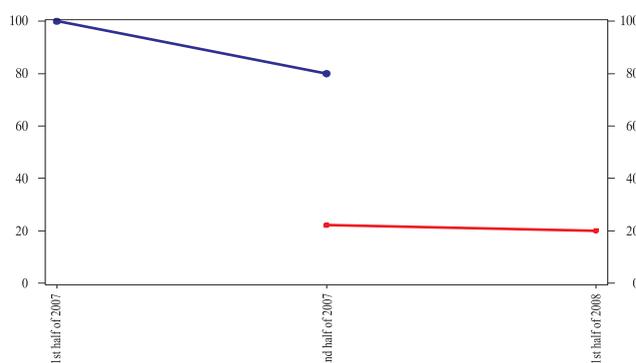
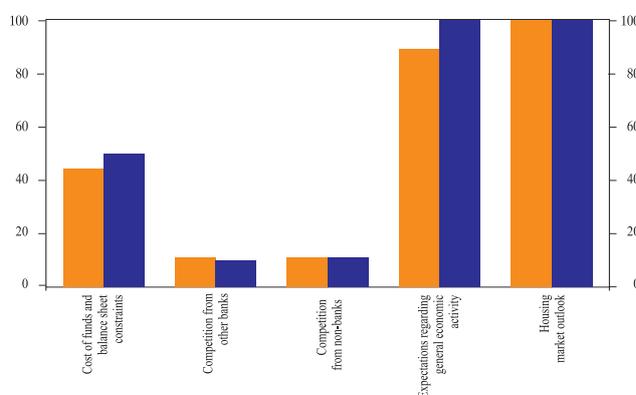


Chart 39.2.b

### CHANGES IN LENDING STANDARDS APPLIED TO HOUSEHOLD LOANS FOR HOUSE PURCHASE

(net percentage of banks reporting positive impact of the specified factors on tightening of the lending standards)

1st half of 2007  
2nd half of 2007



*In order to tighten the lending standards applied to loans for house purchase, all banks raised the bank margins for riskier loans in the first half of 2007 and nine out of 10 banks in the second half of the year. A large net percentage of banks introduced tighter standards for LTV and collateral quality and higher bank margins on standard loans.*

In the first half of 2008, banks approach the issue of lending standards in two ways: part of banks does not plan to change their lending standards, whereas others expect further slight tightening of the standards.

**Demand for loans**

The loan demand of non-financial corporations increased in the first half of 2007, whereas in the second half of the year it slightly contracted. Part of the banks reported higher household demand for loans for house purchase in the first half of 2007, whereas the other part reported a decrease. In the second half of the year, the demand shrank considerably (reported by all banks; see Chart 39.3a). Banks consider that a lower demand for loans for house purchase can be mainly explained by the poor housing market outlook and rising of housing unrelated consumption expenditure (see Chart 39.3b).

Chart 39.3.a

**CHANGES IN DEMAND FOR HOUSEHOLD LOANS FOR HOUSE PURCHASE**  
(net percentage of banks reporting increased demand)

— Actual  
— Bank forecast

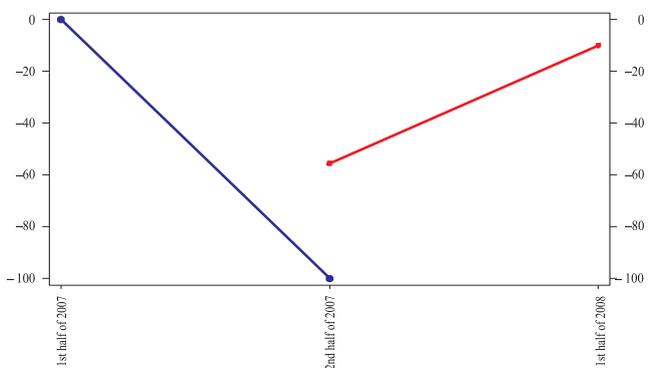
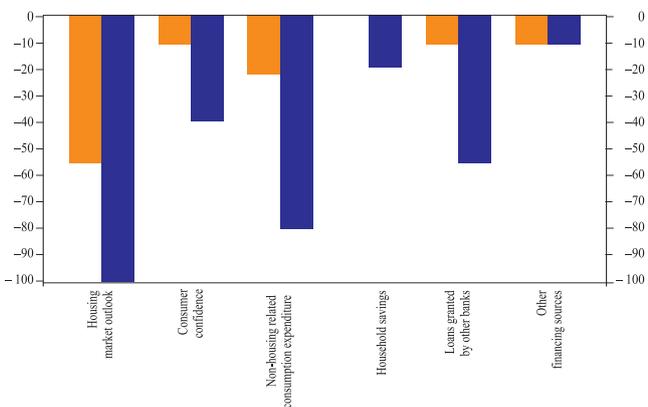


Chart 39.3.b

**CHANGES IN DEMAND FOR HOUSEHOLD LOANS FOR HOUSE PURCHASE**  
(net percentage of banks reporting positive impact of the specified factors on demand)

■ 1st half of 2007  
■ 2nd half of 2007



Banks expect that the loan demand of non-financial corporations is likely to diminish in the first half of 2008, whereas that of households will remain broadly unchanged.

### 3.4 Credit Risk Shock-Absorption Capacity

**In 2007, bank capacity to absorb credit risk shocks generally improved. All Latvian banks would have had no problems with absorbing a potential rise of credit risk resulting in an expansion of NPLs almost nine times. Bank sensitivity to the growth of particular sectoral credit risks remained unchanged year-on-year. Banks could be able to withstand a decrease of real estate prices of up to 30%.**

Stress test results<sup>20</sup> indicate that, year-on-year, the overall capacity of banks to absorb credit risk generated shocks increased in December 2007 (provided that the growth of the NPL share does not exceed 10 percentage points; see Chart 40). Under less probable but more serious credit risk shock scenarios, the shock-absorption capacity of the Latvian banks weakened somewhat year-on-year. Overall, at the end of 2007 Latvian banks would have had no serious problems with absorbing a potential credit risk increase resulting in an expansion of the NPL share in their loan portfolios by 3 percentage points (see Chart 41). In this case, only one systemically insignificant bank would have been unable to meet the minimum capital requirement. Considering that the share of NPLs in the total bank loan portfolio amounted to a mere 0.4% at the end of 2007, it may be assumed that all Latvian banks would have had no serious problems with absorbing a potential credit risk increase resulting in the NPLs expanding almost nine times.

Chart 40

#### GENERAL CREDIT RISK STRESS TEST RESULTS

(number of banks with CAR below the minimum capital requirement; increase in the NPL share in total loans; in percentage points)

Q4 2006  
Q2 2007  
Q4 2007

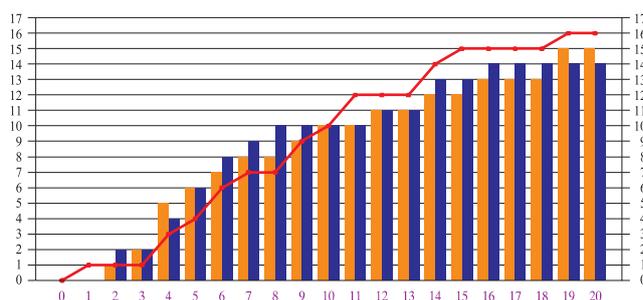
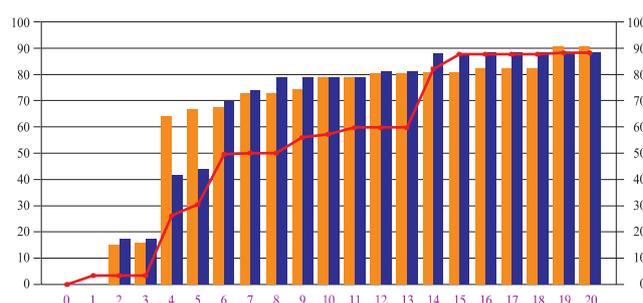


Chart 41

#### GENERAL CREDIT RISK STRESS TEST RESULTS

(asset share of banks with CAR below minimum capital requirement in total bank assets; increase of NPL share in total loans; in percentage points)

Q4 2006  
Q2 2007  
Q4 2007



The sectoral stress test results show that bank sensitivity to real estate market shocks affecting households remained unchanged year-on-year (see Charts 42 and 43). At the end of 2007, bank sensitivity to potential real estate shock slightly diminished. Bank sensitivity to potential domestic shock also declined.

<sup>20</sup> Stress test results provide an indication of the scale of losses resulting from growing credit risk that banks would be able to absorb before their CAR falls below the minimum capital requirement. Bank losses within the meaning of the stress test are the need to accumulate additional provisions for NPLs (in compliance with the specific provision ratios established by the FCMC: 30% for substandard loans, 60% for doubtful loans and 100% for lost loans). The size of those provisions and, consequently, also the respective shares in total loans due not change as a result of rising credit risk. It is assumed that the bank profit for the reporting year is zero, and bank capital and risk weighted assets are reduced by the amount of required additional provisions. Calculations assume that the share of the three NPL categories (substandard, doubtful and lost loans) for each bank expands in proportion to the growth in NPLs simulated in the stress test.

Table 1

**SECTORAL CREDIT RISK SHOCKS USED IN STRESS TESTS AND THEIR PARAMETERS**

Types of shock	Shock parameters
Domestic shock	20% <sup>1</sup> of loans to the major domestic market oriented sectors (construction, trade, real estate activities) become NPLs.
External shock	20% of loans to the major foreign market oriented sectors (manufacturing and transport, storage and communication) become NPLs.
Real estate shock	20% of loans to real estate activities become NPLs.
Real estate shock affecting households	20% of loans to real estate activities and household loans for house purchase become NPLs.

<sup>1</sup> This and the other shock parameters are based on the assumption that a 20 percentage point rise in the NPL share is made up of the three NPL categories (substandard, doubtful and lost loans) in equal proportions.

Chart 42

**SECTORAL CREDIT RISK SHOCK STRESS TEST RESULTS**

(number of banks with CAR below the minimum capital requirement)

■ Q4 2006  
■ Q2 2007  
■ Q4 2007

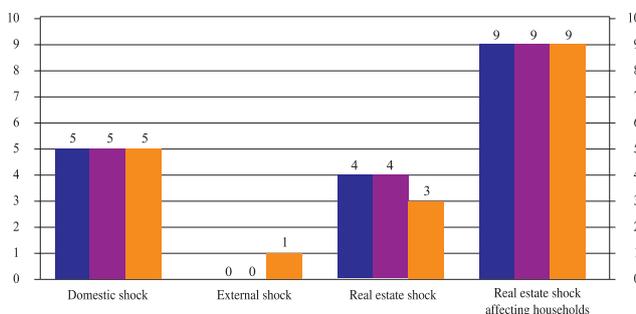
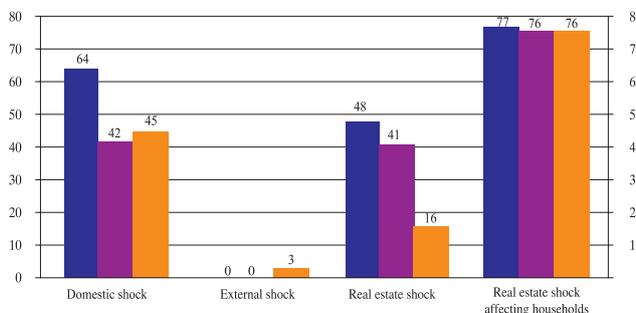


Chart 43

**SECTORAL CREDIT RISK SHOCK STRESS TEST RESULTS**

(asset share of banks with CAR below the minimum capital requirement in total bank assets; %)

■ Q4 2006  
■ Q2 2007  
■ Q4 2007



The ratio of losses resulting from potential sectoral credit risk shocks to bank assets contracted at the end of 2007 and did not exceed 3.2% (see Chart 44). The amount of additional capital required to meet the minimum capital requirement also decreased towards the end of the year (see Chart 45). Considering the high profits earned by the banks in 2007, it can be assumed that the banks could easily absorb any potential shocks.

