



**FINANCIAL STABILITY REPORT** 2 • 2005



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## ABBREVIATIONS

CAR – capital adequacy ratio  
CIS – Commonwealth of Independent States  
DENOS – securities settlement system of the LCD  
DVP – delivery-versus-payment  
ECB – European Central Bank  
EKS – Electronic Clearing System  
ESA 95 – European System of Accounts 1995  
EU – European Union  
EU10 – countries which joined the EU on May 1, 2004  
EU15 – EU countries before May 1, 2004  
FCMC – Financial and Capital Market Commission  
FDL – First Data Latvia card processing system  
FOP – free of payment  
FRS – US Federal Reserve System  
GAP – repricing gap or difference between RSA and RSL  
GDP – gross domestic product  
LCD – Latvian Central Depository  
LLA – Latvian Leasing Association  
MFI – monetary financial institution  
NPLs – non-performing loans  
PAS – Postal Accounting System  
POS – Point of Sale  
RIGIBID – Riga Interbank Bid Rate  
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  
SAMS – Interbank Automated Payment System  
SDR – Special Drawing Rights  
SMEs – micro-enterprises, small and medium-sized enterprises  
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 organised by the Bank of Latvia

*Sources: the Central Statistical Bureau of Latvia, the Financial and Capital Market Commission, the Latvian Leasing Association, LURSOFT (Database of the Republic of Latvia Register of Enterprises) and the Bank of Latvia.*

*Charts have been compiled on the basis of data provided by Reuters (Charts 1, 2, 31, 33 and 34), the Bank of Latvia (Charts 3, 6, 9–22, 36, 38, 39, 52–60 and 63), the Financial and Capital Market Commission (Charts 4, 5, 7–18, 23–30, 32–35 and 37), the Central Statistical Bureau of Latvia (Charts 40–42), the Latvian Leasing Association (Charts 43, 44 and 49–51), MarketLab (Charts 45–48), First Data Latvia (Chart 61) and Latvian Central Depository (Charts 62 and 64). Tables have been compiled on the basis of data provided by the Bank of Latvia (Tables 1 and 2) and the Financial and Capital Market Commission (Tables 3–5).*

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## EXECUTIVE SUMMARY

In the second half of 2005, with the lending growth accelerating and real estate prices rising, Latvia's economy and financial sector continued to develop buoyantly. As in the first half of 2005, economic growth picked up on account of strong domestic demand. At the same time, external demand also increased. Rapid lending growth contributed significantly to the expansion of the domestic demand. Low interest rates and availability of foreign funds as well as favourable economic growth expectations resulted in expansion of loans granted to both non-financial corporations and households. Mortgage lending developed especially vigorously. High demand in the economy had an increasingly stronger effect on inflation and the current account deficit. Their persistence may pose a threat to further balanced economic growth. In order to facilitate macroeconomic stability, the Bank of Latvia resolved to raise the reserve ratio for banks and branches of foreign banks from 6% to 8% on November 17, 2005.

Overall, the rapid lending expansion has not impaired the financial position and asset quality of the Latvian banking sector. Banks' profitability and cost efficiency continued to grow. Loan quality improved in almost all major economic sectors. The quality of loans granted to households also improved. Specific provisions covered the NPLs almost fully. Although the bank competition tightened, a conservative loan-to-value ratio for loans for house purchase was preserved. The banks' exposure to foreign exchange and interest rate risks remained limited.

The strong domestic and external demand supported the growth of profitability of non-financial corporations in the first nine months of 2005, thus mitigating the financial vulnerability of the sector. The majority of the services sectors reported vigorous growth. The growth of manufacturing also accelerated gradually. Yet, non-financial corporations accumulated debt, especially in the real estate segment, and the ratio of interest bearing debt to total debt increased.

Loans granted to real estate related sectors take up an increasingly larger share of the banks' loan portfolio. Further growth of this share may reduce risk diversification and increase sensitivity to adverse real estate market developments. Soaring housing prices and high profitability in the real estate sector is not likely to persist in the long-term. The sector's debt exceeds equity more than two times. The interest coverage ratio of the sector improved in 2005, albeit remaining considerably lower than the average in the economy. Therefore, real estate companies are very sensitive to any cash flow fluctuations, and banks need to be especially vigilant when granting loans to these companies.

The financial position of households improved as a result of falling unemployment and rising income. Yet, the growth rate of the household debt considerably exceeded that of the household income. Rapid growth of household debt and average loan against the background of an increasingly larger number of residents taking loans deepens the financial vulnerability of households. The most significant risks relate to adverse real estate market developments that could depreciate the collateral value, climbing interest rates on euro-denominated loans that would increase the debt servicing costs in the medium term as well as the persistence of a high inflation rate.

An increasingly larger number of banks make use of the reduced minimum capital adequacy requirement. Therefore, the banks' capacity to absorb a potential increase in credit risk has deteriorated. The banks' sensitivity to real estate shock affecting households grew especially notably.

Overall, the banks' liquidity remains higher than required by the FCMC. Nevertheless, the liquidity ratios decreased, and for the majority of banks actively involved

on the credit market they have approached the minimum. Growing dependence on funding from foreign banks increases the banks' sensitivity to potential changes in terms and conditions of foreign financing.

The probability of systemic risk in Latvia's payment system is highly limited. Analysis of the operation of SAMS, the most significant interbank payment system, in a situation where any of its participants defaulted on payment yielded a conclusion that liquidity problems of one participant of the system would cause no major liquidity problems for other participants of the system.

## 1. EXTERNAL ECONOMIC ENVIRONMENT AND ECONOMIC DEVELOPMENTS IN LATVIA

**Despite hiking oil prices and increasing interest rates, external economic environment remained favourable, and Latvia's economic growth accelerated.**

In the second half of 2005, the recovery of the global economy continued. In the fourth quarter, the economic activity experienced a temporary slowdown; nevertheless, the global economy reported robust development overall.

Oil prices remained high; yet, for the present, their impact on inflation and economic growth in the advanced economies has been insignificant.

Hiking oil prices and damage caused by the hurricane Katrina notwithstanding, the US economic growth rate picked up again in the third quarter as a result of strong private demand. Nevertheless, at the end of 2005 the economic activity weakened, mostly as a result of a lower construction activity due to the severe winter and deceleration of the private consumption. The FRS raised the federal funds rate on four occasions in the second half of the year to stand at 4.25% at the end of 2005.

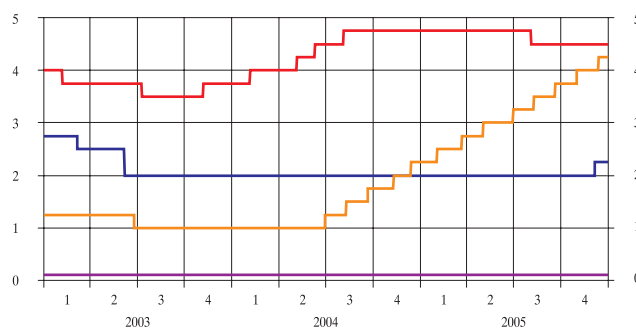
Since the second half of the year, the euro area economy shows signs of improvement. Domestic demand gradually accelerated, contributing to balanced development of the euro area economy. The strengthening of the domestic demand was underpinned by a considerable increase in investment as a result of favourable financing conditions and growing corporate profitability. Exports reported the highest growth since the fourth quarter of 2000 in the second half of the year. Euro area inflation remained above the ECB inflation target, yet the economic conditions in the euro area improved. Therefore, the ECB Governing Council raised the minimum bid rate for the main refinancing operations by 25 basis points to stand at 2.25% in December 2005. This was the first occasion of changing the rate in the last two and a half years (see Chart 1).

Chart 1

### BASE RATES OF THE MAJOR CENTRAL BANKS (%)

(%)

— ECB  
— FRS  
— Bank of Japan  
— Bank of England



In the second half of 2005, the economic development of the EU10 countries (except Cyprus and Malta) picked up as compared to the beginning of the year. In the majority of countries, the growth was supported by stabilising domestic demand

and investment. Industrial production continued to expand in these countries. Economic growth, rapid GDP growth and productivity rise resulted in a decrease in the high unemployment rates in all of the above-mentioned countries.

In the second half of 2005, the GDP growth in Estonia and Lithuania accelerated as compared to the first half of the year. Both export growth and higher domestic demand underlay the economic growth in the second half of the year. Further industrial output and export growth was reported. Industrial development supported emergence of new jobs, and the unemployment rate in Estonia dropped to 2.7%, whereas that in Lithuania to 4.1%. Domestic consumption increased as a result of growing household income and rapid lending expansion. Although exports grew considerably, Estonia's current account deficit remained high. In the second half of 2005, the annual rise of consumer prices by an average of 4.2% was predominantly the result of higher fuel prices and administered prices. The price rise in Lithuania (2.6%) was driven by increasing prices on transportation and health care services. At the end of 2005, Estonia had accumulated a government budget surplus and reported the lowest government debt ratio to GDP in the EU.

In the second half of 2005, GDP growth in Russia accelerated slightly. Expansion of exports and high oil prices on the global market remained the driving forces of Russia's economic development. Exports still reported considerable growth; nevertheless, the growth rate of exports continued to decline. Rising oil prices in combination with falling external demand and investment activity dampened the expansion of Russia's oil exports. Raising of export duties also had a negative impact on the profitability of oil exports. Industrial development was primarily driven by higher output in export goods producing sectors (manufacture of basic metals, manufacture of chemicals and manufacture of oil processing products) as well as manufacture of machinery and equipment n.e.c. and manufacture of non-metallic mineral products. With household income strengthening, the contribution of domestic demand to the economic development increased. Private consumption continued to grow rapidly, the persistently high inflation notwithstanding. In the second half of 2005, the annual rise of consumer prices averaged 12.0%.

Measures implemented by the FRS and ECB and expectations of market participants supported a rise in the euro and US dollar money market interest rates in the second half of the year. Government bond yields also increased in the second half of the year. Nevertheless, this increase was outpaced by the growth of short-term interest rates, with the yield curves flattening and risk premiums on longer-term bonds shrinking. Low risk premiums were underpinned by the persistently ample liquidity on the global financial market, increasing the investors' preference for long-term financial instruments. In the second half of the year, yields on 2-year German government bonds rose by 0.9 percentage point (to 2.9%), whereas those on 10-year government bonds by a mere 0.2 percentage point (to 3.3%). Yields on 2-year US government bonds rose by 0.7 percentage point, whereas those on 10-year US government bonds by 0.4 percentage point, both reaching 4.4%. The relatively low US long-term interest rates were additionally affected by the national reserves accumulation strategy of the Asian countries and the related high demand for long-term US government bonds. Russian government bond market activity picked up in the third quarter in the wake of Fitch Ratings upgrading Russia's rating. Appreciation of the Russian ruble improved the attractiveness of Russian ruble denominated assets. Moreover, the liquidity of Russia's banking sector was high. In the fourth quarter, however, the activity on the Russian government bond market subsided, with the liquidity of Russia's banking sector tightening. Global demand for securities of emerging economies weakened under the impact of the expected interest rate rise in the US and the euro area. Yields on 10-year Russian government bonds fluctuated within a range of 6.5%–7.5% in the second half of the year.

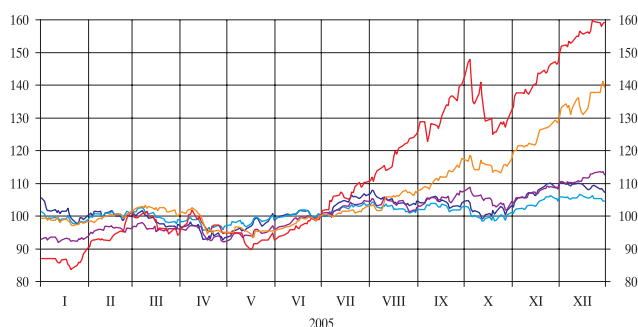
The euro stabilised against the US dollar on the global foreign exchange markets in the second half of 2005. Following a notable depreciation of the euro vis-à-vis the US dollar in the first half of the year (by 12%), in the second half of the year it fluctuated within a tight range, overall depreciating by a further 2.1%. In the preceding years, the US dollar depreciation was fuelled by the growing US current account deficit and high government deficit. Yet, a significant increase in the US dollar benchmark rate and widening of the spread between the US and euro area interest rates facilitated the US dollar appreciation vis-à-vis the euro. The US dollar appreciated also on account of robust US economic growth rate and decreasing unemployment. Sizeable foreign investment in the US financial assets also continued to contribute to the improvement of the US dollar exchange rate.

In the second half of 2005, activity on the world stock markets increased driven by the strong corporate financial performance and favourable economic activity outlook in some regions of the world (see Chart 2).

Chart 2

**WORLD STOCK MARKET INDICES**  
(June 30, 2005 = 100)

— Nikkei 225 (Japan)  
— NASDAQ Composite (USA)  
— Dow Jones EURO STOXX 50 (Europe)  
— RTS (Russia)  
— S&P 500 (USA)



The European stock market index Dow Jones EURO STOXX 50 went up by 12.5%, the US stock market index S&P 500 improved by 4.5%, and the technology-dominated NASDAQ Composite rose by 7.2% in the second half of 2005. The US stock market development was dampened by the rising interest rates on borrowing. Nikkei 225 for Japan's stock market also increased notably, growing by 39.1% in the second half of the year. Stock prices in Japan rose fuelled by the investors' expectations of acceleration of the Japanese economic growth and the data on actual corporate profits in 2005. A particularly sizeable pickup in stock prices was observed on the Russian stock market, with the stock market index RTS surging up 59.3%, mostly as a result of a price rise for energy corporation shares.

### *Latvia's Economic Activity*

Latvia's economy continued to develop vigorously in the second half of 2005, with the overall annual GDP growth reaching 10.2%. Manufacturing rebounded, and the majority of the services sectors reported accelerated growth. Overall, the biggest contributors to the annual growth were trade, transport, storage and communication, manufacturing, construction and other business activities. Higher economic activity supported a decline in the unemployment rate (the annual average rate of job seekers was 8.7%). Average wage and salary went up 16.5% overall on an annual basis, mirroring the growth of productivity and inflation and tighter labour market conditions. Foreign trade turnover increased, with the growth rate of exports exceeding that of the imports. Nevertheless, export growth decelerated slightly in the second half of 2005, mainly as a result of the high base and a minor deterioration of the terms of trade. According to the balance of payments data, overall annual increase of export value of goods amounted to 31.7%, whereas that of import value to 23.9%. The current account deficit was 12.5% of GDP. A significant



increase in tax collections and smaller than planned budget expenditure resulted in a financial surplus in the general government consolidated budget (0.2% of GDP according to the ESA 95 methodology). In the second half of the year, inflation grew slightly, with the annual inflation amounting to 6.7% on average. The growth of inflation was driven by several factors. In September, fuel prices soared, and the prices on food and some services also resumed the upward trend. Certain administered prices were also raised because of higher costs. Therefore, core inflation also rose after a downslide in the first half of the year, stabilising at about 6.0% at the end of the year. As the strong domestic demand is significantly bolstered by the rapid lending expansion, the Bank of Latvia's Council resolved to raise the reserve ratio requirement for banks and branches of foreign banks from 6% to 8% on September 17, 2005 (resolution took effect as of December 24, 2005), in order to facilitate macroeconomic stability which is a precondition for further economic growth.

## 2. BANK CREDIT RISK

**Lending to non-financial corporations and households accelerated, reflecting the buoyant economic growth. The quality of loans improved.**

At the end of 2005, loans to residents totalled 6 222.1 million lats or 69.6% {51.2%}<sup>1</sup> of GDP, including loans to non-financial corporations 2 994.8 million lats, loans to households 2 446.2 million lats and non-bank financial institutions 691.4 million lats. As compared to 2004, the banks' exposure to household loans (particularly, loans for house purchase) increased significantly, and for six banks it exceeded 20% of their assets (see Table 1).

Table 1

**BREAKDOWN OF BANKS BY EXPOSURE TO ECONOMIC SECTORS**  
(at the end of December 2005 {at the end of December 2004}; %)

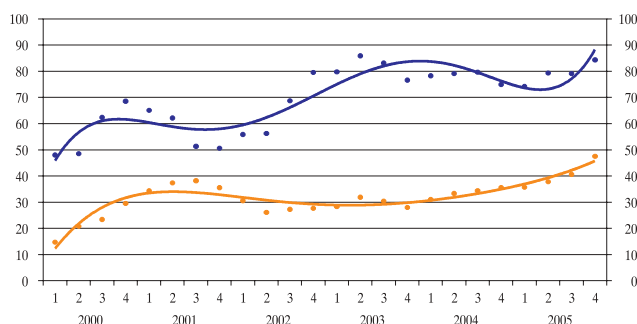
	<10	10–20	>20
Loans to non-financial corporations	5 {9}	10 {7}	7 {6}
Loans to households	9 {12}	3 {3}	10 {7}
incl. loans for house purchase	13 {15}	3 {5}	6 {2}
Loans to non-bank financial institutions	19 {21}	3 {1}	0 {0}

The growth rate of both loans granted to non-financial corporations and to households accelerated in the second half of 2005, amounting to 47.6% and 84.4%, respectively, at the end of the year (see Chart 3). Mortgage lending (loans for house purchase, commercial property mortgages) accounted for more than a half of this increase. This relates to acceleration of economic growth, persistently low

Chart 3

**ANNUAL GROWTH RATE OF LOANS GRANTED TO RESIDENTS**  
(%)

— Loans to households  
— Loans to non-financial corporations



<sup>1</sup> {} – indicator of the corresponding period of the previous year.

interest rates and rising real estate prices. The share of euro loans in total loans expanded, amounting to 58.1% {29.5%} at the end of 2005. The share of the US dollar loans in total loans granted to non-financial corporations and households declined to 11.4% {30.0%}.