Chart 44

**SECTORAL CREDIT RISK SHOCK STRESS TEST RESULTS**

(required additional provisions; % of bank assets)

■ Q4 2006  
■ Q2 2007  
■ Q4 2007

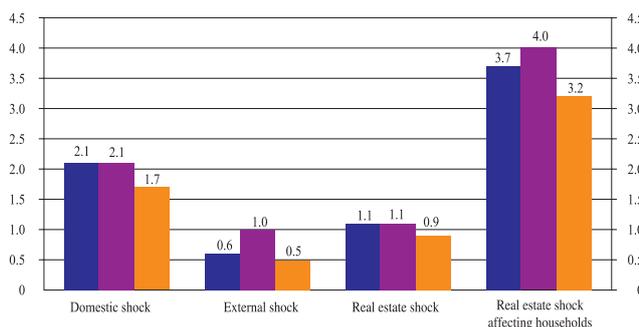
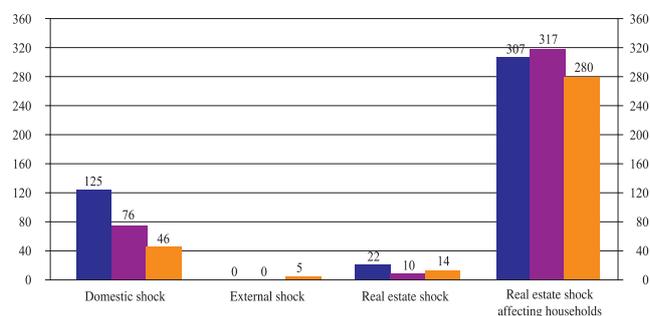


Chart 45

**SECTORAL CREDIT RISK SHOCK  
STRESS TEST RESULTS**  
(additional capital needed to meet the minimum capital  
requirement; in millions of lats)

■ Q4 2006  
■ Q2 2007  
■ Q4 2007

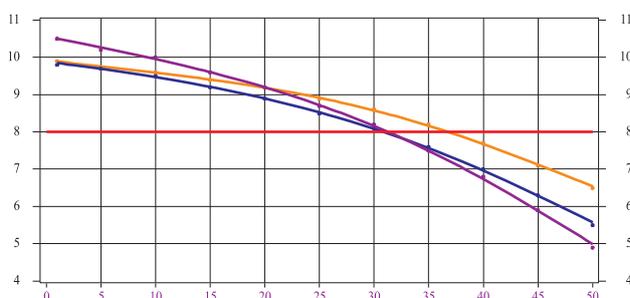


Sensitivity analysis<sup>21</sup> of the real estate price decrease suggests that banks would be able to withstand a real estate price drop of up to 30% and still be able to meet the minimum capital requirement (see Chart 46). Such a (hypothetic) drop in the real estate prices is considerably higher than that forecast for 2008 by the majority of real estate market participants.

Chart 46

**RESULTS OF THE ANALYSIS OF BANK  
SENSITIVITY TO REAL ESTATE PRICES**  
(CAR; %; decrease of real estate prices; %)

— 2005  
— 2006  
— 2007  
— Minimum capital requirement



## 4. MARKET AND LIQUIDITY RISKS

### 4.1 Foreign Exchange Risk

**With open currency positions low, the direct foreign exchange risk of the Latvian banks remained at an overall low in 2007.**

In foreign exchange markets, the US dollar continued on a path of depreciation and volatility over 2007. Nevertheless, the exposure of the Latvian banks to direct foreign exchange risk remains limited, as the banks have been maintaining their open foreign exchange positions generally low both for the US dollar and other currencies.

In 2007, open foreign exchange position of the banks in euro has considerably decreased from 15.5% (relative to own funds) at the beginning of the year to 3.2% at the end of the year. This is related to amendments of 26 April 2007 in the FCMC "Regulation for Calculating Capital Adequacy"<sup>22</sup>. Amendments took effect as of 4 May 2007, reverting to the threshold of 10% relative to own funds for net open position in euro, cancelled earlier in 2005.

As to the US dollar, the banks' weighted average open position decreased from 1.8% relative to own funds at the beginning of 2007 to 1.1% at the end of the year. Banks' net open positions in the US dollar fluctuated somewhat (0.7%–1.8%).

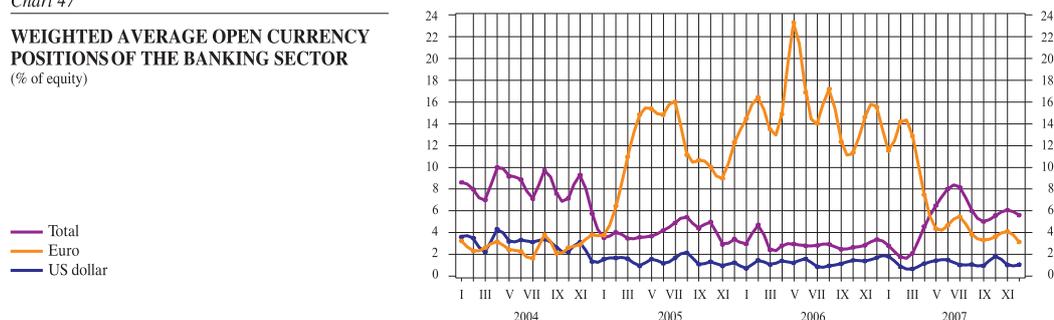
<sup>21</sup> The analysis is based on banks' total loans collateralised with the first mortgage (housing, commercial property, land plots). It is assumed that loans are normally broken down by their LTV ratio ranges. As the real estate prices fell, the probability that a loan with the LTV above 100% will be lost and the bank will have to dispose of the collateral is assumed to be 13% (the probability indicated in the Technical Note "On Further Improvements in Stress Testing" of the IMF Financial Sector Assessment Program). Bank losses from lost loans are calculated as a difference between the outstanding loan and the market price of the real estate. The remaining 87% of the loans with the LTV above 100% are classified as "close-watch loans", and specific provisions have to be accumulated for them in the amount of 10% (pursuant to Paragraphs 2.10.1 and 2.10.5 of the FCMC "Regulation for Assessing Assets and Off-balance-sheet Liabilities"). For calculating the amount for covering bank losses and accumulating provisions the conservative approach was used, i.e. on the basis of banks' own funds only, excluding unaudited profit.

<sup>22</sup> FCMC, 26.04.2007, Regulation No. 57 "Amendments to Regulation for Calculating Capital Adequacy".

Banks' aggregate net foreign currency position increased over the year from 2.8% relative to own funds at the beginning of the year to 5.6% at the end of the year. Yet, this increase is related to the above mentioned amendments to the regulations which stipulate that, starting with May, euro position be added to the total net open foreign exchange position (see Chart 47).

Chart 47

**WEIGHTED AVERAGE OPEN CURRENCY POSITIONS OF THE BANKING SECTOR**  
(% of equity)



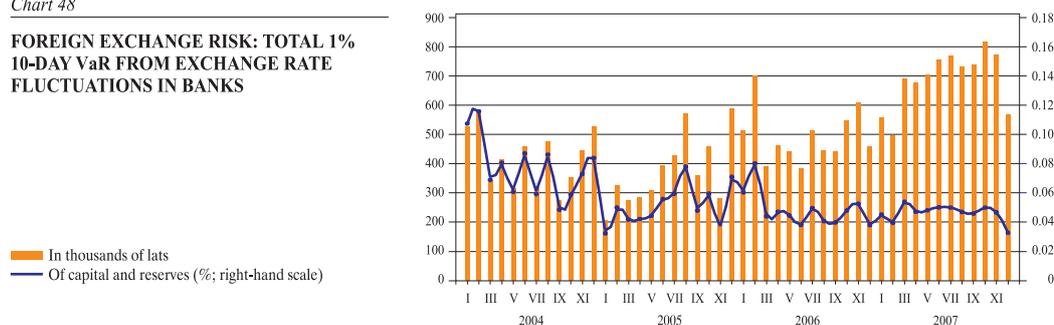
Note: Calculations use the absolute values of the open currency positions. Open currency positions of individual banks are equity-weighted. Between 1 January 2005 and May 2007, the open currency positions in euro were excluded from calculations of the total open currency position because of the initially scheduled changeover to euro in 2008.

Overall, despite the regular increase of volatility in foreign exchange markets, the prudent approach of the banks to their open foreign exchange positions has resulted in low direct exposures to foreign exchange risk. This is also demonstrated by the VaR analysis results.<sup>23</sup>

VaR at the Latvian banks, as percentage of capital and reserves, since March 2006 has been within a range of 0.03%–0.06% (see Chart 48). The increase of VaR in absolute terms between March and October 2007 can be explained by the volatility of the US dollar and the fluctuations of the aggregate open foreign currency positions. For the purposes of VaR calculations, one-year historical exchange rate fluctuations have been used. With the US dollar exchange rate stabilising over the last two months of 2007 and banks' open US dollar position diminishing, VaR decreased.

Chart 48

**FOREIGN EXCHANGE RISK: TOTAL 1% 10-DAY VaR FROM EXCHANGE RATE FLUCTUATIONS IN BANKS**



Note: One should keep in mind that VaR for the Latvian banking sector is the aggregate of VaRs of individual banks. The actual aggregate VaR for the banking sector is somewhat lower, because of the lack of full positive correlation between VaR of individual banks.

With their open currency exchange positions relatively low, banks' sensitivity to the US dollar exchange rate fluctuations has been protractedly subdued (see chart 49).

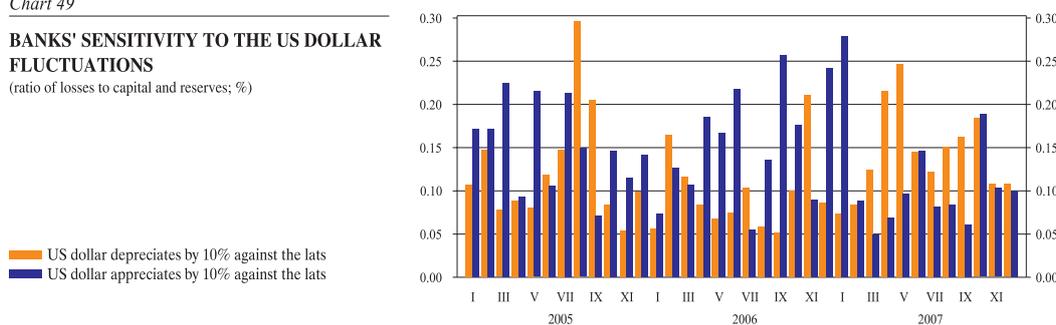
As to banks' clients, there is far less balance in their foreign exchange positions than those of banks. During the past three years open positions in euro of domestic non-financial corporations and households, namely, the gap between the amounts (in the currency in question) deposited with banks and loans extended has been widening incessantly. In 2007, open positions in euro of domestic non-financial corporations and households have been growing in average at 4.0% per month (though the increase rate somewhat moderated in the second half of the year). This is why the increasing

<sup>23</sup> VaR reflects the maximum expected losses over a certain period of time with a given probability. 1% 10 day VaR from exchange rate fluctuations means that within the next 10 days there is only a 1% probability that losses from exchange rate fluctuations will exceed the VaR. In this report, VaR was obtained based on open currency positions of individual banks at the end of each month. Calculations use the historical daily exchange rate changes within one year prior to VaR evaluation date (last day of the relevant month). Since repegging the lats to the euro, VaR calculations no longer include the euro component.

Chart 49

**BANKS' SENSITIVITY TO THE US DOLLAR FLUCTUATIONS**

(ratio of losses to capital and reserves; %)



share of loans extended and volatility in domestic foreign exchange markets are further aggravating banks' indirect foreign currency exposure. At the end of December 2007, aggregate open position in euro of non-financial corporations and households stood at 59.0% of GDP, with open position of non-financial corporations contributing 33.4% and that of households 25.6% of GDP.

#### 4.2 Liquidity Risk

**Overall, the liquidity in the banking sector remained high, mainly owing to the moderating growth of lending in the second half of the year. The sensitivity of the banking sector in particular and Latvian economy in general to the funding from foreign credit institutions increased somewhat. However, the risk is mitigated by the fact that the attracted funds are of long-term nature and are provided by foreign parent banks.**

The compliance with the liquidity ratio<sup>24</sup> set by the FCMC improved in the second half of 2007 and stood at 55.7% {51.1%} at the end of the year (see Chart 50). The improvement of the ratio was determined by a decrease of the share of loan portfolio in assets in the second half of the year, and a rapid growth of non-resident short-term deposits placed with foreign credit institutions in the fourth quarter.

The liquidity ratio of banks servicing residents<sup>25</sup> continued to be lower than that of banks servicing non-residents. Yet, the banks servicing non-residents continued to be active in the domestic lending market, and this is why liquidity ratio deteriorated somewhat in this sector.

In 2007, short-term liquidity ratio<sup>26</sup> increased as well, standing at 75.9% {65.6%} at the end of the year – the best one recorded since 2001 (see Chart 51). Thus, liquid assets<sup>27</sup> relative to total assets increased rapidly over the fourth quarter of 2007, to reach 25.0% {23.9%} of total assets of the banking sector. Short-term liquidity ratios for lats continued to increase swiftly during the year. This was the effect of the modest increase of demand deposits in lats. Over the second half of the year, the short-term liquidity ratio in foreign currencies also increased somewhat, representing the largest contribution in the total short-term liquidity ratio.

The sensitivity of the banking sector and, consequently, Latvian economy to the funding from foreign credit institutions increased slightly. Yet, the risk was mitigated by the long-term funding provided by foreign parent banks. With the lending growth rate falling in the second half of the year, non-MFI loan-to-deposit ratio dropped in the fourth quarter (146.5%), yet remained higher than in the respective period a year ago

<sup>24</sup> Liquid assets (vault cash; claims on the Bank of Latvia and solvent credit institutions whose residual maturity does not exceed 30 days, and deposits with other maturity, if a withdrawal of deposits prior to the maturity has been stipulated in the agreement; investment in financial instruments, if their market is permanent, unrestricted) must not be less than 30% of banks' total current liabilities with residual maturity under 30 days.

<sup>25</sup> Banks are grouped by the share of non-resident non-MFI deposits in the banking sector liabilities: if it exceeds 20%, a bank is regarded as a bank servicing non-residents; if it is below 20%, a bank is regarded as a bank servicing residents.

<sup>26</sup> Short-term liquidity ratio = liquid assets/demand liabilities (to banks and non-MFIs) x 100.

<sup>27</sup> Liquid assets = vault cash + claims on central banks and other credit institutions + central government fixed income debt securities.

{140.1%} (see Chart 52). This is evidence that the funding raised from foreign banks for lending purposes is ever increasing, and at the end of 2007 its share in total liabilities was 37.4% {34.2%}, including 27.0% {25.4%} from parent banks. Liquidity stress tests indicated that the outflows of short-term bank financing would have practically no adverse effect on the banking sector liquidity risk (see Box 5).

Chart 50

**COMPLIANCE WITH THE LIQUIDITY RATIO SET BY THE FCMC (%)**

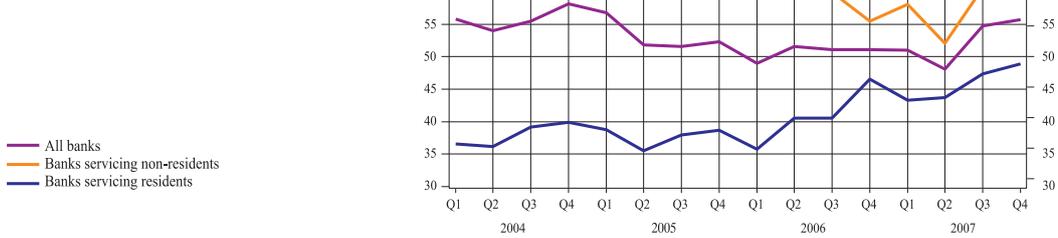


Chart 51

**SHORT-TERM LIQUIDITY RATIO OF THE BANKING SECTOR BY CURRENCY (%)**

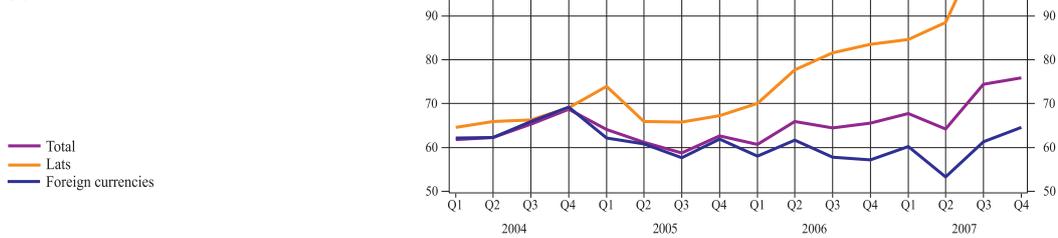
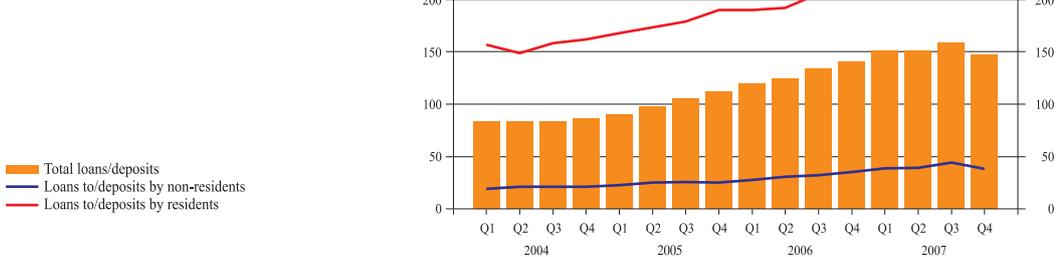


Chart 52

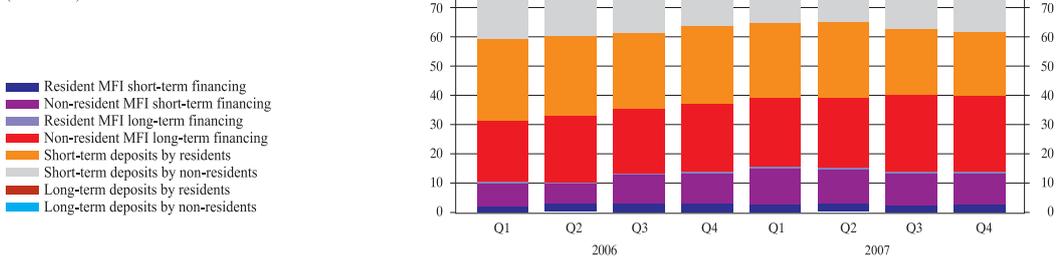
**LOAN/DEPOSIT RATIO (%)**



At the same time, an increase was recorded in non-resident deposits with non-MFIs that were channelled by the non-resident servicing banks to domestic lending. The deposits by non-residents increased at a faster pace, to stand at 21.4% {19.3%} of total assets at the end of the year (see Chart 53).

Chart 53

**BREAKDOWN OF FINANCING (% of assets)**



The risk of further availability of funding increases together with macroeconomic developments, namely, high external debt, persisting high inflation rates and large current account deficit as well as the expected deterioration of the banking sector loan portfolio. This might possibly result in tightening of financing conditions.

### Box 5. Liquidity stress tests

The Bank of Latvia conducts liquidity stress tests with the purpose of obtaining a more accurate assessment of the effect of the outflows of financing on the banking sector liquidity. The results of the liquidity stress tests indicate the tolerance of the banks to the outflows of non-MFIs' deposits and MFIs' short-term financing before their liquidity ratios falling below 0. Initially, the stress test scenario is based on the assumption that every day 10% non-resident non-MFI deposits are withdrawn, and the banks do not recourse to extra financing to replenish the outflows. As a result, within 10 days non-resident non-MFI deposits are withdrawn entirely in equal portions. According to the stress test, on the assumption that the outflows of non-resident non-MFI deposits are 10% per day, all banks would be able to maintain the required liquidity ratio for at least four days (see Chart 54.1). According to the current scenario when all non-resident non-MFI deposits are withdrawn within 10 days, 11 Latvian banks, with 32.9% of total bank assets, would default on their short-term liabilities and become illiquid. All these are servicing non-residents.

Chart 54.1

#### LIQUIDITY STRESS TEST RESULTS IN CASE OF OUTFLOWS OF NON-RESIDENT DEPOSITS (number of banks)

■ Illiquid banks (liquidity ratio <0%)  
■ Solvent banks non-compliant with the required liquidity ratio (0% < liquidity ratio ≤30%)  
■ Banks compliant with the required liquidity ratio (liquidity ratio >30%)

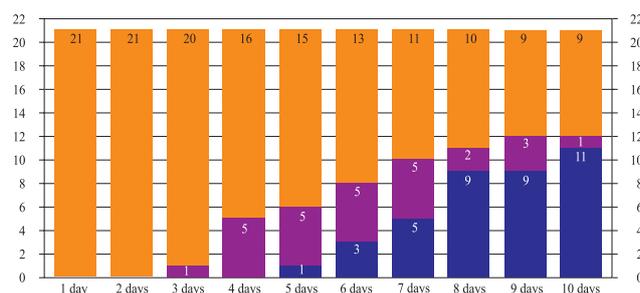
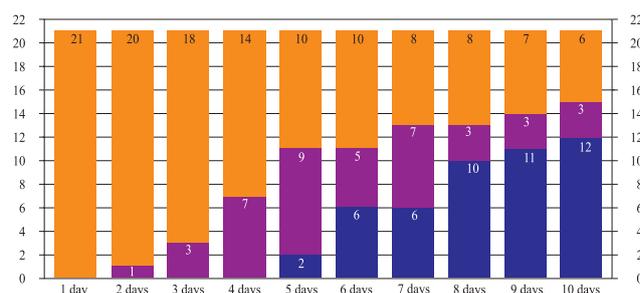


Chart 54.2

#### LIQUIDITY STRESS TEST RESULTS: EXTRA CONDITION – OUTFLOWS OF SHORT-TERM MFI FINANCING (number of banks)

■ Illiquid banks (liquidity ratio <0%)  
■ Solvent banks non-compliant with the required liquidity ratio (0% < liquidity ratio ≤30%)  
■ Banks compliant with the required liquidity ratio (liquidity ratio >30%)



If we add an extra condition to the initial scenario, i.e. within 10 days all deposits by other non-resident MFIs with maturity under 1 month are withdrawn (i.e., foreign banks discontinue short-term lending to Latvian banks), the overall banking sector liquidity would deteriorate; however, the first liquidity constraints would emerge only on day 5 (see Chart 54.2). In case of both scenarios, extra funding of up to 6% of the banking sector assets would be required so that banks be able to proceed with their operations. The results of the liquidity stress tests suggest that resident-servicing banks prevalently rely on long-term funding (mainly from parent banks), thus protecting themselves from potential short-term financial shocks, whereas non-resident servicing banks depend mostly on non-resident deposits and, albeit to a lesser extent, on financing from other banks.

### 4.3 Interest Rate Risk

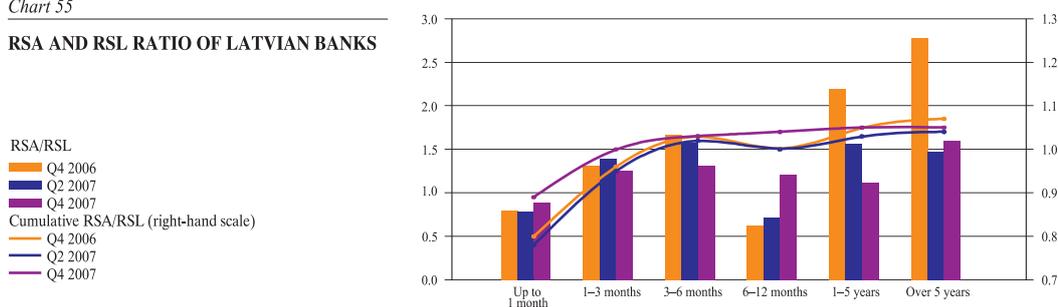
**In 2007, the broadly balanced RSA and RSL structure and relatively low bank sensitivity towards interest rate changes continued to point to a limited exposure of Latvian banks to the interest rate risk.**

In 2007, Latvian banks' overall exposure to repricing risk<sup>28</sup>, the most significant source of the banks' interest rate risk, remained limited. In 2007, compared to the end of the previous year, the balance of Latvian bank RSA and RSL improved for all time-bands (see Chart 55). Long-term resources improved most visibly, with bank long-term RSA increasing at a lower rate than long-term RSL. E.g. in the time-band 1 to 5 years the RSA/RSL ratio was 1.12 {2.20} at the end of 2007, while in the time-band over 5 years it was 1.60 {2.78}. The slowdown in the growth of banks' long-term RSA in 2007 was mainly related to the decrease in banks' long-term lending. A more pronounced increase of the long-term RSL was on account of a sizeable growth of banks' long-term borrowings from other credit institutions (banks' liabilities to other credit institutions and central banks, maturing over 1 year, were 12 times as high as at the end of the previous year).