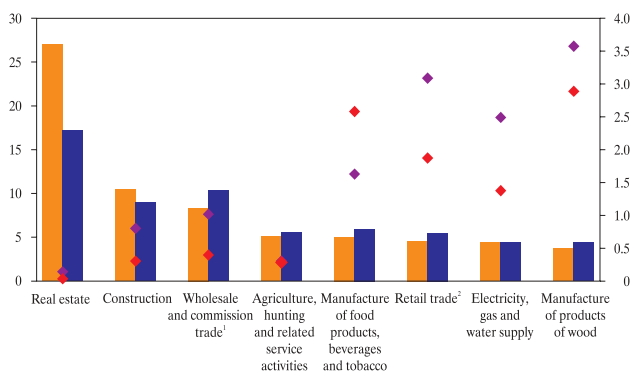
Nevertheless, the share of NPLs in loans granted to non-financial corporations decreased to 1.0% {1.5%} at the end of 2005. Loan quality improved in almost all major economic sectors (see Chart 4), including real estate, construction, wholesale trade and agriculture, which are the biggest borrowers. A higher share of NPLs in manufacture of food and beverages and tobacco can be explained by problems faced by some small enterprises.

Taking into account the growth of lending to real-estate-related sectors (see Chart 4), it is important to evaluate the risks associated with the development of this market. According to the data of the Central Statistical Bureau of Latvia, prices on apartments in Riga have increased by more than 40% in 2005, raising concerns about potential overpricing. Information from market participants suggests that the average price on standard block house apartments on the outskirts of Riga exceeded 900 euro per square metre at the end of 2005, which corresponds to an average three month net wage of a person employed in Riga. In 2002–2004, a person employed in Riga could afford to buy one square metre of an apartment for two month wages on average. In 2005, the growth rate of household lending and prices on apartments was significantly higher than that of household income. Persistence of such a situation may result in market price adjustments, which could affect both private investors and banks.

Chart 4

**LOANS GRANTED TO NON-FINANCIAL CORPORATIONS AND THEIR QUALITY BY SECTOR**  
(at end of period; %)

■ Share of sector in total loans outstanding (2005)  
■ Share of sector in total loans outstanding (2004)  
◆ NPLs (% of total loans granted to the sector; 2005; right-hand scale)  
◆ NPLs (% of total loans granted to the sector; 2004; right-hand scale)



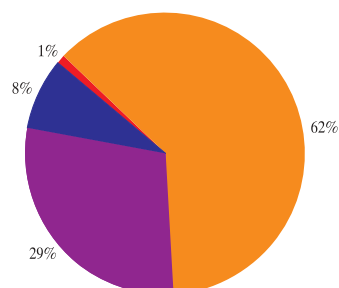
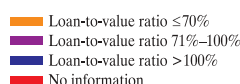
<sup>1</sup> Except motor vehicles and motorcycles.

<sup>2</sup> Except motor vehicles, motorcycles and automotive fuel; repairs of personal and household goods.

Profitability analysis of non-financial corporations by sector reveals that loans granted to real estate activities have expanded notably. This activity can be explained by the fact that it was this particular sector which reported the highest profitability (over 20%) in the first nine months of 2005, the average profitability of non-financial corporations amounting to 6.3%. At the end of 2005, loans granted to real-estate-related sectors and to households for house purchase accounted for a major share of the banks' loan portfolio (about a half). Further growth of this share may reduce risk diversification and increase the banks' sensitivity to adverse real estate market developments.

Loans for house purchase in total loans to households increased significantly, expanding to 71.4% {69.5%} at the end of 2005. Tightening bank competition in this segment notwithstanding, loan-to-value ratio for loans for house purchase mostly did not exceed 70%, pointing to conservative lending standards (see Chart 5).

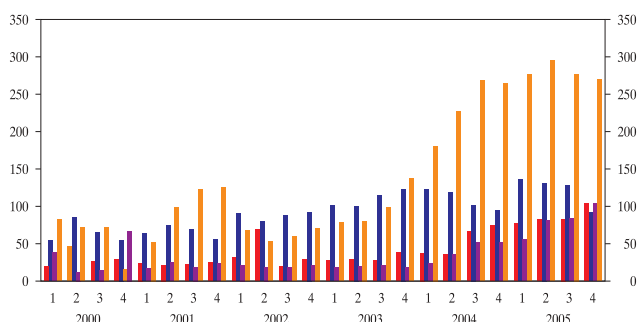
Chart 5

**STRUCTURE OF LOAN-TO-VALUE RATIO  
FOR LOANS FOR HOUSE PURCHASE**  
(%)


Consequently, in the event of a forced sale, the property could be sold at a price which is not lower than the outstanding loan. The quality of household loans improved and was higher than that of loans granted to non-financial corporations, with the NPLs amounting to a mere 0.4% {0.6%} of outstanding loans, including 0.2% {0.4%} for loans for house purchase.

In 2005, loans to non-resident non-banks expanded at a lower rate year-on-year (by 27.0%; to 736.3 million lats). Loans to residents of the EU10 countries still accounted for the largest share of this increase (see Chart 6). In comparison with the end of 2004, loans to CIS residents grew twofold. The quality of loans granted to non-residents remained high, with NPLs amounting to only 1.1% {1.2%} of total loans to non-residents.

Chart 6

**LOANS GRANTED TO NON-RESIDENT  
NON-BANKS BY COUNTRY**  
(at end of period; in millions of lats)

**Box 1. Analysis of bank loans granted to non-financial corporations (grouped according to the size of non-financial corporations)**

According to the FCMC Credit Information System<sup>2</sup> data, loans to non-financial corporations were broken down according to the size of non-financial corporations as follows:

– a micro-enterprise is a non-financial corporation with the average annual number of employees below 10 persons and annual net turnover or asset (balance sheet) total not exceeding a lats equivalent of 2 million euro;

– a small enterprise is a non-financial corporation with the average annual number of employees below 50 persons and annual net turnover or asset (balance sheet) total not exceeding a lats equivalent of 10 million euro;

– a medium-sized enterprise is a non-financial corporation with the average annual number of employees below 250 persons and annual net turnover or asset (balance sheet) total not exceeding a lats equivalent of 43 million euro;

<sup>2</sup> On July 23, 2004, the FCMC Resolution No. 157 of July 16, 2004 on approval of "Regulation on Preparation and Submission of Information on the Composition of a Bank's Loan Portfolio" came to effect. According to this Regulation, Latvian banks and branches of foreign banks submit detailed quarterly information about their loan portfolio to the FCMC.

– a large enterprise: other non-financial corporations with a higher number of employees and larger assets.

Loans granted to SMEs account for the highest share of loans granted to Latvian non-financial corporations. At the end of 2005, they amounted to more than 90% of total loans to non-financial corporations. Therefore, the development of these enterprises is important from the perspective of credit risk.

In comparison with large enterprises, lending to SMEs is associated with a higher risk, and the quality of those loans is lower (see Chart 7). Therefore, banks set tighter collateral requirements, requesting that highly liquid collateral, in most cases real estate, be provided. It is more difficult for SMEs to receive a non-collateralised loan, while 31.1% of loans granted to large enterprises were granted without any collateral (see Chart 8). Large enterprises also have better opportunities to borrow from foreign banks or attract an investor. For SMEs such opportunities are limited. Loans granted to large enterprises are dominated by lending to electricity, gas and water supply companies and to enterprises providing transportation services by land and pipeline (see Chart 9). Loans granted to real estate activities constituted the largest share of loans granted to SMEs (see Chart 10). About a half of these loans were granted to micro-enterprises.

Chart 7

#### QUALITY OF LOANS GRANTED TO NON-FINANCIAL CORPORATIONS

(by size of non-financial corporations; % of loans granted to the particular group of non-financial corporations)

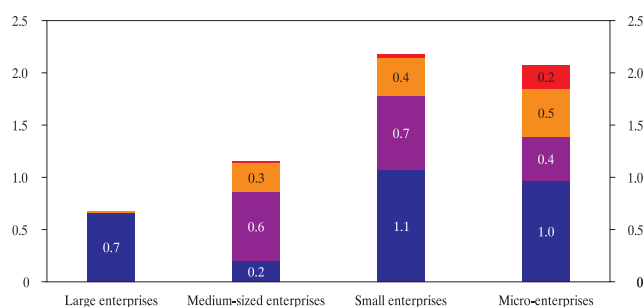


Chart 8

#### COLLATERAL STRUCTURE OF LOANS GRANTED TO NON-FINANCIAL CORPORATIONS

(by size of non-financial corporations; %)

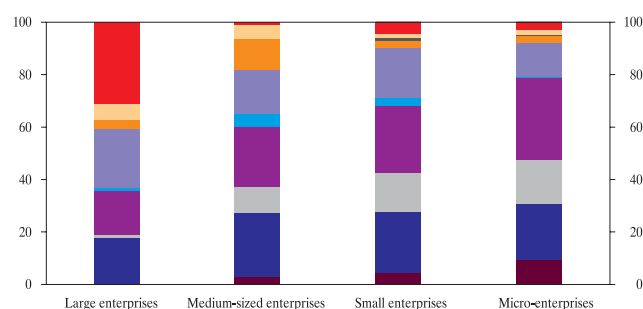
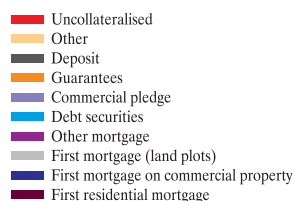
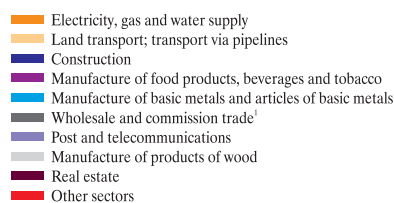


Chart 9

#### STRUCTURE OF LOANS GRANTED TO LARGE ENTERPRISES BY SECTOR

(%)



<sup>1</sup> Except motor vehicles and motorcycles.

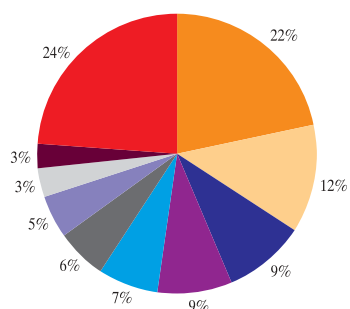
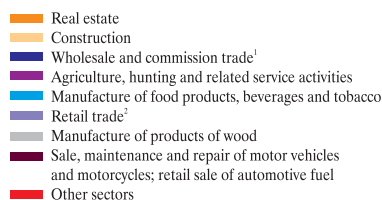


Chart 10

**STRUCTURE OF LOANS GRANTED TO SMEs BY SECTOR (%)**



<sup>1</sup> Except motor vehicles and motorcycles.

<sup>2</sup> Except motor vehicles, motorcycles, automotive fuel and repairs of motor vehicles, motorcycles and personal and household goods.

Therefore, any potential price adjustments on the real estate market may have a significant effect on SMEs, the backbone of the Latvian economy. This effect may be direct when the turnover of real estate companies shrinks or indirect when collateral loses its value, impairing the SMEs opportunities to borrow from banks.

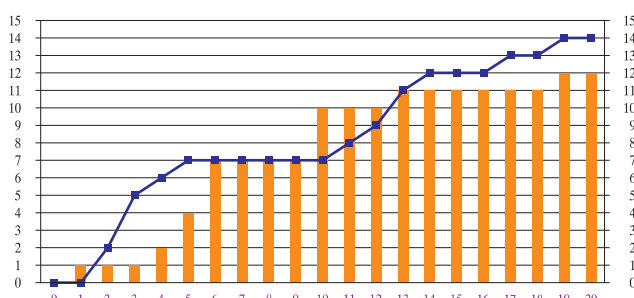
**Box 2. Stress tests of the banks' loan portfolio**

Stress test results<sup>3</sup> show that the banks' capacity to absorb a potential credit risk increase is deteriorating. The banks' capacity to absorb a potential increase of the share of NPLs in total loans by 2–5 percentage points has weakened especially notably (see Chart 11). Nevertheless, in contrast to the end of the first half of 2005, with the share of NPLs increasing by 1 percentage point, none of the Latvian banks would have had any problems in meeting the minimum capital requirement at the end of 2005. Yet, the stress test results suggest that the banks that would be unable to meet the minimum capital requirements if the share of NPLs grew by 2–5 percentage points are relatively large Latvian banks (see Chart 12). For instance, an increase of the share of NPLs by 2 percentage points would cause difficulties in meeting the minimum capital requirement for banks forming one fifth of the banking sector assets. At the end of the first half of 2005, a similar impact would have been caused by an increase of the share of NPLs by 4 percentage points.

Chart 11

**GENERAL CREDIT RISK STRESS TEST RESULTS**

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



Thus, at the end of 2005 Latvian banks overall would have had no significant problems in absorbing a credit risk increase resulting in the share of the NPLs growing by 1 percentage point. As the NPLs amounted to 0.7% of the total bank loans at the end of 2005, one may conclude that overall the Latvian banks would have had no significant problems in absorbing a potential credit risk increase resulting in an expansion of the NPLs by about two and a half times.

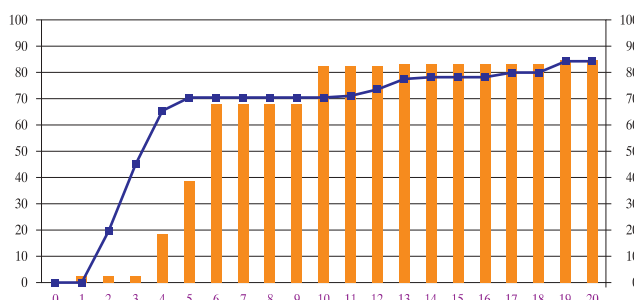
<sup>3</sup> Stress test results provide an indication of the scale of losses resulting from growing credit risk that banks would be able to absorb before their CAR falls below the minimum capital requirement. Stress tests reflect banks' losses as the need to make additional provisions for the NPLs whose amount and share in total loans grows as a result of increasing credit risk. The banks' capital and risk-weighted assets are reduced by the amount of additional provisions to be made. Calculations assume that with the NPLs increasing, the share of the three NPL categories (substandard, doubtful and lost loans) in NPLs of each bank does not change, i.e. the substandard, doubtful and lost loans (the total of which comprises the NPLs) of each bank grow in proportion to the growth of NPLs simulated in the stress test.

Chart 12

**GENERAL CREDIT RISK STRESS TEST RESULTS**

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

Q2, 2005  
Q4, 2005



The stress test results for specific or sectoral credit risk shocks (see Table 2) also slightly deteriorated in the second half of 2005.

Table 2

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

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

<sup>1</sup> This and the other shock parameters are based on an assumption that the rise in the share of NPLs by 20 percentage points consists of a proportionally equal increase in all three categories of NPLs (substandard, doubtful and lost loans).

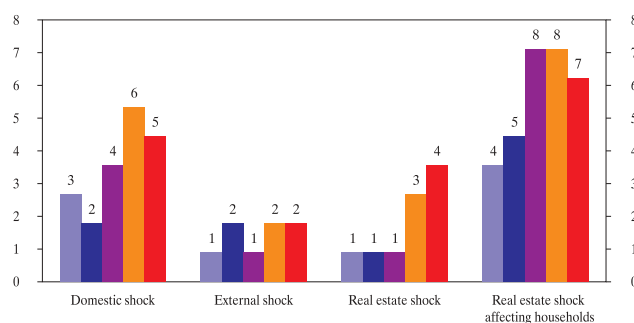
The banks' sensitivity to real estate shock grew especially notably on account of highly vigorous expansion of loans granted to real estate activities (see Charts 13 and 14). Nevertheless, none of the analysed sectoral credit risk shocks would cause any of the banks to become insolvent, i.e. the losses caused by credit risk shocks to banks failing to meet the minimum capital requirements as a result of these shocks would not exceed their capital.

Chart 13

**SECTORAL CREDIT RISK SHOCK TEST RESULTS**

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

Q4, 2004  
Q1, 2005  
Q2, 2005  
Q3, 2005  
Q4, 2005



At the end of 2005, total potential losses incurred by sectoral credit risk shocks would not exceed 3% of the banks' assets; yet, for all types of shocks, except external shock, potential losses have a tendency to build up (see Chart 15). The amount of additionally required capital to meet the minimum capital requirement changes along a similar pattern (see Chart 16).