Cumulative 1-year RSA to RSL ratio, the key ratio for interest rate management purposes, increased to 1.04 {1.00}, evidencing almost balanced RSA and RSL of the Latvian banks in the time-band up to 1 year (with cumulative 1–3 month RSA/RSL ratio increasing to 1.00 {0.96}, RSA and RSL balance improved for the shortest time-band up to 3 months).

Chart 55

#### RSA AND RSL RATIO OF LATVIAN BANKS



The difference between RSA and RSL, or the repricing gap (GAP)<sup>29</sup>, relative to the assets of the Latvian banks decreased for all time-bands at the end of 2007 in comparison with the end of the previous year, and was in the range between –6.0% and 5.9% of banks' assets (see Chart 56). Cumulative 1-year GAP relative to banks' assets increased to 3.4% {0.4%}, mainly on account of GAP reverting to positive values for the time-band 6–12 months. Despite the increase of cumulative 1-year GAP, broadly pointing to a higher exposure of banks to the interest rate risk, in 2007 the balance of RSA and RSL improved for the key time-bands, namely, up to 1 month and 1–3 months, which, when combined, cover nearly two thirds of banks' total RSA.

The analysis of bank sensitivity to the impact of the potential changes in interest rates to banks' net annual interest income has an important role while assessing the interest rate risk. The Committee of European Banking Supervision, following the recom-

<sup>28</sup> Repricing risk is the probability of suffering losses due to interest rate movements and mismatching residual maturities of assets and liabilities. In this case, losses are incurred when the interest expenditure growth exceeds that of the interest income or the interest income falls quicker than interest expenditure. When estimating the bank's exposure to repricing risk, only RSA and RSL are examined, and they are distributed into several time-bands depending on the time remaining to repricing, which is the residual maturity for fixed rate instruments and the time remaining to reviewing the interest rates for variable rate instruments.

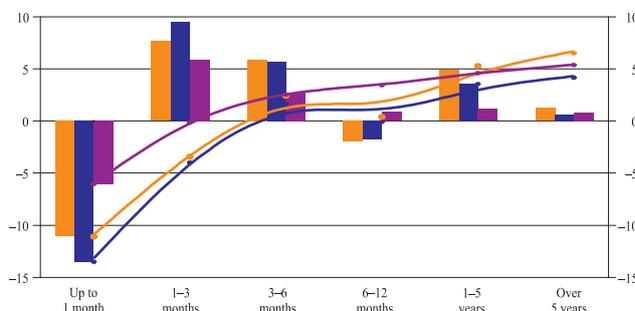
<sup>29</sup> The GAP of a pre-defined time-band is the difference between the RSA and RSL value within the specific time-band. The larger a particular bank's GAP, the higher its interest rate risk exposure. In the event of a positive GAP, the bank will incur losses from an interest rate decline, as the RSA exceed the RSL, and, therefore, the banks' interest income will shrink more notably than the expenditure. In the event of a negative GAP, the bank will incur losses from a rise in interest rates, as the liabilities exceed the assets and, therefore, the banks' interest expenditure will grow more than the income.

recommendations of the Basel Committee on Banking Supervision, proposes to set the parallel shift of the standardised interest rates (parallel rate shock) at 200 basis points.<sup>30</sup>

Chart 56

#### GAP'S SHARE IN TOTAL BANK ASSETS (%)

GAP  
 Q4 2006  
 Q2 2007  
 Q4 2007  
 Cumulative GAP  
 Q4 2006  
 Q2 2007  
 Q4 2007

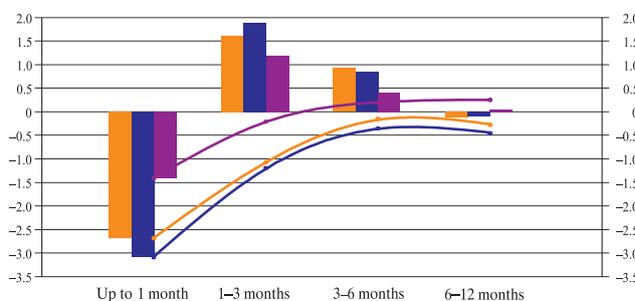


The results of sensitivity analysis show that the impact of any potential interest rate changes on net annual interest income<sup>31</sup> of Latvian banks would still be immaterial (see Chart 57).<sup>32</sup> With interest rates increasing by 200 basis points, a negative GAP in the time-band up to 1 month would reduce the net interest income of Latvian banks by 1.4% of own funds. Alternatively, the positive GAP in the time-bands of 1–3 months and 3–6 months would increase the net interest income of Latvian banks by 1.2% and 0.4% of banks' own funds respectively. All in all, the interest rate increase by 200 basis points would result in an increase of banks' net interest income by 0.1% (cumulative effect) of the total banks' own funds. The comparatively high positive GAPS for the time-band of 1–6 months are largely due to the variable interest rates on bank loans. Consequently, any changes in money market interest rates are priced into interest rates on bank loans in a relatively short period of time, thus transferring the interest rate risk to the client.

Chart 57

#### SENSITIVITY ANALYSIS: IMPACT OF INTEREST RATE INCREASE BY 200 BASIS POINTS ON THE ANNUAL NET INTEREST INCOME OF BANKS BY MATURITY (% of equity)

Impact  
 Q4 2006  
 Q2 2007  
 Q4 2007  
 Cumulative impact  
 Q4 2006  
 Q2 2007  
 Q4 2007



The spread between the key interest rate risk ratios increased across the banking sector in 2007 compared to the end of the previous year. At the end of 2007, the spread between the highest and the lowest cumulative 1-year RSA/RSL ratio increased approximately 1.9 times (see Chart 58).

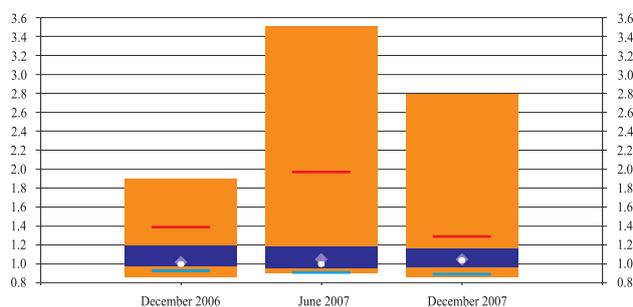
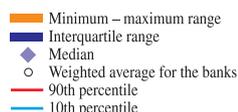
According to the bank sensitivity analysis, at the end of 2007 the number of banks that would potentially incur larger losses from the interest rate increase was higher than at the end of 2006. This is associated with a slower growth of lending, and, consequently, RSA in the second half of 2007. In the case of 200 basis points rate shock, at the end of 2007, the fall in net annual interest rate income would be 5.7% of own funds for one bank, while the maximum increase of income would be 6.7% of own funds (see Chart

<sup>30</sup> Principles for the Management and Supervision of Interest Rate Risk. Basel Committee on Banking Supervision. July 2004; Technical aspects of the management of interest rate risk arising from non-trading activities under the supervisory review process. Committee of European Banking Supervisors. October 2006.

<sup>31</sup> The effect on net annual interest income within each time-band is calculated by multiplying the time-band's GAP with the interest rate change and the ratio of this time-band characterising the part of the year when the GAP of this time-band will be active. For the purposes of calculating the ratio, it is assumed that repricing will take place in the middle of the time-band. For example, 3–6 month time-band ratio is calculated as follows:  $(12 - 0.5 \times (3 + 6))/12 = 0.625$ . The overall impact on the profit for the year is the aggregate effect for the first four time-bands.

<sup>32</sup> As the calculations are based on the GAP method, they do not take into account the interest rate impact on the economic value of the banks and are based on the structure of the banks' aggregate balance sheet as at the end of 2007.

Chart 58

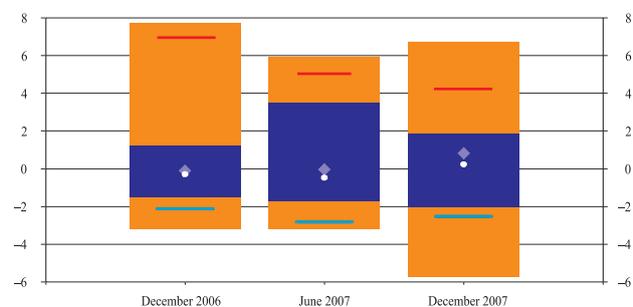
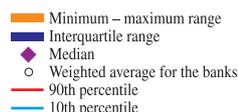
**DECOMPOSITION OF THE CUMULATIVE 1-YEAR RSA/RSL RATIO OF BANKS**


59). The interquartile range demonstrates that for half of the banks the effect of interest rate increase by 200 basis points on net annual interest income would be in the range between –2.0% and 1.8% of banks' own funds.

Chart 59

**SENSITIVITY ANALYSIS: DECOMPOSITION OF CUMULATIVE IMPACT OF INTEREST RATE INCREASE BY 200 BASIS POINTS ON THE ANNUAL NET INTEREST INCOME OF BANKS**

(% of own funds)



## 5. THE FINANCIAL POSITION OF THE NBFS

**The impact of the NBFS on the financial system of Latvia in 2007 (as in the previous periods) still remains insignificant. The share of the NBFS assets in the financial system was 12.5% at the end of 2007.**

The amount of the NBFS assets was 3 129.4 million lats at the end of 2007 (an increase of 990 million lats against the end of 2006). Whereas the annual growth rate of the NBFS assets year-on-year declined from 57.2% in 2006 to 46.3% in 2007. The share of the NBFS assets in the financial system of Latvia was still insignificant although it increased from 11.9% to 12.5% in 2007.

With the assets of the leasing companies growing more rapidly than the assets of other NBFS institutions, the leasing companies still accounted for the major part of the NBFS assets (see Chart 60) – their assets accounted for 58.6% of all NBFS assets at the end of 2007. In 2007, the assets of the leasing companies grew by 47.8%, the insurance companies – by 35.4%, the pension funds – by 34.5% and other financial intermediaries – by 43.1%. The assets of credit unions recorded the slightest increase (only 13.5%) but the assets of investment funds recorded the highest increase (74.2%).

At the end of 2007, the outstanding amount of leasing and factoring loans granted by leasing companies was 1.8 billion lats of which leasing loans (see Chart 61) accounted for 1.6 billion lats (91.1%). The role of financial leasing in the overall leasing companies' portfolio continued to grow. The share of financial leasing in the overall leasing companies' portfolio year-on-year increased from 85.6% at the end of 2006 to 87.1% at the end of 2007. Whereas the share of factoring loans in the overall leasing companies' portfolio accounted only for 8.9% at the end of the year. The majority of factoring loans (66.9%) were with a maturity of 6 months to 1 year.

Likewise the banks' loan portfolio, loans granted in euro (90.6%) with a maturity of 2–5 years and of over 5 years (total 87.2%) dominated the financial leasing companies' portfolio.

Chart 60

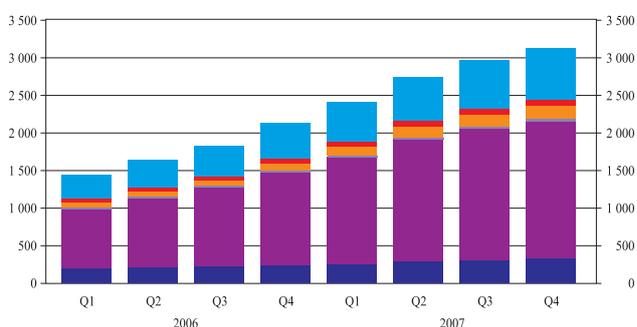
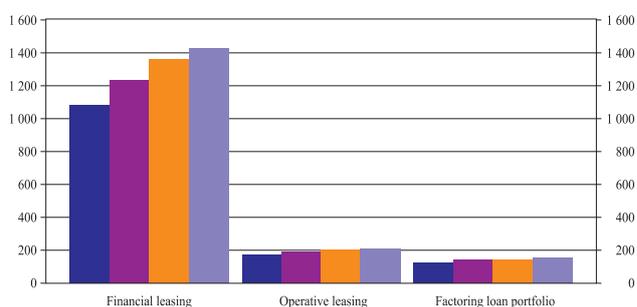
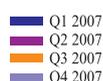
**NBFS ASSETS**  
(in millions of lats)

Chart 61

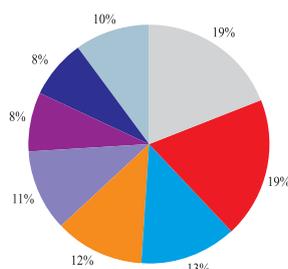
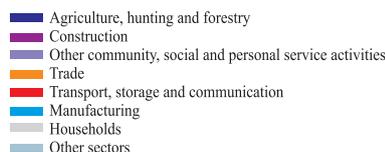
**AMOUNT OF LEASING IN 2007**  
(in millions of lats)

The financial leasing portfolio by economic sectors indicates that the majority of the outstanding amount of leasing granted to residents accounts for that of loans granted to households and transport, storage and communication sectors (each – 19%); the share of these loans has remained the same in comparison with the level of the previous year. The increase in loans to households amounted to 58.5% but the share of loans granted to manufacturing, trade and community, social and personal service sectors accounted for 13%, 12% and 11% respectively.