Chart 14

**SECTORAL CREDIT RISK SHOCK TEST RESULTS**

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

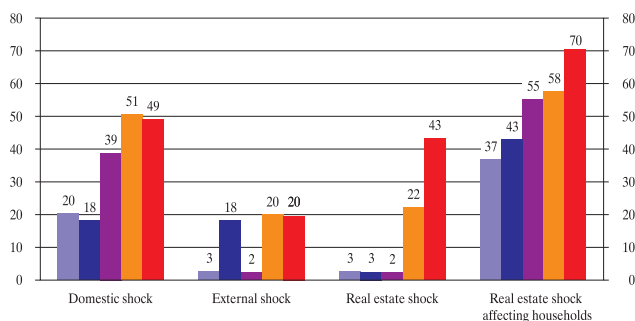
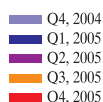


Chart 15

**SECTORAL CREDIT RISK SHOCK TEST RESULTS**

(total bank losses; % of total bank assets)

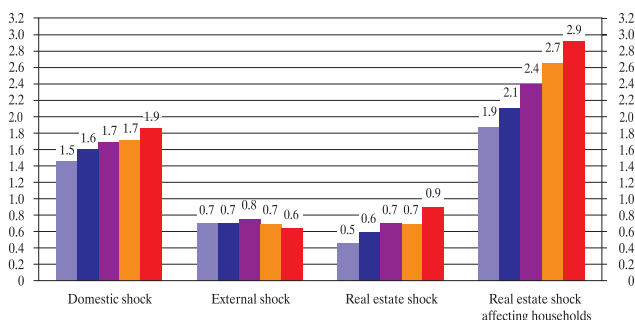
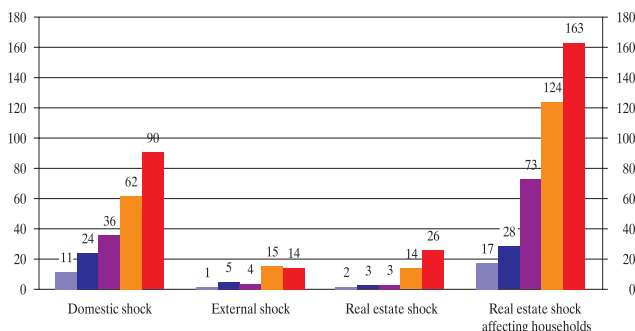


Chart 16

**SECTORAL CREDIT RISK SHOCK TEST RESULTS**

(additional capital required to meet the minimum capital requirement; in millions of lats)



*As in the previous reporting periods, in the second half of 2005 the stress test results deteriorated primarily on account of a decrease in the banks' capitalisation level.*

**3. BANK PROFITABILITY<sup>4</sup>**

**Bank profitability ratios continued to improve.**

In 2005, profit after taxes of the Latvian banking sector reached an all-time-high at 193.1 million lats. Almost all banks reported higher profit. The banks' ROE improved, reaching 27.1% at the end of 2005, with the banks' capital (an increase by 32.5%) still growing at a lower rate than the profit (see Chart 17).

ROE increased year-on-year, albeit declining in comparison with the high level of the first quarter of 2005. ROA also improved year-on-year (to 2.1%), nevertheless shrinking in the second half of 2005.

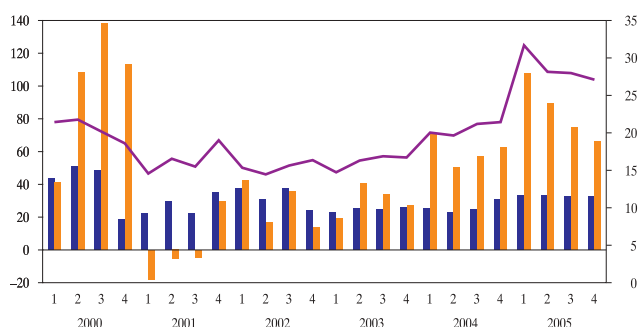
ROE still varied considerably across the banking sector; yet, almost all banks, except five, showed a year-on-year improvement. For nine banks, the ROE was

<sup>4</sup> Unaudited data.

Chart 17

**ROE DEVELOPMENT**  
(%)

■ Annual growth of capital and reserves  
 ■ Annual growth of profit  
 — ROE (right-hand scale)



above 20% and their market share was 59.5% of the total banks' assets (see Table 3).

Table 3

**BREAKDOWN OF BANKS BY GROUP BASED ON THEIR ROE**

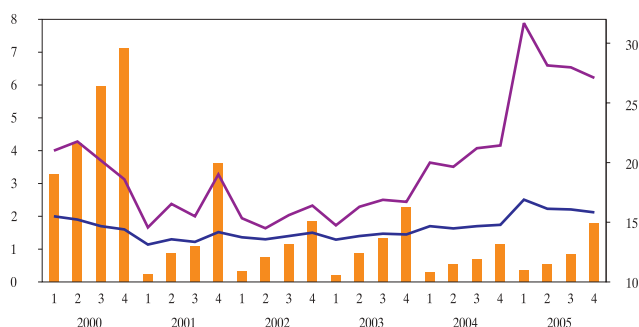
ROE (%)	In 2005		In 2004	
	Market share of banks (% of total banks' assets)	Number of banks	Market share of banks (% of total banks' assets)	Number of banks
<10	1.9	5	7.2	6
≥10–15	9.6	2	30.9	6
≥15–20	29.0	6	5.0	2
≥20–30	26.5	4	25.3	4
≥30	33.0	5	31.6	4

In 2005, the amount of written-off loans totalled 14.9 million lats or was about two times higher year-on-year, and the ratio of written-off loans to capital and reserves increased (1.8%; see Chart 18).

Chart 18

**PROFITABILITY RATIOS**  
(%)

■ Loans written-off to losses (from the beginning of the year) to capital and reserves  
 — ROA  
 — ROE (right-hand scale)

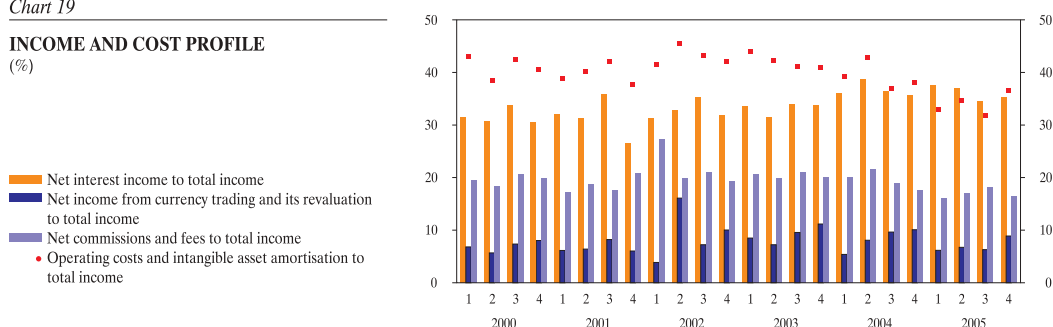


Analysis of the income structure against the previous year shows a significant increase (by 43.2%) in the total interest income of the banking sector, with its share in total income amounting to 59.6%. This was primarily underpinned by a rise in loans granted to non-MFIs and the respective interest income (by 44.6%). Interest from claims on MFIs grew twofold; yet, its share in total income was small. Against the background of the overall margin narrowing and liabilities to foreign banks increasing, the banks' interest expense increased at a more rapid rate (by 54.0%) than interest income, with interest paid on liabilities to MFIs and on non-MFI deposits expanding. The share of interest expense in total expenditure also increased (to 32.9%).

Net interest income increased by 36.8% and accounted for about 1/3 of total income (see Chart 19).



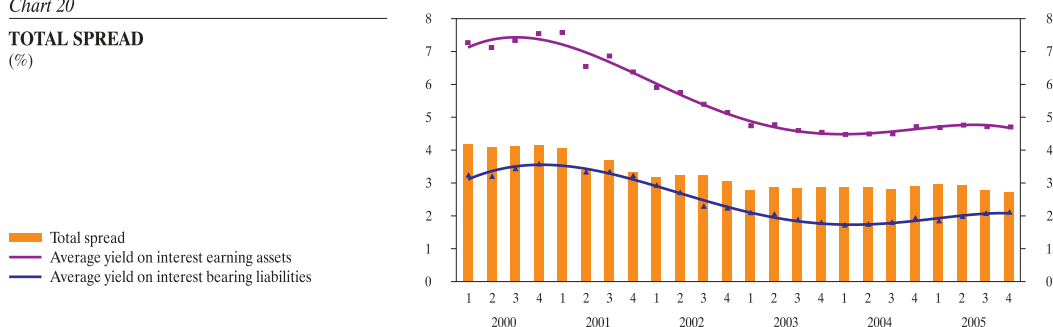
Chart 19

**INCOME AND COST PROFILE**  
(%)


**Total spread<sup>5</sup> narrowed, reflecting the tight competition on the lending market and rising interbank interest rates in the euro area.**

In the second half of 2005, the total spread (2.8%–2.9% in the last three years) started to narrow (see Chart 20). The total spread of Latvian banks has been rather wide, whereas in the euro area it has remained at 1.4% already for several years. In the second half of 2005, the average yield on interest earning assets remained stable, whereas that on interest bearing liabilities increased, mirroring tighter competition on the loan market and the fact that banks raised funds mainly at a floating interest rate.

Chart 20

**TOTAL SPREAD**  
(%)


The interest earning assets consisted primarily of loans, and their share expanded (66.7% {59.2%} at the end of 2005). This asset item accounted for an even larger share of the interest income (75.4%), which as a result of falling lending rates is almost the same as the corresponding figure of 2004. Consequently, the developments of the lending margins are the main factor behind profitability dynamics. In the second half of 2005, EURIBOR increased against the background of expectations that the ECB would raise the minimum bid rate (which actually happened on December 6, 2005). Mostly floating rate euro-denominated loans were granted; nevertheless, the rising interbank interest rates in the euro area had almost no pass-through to lending rates, as, due to the tight competition, banks continued to narrow down lending margins, especially as concerns loans for house purchase (see Chart 21).

At the same time, banks had to pay increasingly more for the received deposits and liabilities to other credit institutions (a floating rate is applied to these borrowings, including loans from parent banks). In the second half of 2005, the deposit rate spread widened, as the competition was slacker on the deposit market, with banks increasingly borrowing from credit institutions (mainly parent banks). The share of these particular liabilities in interest bearing liabilities grew to 33.4% {23.9%}, whereas that in total interest expense to 36.0% {25.7%} at the end of 2005. Interest rate margin paid by banks on borrowing from other credit institutions,

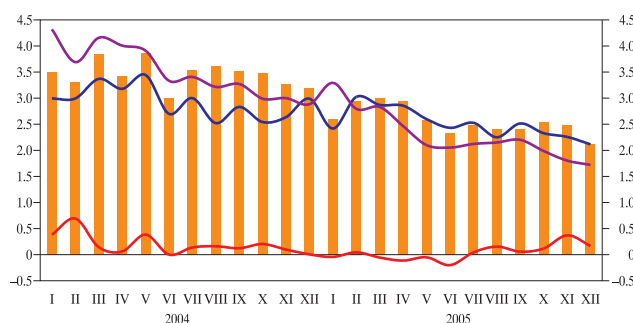
<sup>5</sup> Total spread – the difference between the average yield on the interest earning assets and interest bearing liabilities.

Chart 21

**INTEREST RATE MARGINS ON NEW BUSINESS<sup>1</sup>**

(weighted average; in percentage points)

■ Overall margin  
— Margin on loans granted to non-financial corporations  
— Deposit margin  
— Margin on loans for house purchase



<sup>1</sup> All margins are calculated on new business. Overall margin has been calculated by subtracting the average deposit rate from the lending rate with a fixed maturity. The margin on total loans, loans granted to households and non-financial corporations has been calculated by subtracting the reference rate: the value of average 6-month money market index (RIGIBOR 6M, EURIBOR 6M or LIBOR 6M) for the given period from the relevant lending rate. Margin on deposit rates has been calculated by subtracting the average deposit rate from the reference rate: the value of average 6-month money market index (RIGIBOR 6M, EURIBOR 6M or LIBOR 6M) for the given period.

especially from parent banks, is minimal and cannot be narrowed down to contain the growth of expenditure.

Consequently, a higher dependence on foreign banks' funds and a growing share of floating rate funds, attracted by banks in circumstances when the interbank rates are increasing, will cause interest expense to expand at a higher rate than interest income and will exert some pressure on the banks' profitability in the medium-term.

Expenses related to commissions and fees grew at a faster rate than income from commissions and fees; yet, net commissions and fees (from servicing of payment cards, transfers, account management and loan service) increased and amounted to almost 17% of total income.

Income from foreign currencies and securities trading increased, whereas trading with other financial instruments overall resulted in losses to banks.

At the end of 2005, the ratio of the banking sector's income from dividends to total income and profit was 3.1% {0.0%} and 11.0% {0.2%}, respectively. The increase partly relates to a change in accounting methods under the International Accounting Standard 27 applied to investment in subsidiaries (in effect as of January 1, 2005).

With the number of bank employees and their wages growing, operating costs of the banking sector increased by 24.3% (including personnel wages and salaries by 23.3%), whereas their ratio to total income decreased slightly.

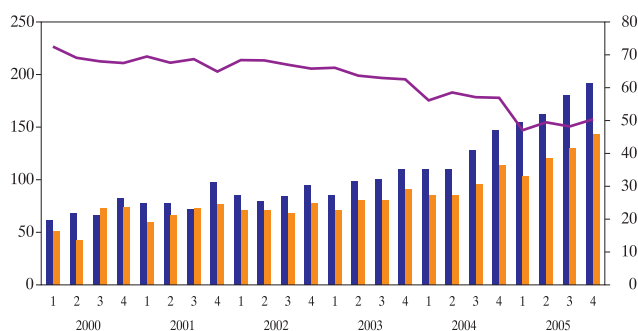
Income of credit institutions grew more markedly than expenditure (by 39.4% and 31.1%, respectively). The cost efficiency of banks improved, i.e the cost-to-income ratio declined to 50.4% (see Chart 22). Cost efficiency improved in the majority of banks.

Chart 22

**INCOME AND COST DYNAMICS OF BANKS**

(in millions of lats)

■ Income  
■ Costs  
— Cost-to-income ratio (%; right-hand scale)



### Specific provisions covered the NPLs almost fully.

With non-MFI loans expanding by almost 60% year-on-year at the end of 2005, non-MFI NPLs decreased by 1.8% year-on-year. Their share in total loans to non-MFIs shrank and constituted 0.7% {1.1%} at the end of 2005 (see Table 4). Shrinking of the specific and general provisions partly stemmed from changes in provision-making policies of some banks related to adoption of the International Financial Reporting Standards.

Table 4

#### BREAKDOWN OF BANKS BY GROUP BASED ON THE SHARE OF THEIR NPLs IN TOTAL LOANS GRANTED TO NON-MFIs

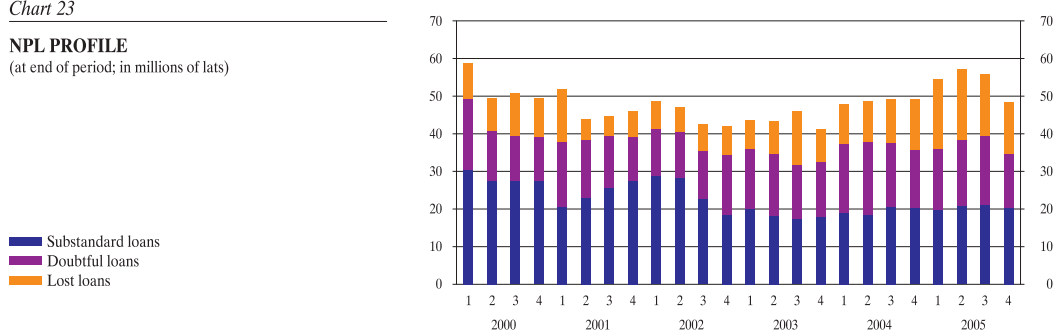
NPLs (%)	At end of 2005		At end of 2004	
	Market share of banks (% of the banking sector assets)	Number of banks	Market share of banks (% of the banking sector assets)	Number of banks
<1	67.6	13	52.6	12
≥1-2	29.5	7	28.6	8
≥2	2.8	3	18.8	3

The structure of NPLs remained broadly unchanged in 2005. The share of substandard and doubtful loans in the NPLs was 42.0% and 27.9%, respectively, whereas that of lost loans amounted to 28.2% (see Chart 23).

Chart 23

#### NPL PROFILE

(at end of period; in millions of lats)

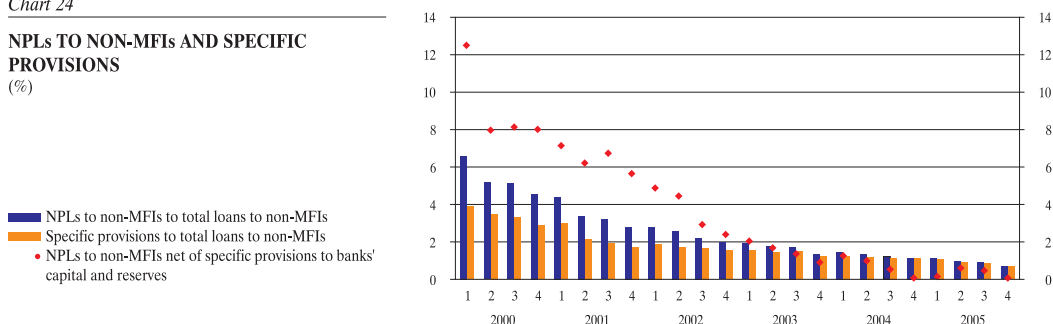


Specific provisions covered 98.8% of the NPLs at the end of 2005 (see Chart 24).