Chart 62

**THE FINANCIAL LEASING BY SECTOR OF ECONOMY**

(residents; at end of 2007; %)

**6. FINANCIAL INFRASTRUCTURE****6.1 Payment Systems**

Three indicators are applied by the Bank of Latvia to assess systemic risk: 1) the share of the systems in the respective payment segment; 2) concentration ratio – the share of the five largest participants in the system and 3) the netting effect ratio.

The first indicator of systemic risk assessment is described by the share of the SAMS and the EKS in the interbank and retail payments in lats.

In the second half of 2007, an indicator of the SAMS turnover share (see Charts 63 and 64) increased year-on-year. Of interbank credit transfers in lats, the volume of interbank payments processed by the SAMS amounted to 95.9% (44.1 thousand) and their value was 98.6% (45.0 billion lats). On the interbank payment market, the rising importance of the SAMS (80.7% and 74.8% year-on-year respectively) is primarily due to a substantial increase in the volume (17.0 thousand or 15.8%) and value (25.3

billion lats or 91.7%) of the payments handled by the system. The Latvian interbank credit transfers handled via correspondent banking arrangements accounted for the remaining share.

Chart 63

**THE SHARE OF SAMS TURNOVER IN THE INTERBANK CREDIT TRANSFERS IN LATS (%)**

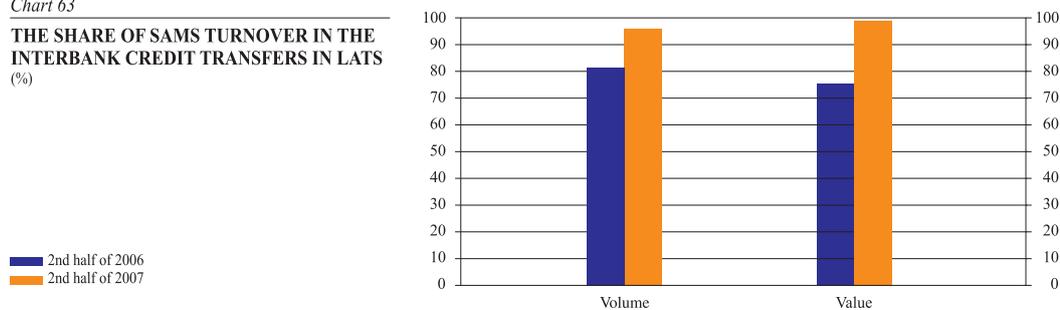
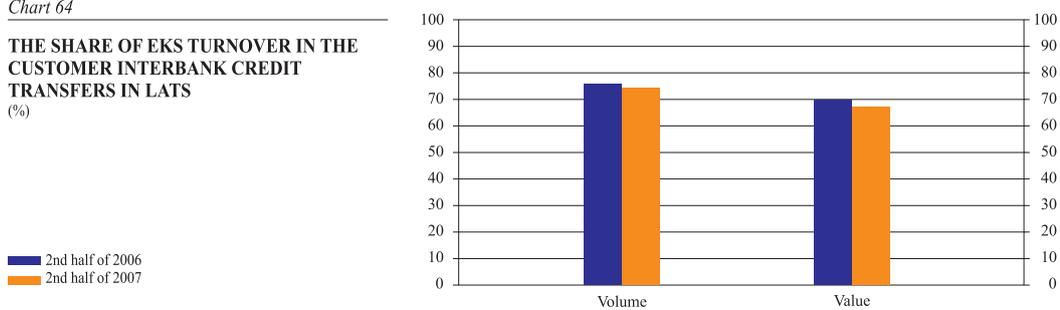


Chart 64

**THE SHARE OF EKS TURNOVER IN THE CUSTOMER INTERBANK CREDIT TRANSFERS IN LATS (%)**



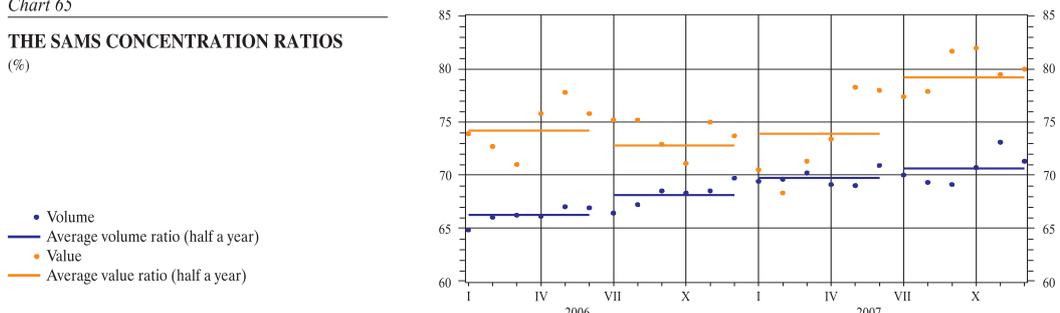
The indicator of the EKS share decreased. Of retail interbank credit transfers made in lats, 74.4% (15.5 million) and 67.4% (6.6 billion lats) were processed in the EKS. Mutual gross settlements of customer credit transfers made by some banks of Latvia accounted for the remaining share. The volume and value of payments handled by the EKS increased in comparison with the second half of 2006: 1.3 million or 9.0% and 859.3 million lats or 15.1% respectively.

The second indicator of the systemic risk assessment – the SAMS and the EKS concentration ratios.

In the second half of 2007, the volume concentration ratio of the SAMS expanded to 70.6% year-on-year (87.9 thousand; see Chart 65). The rise in volume of customer payments (7.2 thousand or 11.5%) and, in particular, the activities of the five largest participants mostly accounted for the above increase. The value concentration ratio of the SAMS grew from 72.8% (20.1 billion lats) in the second half of 2006 to 79.2% (41.8 billion lats) in the second half of 2007. The total value of payments executed by the system's five largest participants increased 2.1 times (by 21.8 billion lats), while the value of payments executed by other banks expanded by 46.7% or 3.5 billion lats.

Chart 65

**THE SAMS CONCENTRATION RATIOS (%)**



When assessing a large-value payment system, the value concentration ratios are reviewed. The SAMS is primarily an interbank payment system also ensuring an

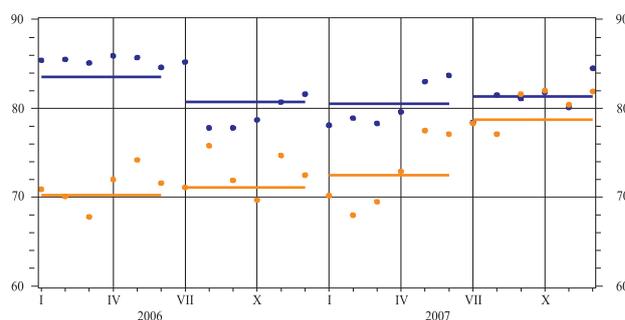
execution of urgent or large-value customer payments. In the second half of 2007, the share of the two payment types was as follows: 38.6% (44.1 thousand interbank payments) and 61.4% (70.2 thousand customer payments) in terms of volume and 88.6% (45.0 billion lats) and 11.4% (5.8 billion lats) in that of value respectively.

Comparison of the subordinated concentration ratios – the value concentration ratios of interbank and customer payments (see Chart 66) confirmed that the value concentration ratio of customer payments slightly exceeded that of the bank payments (by 2.6%) in the second half of 2007. The value concentration ratio of customer payments was slightly above 80% since the first half of 2005 (81.3% – in the second half of 2007).

Chart 66

#### THE SAMS PAYMENT VALUE CONCENTRATION RATIOS (%)

- Customer payments
- Average customer payment ratio (half a year)
- Bank payments
- Average bank payment ratio (half a year)



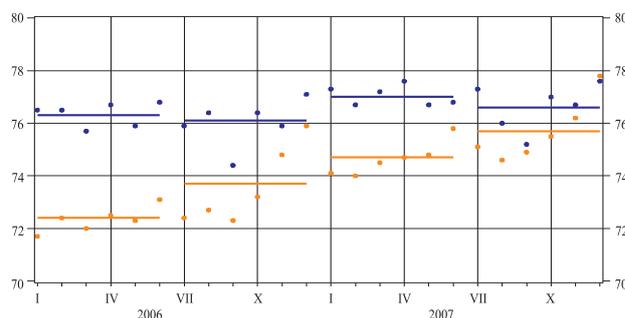
The volume and value of interbank payments increased by 10.1 thousand (29.6%) and 24.6 billion lats (2.2. times) respectively as compared to the second half of 2006. The volume of customer payments rose by 7.2 thousand (11.5%) and the value grew by 687.1 million lats (13.5%).

The volume concentration ratio (76.6%) of the EKS payments remained broadly unchanged compared to the first half of 2007 and the second half of 2006 (77.0% and 76.1% respectively). The changes did not exceed 1 percentage point (see Chart 67). The value concentration of the payments in the EKS rose to 75.7% (by 859.3 million lats) in the second half of 2007, as the value of payments executed by the system's five largest participants increased faster than the payments made by other participants (by 9.8% and 6.4% respectively).

Chart 67

#### THE EKS CONCENTRATION RATIOS (%)

- Volume
- Average volume ratio (half a year)
- Value
- Average value ratio (half a year)



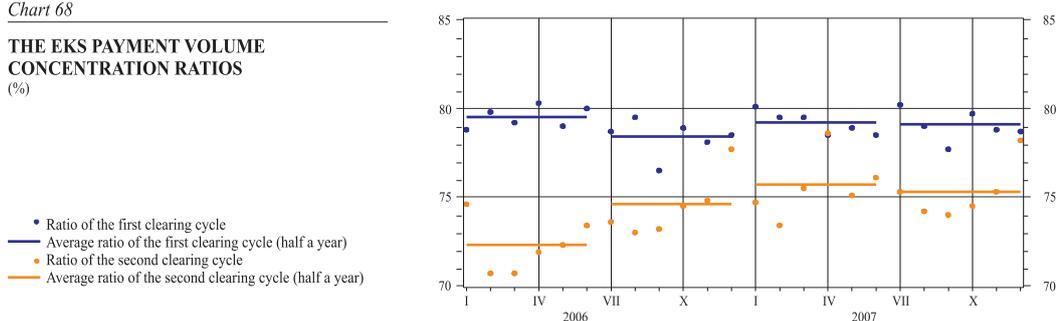
Settlements are executed in two clearing cycles in the EKS, i.e. twice a day. In the second half of 2007, 65.2% of total daily payments and 55.3% of the daily value of payments handled in both clearing cycles were processed in the first clearing cycle of the EKS. In the first clearing cycle, 10.1 million payments amounting to 3.6 billion lats were processed and in the second cycle, 5.4 million payments in the amount of 2.9 billion lats were handled.

The EKS is a retail payment system processing large number of payments, hence it is mainly described by the payment volume ratios. Thus, the payment volume concentration ratios of both cycles were assessed in more detail (see Chart 68): in the second half of 2007, in the first clearing cycle this ratio exceeded that of the second cycle by

3.8 percentage points (79.1% and 75.3% respectively). Overall, the concentration ratios of both clearing cycles tend to level out. The fact that the same five major originator's banks were covered in both concentration ratios in 2007 and the second clearing cycle was more actively used by all banks accounted to a great extent for it. An increase was observed in both clearing cycles in the EKS as compared to the second half of 2006: in the first clearing cycle the total volume and value of payments rose by 6.8% and 10.4% respectively and in the second clearing cycle the turnover grew by 13.2% and 21.5% respectively.