Chart 24

#### NPLs TO NON-MFIs AND SPECIFIC PROVISIONS

(%)



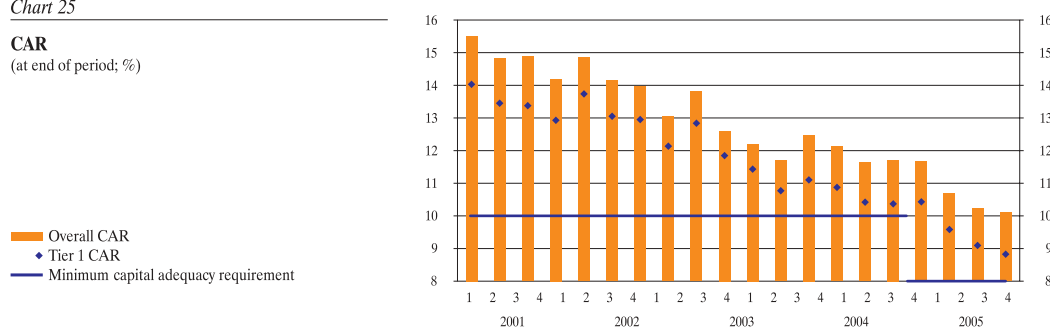
## 4. BANK CAPITAL ADEQUACY

### The level of bank capitalisation declined.

With the lending developing, risk-weighted assets expanded at a higher rate than the banks' equity, and the CAR decreased. At the end of 2005, the CAR was 10.1% (1.6 percentage points lower year-on-year; see Chart 25).

Chart 25

**CAR**  
(at end of period; %)



An increasingly larger number of banks made use of the reduced minimum capital adequacy requirement. For seven banks, the CAR was 8%–10% at the end of the 2005, and their market share amounted to 74.4% of the total banks' assets (see Table 5).

Table 5

**BREAKDOWN OF BANKS BY CAR**

CAR (%)	At end of 2005	
	Market share of banks (% of total banks' assets)	Number of banks
≥8–10	74.4	7
≥10–15	18.3	7
≥15–20	5.5	3
≥20	1.9	5

The number of banks with the CAR below 10% increased; yet, for none of the banks it was below the required minimum.

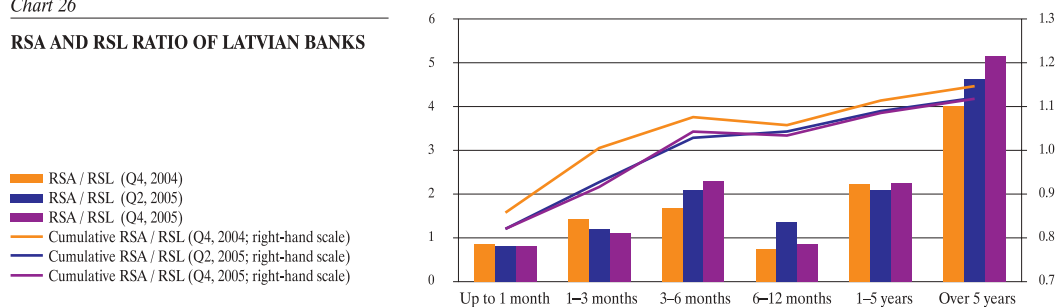
## 5. INTEREST RATE RISK OF BANKS

### The banks' exposure to interest rate risk remained low.

Latvian banks' exposure to repricing risk<sup>6</sup>, which is the most significant source of the banks' interest rate risk, remained unchanged in the second half of 2005 and was overall limited. Although the RSA and RSL continued to expand, the RSA to RSL ratio remained broadly unchanged in all time-bands (see Chart 26).

Chart 26

**RSA AND RSL RATIO OF LATVIAN BANKS**



<sup>6</sup> Repricing risk is the probability of suffering losses due to interest rate movements and mismatching residual maturities of assets and liabilities. 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. RSA and RSL 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.

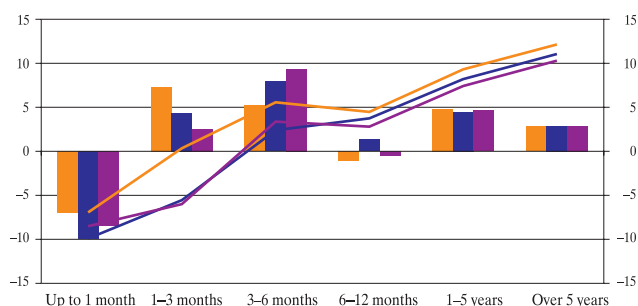
The cumulative 1-year RSA to RSL, which is the most meaningful RSA to RSL ratio for interest rate risk management, declined slightly to stand at 1.03<sup>7</sup> at the end of 2005. It suggests that overall the Latvian banks' RSA and RSL in the time-band of up to 1 year were almost balanced.

As in the case of the RSA and RSL ratio, the difference between the RSA and RSL, or the repricing gap (GAP),<sup>8</sup> to the total banks' assets remained broadly unchanged in all time-bands (see Chart 27).

Chart 27

#### GAP AND ITS SHARE IN TOTAL LATVIAN BANKS' ASSETS (% of total banks' assets)

Legend for Chart 27:  
 ■ GAP (Q4, 2004)  
 ■ GAP (Q2, 2005)  
 ■ GAP (Q4, 2005)  
 — Cumulative GAP (Q4, 2004)  
 — Cumulative GAP (Q2, 2005)  
 — Cumulative GAP (Q4, 2005)

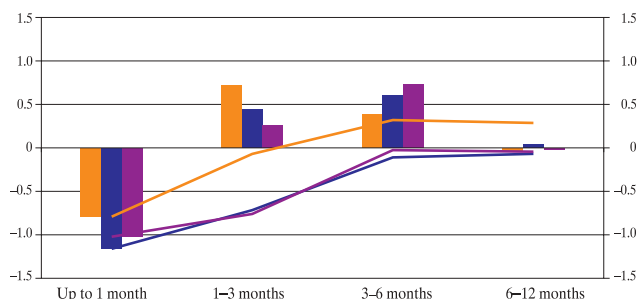


The results of sensitivity analysis show that the impact of any potential interest rate changes on net annual interest income<sup>9</sup> of Latvian banks would be very insignificant (see Chart 28).<sup>10</sup> This potential impact on annual interest income is still limited by the application of floating rates on bank loans. Thus, any changes in market interest rates would be priced into interest rates on bank loans in a relatively short period of time.

Chart 28

#### SENSITIVITY ANALYSIS: IMPACT OF INTEREST RATE INCREASE BY 1 PERCENTAGE POINT ON NET ANNUAL INTEREST INCOME OF LATVIAN BANKS (% of capital and reserves)

Legend for Chart 28:  
 ■ Impact (Q4, 2004)  
 ■ Impact (Q2, 2005)  
 ■ Impact (Q4, 2005)  
 — Cumulative impact (Q4, 2004)  
 — Cumulative impact (Q2, 2005)  
 — Cumulative impact (Q4, 2005)



The results of the latest sensitivity analysis show, that, with the interest rates increasing by 1 percentage point, the negative repricing gap in the time-band of up to 1 month would decrease the net interest income of Latvian banks by 1.0% of the total banks' capital and reserves. As floating rate loans secure positive repricing gaps in the following time-bands, the overall negative impact of the interest rate increase would decline to 0.04% of the total banks' in the course of a year.

The almost balanced RSA and RSL structure and low banks' sensitivity towards interest rate changes points to an overall highly limited exposure of Latvia's banks

<sup>7</sup> RSA and RSL data for the second quarter of 2005 have been adjusted to accommodate data corrections made by one bank.

<sup>8</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.

<sup>9</sup> Effect on annual profit 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. The calculation of the ratio assumes that repricing will be done in the middle of the time-band. For example, 3-6 months time-band ratio is calculated as follows:  $(12 - 0.5 \times (3 + 6)) / 12 = 0.625$ . The total effect on the annual profit is the sum of effects of the first four time-bands of the year.

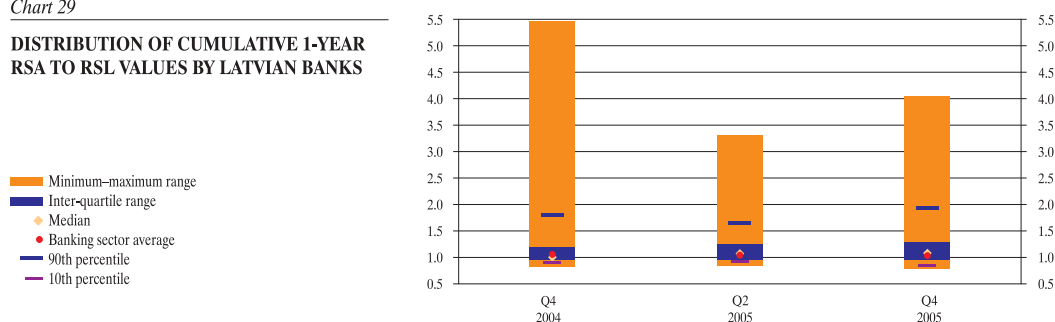
<sup>10</sup> As the calculations are based on the GAP method, they do not take into account the interest rate impact on the bank's economic value and are based on the structure of the banks' aggregate balance sheet as at the end of 2005.

to the interest rate risk. Nevertheless, considering the differing business profiles of Latvian banks, an analysis of the distribution of the main interest rate risks across the banks is required in order to assess the risks more accurately.

The cumulative 1-year RSA to RSL ratio varies quite considerably across Latvian banks (see Chart 29). The wide range of the values, however, is determined by the banks with extreme ratio values. Generally, the range for the cumulative 1-year RSA to RSL of Latvian banks is considerably narrower. The values of the 90th and 10th percentiles suggest that for 80% of Latvian banks the cumulative 1-year RSA to RSL is within the range of 0.9–2.0.

Chart 29

#### DISTRIBUTION OF CUMULATIVE 1-YEAR RSA TO RSL VALUES BY LATVIAN BANKS



The distribution results show that the majority of Latvian banks have a rather good balance between the RSA and RSL in the 1-year time-band; yet, for a considerable number of banks the RSA to RSL is significantly higher than the overall average banking sector RSA to RSL ratio. These are all niche banks, and their RSA exceed RSL considerably because the deposits received by those banks are primarily liabilities which are insensitive to interest rate volatility. Therefore, these banks have limited possibilities to contain their repricing risk by balancing the RSA and RSL structure, as the interest earned from RSA largely determines their net interest received. In order to control the interest rate repricing risk fully, those banks would need to ensure a constant stream of interest income from their RSA. But under the circumstances of growing market rates such a line of action would deprive these banks of an opportunity to earn higher net interest income.

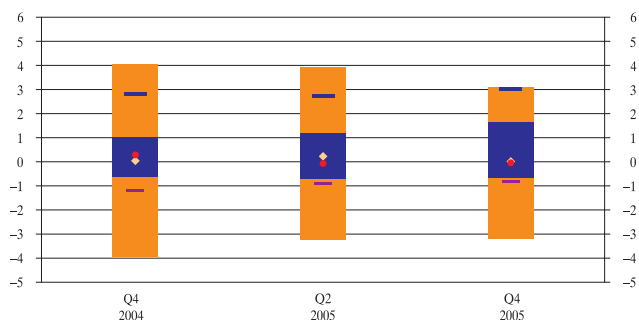
The distribution of the results of the bank sensitivity analysis suggests that for many banks (whose RSA and RSL ratio is relatively large) a potential interest rate increase by 1 percentage point would considerably boost their net annual interest received (up to 3.1% of total; see Chart 30).

Chart 30

#### SENSITIVITY ANALYSIS: DISTRIBUTION OF CUMULATIVE IMPACT OF INTEREST RATE INCREASE BY 1 PERCENTAGE POINT ON NET ANNUAL INTEREST INCOME OF LATVIAN BANKS

(% of capital and reserves)

Minimum–maximum range  
Inter-quartile range  
Median  
Banking sector average  
90th percentile  
10th percentile



Under the circumstances of the market interest rates rising, the probability of the interest rate decline is lower than that of the interest rate rise. Consequently, although the exposure of some Latvian banks to interest rate risk is quite high, their interest rate repricing risk itself is quite low, as their RSA exceed RSL.

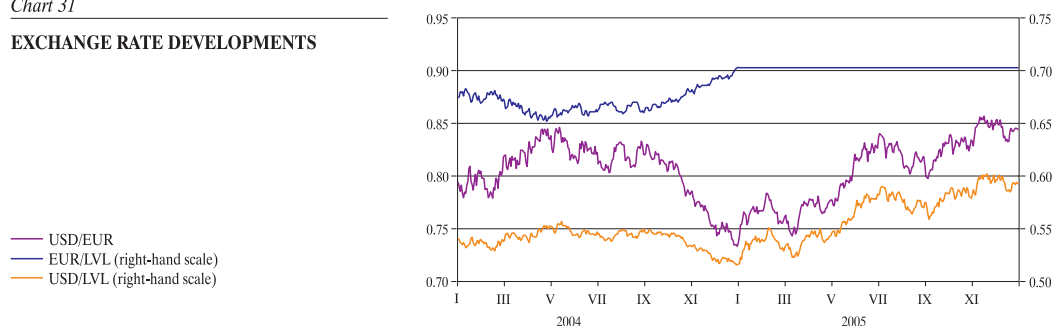
## 6. FOREIGN EXCHANGE RISK OF BANKS

### The direct foreign exchange risk of banks remained low.

As compared to the first half of 2005, the US dollar exchange rate against the euro no longer followed such a pronounced upward trend in the second half of the year. With the lats pegged to the euro, the US dollar exchange rate vis-à-vis the lats also developed along a similar pattern (see Chart 31).

Chart 31

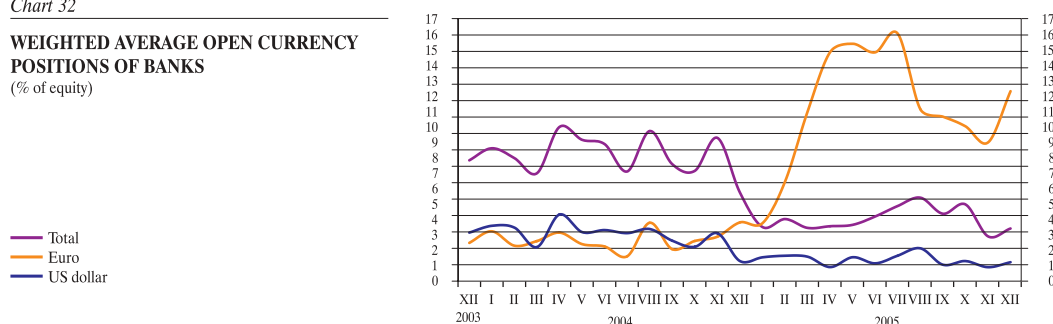
#### EXCHANGE RATE DEVELOPMENTS



The US dollar open currency positions of the banks, reduced since the repegging of the lats, remained low in this reporting period. In contrast to the rapid rise in the first half of 2005, the euro open currency positions of banks<sup>11</sup> contracted in the second half of the year (see Chart 32).

Chart 32

#### WEIGHTED AVERAGE OPEN CURRENCY POSITIONS OF BANKS (% of equity)



In the second half of 2005, the VaR<sup>12</sup> results were overall slightly higher than in the first half of the year; moreover, they displayed higher volatility (see Chart 33). Overall higher VaR results can be partly explained by the fact that the VaR calculations are based on 1-year historical exchange rate fluctuations and that, since the repegging of the lats from the SDR basket of currencies to the euro, the lats fluctuations against other major currencies contained in the SDR basket of currencies intensified. Therefore, the VaR calculation for the second half of the year reflects to a greater extent the increased lats fluctuations vis-à-vis the US dollar, British pound sterling and Japanese yen since the repegging of the lats at the beginning of 2005.

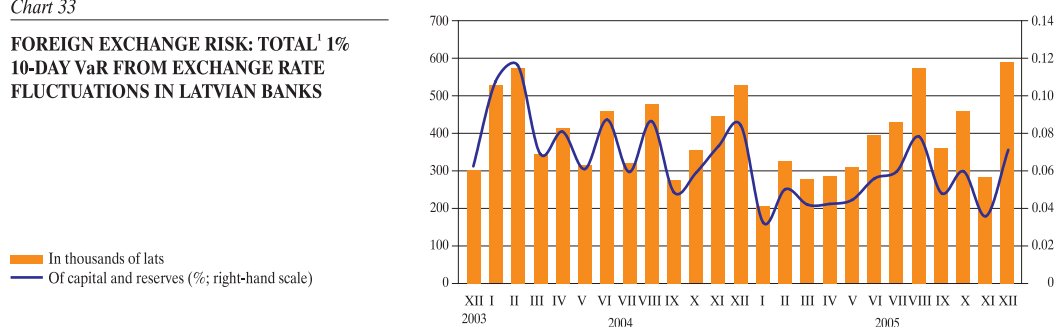
Thus, based on the VaR results one cannot conclude that the Latvian banks have experienced any significant changes in foreign exchange risk in the second half of

<sup>11</sup> Calculations use the absolute values of the open foreign currency positions. Since the repegging of the lats on January 1, 2005, the open currency positions in euro are no longer included in calculations of the total open currency position.