Chart 68

#### THE EKS PAYMENT VOLUME CONCENTRATION RATIOS (%)

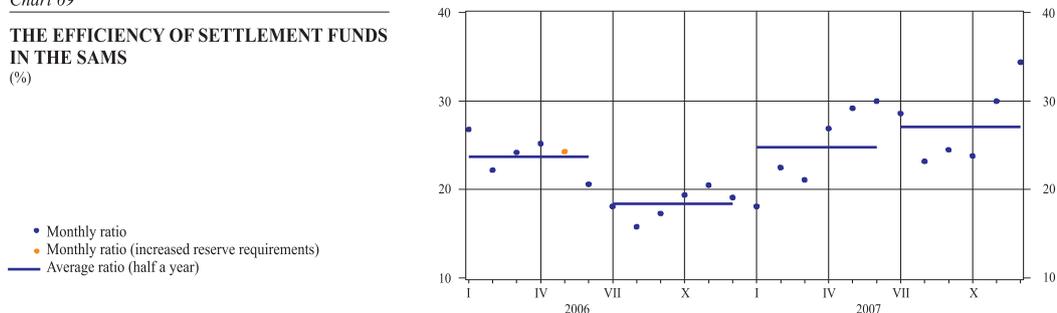


The netting effect ratio is the third indicator of the systemic risk assessment. The minimum reserve ratio still accounted for a low efficiency of using settlement funds in the SAMS in the second half of 2007 as well, and the decline in the netting effect ratio of the EKS did not affect the probability of systemic risk as the share of the net position settlement in the EKS remained minor in the total value of the participants' settlement funds.

Given the current turnover of the system, the efficiency of using the settlement funds in the SAMS is described by the share of funds used for settlements in the accounts balance. Bank settlement accounts with the Bank of Latvia are used for the financial market settlements in lats. The respective efficiency indicator is calculated as the ratio of bank payments sent via the SAMS to the average balance on the bank accounts with the Bank of Latvia. The minimum reserve ratio set by the Bank of Latvia, remaining unchanged at 8% in 2007, affected the monthly average balance on these accounts. The value of credit institution payments in the SAMS rose by 28.6% over the second half of 2007, and the average balance on the accounts with the Bank of Latvia grew by 17.4%. Hence, the efficiency of using the system's settlement funds rose moderately from 24.8% in the first half of 2007 to 27.1% in the second half of 2007 (see Chart 69).

Chart 69

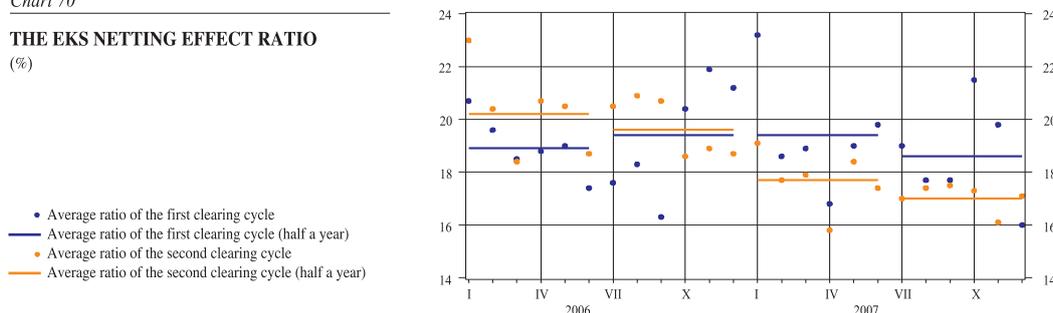
#### THE EFFICIENCY OF SETTLEMENT FUNDS IN THE SAMS (%)



The efficiency of using settlement funds in the EKS is described by the netting effect ratio, i.e. the system participants' net debit positions as a percentage of the system's gross transactions value. In the second half of 2007, the netting effect ratios of the first and second clearing cycle were 18.6% and 17.0% respectively (see Chart 70). The netting effect ratio of the second clearing cycle shrank by 2.6 percentage points compared to the second half of 2006. It followed from a more active use of the second clearing cycle by all banks. The value of payments posted a more vigorous increase in the second clearing cycle (21.5%) than that of the netting position (11.6%).

Chart 70

### THE EKS NETTING EFFECT RATIO (%)



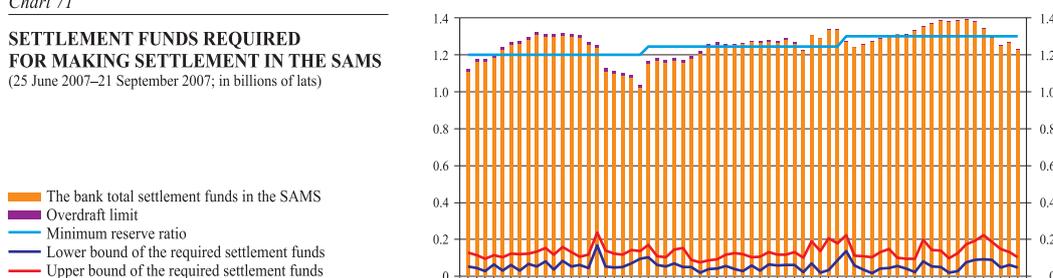
Overall, the netting effect ratios of the two clearing cycles are lower in comparison with the ratios of other EU countries. However, as the EKS participants' net debit positions were minor in comparison with the balance on the accounts with the Bank of Latvia (on average 0.4%), the low netting effect created no need for additional settlement funds in the system.

The payment and settlement system simulator BoF-PSS2 developed by the *Suomen Pankki – Finland's Bank* was applied for an in-depth assessment of the efficiency of the settlement fund use in the SAMS. The following indicators: the assessment of the required settlement funds and the node risk ratio were additionally used to assess the efficiency of settlement fund use in the SAMS.

In 2007, a study of the minimum settlement funds required by the banks, given the current payment value, was conducted, as well as the lowest value of settlement funds for ensuring an efficient execution of the daily payments was projected. The settlement data simulation, i.e. the analysis of the changes in the account balances of the three minimum reserve maintenance periods from 25 June 2007 to 21 September 2007 was carried out and it was concluded that the upper bound of the settlement funds required by the banks to ensure immediate payment settlements would average 10.6% of the current settlement funds in the SAMS. The described efficiency of the settlement fund use is complemented by the above result only in the case of the payments sent. The lower bound of the settlement funds required for settling payments by the end of the settlement day, thereby applying the current procedures of the payment processing and settlement optimisation in the SAMS (gridlock resolution and changing priority payments), would average 4.5% of the current settlement funds in the SAMS (see Chart 71).

Chart 71

### SETTLEMENT FUNDS REQUIRED FOR MAKING SETTLEMENT IN THE SAMS (25 June 2007–21 September 2007; in billions of lats)



In addition, the impact of an individual participant in the SAMS on other participants was assessed, where the available settlement funds would be reduced to their upper bound or lower bound. Overall, it is concluded that the probability of systemic risk is minimal, given the current value of settlement funds, whereas upon reducing the participants' settlement funds the participant whose node risk is the highest would exert the highest impact on other participants in the system, i.e. the ratio of the payments sent and received to the value of payments sent and received by the entire system would be the highest. The total node risk of the three system's participants exceeded 60% during the period studied, whereas the share of the risk of other participants was minimal (see Chart 72).

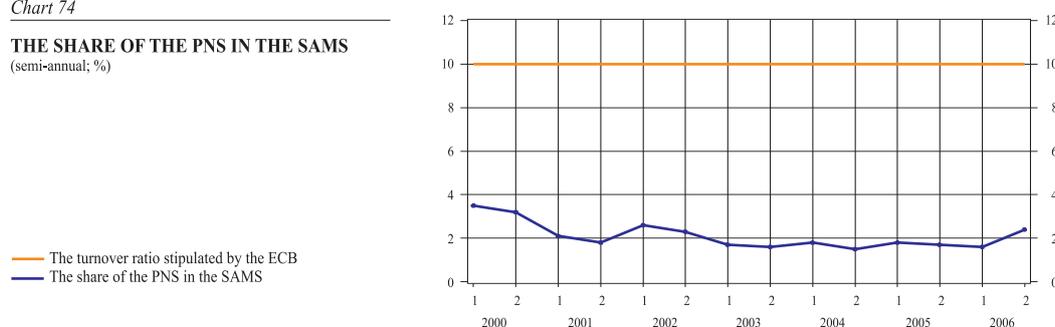


The share of *Latvijas Pasts* branch network (60.6%) indicated that the infrastructure provided by *Latvijas Pasts* was difficult to substitute and thus could be assessed as prominent. The network of the entire bank branches of Latvia was less important in comparison with the network of payment entry points provided by *Latvijas Pasts* as a single institution.

Financial risk of payment services is generally determined by comparing the value of payments processed by the respective retail payment system to the payment value of the real-time gross settlement system. In assessing the share of the PNS (see Chart 74), the PNS value ratio includes the entire customer payment instruments, except cash deposits and withdrawals, as both systems – the PNS and Latvia's real-time gross settlement system SAMS process cashless payment instruments. In the turnover of the SAMS, the share of the PNS or the so-called financial risk accounted for 2.4% in the second half of 2006.

Chart 74

#### THE SHARE OF THE PNS IN THE SAMS (semi-annual; %)



The above financial risk is not deemed to be systemically important as it does not exceed the share of retail payment system in the real time gross settlement system (10%) stipulated by the Oversight Standards. The financial risk ratio of *Latvijas Pasts* payments likewise confirmed that *Latvijas Pasts* did not service large-value payments and the PNS only processed retail payments.

The netting effect of net settlement systems is generally assessed in the context of systemic or the so-called domino effect risk. The PNS is not a net settlement system, i.e. *Latvijas Pasts* did not execute the netting of the mutual obligations of the system's customers, whereas the settlement was made on a payment-by-payment basis. Hence, the payment services of the PNS were assessed by analysing the current gross settlement facilities.

In 2006, *Latvijas Pasts* ensured the initiation of payments, where the beneficiary might be both the customer of other post office branch and the bank account holder. The Bank of Latvia "Regulation for Credit Transfers" was binding on *Latvijas Pasts* when executing cashless payments. Paragraph 1.3 of the "Regulation for Credit Transfers" stipulates that the branches of *Latvijas Pasts* involved in the execution of credit transfers shall be regarded as separate institutions. Thus, a payment made between the branches of *Latvijas Pasts* shall be deemed to be an interinstitutional payment and the same terms and conditions of fulfilment apply to it and other interinstitutional payments, e.g. customer interbank payments.

The settlements of payments made by *Latvijas Pasts* customers, where the beneficiaries were the customers of other *Latvijas Pasts* branches, had been handled by the PNS. Settlements were made in the accounts of *Latvijas Pasts* customers. At the end of 2006, the number of accounts opened by residents and non-residents amounted to 178.3 thousand, and the total credit balance accounted for 14.5 million lats (see Chart 75).

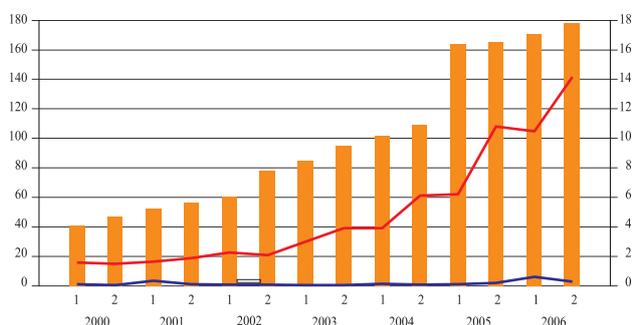
In 2006, the settlements of payments made by *Latvijas Pasts* customers, where the beneficiaries were the customers of any Latvian bank, had been executed via *Latvijas Pasts* account opened with one of Latvia's banks. If assets held by one institution are used in the settlements, the credit and liquidity risk of these assets must be low.

Chart 75

### THE NUMBER OF LATVIJAS PASTS CUSTOMER ACCOUNTS IN LATS AND CREDIT BALANCE

(semi-annual; number – in thousands; account balance – in millions of lats)

■ The number of resident accounts  
— Credit balance on resident accounts (right-hand scale)  
— Credit balance on non-resident accounts (right-hand scale)



Payments made by *Latvijas Pasts* customers, where the beneficiary was located in another country as well as domestic payments executed in foreign currencies were made in accordance with the generally accepted practice of post office institutions in 2006. *Latvijas Pasts* used a number of channels for the provision of customer cross-border payments: *Latvijas Pasts* account opened with one of Latvia's banks; *Eurogiro* system, Western Union system or mutual correspondent accounts of the post office institutions. These several channels used in cross-border payments reduced the probability of settlement risk.

In line with the three described risk groups, in 2006:

- 1) the share of payments executed via the PNS did not amount to that of the prominent system in terms of volume and in terms of value stipulated by the Oversight Standards, while the share of transaction volume was very close to the respective threshold. The services provided by *Latvijas Pasts* may be difficult to substitute due to its prominent infrastructure;
- 2) compared to the real-time gross settlement system, the settlement value was minor and was not deemed to be a source of financial risks;
- 3) the Bank of Latvia recommended an additional assessment of the settlement procedure due to the settlement principle used (one institution for domestic payments).

In accordance with the Oversight Standards, the PNS was not deemed to be a systemically prominent retail payment system. It can, however, be concluded from the assessment that the PNS was a significant component of the national payment system in 2006, and the Bank of Latvia invited *Latvijas Pasts* to make a self assessment in compliance with the "Core Principles for Systemically Important Payment Systems" (hereinafter, the Core Principles) published by the Bank for International Settlements. Identifying and assessing postal payment services in line with the Core Principles would ensure an enhancement of these services according to the best international practice and hence reduce risks in the entire payment system of Latvia.

## 6.2 Securities Settlement Systems

The securities settlement systems operating in Latvia have ensured smooth operation of the settlement systems. In 2007, the activity of the securities settlement system operation continued on its upward trend as both the volume and value of delivery instructions increased.

A safe and efficient financial market infrastructure is one of the preconditions of the financial system stability. Along with the regulated market organiser, the financial market infrastructure comprises payment and securities settlement systems. The Bank of Latvia is interested in promoting not only smooth operation of payment systems but also those securities settlement systems that are important for the stability of financial system in Latvia. A major feature of these systems to be taken into account when assessing their impact on the financial stability is the probability of incurring systemic risk. Smooth operation of payment and securities settlement systems is essential for the implementation of monetary policy of the central banks.

A significant share of executed payments relate to securities settlements. Problems in the securities settlement systems may cause delays in payment systems operation and affect the monetary policy implementation by the central bank. When assessing the importance of the securities settlement systems it should be taken into account whether operational and technical problems in the system could cause securities' delivery or liquidity problems for the financial market participants or whether payment and securities' delivery problems of an individual market participant in the settlement system may affect other participants in the market. For the assessment of the importance of settlement systems, several criteria should be taken into account, e.g. the volume and value of transactions, the number and type of established links, etc. Both securities settlement systems operating in Latvia – the DENOS and the VNS – are to be considered important.

The LCD is the single central securities depository where the issued and publicly traded financial instruments are booked and accounted for, financial instrument and cash settlement for transactions concluded with these financial instruments is ensured, as well as securities settlement services are provided. To ensure cross-border securities settlement in the Baltic States, the LCD has established links with the central securities depositories of Lithuania and Estonia. In 2007, the LCD introduced the DVP procedure for securities settlements among the central depositories of the Baltic States, offering not only FOP but also DVP settlement in the securities markets of all three Baltic States for transactions concluded both on the stock exchange and over-the-counter market. VNS is a securities settlement system operated by the Bank of Latvia where government and private debt securities accepted as collateral in the Bank of Latvia monetary operations can be stored and accounted for. A link has been established between the LCD and VNS, ensuring FOP to and from VNS.

The infrastructure of Latvia's payment and securities settlement systems provides an opportunity to the securities market participants to contain the risks traditionally associated with securities and payment settlement and transactions where securities are involved. Links between settlement and payment systems allow for automated transaction processing as well as for containing or preventing risks related to securities settlement. Regulations and instructions for the settlement system operation allow system operators to manage the remaining risks appropriately.

A securities settlement systems' participant may be exposed to credit risk where settlement is executed under some condition, such as a possibility to revoke the transaction subject to a certain event in the future. According to the LCD and VNS regulations, however, a securities transfer is irrevocable and final as from the moment the receiver's securities account is credited. The real time settlement for securities with immediate settlement finality isolates the party receiving securities from such risk. Credit risk could have a more pronounced impact on bilateral transactions where both securities and cash transactions are conducted and where both parties have obligations to be fulfilled. Credit risk manifests itself where one party has fulfilled its financial liabilities but the other party failed to fulfil its liabilities in return. This securities transaction risk is prevented as the Bank of Latvia ensures the processing of the LCD payment orders in line with the cooperation agreement concluded between the Bank of Latvia, the LCD and the respective market participant for ensuring cash settlement for securities DVP transactions. To ensure simultaneous securities and cash settlement, the LCD upon the receipt of a participant's message blocks the amount of securities necessary for settlement on the participant's account with the LCD and instructs the Bank of Latvia to transfer cash from the LCD participant with whom the buyer has opened a financial instrument account to an account of the LCD member with whom the seller of the financial instruments has opened a financial instrument account. Upon receipt of confirmation of the cash transfer from the Bank of Latvia the LCD immediately transfers the blocked securities to the buyer of securities.

To fulfil the daily liabilities, market participants need adequate liquidity, i.e. cash or securities. Lack of securities on the participant's account may cause a settlement delay

or rejection of the securities transfer order of the participant. The Bank of Latvia reduces risks of such type by offering banks intra-day credit limit for providing the required short-term liquidity for cash settlement in the form of non-interest bearing loans. Since all banks operating in Latvia are participants in the VNS, during the relevant settlement day they have the opportunity to use the bank's settlement account debit balance within the collateralised limit of the bank's account in the VNS.

Operational factors (malfunction of equipment or human error) may affect confidentiality, execution of securities' orders and availability of information, with a further negative impact on liquidity risk or credit risk. Operational risk reduction and ensuring smooth functioning of settlement systems is one of the key financial stability functions in the oversight of the settlement systems operation. Operators of securities settlement systems, improving the settlement system operation, have implemented measures of operational risk reduction and developed business continuity plans to prevent potential disruptions in the system operation and quickly restore system operation. Such business continuity plans have been developed both for the VNS and DENOS. In addition, there are regular system business continuity tests. To emphasize the importance of the business continuity plan, in 2007 the Law "On the Financial Instruments Market" was amended by adding Article 92<sup>1</sup> on the LCD business continuity, directly stipulating the necessity of such a plan. The set of measures to be taken in the event the LCD is not in the position to fulfil the functions stipulated by the Law "On the Financial Instruments Market" has also been provided for therein.

Credible and predictable operation of securities settlement systems has been provided for by laws and regulations to be complied with when making securities transfers. Uncertainty and lack of legal framework may underlay a threat to liquidity and credit risk, e.g. an unexpected interpretation of a legal provision. Several special laws apply to securities settlement that should be taken into account when organising the securities settlement system operation or conducting securities transactions.

- The Law "On the Financial Instruments Market" regulates the public circulation of financial instruments and defines the rights and obligations of the financial instrument market participants. The law authorises the LCD to draft regulations, and the LCD participants and issuers whose financial instruments have been recorded in the LCD, as well as investment brokerage companies and credit institutions who hold such instruments must comply with the provisions thereof.
- The Law "On Settlement Finality in Payment and Financial Instrument Settlement Systems" contains risks and reduces disruptions that could potentially be caused to the settlement system by initiation of insolvency procedure against any of the system's participants, provides for the finality and irrevocability of a securities transfer order in the settlement systems, as well as for the information to be incorporated in the settlement system regulations of the system operator (the LCD and the Bank of Latvia).
- The Law "On Financial Collateral" regulates the procedure for providing, receipt and use of the financial collateral, as well as ensures the protection of the rights of counterparties – subjects of financial collateral agreements – in the event of counterparty's liquidation procedure or insolvency procedure.

To ensure the accounting for the statistical data of the securities settlement system operation according to uniform principles, the ECB has published *Methodological note on securities trading, clearing and settlement*. Both the LCD and the Bank of Latvia compile statistical data, taking into account the above guidelines. In November 2007, the ECB began to publish settlement statistics tables in the ECB Statistical Data Warehouse (see the ECB website at <http://sdw.ecb.europa.eu>).

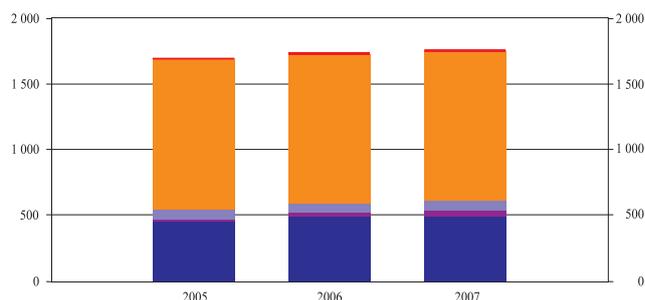
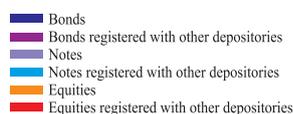
All publicly traded securities issues (including the securities kept in the VNS) are recorded in the LCD. When compiling the recorded amount of securities by original recording source, total securities outstanding comprise also those securities recorded

in other depositories that have established links with the LCD and stored with the LCD.

At the end of 2007, the total amount of securities outstanding slightly increased year-on-year, reaching 1.8 billion lats (of them, 97% were securities recorded in the LCD and 3% – securities transferred from other depositories; see Chart 76). The LCD has established bilateral links with the central securities depositories of Lithuania and Estonia and a unilateral link with *Euroclear Bank*, allowing for the securities registered with the above depositories to be stored in the LCD.

Chart 76

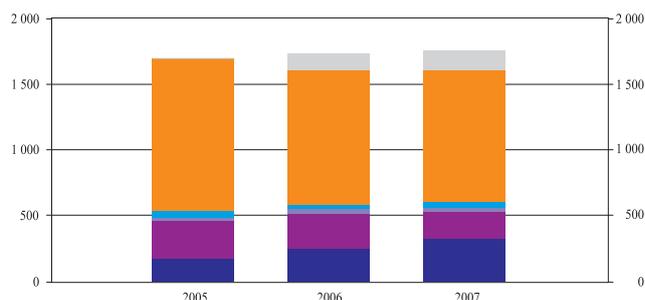
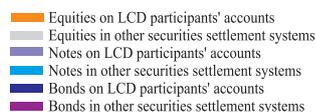
**OUTSTANDING SECURITIES REGISTERED WITH THE LCD AND TRANSFERRED FROM OTHER DEPOSITORIES**  
(at end of year; in millions of lats)



Statistical data allow assessing the placement of the securities recorded in the LCD and those transferred from other depositories (see Chart 77). The links established with the central securities depositories of Estonia and Lithuania, as well as with the VNS of the Bank of Latvia enable the market participants to store securities outside the DENOS. Of the total amount of securities, 77% of securities were held by the LCD participants and 23% were stored in other securities settlement systems at the end of 2007. The considerable share of outstanding securities stored in other securities settlement systems is related to the willingness of banks – the LCD participants – to take part in the monetary operations of the Bank of Latvia, transferring securities to the VNS.

Chart 77

**PLACEMENT OF OUTSTANDING SECURITIES REGISTERED WITH THE LCD AND TRANSFERRED FROM OTHER DEPOSITORIES**  
(at end of year; in millions of lats)



The compiled statistics of the securities settlement systems shows that the activity of the securities settlement system operation increased in 2007. It is supported both by the expanding volume and value of the processed delivery instructions (see Charts 78 and 79).

Similarly to previous periods, the concentration of processed delivery instructions of securities settlement system in terms of value was larger in the VNS while in terms of volume it was higher in the DENOS. In the LCD, the volume of processed delivery instructions increased to 81.1 thousand (1.9 thousand in the VNS) while their value reached 10.5 billion lats and 2.5 billion lats in the VNS and LCD respectively. The notable growth in the value of delivery instructions processed in the VNS was directly affected by changes in the monetary policy instruments of the Bank of Latvia. Moreover, with the VNS participants managing the balances of the securities accounts more efficiently, the value of securities transfers between the VNS and the LCD also increased.