<sup>12</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 33

**FOREIGN EXCHANGE RISK: TOTAL<sup>1</sup> 1%  
10-DAY VaR FROM EXCHANGE RATE  
FLUCTUATIONS IN LATVIAN BANKS**

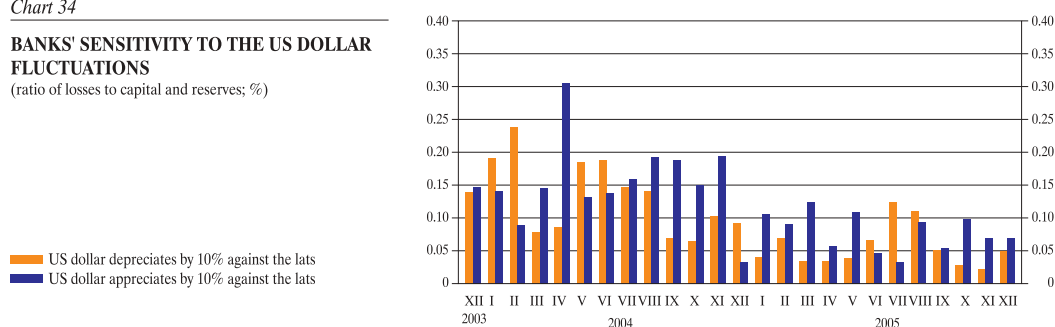


<sup>1</sup> It has to be taken into account that the VaR for Latvian banks has been obtained by adding up the VaR of individual banks. Total VaR of banks is smaller as the VaR of individual banks has not been fully positively correlated.

2005. Moreover, the potential impact of the US dollar exchange rate fluctuations, the largest source of the banks' foreign exchange risk after the repegging of the lats, on the banks has remained broadly unchanged in comparison with the first half of the year (see Chart 34).

Chart 34

**BANKS' SENSITIVITY TO THE US DOLLAR  
FLUCTUATIONS**  
(ratio of losses to capital and reserves; %)



Overall, both the results of the analysis of the open currency positions and those of VaR suggest that the direct foreign exchange risk of the banks remains low.

## 7. BANK LIQUIDITY

**Although the overall liquidity of banks remained above 50%, the liquidity ratios of the banks most active on the lending market shrank.**

The overall liquidity ratio of banks still remained well above the minimum set by the FCMC (30%<sup>13</sup>; 52.3% {58.1%} at the end of 2005); yet, for some banks it approached the minimum. These are mainly banks servicing residents<sup>14</sup>, although the liquidity ratios are on a decline for some banks servicing non-residents and increasingly involved in domestic lending (see Chart 35).

The short-term liquidity ratio<sup>15</sup> continued to decrease and stood at 62.6% {68.7%} at the end of 2005 (see Chart 36). The share of liquid assets<sup>16</sup> in banking sector assets amounted to 26.7% {33.7%} at the end of the year.

The downslide of the ratios was primarily driven by acceleration of lending to non-MFIs, facilitating further maturity mismatch between assets and liabilities, aggravating the liquidity risk. A slight improvement of the liquidity ratios at the

<sup>13</sup> The total assets with less than 30 days to maturity may not be less than 30% of the total liabilities with 30 days to maturity.

<sup>14</sup> Banks are grouped by the share of non-resident non-MFI deposits in a bank's assets: 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>15</sup> Short-term liquidity ratio = liquid assets/demand liabilities (to banks and non-MFIs) x 100.

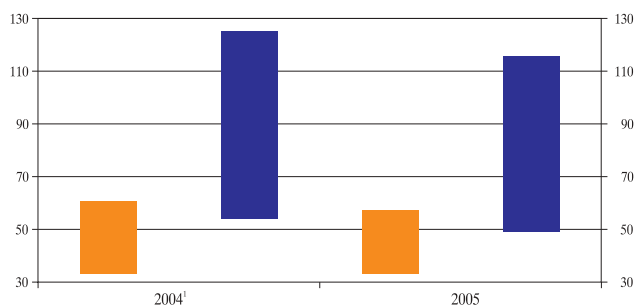
<sup>16</sup> Liquid assets = vault cash + claims on MFIs + central government fixed income securities.



Chart 35

**RANGE OF BANK LIQUIDITY RATIOS BY GROUPS OF BANKS (%)**

Legend:  
■ Banks servicing residents  
■ Banks servicing non-residents

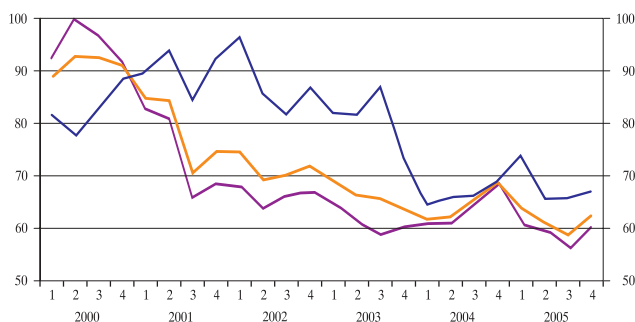


<sup>1</sup> At the end of 2004, one of the banks servicing residents was not shown in the Chart, as its liquidity ratio (124.0%) was related to one-off transactions.

Chart 36

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

Legend:  
— Total  
— Lats  
— Foreign currencies

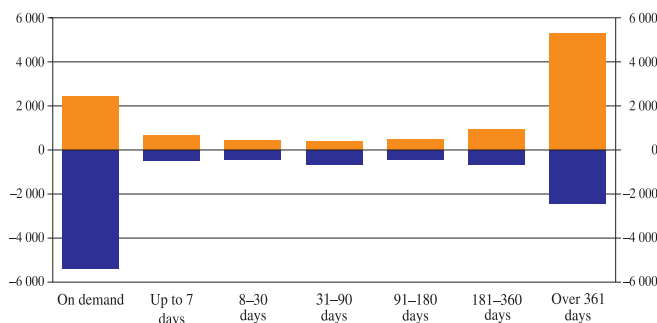


end of 2005 over the end of the third quarter notwithstanding, asset-liability gap for demand transactions expanded to 2 990 million lats (33.6% of GDP; see Chart 37).

Chart 37

**MATURITY PROFILE OF BANKING SECTOR ASSETS AND LIABILITIES (at end of 2005; in millions of lats)**

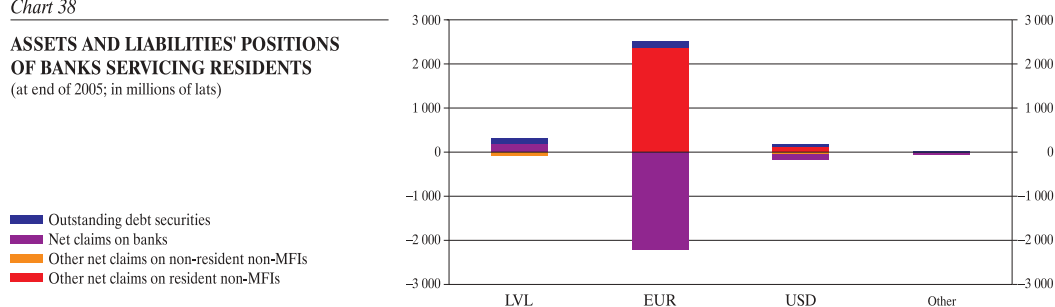
Legend:  
■ Assets  
■ Liabilities



With vigorous lending continuing, the non-MFI loan-to-deposit ratio edged up further to stand at 112.2% {85.9%} at the end of the year. Banks granted an increasingly larger share of loans using borrowing from foreign banks, as its share in total liabilities grew by 8.7 percentage points in 2005 and amounted to 29.9% (including 18.3% from parent banks). The share of non-MFI deposits in liabilities shrank by 8.2 percentage points and was 56.7%. This points to growing dependence of the Latvian banking sector on foreign investors.

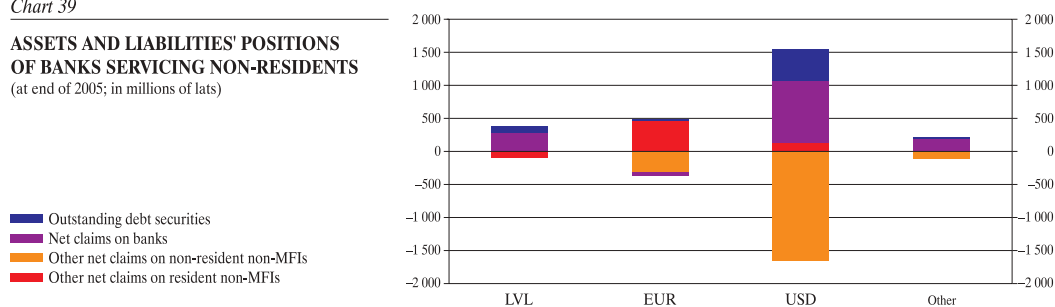
Analysing the situation by groups of banks, it becomes obvious that the banks servicing residents (see Chart 38) tend to draw euro liquidity from parent banks and European investment banks, and in the form of syndicated loans from other foreign banks. These funds are primarily used to grant euro loans to resident non-MFIs. The dependence of the banks servicing residents on financing from foreign banks is constantly growing (at the end of 2005, it amounted to 43.8% of the total liabilities of those banks).

Chart 38

**ASSETS AND LIABILITIES' POSITIONS  
OF BANKS SERVICING RESIDENTS**  
(at end of 2005; in millions of lats)


Banks servicing non-residents mostly attract funds from non-resident non-MFIs in US dollars, and place the majority of them in foreign banks or invest in securities (see Chart 39). Still, a relatively small part of the funds received by these banks was used to grant resident loans, mainly in euro. Nevertheless, the liquidity risk relating to non-resident deposits remained low, as the major share of those assets is placed on correspondent accounts in foreign banks and invested in securities. At the end of 2005, non-resident non-MFI deposits with banks servicing non-residents totalled 2 646.7 million lats (5.9% higher than at the end of 2004). The share of non-MFI deposits in liabilities of the banks servicing non-residents shrank slightly and was 59.2% at the end of 2005.

Chart 39

**ASSETS AND LIABILITIES' POSITIONS  
OF BANKS SERVICING NON-RESIDENTS**  
(at end of 2005; in millions of lats)


## 8. FINANCIAL VULNERABILITY

**Along with improving profitability, the non-financial corporations sector continued to develop robustly.**

In the first nine months of 2005, the buoyant development of the economy and inflows of investment fostered a strong expansion of the non-financial corporations sector. Year-on-year, the growth in assets and sales was outpaced, and profitability continued to rise.

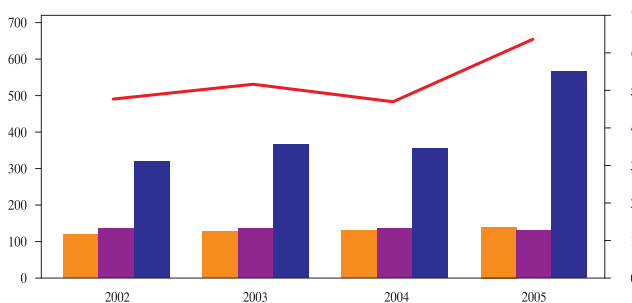
The on-going improvement of business environment facilitated the non-financial business start-ups also in 2005, with the number of newly registered businesses reaching a high of the last decade (though to some extent owing to the registration of business start-ups with the Commercial Register that replaced the companies previously registered with the Register of Enterprises of the Republic of Latvia). The number of insolvency applications submitted to the Register of Enterprises of the Republic of Latvia continued to shrink in 2005.

In the first nine months of 2005, returns on non-financial corporations' sales picked up at a fast pace (see Chart 40), with an upswing recorded for all major branches of the economy. Higher production costs and other costs (fuel, labour force and construction) notwithstanding, the ratio of main cost items to net sales declined, which, taking into account the steep rise in sales, corroborates the significance of demand factors in improving profitability indicators.

Chart 40

**FINANCIAL INDICATORS OF NON-FINANCIAL CORPORATIONS<sup>1</sup> FOR THE FIRST NINE MONTHS OF THE RESPECTIVE YEAR (%)**

— Returns on sales (right-hand scale)  
 ■ Debt-to-equity ratio  
 ■ Liquidity  
 ■ Interest coverage ratio



<sup>1</sup> Returns on sales is profit before taxes to revenue ratio; debt-to-equity ratio is debt to equity capital; liquidity is current assets to short-term liabilities ratio; interest coverage ratio is profit before taxes to interest payments ratio.

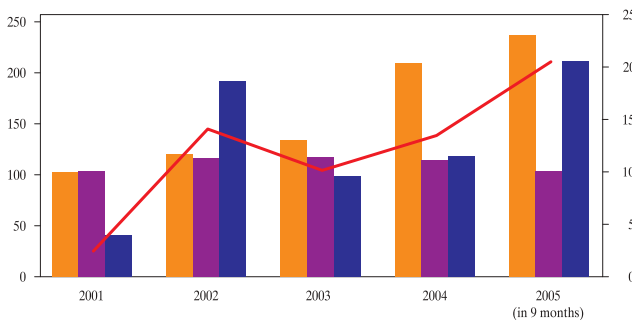
Transport, storage and communication, construction, and, in particular, the real estate sector recorded the highest profitability growth. They however recorded also the highest increase in debt, which grew also in manufacturing and traditionally less leveraged sectors, with non-financial corporations taking advantage of the favourable growth and profit earning opportunities. The substantial profits determined a rise in interest coverage or maintaining it at a high level in all major sectors (where profits exceeded interest payments more than three times), with the real estate sector being an exception despite the substantial improvement in its profits.

Although real estate profits and interest coverage continued to improve in the first nine months of 2005, the recent respective indicators of the sector had been rather unstable (see Chart 41). On account of the steep rise in interest-bearing debt and its increasing significance for sector's financing, vulnerability risks in the event of an interest rate rise or sustained weakening of profitability within the sector continued to build up. The high profitability currently observed in the sector is not likely to last long. The sector has accumulated a large debt that exceeds the equity of the sector's non-financial corporations two times. Although some sectors (e.g. trade and construction) record even higher debt levels, their debt primarily comprises non-interest bearing liabilities, i.e. liabilities to suppliers, contractors, etc. For real estate operations, over 60% of the total debt consists of interest-bearing liabilities. This indicates that real estate operations are very sensitive to interest rate volatility, and banks need to be particularly vigilant when granting loans to non-financial corporations of this sector.

Chart 41

**FINANCIAL INDICATORS OF REAL ESTATE OPERATIONS SECTOR (%)**

— Returns on sales (right-hand scale)  
 ■ Debt-to-equity ratio  
 ■ Liquidity  
 ■ Interest coverage ratio



Overall, the high profits and growing profitability of the non-financial corporations sector mitigated the heightening risks related to the increase of the debt in financing. The largest risk persisted for real estate operations where rapidly growing debt and the need to cover interest payments will require the maintaining of a high level profitability.

The surveys conducted at the beginning of the fourth quarter of 2005 indicate that businesses in industry, construction, retail trade and services assessed the potential future development trends more positively than in 2004. The consumer confidence indicator also improved.

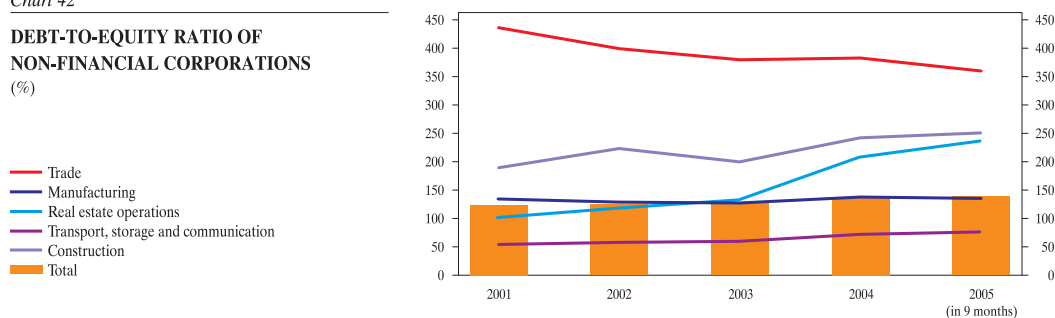
### Box 3. Financial vulnerability of non-financial corporations in 2004

In 2004, the growth in assets and revenue of non-financial corporations accelerated substantially and profitability also improved. In the first half of the year, the increase in costs caused some decline in corporations' profitability, yet already in the third quarter and the year overall it was again on the upswing, a trend to be sustained throughout the first nine months of 2005. Macroeconomic indicators and the financial indicators of non-financial corporations indicated that owing to the strong domestic and foreign demand they were able to absorb the significant rise in costs, with profitability even improving.

Primarily due to the solid profit of 2004, the growth in equity exceeded that in interest-bearing debt; however, the share of the latter and the total debt kept on rising in the financing structure of non-financial corporations. In 2004, the average debt-to-equity ratio amounted to 134% {124%}, determined by a rapid rise in total debt of real estate operations and construction, whereas other sectors did not record any notable growth (see Chart 42). With internal financing rapidly increasing in construction, the sector's accelerated development determined a more substantial growth in trade credit and advance payments, whereas the ratio of interest-bearing debt to the sector's financing even declined. At the same time, the growth in real estate operations was mainly supported by the funds attracted from banks.

Chart 42

#### DEBT-TO-EQUITY RATIO OF NON-FINANCIAL CORPORATIONS (%)



The growing investment needs and low interest rates facilitated the increase in the interest-bearing debt share in the total debt of non-financial corporations; in contrast to the former trends, the share of short-term loans expanded somewhat, resulting in a larger sensitivity of non-financial corporations to interest rate volatility. The significance of loans grew particularly in the sectors where it had been considerable also prior to 2004, i.e. in real estate operations, hotels and restaurants, and manufacturing.

In 2004, with borrowing expanding rapidly, the amount of interest payments grew, yet its ratio to interest-bearing debt continued to shrink, reflecting a decline in interest rates. The substantial profit growth determined an increase in interest coverage, which accelerated or retained a high level almost in all major sectors. The financial vulnerability of real estate operations grew substantially, and though the interest coverage ratio increased also in this sector due to the rapidly growing profit, it was among the lowest in the economy, with profits equalling interest payments. In addition, indebtedness of the sector rose notably in 2004 mainly driven by the growth in interest-bearing debt.

**The household debt continued to pick up at a fast pace; an increasing number of households got involved in mortgage lending.**

With the household deposit growth accelerating, the negative net financial position of households continued to turn more negative and amounted to 7.7% of GDP at the end of the year (see Chart 43), implying that household liabilities to credit institutions and credit unions exceeded the amount of their deposits. The household indebtedness that was made up of their liabilities to banks, leasing companies and credit unions in 2005 increased by 84.9% and stood at 28.5% {18.6%} of GDP (see Chart 44). Interest rates on loans decreased, making household interest payment growth decelerate by 62.5% and stand at 1.3% {0.9%} of GDP, a sustainable low vis-à-vis the developed countries where it amounts to 6%–8% of GDP.

Chart 43

**HOUSEHOLD DEPOSITS WITH CREDIT INSTITUTIONS AND CREDIT UNIONS AND HOUSEHOLD LIABILITIES TO CREDIT INSTITUTIONS, LEASING COMPANIES AND CREDIT UNIONS**  
(at end of period; in millions of lats)

Deposits  
Leasing  
Loans  
Net

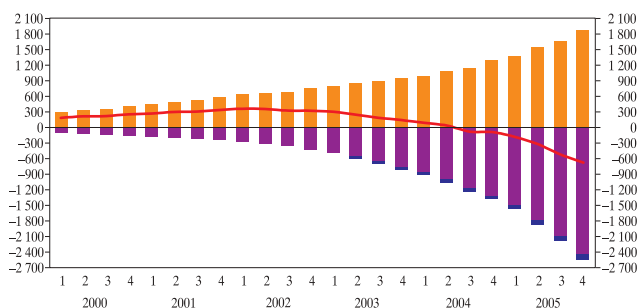
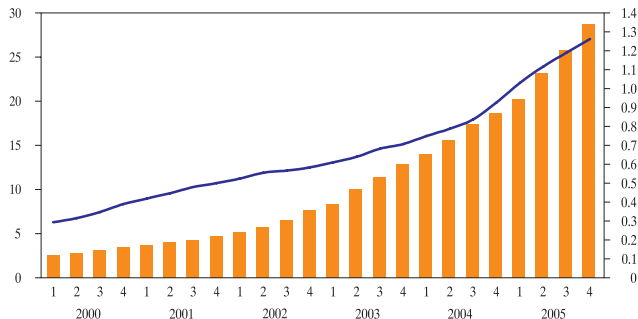


Chart 44

**HOUSEHOLD DEBT<sup>1</sup> AND INTEREST PAYMENTS<sup>2</sup>**  
(% of GDP)

Total debt of households  
Annual interest payments of households (right-hand scale)



<sup>1</sup> To credit institutions, leasing companies and credit unions.

<sup>2</sup> To credit institutions and credit unions.

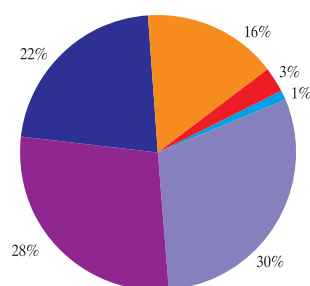
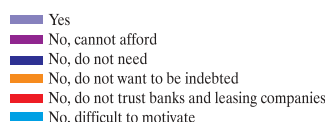
Bank loans for house purchase accounted for a major part of the household debt. The number of such loans rose to 103.2 thousand at the end of 2005 (an increase of 27.5% over the end of 2004). It implies that approximately 11.3% {8.9%} of all households have taken a bank loan for house purchase. With real estate prices soaring, the average amount of outstanding loans went up by 53.9% (to 16.9 thousand lats) year-on-year. In the circumstances of the household debt and average outstanding loans increasing, the number of households involved in mortgage lending growing, and high inflation growth persisting, the household lending-related credit risk continued to increase. As variable rate transactions generally dominate the market, an interest rate rise on the euro area interbank market will push up the household debt servicing costs in the medium term. Information provided by banks, on the other hand, confirms that the borrowers overwhelmingly are those with a high income, able to absorb interest rate rises. Expanding the range of borrowers at the expense of lower income households is likely to increase credit risk for the banks.

#### Box 4. Review of household survey results in August 2005

In accordance with the results of the survey "The Monetary and Banking System in Latvia: A Survey of Latvia's Households", conducted by MarketLab in August 2005, 29.8% of the respondents have taken loans (1 percentage point over the level in August 2004; see Chart 45). Most of them are 25–49 year old inhabitants of Riga with university education and a high income level. Mortgage loans for housing repairs, real estate purchase and house construction have been taken by 6.3%, 1.0% and 5.9% of the respondents, respectively. 21.1% of the respondents used the other credit facility, predominantly consumer credit. The share of the interviewed households that cannot afford to borrow remains high (28.0%) and has remained broadly unchanged from 2004.

Chart 45

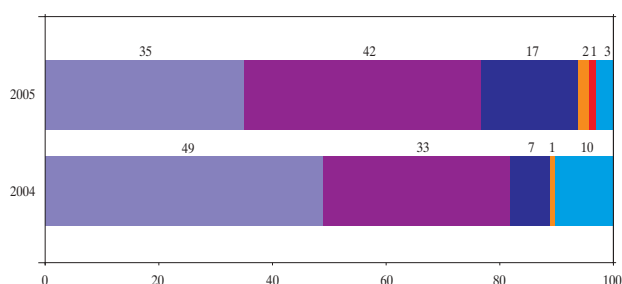
#### HAVE YOU CURRENTLY TAKEN A LOAN FROM A BANK OR LEASING COMPANY? (% of all respondents)



For the majority of interviewed borrowers the monthly payments on loans do not exceed 30% of the family income (see Chart 46), and it is a positive feature. The borrowers' awareness of the liabilities assumed has improved, and compared to 2004 the proportion of people unable to state the income share they spend on debt servicing has shrunk. Borrowers' interest and the improvement of their awareness were most likely triggered by the expanding household debt and rising interest rates on loans in US dollars. With the household debt going up, the proportion of the respondents using up to 10% of their income on servicing their debt contracted sharply.

Chart 46

#### WHAT INCOME SHARE IS USED TO SERVICE YOUR DEBT? (% of all respondents)



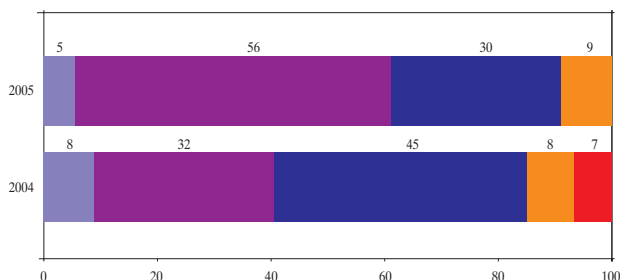
The respondents having taken variable interest rate loans have been cautious in assessing their future repayment capacity, and at a 20%–25% increase in monthly payments (corresponding to approximately 200–300 basis points interest growth on loans with a 20-year maturity and 400–500 basis points interest growth on loans with a 10-year maturity) more than a half of them would have to restrict their other expenses notably (see Chart 47). From the macroeconomic perspective, it implies that a notable rise in interest rates may adversely affect domestic consumption because the borrowers, who comprise a part of the households most capable of paying, will spend more on debt servicing and less on goods and services. As a result, it would have an adverse impact on the sales of domestic companies and impair the bank loan quality. The strengthening of inflation persistence that may exert pressure on household budgets and their loan repayment capacity should also be accounted for.

Chart 47

**HOW DO YOU ASSESS YOUR REPAYMENT CAPACITY IN THE EVENT OF A 20%-25% INCREASE IN LOAN PAYMENTS DUE TO INTEREST RATE RISES?**

(% of respondents with a variable rate loan)

- I have a sufficiently high income not to be affected by such changes
- I will be able to make scheduled payments although other expenses will have to be restricted substantially
- I will be compelled to apply to the bank for an extension of the payment term
- I will be unable to service my debt
- Another answer



When asked about their plans to take a loan within a year, 4.8% of the respondents answered that they might borrow for real estate purchase, 2.2% for housing construction and 6.2% for housing repair. Over a half of the respondents has already taken a loan. The situation with consumer credit is identical. A large part of households remain unable to afford a loan. In the nearest future, it would dampen the growth potential of banks and other financial intermediaries.

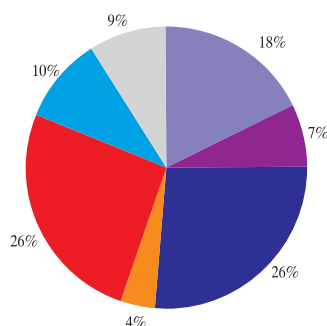
Overall, the household survey results indicate that the debt servicing burden increases for borrowers, while the ratio of households involved in borrowing expands moderately, to a great extent implying a weak paying ability of the majority of households. Those households that are planning to take a new loan within a year most often are already indebted (see Chart 48). It also implies that in the near future the growth in household lending will primarily depend on the existing borrowers and their ability to undertake new liabilities. When assessing their future repayment capacity in the circumstances of growing interest rates (above 200 basis points), the majority of borrowers recognised their ability to absorb the growth, albeit at the expense of a substantial reduction in other expenses.

Chart 48

**BREAKDOWN OF RESPONDENTS PLANNING TO TAKE A LOAN FOR REAL ESTATE PURCHASE, CONSTRUCTION OR REPAIR WITHIN A YEAR**

(%)

- Already hold a mortgage loan
- Hold a loan for transport vehicle purchase
- Hold a consumer credit
- Hold another type of credit
- Did not need to borrow
- Unable to afford
- Do not hold a loan for other reasons



**9. NON-BANK FINANCIAL SECTOR**

**Buoyant economic growth in 2005 supported the development of the leasing sector.**

The development of both the banking and non-bank financial sector was driven by the dynamic overall economic growth. The assets of the non-bank financial service providers went beyond 1 billion lats in mid-2005. Leasing and other financial intermediation (granting other credit), i.e. services directly or indirectly linked with crediting, have long been the most significant segments of non-bank financial intermediation. At the end of 2005, the annual growth in bank loans to financial institutions amounted to 85.0%, which, against the respective pickup in the previous period (33.4%), can partly explain the significance of the non-bank financial lending and its volume growth. Within the sector of financial intermediation, the non-bank financial sector persistently accounts for around 10%, whereas the leasing sector (the most important sector among non-bank financial service providers) covers around 5% of the entire financial services sector. In 2005, a moderate drop

in the share of the leasing sector was determined by the growth of other non-bank financial sector companies. The share of mutual funds expanded notably, and the assets of insurers and third pillar pension funds, other saving service providers, increased.

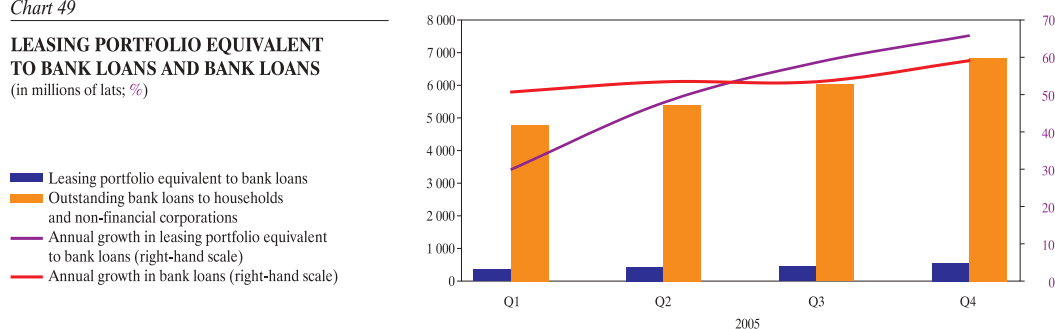
The fast growth of Latvia's economy in 2005 was reflected in the performance of six major leasing companies of the LLA. According to the LLA data, the total leasing and factoring portfolio amounted to 703.5 million lats at the end of 2005, with the financial leasing portfolio accounting for 68.0% and the factoring portfolio for 11.9%.

In 2005, the annual growth in leasing services equivalent to bank loans granted by LLA members (financial leasing and factoring) accelerated and caught up with the growth in bank lending in the second half of the year (see Chart 49). In the third quarter, the annual growth in the financial leasing and factoring portfolio was 58.8%, whereas bank loans outstanding increased by 53.7% annually. In the fourth quarter, the growth in leasing portfolio equivalent to bank loans accelerated to 66.1% (to 59.4% for bank loans), which along with general growth enhancing factors can be explained also by a lower base in 2004 (one leasing company joined the LLA in the second quarter).

Chart 49

#### LEASING PORTFOLIO EQUIVALENT TO BANK LOANS AND BANK LOANS

(in millions of lats; %)

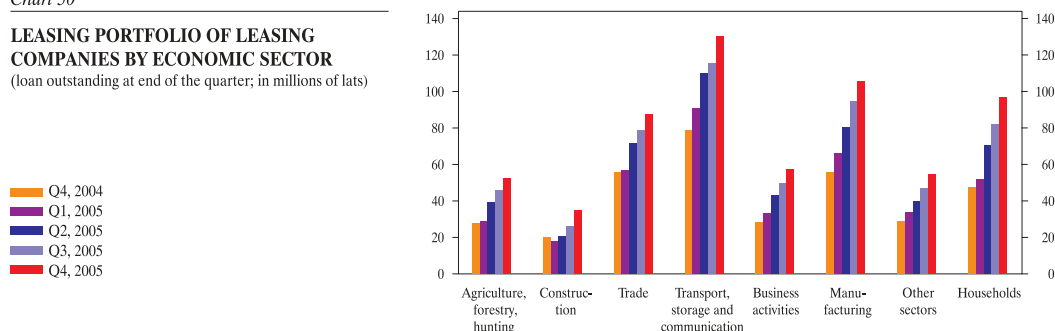


The breakdown of the leasing portfolio by economic sector (see Chart 50) discloses that in 2005 leasing services were vigorously used in all sectors and the lessees' activity strengthened in the second half of the year. Leasing services were more widely used by sectors that had a particularly strong growth record (construction, manufacturing, trade, and transport, storage and communication).

Chart 50

#### LEASING PORTFOLIO OF LEASING COMPANIES BY ECONOMIC SECTOR

(loan outstanding at end of the quarter; in millions of lats)



Companies of the transport, storage and communication sector are major lessees whose share in the total leasing portfolio stood at 21.1% at the end of 2005. Loans to transport, storage and communication companies accounted for a considerably smaller share in the total bank loan portfolio than the respective loans in the portfolio of leasing companies, with the bank loan share tending to shrink on a



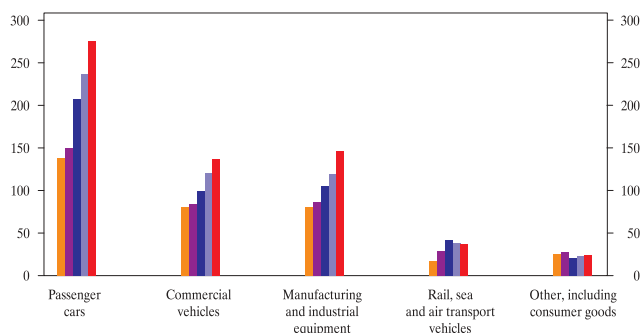
constant basis (accounting for 2.9% at the end of 2005). A substantial part of financial leasing services were delivered to trade and manufacturing companies. On an annual basis, a slightly larger share of total leasing services was used for financing household purchases (15.6%; 13.8% at the end of 2004). As for the construction companies that as a rule do not use leasing services extensively in terms of volume (a 6% sector share in the leasing portfolio), the steepest rise in leasing financing, driven by an upswing in construction in the second half of the year, was recorded.

Of the total leasing portfolio, passenger car and commercial vehicle leasing accounted for the largest share (66.4%; see Chart 51). A faster growth in manufacturing and industrial equipment leasing (81.9% annual growth) can be explained by a more dynamic development of production, growing popularity of leasing services and a lower previous base.

Chart 51

#### LEASING PORTFOLIO OF LEASING COMPANIES BY TYPE OF ASSETS (at end of the quarter; in millions of lats)

Q4, 2004  
Q1, 2005  
Q2, 2005  
Q3, 2005  
Q4, 2005



In 2005, the volume of leasing services to households (for the purchase of consumer goods and motor vehicles) increased on average by 20% on a quarterly basis. The share of leasing for consumer goods in the total portfolio grew from 0.9% at the end of 2004 to 1.4% at the end of 2005 (8.7 million lats).