Chart 78

**VOLUME OF DELIVERY INSTRUCTIONS PROCESSED IN THE LCD AND THE VNS**  
(in thousands)

- VNS orders related to cash settlement
- VNS orders for FOP transactions
- LCD orders related to cash settlement
- LCD orders for FOP transactions

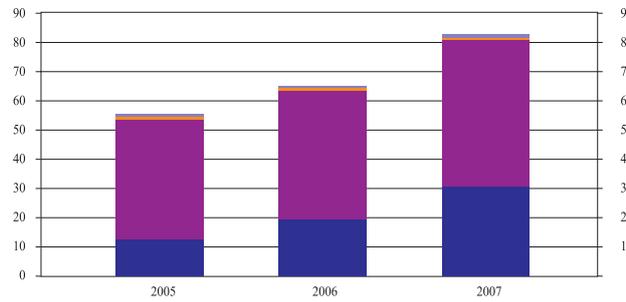
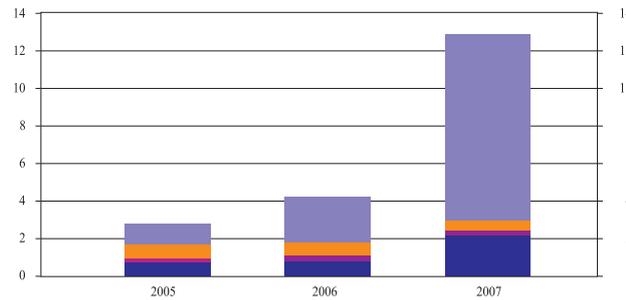


Chart 79

**VALUE OF DELIVERY INSTRUCTIONS PROCESSED IN THE LCD AND THE VNS**  
(in billions of lats)

- VNS orders related to cash settlement
- VNS orders for FOP transactions
- LCD orders related to cash settlement
- LCD orders for FOP transactions



In 2007, the considerable growth in the DENOS operational value was mostly underpinned by higher interest of investors in the purchase of investment fund units, in its turn facilitating the registration of 19 new investment fund unit issues with the LCD and a notable increase in the volume and value of delivery instructions processed in FOP transactions.

## INTERSECTORAL BALANCE SHEET ANALYSIS

In recent years, Latvia's economy has undergone particularly accelerated growth. Although such development ensures a relatively rapid income convergence, it is also associated with aggravating macroeconomic risks. Of late, domestic as well as foreign institutions and investors have largely focused on them. The Latvian economic growth, driven by an accelerated domestic demand, is imbalanced. The high inflation, a large current account deficit and external debt point to that. The imbalances are characteristic of the current macroeconomic situation; however, they mask the potential imbalances in several sectors of the economy: government, financial, corporate and household sectors. To identify sectoral imbalances, several countries increasingly apply a relatively new approach, the so-called balance sheet analysis of economic sectors (hereinafter, the balance sheet analysis).

In contrast to the traditional macroeconomic analysis, which is primarily based on the analysis of flows of funds (e.g. the current account of the balance of payments and the government budget), the balance sheet analysis focuses on the sectoral balance sheet stocks. Both approaches are interrelated as, firstly, the difference in stocks on two dates depends on the flows in the period between them, and, secondly, a particular structure of assets and liabilities may trigger considerable flows of funds. Hence, the balance sheet analysis is an important complement to the traditional analysis. Its objective is to assess the vulnerability of each sector and whether problems in one sector might cause negative consequences in other sectors. Such analysis cannot be performed on the basis of the consolidated balance sheet of an economy: when consolidating sectoral balance sheets, the domestic intersectoral debt is netted out, leaving only the domestic economy claims on and liabilities to the rest of the world.

The table provides a matrix of Latvia's intersectoral positions, comprising the domestic intersectoral liabilities and claims, as well as sectoral liabilities to and claims on foreign countries. Data of national accounts, bank and the central bank's balance sheets, international investment position and general government debt are compiled. Each sector's debt to other sectors (debtor positions) is reported in the rows while claims on other sectors (creditor positions) are presented in the vertical columns. Each row reflects the structure of financial liabilities of the respective sector, and each vertical column shows the corresponding asset structure or investment in other sectors.

At the end of 2007, credit institutions reported the largest amount of claims (170.7% of GDP) and liabilities (160.5% of GDP) in Latvia. Loans granted to resident corporations and households account for the major part of the claims, totalling 106.2% of GDP, while the largest part of credit institution liabilities (114.1% of GDP) are liabilities to foreign countries, demonstrating notable dependence of Latvian banks on foreign loans, including those from parent banks. Latvian corporations also had incurred con-

**MATRIX OF LATVIA'S INTERSECTORAL POSITIONS AT THE END OF 2007**  
(% of GDP)

	Public sector		Financial private sector	Non-financial private sector		External sector	Total liabilities
	Bank of Latvia	General government	Credit institutions	Corporations	Households	Non-residents	
Bank of Latvia	x	1.5	12.6	0	0	0.3	14.4
General government	0	x	3.9	0.5	0	6.2	10.6
Credit institutions	0.1	5.0	x	13.8	27.5	114.1	160.5
Total non-financial private sector	0	0	106.2	x	x	35.7	141.9
Corporations	0	0	53.1	x	x	35.7	88.8
Households	0	0	53.1	x	x	x	53.1
External sector	24.9	0.5	48.0	26.9	x	x	100.3
<b>TOTAL ASSETS</b>	<b>25.0</b>	<b>7.0</b>	<b>170.7</b>	<b>41.2</b>	<b>27.5</b>	<b>156.3</b>	<b>x</b>

siderable liabilities to foreign countries (35.7% of GDP). Overall, the external debt of the Latvian economy was very large – 156.3% of GDP.

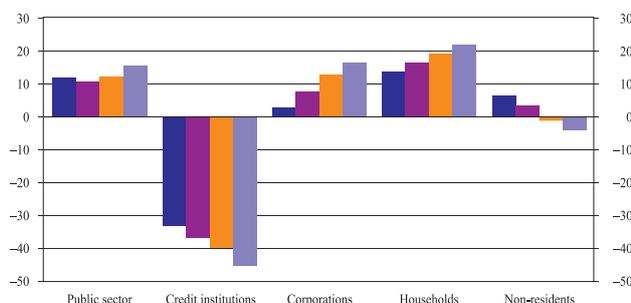
Such intersectoral breakdown provides a general insight into the intersectoral claims and liabilities. For a deeper assessment of financial conditions and economic sector vulnerabilities, assets and liabilities are broken down by maturity (short-term or long-term) and currency (national or foreign).

There is a pronounced maturity mismatch of the credit institution assets and liabilities (see Chart 80) as the liabilities for the most part are short-term and assets – long-term. Maturity mismatch is calculated as the difference between the assets and liabilities with the maturity of up to 1 year. It shows that long-term investment is partly financed by attracted short-term funds. In such a situation, the received short-term funds often require refinancing, otherwise their repayment may cause problems. However, transforming the attracted short-term funds into long-term loans is the essence of credit institution operation, and such mismatches are also characteristic of credit institutions in other countries.

Chart 80

#### MATURITY MISMATCH OF ECONOMIC SECTOR ASSETS AND LIABILITIES (% of GDP)

■ 2004  
■ 2005  
■ 2006  
■ 2007

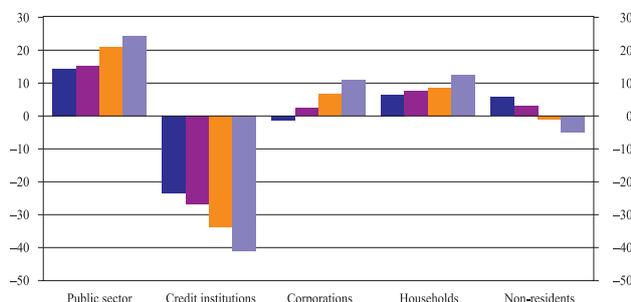


A specific feature of the Latvian financial sector is a notable maturity mismatch of assets and liabilities in foreign currency, i.e. short-term assets of the Latvian financial sector in foreign currency are considerably smaller than its short-term liabilities in foreign currency (see Chart 81) as the assets are dominated by long-term loans granted in euro, driven by lower interest rates on such loans in euro. The funding attracted by banks in foreign currencies is dominated by short-term funds. Such maturity mismatch of assets and liabilities in foreign currencies may cause problems to banks even where the liabilities in foreign currencies match the assets in foreign currencies. A rapid outflow of short-term funds, in particular those of demand deposits, may trigger liquidity problems.

Chart 81

#### MATURITY MISMATCH OF ECONOMIC SECTOR ASSETS AND LIABILITIES DENOMINATED IN FOREIGN CURRENCIES (% of GDP)

■ 2004  
■ 2005  
■ 2006  
■ 2007



Additional attention should be paid to the persistently increasing maturity mismatch of household assets and liabilities in Latvia. With households expanding their borrowing, their long-term liabilities grow, and without additional savings long-term financial assets are considerably smaller than liabilities.

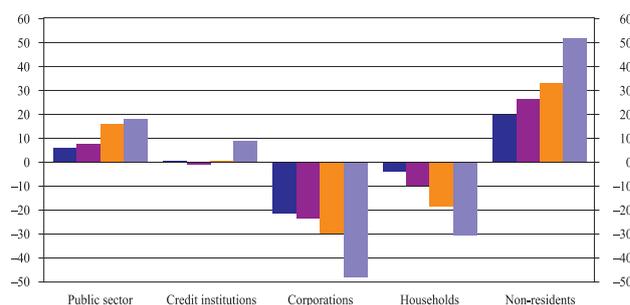
The balance sheet analysis demonstrates that there is a currency structure mismatch of assets and liabilities of Latvia's corporate and household sectors (see Chart 82) as households and corporations mostly borrow in euro due to lower interest rates, but their income for the most part is in lats. A small part of corporations hedge their foreign

exchange risk with the help of derivatives, e.g. currency swaps or forward transactions. Income of export-oriented companies is in foreign currency; however, the share of such companies in the banks' loan portfolio is small. Although bank assets and liabilities in foreign currency are matched in line with the restrictions on open currency positions set by the FCMC, the currency mismatch of the assets and liabilities may cause problems to customers (companies and households) upon repayment of loans. Hence the customer insolvency problems may also trigger financial problems for banks. The increasing currency mismatch affected the strengthening dominance of loans granted in euro in bank assets. Nevertheless, the bank open positions did not post a significant increase over the year.

Chart 82

### CURRENCY MISMATCH OF ECONOMIC SECTOR ASSETS AND LIABILITIES (% of GDP)

■ 2004  
■ 2005  
■ 2006  
■ 2007



The above mismatches may last for years without causing any problems. For instance, maturity or currency mismatches of bank assets and liabilities do not create problems as long as banks continue to receive funding from other banks in the form of deposits or loans. However, in the event of a negative shock, e.g. with significant deterioration of the terms of trade or cardinal change in foreign investors' viewpoint about Latvia, the maturity or currency mismatches increase the liquidity risk or even the solvency risk of the financial or other sector, thus aggravating economic issues. An economy's resilience towards different types of shocks depends not only on the asset and liability structure of its consolidated balance sheet, but also on the balance sheet structure of individual sectors. It was explicitly demonstrated by the Asian financial crisis which showed that balance sheet mismatches of individual economic sectors pose as serious a risk as the current account deficit of the balance of payments or state budget deficit. In Asian countries, the accelerated aggravation of the financial situation caused a sudden outflow of foreign capital and foreign exchange shock. Hence, company's balance sheet problems not only reflected themselves in the financial sector as bad loans, but also notably increased during the crisis.

The balance sheet analysis does not reflect the real situation of the economy or any of its sectors but merely identifies its macroeconomic exposures. Information about the sectoral balance sheet is particularly useful if it is available on time, thus allowing the policy makers to identify and contain risks before they grow into financial problems. The balance sheet analysis provides an opportunity to pay attention to the following: 1) well-considered debt management in the public sector in order to maintain its resilience towards negative economic shocks; 2) a policy that would facilitate the private sector to contain maturity or currency mismatches of assets and liabilities.

In view of the balance sheet mismatches of the private sector in Latvia, it is likely that the lending growth moderation will slow down a further increase in the mismatches. Several measures to restrict lending under the anti-inflation plan have already proved effective. To contain risks in the private sector, particular attention should be paid to developing mechanisms encouraging savings and long-term fund attraction (private savings funds, long-term bonds, life insurance with savings etc.).

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