Supported by the low interest rates in Latvia and worldwide, relative novelty of the leasing market and conveniences it offers to companies, and the buoyant economic progress, the growth in the leasing sector has been remarkably fast. Though current forecasts point to further buoyant development of the sector, it is exposed to risks associated with the high growth rate already achieved in the sector and potential rises in euro and US dollar interest rates.

## 10. PAYMENT SYSTEMS

**The Bank of Latvia's interbank automated payment system (SAMS) retains systemic importance in the financial market's payment processing. The significance of the Bank's electronic clearing system (EKS) has increased with the commencement of benefit disbursements by the Treasury through the EKS in the second half of 2005.**

The importance of the SAMS and the EKS in the overall payment infrastructure is characterised by the share of each system in the financial sector and retail payments.

In the second half of 2005, the indicators of the systems' turnover (see Charts 52 and 53) also confirmed the substantial role of both systems in lats payments, similarly to the previous year. Of interbank credit transfers in lats, the volume of interbank payments processed by the SAMS amounted to 83.7% (24.9 thousand) and their value was 87.9% (13.6 billion lats). The remaining share was executed

Chart 52

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

■ The second half of 2004  
■ The second half of 2005

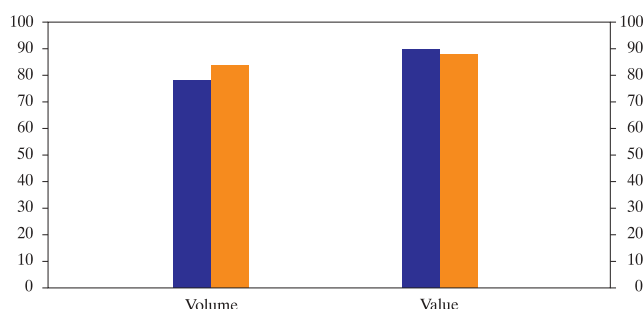
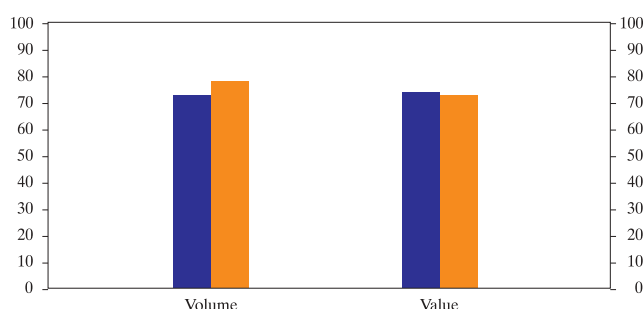


Chart 53

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

■ The second half of 2004  
■ The second half of 2005



by Latvian banks via correspondent banking arrangements. Of retail interbank credit transfers, 77.2% (12.6 million) and 72.2% (4.7 billion lats) were handled in the EKS, respectively. The residual share was determined by some Latvian bank mutual gross settlements of customer credit transfers. The share of payment volume increased in the EKS (by 4.7 percentage points) as a result of the amended procedure for the benefit disbursement procedure by the Treasury. Hence the volume of payments processed by the EKS was 41.9% higher than in the second half of 2004.

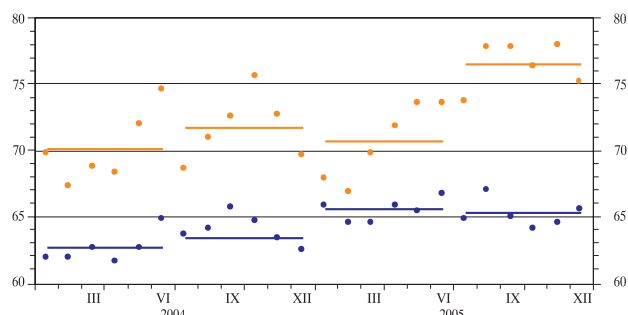
**In 2005, the concentration ratios of both systems of the Bank of Latvia increased with the growth of volume and value of transactions executed by the Treasury in the systems.**

The SAMS and the EKS concentration ratios (the share of the system's five largest participants) retain a stable trend on an annual basis (in accordance with the ECB guidelines, they do not exceed the stipulated limit of systemic risk – 80%). In the second half of 2005, the volume concentration ratio of the interbank payment system, the SAMS was 65.3% (see Chart 54), while the value concentration ratio grew by 5.8 percentage points (to 76.5%), as the total value of payments executed by the system's five largest participants rose by 32.9% compared with the first half of the year, whereas the value of payments executed by other banks declined by 1.4%. These concentration ratios, however, do not point to a probability of any significant domino effect in the system, as one of the system's five largest participants is the Bank of Latvia, which is not exposed to any liquidity and credit risk.

Chart 54

**THE SAMS CONCENTRATION RATIOS (%)**

● Volume  
— Average volume ratio (half a year)  
● Value  
— Average value ratio (half a year)

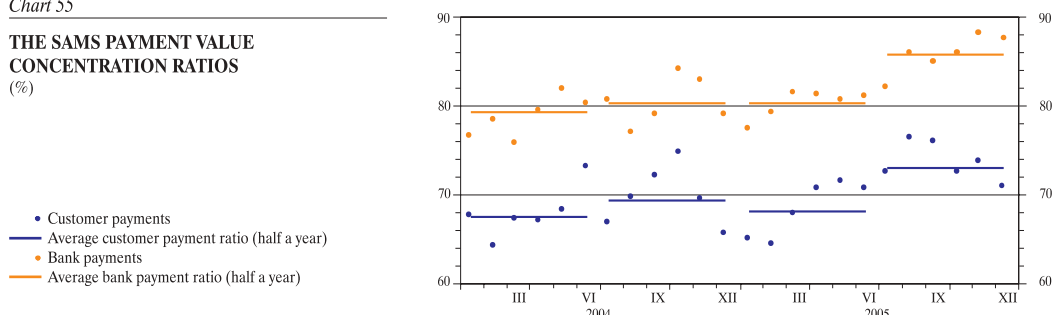


The SAMS is primarily the financial sector's payment system also providing an opportunity to execute urgent or customer large-value payments. In the second half of 2005, the share of the two payment types was as follows: 32.3% (24.9 thousand financial market payments) and 67.7% (52.3 thousand customer payments) in terms of volume and 71.7% (13.6 billion lats) and 28.3% (5.4 billion lats) in that of value, respectively.

The SAMS is a large-value payment system, mainly characterised by value ratios. Comparing the bank payment and customer payment concentration ratios (see Chart 55), the concentration of customer payment value was considerably higher and exceeded 80%, i.e. the limit of systemic risk.

Chart 55

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

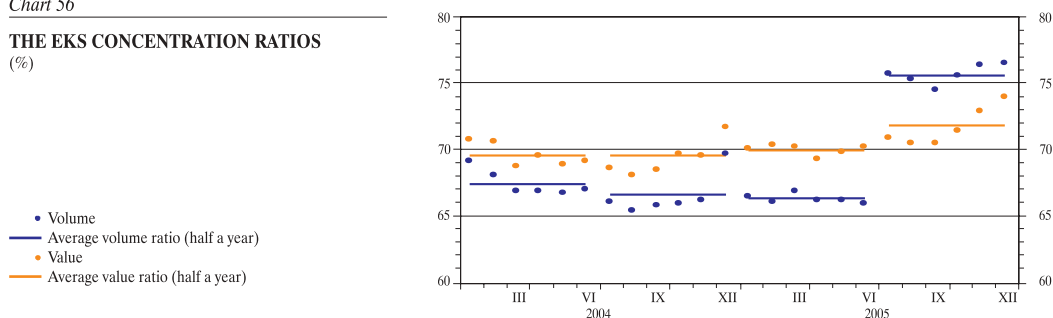


In the second half of the year, the value concentration ratio of bank payments rose by 4.8 percentage points (to 72.9%). The share of large banks' transactions expanded, with the decrease in other banks' activities on the interbank market. The value concentration ratio of customer payments grew by 5.5 percentage points (to 85.8%). This increase causes no systemic risk, as the share of customer payments in the SAMS payment value accounted for only 28.3% and a rise in this ratio was determined by the growing share of the Bank of Latvia in the customer payments (by 5.6 percentage points) due to the expansion of Treasury's transaction value.

The concentration ratio of the EKS payment volume rose by 9.2 percentage points in the second half of the year (75.6%) and that of the value expanded by 1.9 percentage points (71.9%; see Chart 56). The Bank of Latvia is included in the calculation of the EKS concentration ratios and their increase resulted mainly from the amended procedure for the benefit disbursement by the Treasury. Hence the rise in concentration ratios fails to confirm a growing risk in the system as the Bank of Latvia is not exposed to financial risk.

Chart 56

#### THE EKS CONCENTRATION RATIOS (%)



The settlements are executed in two clearing cycles in the EKS, i.e. twice a day. In the second half of the year, 68.3% of total daily payments and 61.8% of the daily value of payments were processed in the first clearing cycle of the EKS. In the first clearing cycle 8.6 million payments amounting to 2.9 billion lats and in the second cycle 4.0 million payments in the amount of 1.8 billion lats were processed. A substantial increase was observed in both clearing cycles in the EKS: in the first

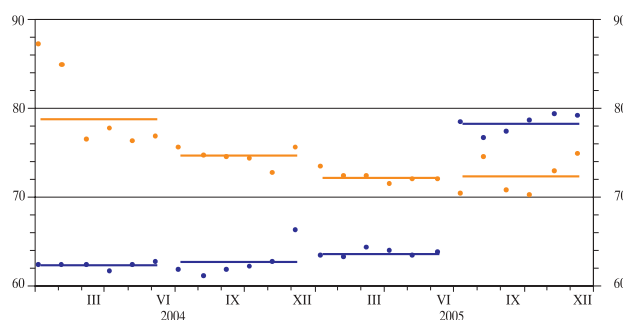
clearing cycle the total volume and value of payments rose by 51.1% and 27.8%, respectively, and in the second clearing cycle the turnover increased by 15.5% and 23.6%, respectively.

The EKS is a retail payment system processing a large volume of payments, hence it is mainly described by payment volume ratios. A comparison of the payment volume concentration ratios of both cycles (see Chart 57) showed that in the first clearing cycle the volume concentration ratio was by 5.9 percentage points higher than that of the second clearing cycle (78.3% and 72.4%, respectively). Overall, the volume and value of payments made in the first and second clearing cycles levelled out gradually for all banks, except for the payments ensured by the Bank of Latvia and executed by the Treasury mostly in the first settlement cycle. Hence, the payments executed by the Treasury primarily determined the payment volume concentration ratio of the first clearing cycle, increasing by 14.8 percentage points in the second half of the year.

Chart 57

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

- The first clearing cycle
- Average ratio (half a year)
- The second clearing cycle
- Average ratio (half a year)



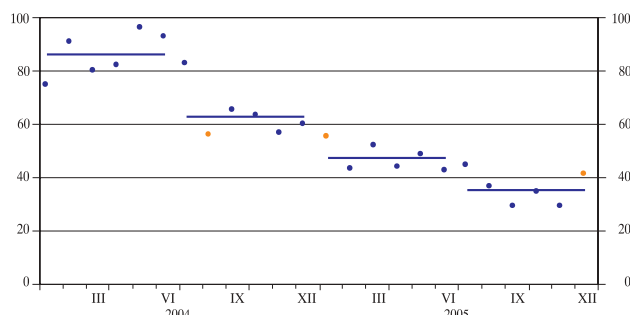
#### The payment system's systemic risk continued to decline.

In addition to the concentration ratio, the domino effect may also be impacted by the efficiency with which settlement funds are used. Settlements in the SAMS are executed through bank settlement accounts with the Bank of Latvia. The bank minimum reserve ratio influenced the monthly average balance on these accounts. Implementing monetary policy, the minimum reserve ratio for banks was raised from 3% at the beginning of 2004 to 8% at the end of 2005, with the minimum reserve base, from which the reserve ratio is calculated, increasing by 80.0% at the same time. The value of bank payments in the SAMS expanded by 50.9% over this period and the average balance on the accounts with the Bank of Latvia grew 4.8 times. Hence, the efficiency of the system's settlement fund use (the share of funds used for settlements in the accounts balance) declined from 85.9% in the first half of 2004 to 35.2% in the second half of 2005 (see Chart 58). From the viewpoint of system's settlement efficiency, the efficiency of settlement funds in the SAMS diminished, whereas in the context of financial stability, the smaller the settlement funds' efficiency ratio, the lower the risk in the system that a participant may have insufficient funds for executing settlements.

Chart 58

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

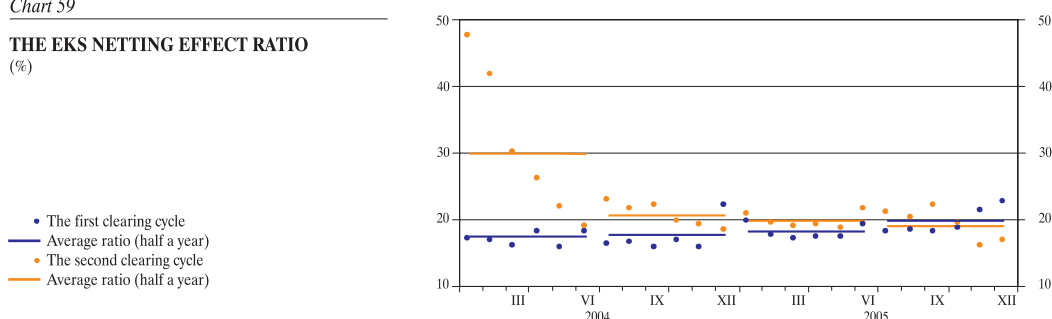
- Monthly ratio
- Monthly ratio (increased reserve requirements)
- Half a year ratio



The efficiency of the settlement fund use 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 transaction value. In the second half of 2005, the netting effect ratios of the first and second clearing cycle were 19.9% and 19.1%, respectively (see Chart 59). This suggests that the netting effect was low in comparison with the systems of other EU countries. However, as the EKS participants' net debit positions were minor in comparison with the balance on the Bank of Latvia accounts (on average 4.3%), the low netting effect created no additional liquidity risk in the system. The comparatively low netting effect in the EKS was due to imbalanced cash flows on the specific dates related to bank customers' tax payment due date, pension or social benefit payments. In the context of financial stability, however, the smaller the settlement fund efficiency, the more contained the systemic risk in the system.

Chart 59

#### THE EKS NETTING EFFECT RATIO (%)



**In 2005, the impact of several participants of the Bank of Latvia's payment systems on the continuous operation of systems and the probability of a domino effect in the system or for the system's participants in crucial moments of operation was assessed within the framework of oversight.**

To assess the probability of a domino effect in the SAMS and the EKS, the potential impact of some most significant system's participants on other participants' capability to fulfil their obligations in the system was analysed. The simulation of the system's operation involved a theoretically possible case where liquidity problems might be incurred by a participant of the system or it would be impossible to make settlements in the system for any other reason. The simulation was based on days with a high debit turnover concentration with respect to individual participants of the system or a relatively large turnover balance on the debit side.

The simulation of the system operation confirmed that the liquidity problems of one participant in the system would not create liquidity problems for other participants of the system. This indicates that the probability of systemic risk is very low. This can mainly be explained by high settlement account liquidity, which meant that the participants' daily debit turnover was mostly lower than the account balance.

**Within the framework of oversight, the Bank of Latvia assessed the FDL as a retail payment system in accordance with the ECB guidelines, and acknowledged it to be a systemically prominent system.**

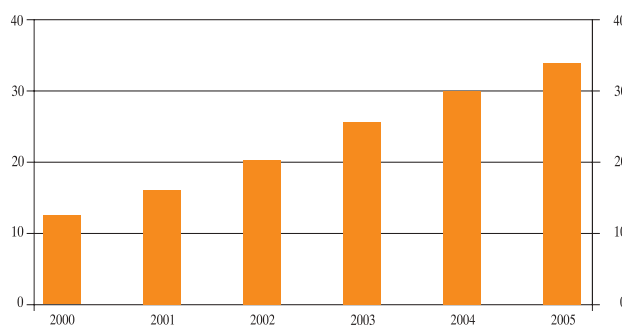
The volume of payments made by payment cards rose 6.2 times (value – 4 times) since 2000. Their importance is continuously increasing on the market of customer cashless payment instruments, accounting for 33.9% of the number of customer cashless payment instruments in 2005 (see Chart 60).

In Latvia, payment cards are issued by almost all banks as well as a number of companies, mainly fuel companies issuing single purpose retailer cards and servicing payments executed by these cards.

Chart 60

**THE SHARE OF CARD PAYMENTS  
IN THE SYSTEM OF CUSTOMER CASHLESS  
PAYMENT INSTRUMENTS  
(%)**

— Payments by payment cards



An oversight and assessment of the payment card infrastructure is conducted, as in the event of disruptions in the system (for instance, if the holder of the payment card would not be able to make payments by card or withdraw cash from ATM) the payment card holder's confidence in the payment card as a payment instrument would be materially affected. These incidents would arouse customer mistrust in electronic payment instruments as a whole.

Pursuant to the ECB guidelines, a system is deemed systemically important, if it is the sole system in the country or the main system according to the value of payments in a particular payment segment. The technical specifications of a retail payment system may differ from those of other systems, hence the payments may not always be executed by using other systems. If it is the only system or a widely used system and has no alternative or if it occupies a large market share (more than 75% of the respective retail payment market), its problems may cause disturbances in the system. If a system occupies more than 25% of the market, it is deemed a systemically prominent payment system. In the event of problems, it may have no material impact on the financial stability in the country, however, if it covers a large number of customers, an additional attention is paid to its oversight.

Several retail payment systems operate currently in Latvia. They, however, service diverse payment instruments and cannot replace one another. The EKS and the PNS process credit transfers, *Itella* has specialised in executing direct debits and the FDL services payment card transactions.

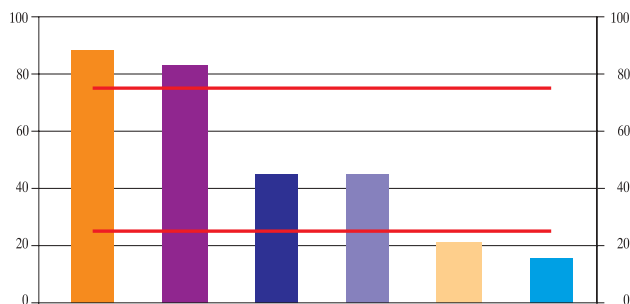
Card transactions: payments by cards, cash withdrawals from ATMs or credit transfers through ATMs may be authorised by a bank, if the particular transaction is performed by a bank card in a POS or ATM network of the same bank. At the end of 2005, four banks serviced their ATM networks in Latvia (61.9% of ATMs in Latvia and 64.9% of the bank payment cards). That meant that transactions could be performed by these cards in the ATMs of the respective banks without using the FDL. Transactions could be authorised and payments executed with payment cards issued by other banks and in other ATMs only via the FDL. Only two banks serviced their POS networks and cards. Transactions could be performed by the cards of these two banks in the respective POSs without using the FDL.

Overall, the FDL market share in card transactions complies with the systemically prominent payment system. Of all transactions by payment cards in 2005, 66.7% of the transaction volume and 53.8% of their value were processed in the FDL. Of payments executed by cards issued by the banks of Latvia, 88.1% of the payment volume and 83.4% of their value were processed via the FDL, exceeding the limit of systemic importance (see Chart 61). The share of volume and value (44.9% and 45.1%) of cash withdrawals from ATM processed in the FDL meets the requirements for a systemically prominent system, as its market share exceeded 25% of the respective market. Individuals, in turn, make transfers from the ATMs of their banks, hence the importance of FDL is irrelevant in these transactions (the market share of FDL – 21.1% of the transfer volume and 15.7% of their value).

Chart 61

**THE FDL MARKET SHARE IN CARD  
TRANSACTIONS**  
(%)

■ Payments by cards (volume)  
■ Payments by cards (value)  
■ Withdrawals from ATMs (volume)  
■ Withdrawals from ATMs (value)  
■ Credit transfers via ATMs (volume)  
■ Credit transfers via ATMs (value)  
— Ratio stipulated by the ECB



Upon assessing financial risks, a system is deemed systemically important pursuant to the ECB guidelines if its turnover exceeds 10% of a local large-value system or 10 billion euro daily. The daily average card transaction amount processed by the FDL was 6.8 million lats (4.7% of the daily average turnover of the SAMS in 2005), hence the FDL created no financial risks in the system and is not considered a systemically important system.

Upon a more detailed analysis of financial risks, the payment concentration in the system and netting effect are also assessed. In 2005, the share of five banks in the FDL accounted for 89.3% of the transaction volume and 80.9% of their value for all FDL card transactions performed in Latvia by cards issued in this country, thus pointing to a high domino effect risk. While the average netting effect of the FDL was 11.0%, which confirms the high efficiency of system, however taking into account that the turnover of the FDL equals only 4.7% of that of the SAMS, it may be assumed that the system creates no financial risk to the payment system of Latvia.

**Given the system's small volumes, the FDL is not a systemically important system and causes no financial risks to Latvia's payment system. However, in view of the fact that it can hardly be substituted in card payments and disruptions in the system's operation could impact a wide range of customers, the system is deemed to be a systemically prominent system and hence the respective oversight criteria and principles will be applied.**

## 11. SECURITIES SETTLEMENT SYSTEMS

**The Bank of Latvia performs oversight of the operation of DENOS, the LCD securities settlement system and the VNS, the Bank of Latvia's securities settlement system as they both are systemically important.**

The Bank of Latvia has a vested interest in uninterrupted operation of securities settlement systems and stability of the securities market. Firstly, one of the tasks of the Bank of Latvia under the Law "On the Bank of Latvia" is to promote smooth operation of the payment systems in Latvia. Since part of payments are related to securities settlements, problems in the securities settlement infrastructure may mean problems in the payment system operation. Secondly, pursuant to the above Law, the Bank of Latvia may grant loans to credit institutions only against adequate securities collateral.

On the basis of the above, the Bank of Latvia conducts oversight of the securities settlement system operation in Latvia. The Bank of Latvia performs oversight of both systems registered in Latvia, thus considerably reducing the systemic risk on the Latvian financial market. The operation of the DENOS is important mostly due to the settlement of transactions concluded at the RSE as well as the settlement for primary placement and redemption of Latvian government securities, whereas

the importance of the VNS operation stems from its relation to the settlement of the monetary policy operations of the Bank of Latvia.

As part of the oversight of each system the Bank of Latvia helps the system operator and its participants to become aware of the potential risks related to securities settlement and suggests ways of containing these risks. The Bank of Latvia applies the same oversight core principles to both systems. The Bank of Latvia is the sole institution performing oversight of the systems registered in Latvia.

**As of July 2005, the LCD executes settlements for all primary market transactions with Latvian government debt securities.**

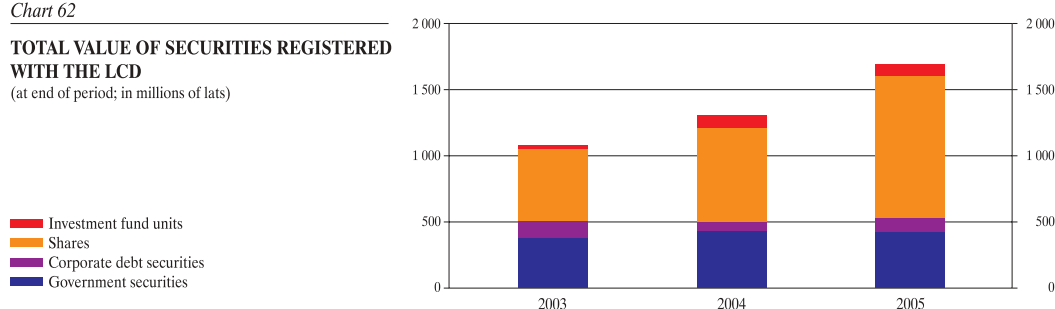
According to the agreement between the Treasury, the Bank of Latvia and the LCD, all primary placement tenders of government securities are organised by the RSE while settlements related to primary placement, payment of interest income and redemption of government securities are executed by the LCD. The new procedure for securities primary placement enables the Treasury to attract the necessary lats resources more effectively and rapidly. Moreover, a wider range of investors may take part in these tenders now. In view of the fact that the number of large value transactions with government securities has increased, the restructuring of this market further supports the importance of the DENOS in the Latvian securities settlement infrastructure.

**In 2005, the overall value of securities registered with the securities settlement systems expanded. Along with the securities market development, the securities turnover within the LCD settlement system continued to expand in 2005, while decreasing considerably within the securities settlement system of the Bank of Latvia due to the low demand for credit resources offered by the Bank of Latvia.**

All publicly traded securities issues (including the securities kept in the VNS) are registered with the LCD. In 2005, the overall value of securities registered with the DENOS reached a record high (1 687 million lats), increasing by 33% year-on-year. Shares account for the largest part (64%) of the total value (see Chart 62).<sup>17</sup>

Chart 62

**TOTAL VALUE OF SECURITIES REGISTERED WITH THE LCD**  
(at end of period; in millions of lats)



The value of securities kept in the securities settlement system of the Bank of Latvia was 326 million lats at the end of 2005 (see Chart 63). Latvian government bonds purchased by the VNS participants both for the purpose of investment and use as a collateral in transactions with the Bank of Latvia accounted for the largest share (82%).

Along with further development and growth of the Latvian securities market in 2005, the securities turnover in DENOS expanded by 9% (see Chart 64). The largest share of DENOS turnover is on account of FOP settlements (mostly settlements of large-value transactions on the over-the-counter market).

<sup>17</sup> Hereinafter, shares listed on the stock exchange and open-end investment fund units have been evaluated as per their market value, the value of shares of insolvent issuers is zero, while other securities are evaluated as per their nominal value.



Chart 63

**TOTAL VALUE OF SECURITIES KEPT IN THE VNS**

(at end of period; in millions of lats)

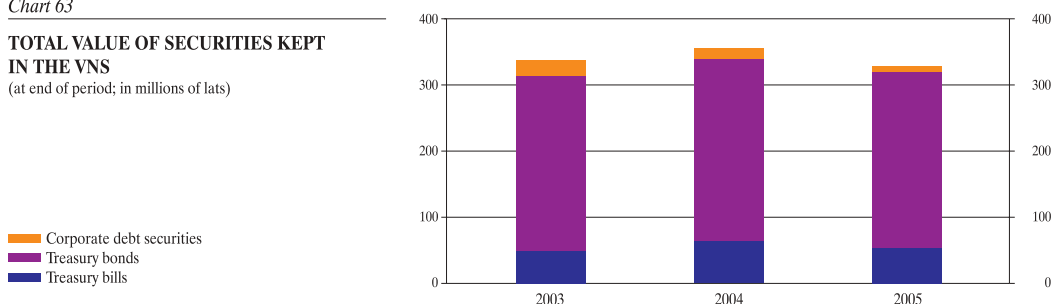
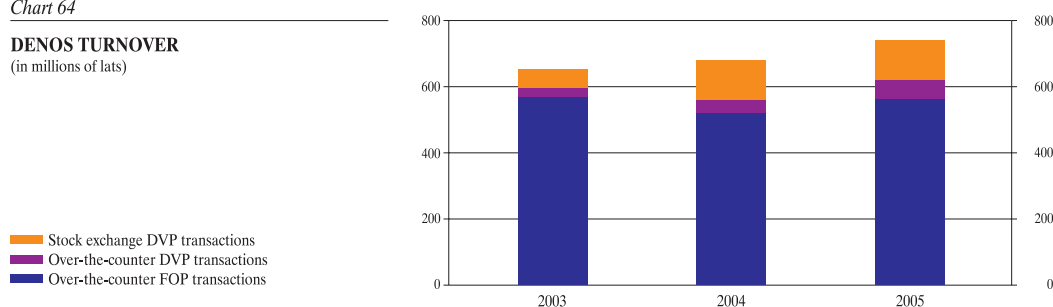


Chart 64

**DENOS TURNOVER**

(in millions of lats)

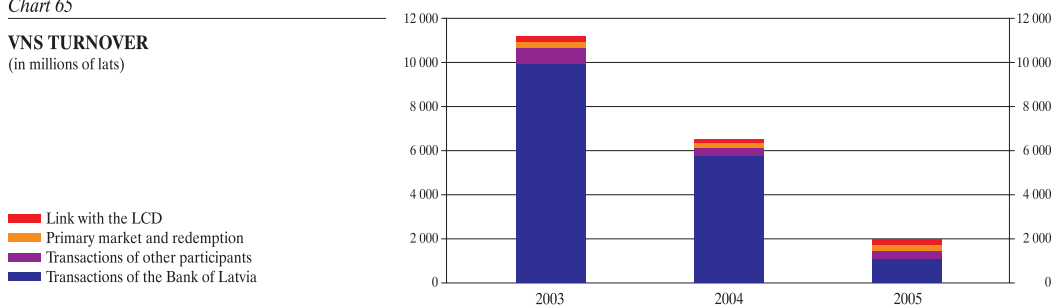


The VNS has been historically developed as a securities settlement system for settlements of the Bank of Latvia monetary policy operations. At the same time it also explains the significant turnover (see Chart 65), although in 2005 the VNS turnover posted a year-on-year decrease of several times: due to the improved liquidity conditions of the banking sector, credit institutions had no need to take part in the credit operations organised by the Bank of Latvia.

Chart 65

**VNS TURNOVER**

(in millions of lats)



Most part of the VNS turnover traditionally was on account of transactions conducted by the Bank of Latvia, followed by mutual transactions of the VNS participants. In view of the restructuring of the government securities settlement, the settlement value for securities redemption in the VNS is expected to decline.

**The risk containment measures in the securities settlement systems of the LCD and the Bank of Latvia ensure smooth securities settlement. To prevent credit risk in securities settlement, the DVP principle and the RSE Guarantee Fund are in place, and the containment of liquidity risk is ensured by the net settlement cycle.**

Within the LCD system, the DVP principle is applied in settlements for transactions concluded on the RSE and for some transactions concluded on the over-the-counter market while in the VNS system it is used in the settlements of the Bank of Latvia's transactions with other participants of the system.<sup>18</sup> Persistent credit

<sup>18</sup> For some transaction types of the Bank of Latvia, e.g. granting Lombard loans, securities are pledged and hence securities ownership is not transferred, therefore the DVP principle is not applied.

risk can be detected in the settlement of other transactions, e.g. in FOP securities transfers where securities settlements are executed independently of cash settlements. FOP transactions are usually conducted by those securities market participants who evaluate counterparty credit risk as low. According to the compiled statistical data, in 2005 FOP transactions (turnover) in the LCD and the VNS systems accounted for 76% and 33%, respectively, suggesting that credit risk in securities settlement still persists.

Securities may be transferred from one securities settlement system to the other via links. All securities transfers between the DENOS and the VNS are FOP. The link between the systems is mostly used for transferring securities within one institution (majority of Latvian credit institutions participate in both systems), without making cash payments in the central bank. In 2005, of the 23 banks and foreign bank branches registered in the Republic of Latvia, 22 were participants in the VNS and 15 participated in the LCD.

When executing settlements in the LCD for the transactions concluded in the RSE trading system, the key settlement principle used is the one based on net securities and cash positions, considerably reducing the probability of liquidity risks. Where a participant is not able to make settlements for its net position, funds accumulated in the RSE Guarantee Fund are used for the transactions concluded in the RSE trading system. During the ten years of the RSE operation, funds of the Guarantee Fund have been used merely on a few occasions, the reason being participant errors due to inaccuracy. When conducting settlement for over-the-counter transactions in the LCD, the principle of gross settlement is applied.

Settlements in the VNS are executed only on a gross basis, hence settlement participants have to reserve full amount of securities prior to the transaction. In the event of shortage of securities, participants of both the LCD and the VNS may conduct mutual borrowing and lending transactions of securities.

**In Latvia, the risk regarding the safekeeping of securities is minimal as Latvian legislation provides both for accounting of securities in book-entry form and keeping the securities held by securities custodians and those owned by customers separately. Cash settlements for securities transactions concluded in lats are executed via the SAMS.**

Pursuant to the Republic of Latvia legislation, securities held by securities custodians and those owned by customers must be accounted for separately, and creditor claims on a securities custodian may not be offset by securities owned by customers, inter alia also in case the custodian is insolvent. In Latvia, credit institutions and investment brokerage companies may operate as securities custodians, and they are supervised by the FCMC.

Where cash settlements for securities transactions are executed by a bank, market participants may incur cash settlement risk – a possibility that the cash settlement agent will default on the payment or delay it. In Latvia, cash settlements for transactions concluded in lats are executed via the SAMS. At this stage, cash settlements for securities transactions concluded in foreign currency are executed by a credit institution with a high credit rating.

**In Latvia, operational problems in securities settlements are rare. System operators take appropriate measures to prevent operational risks.**

Experience shows that in the event operational problems occur in the systems of the LCD or the Bank of Latvia, they are solved promptly. Although some short disruptions in the operation of Latvian systems were detected in 2005, that did not leave a material impact on the securities market participants.

**The Latvian laws and regulations regarding securities settlement systems meet the EU requirements and market participant interests.**

Along with Latvia's accession to the EU, significant measures were taken to improve the legislation and the payment and settlement environment. The Law "On Settlement Finality in Payment and Financial Instrument Settlement Systems" drafted in accordance with the Directive 98/26/EC of the European Parliament and of the Council "On Settlement Finality in Payment and Securities Settlement Systems" took effect on May 1, 2004. Hence since May 2004, the Latvian laws and regulations regarding securities settlement meet the international requirements and practice.

Prior to their approval, LCD regulations are agreed with the FCMC and the Bank of Latvia. Subject to prior consultations with market participants, LCD and VNS regulations were amended in the first half of the year. Amendments took effect in July 2005 along with the above restructuring of the government securities market.

**The probability of Latvian securities settlement systems incurring systemic risk is minimal.**

Systemic risk in the securities settlement infrastructure may manifest itself when default of one settlement participant results in problems to other market participants. This risk may be caused by any of the above risks or mutual interaction of several of the above mentioned risks.

To assess the importance of the effect of such risks, it is necessary to perform a more detailed analysis of system participant transactions by value. According to statistical data, in 2005 the largest transactions by value relate to the Bank of Latvia transaction settlements in the VNS, therefore relevant regulations of the Bank of Latvia provide for measures to prevent settlement-related risks. Thus at this point the probability of incurring systemic risk in Latvia would be assessed as insignificant.