

Eesti Pank

# FINANCIAL STABILITY REVIEW

**1**/2016

The Eesti Pank Financial Stability Review is published twice a year. Each issue of the Review refers to the time the analysis was completed, not to the period it covered. The Review uses the latest available data at the time of preparation of each issue.

The Review is available to read at: <http://www.eestipank.ee>.

Copies can be ordered by telephone on +372 668 0998, or by fax on +372 668 0954

or by email from [trykis@eestipank.ee](mailto:trykis@eestipank.ee).

ISSN 1736-1281

Layout and design Urmas Raidma

Printed by Folger Art

# CONTENTS

FINANCIAL STABILITY ASSESSMENT .....	4
1. FINANCIAL MARKETS .....	8
1.1. The international financial environment .....	8
1.2. Estonian financial markets.....	10
1.3. Market-based financing of banking groups.....	10
2. ABILITY OF COMPANIES AND HOUSEHOLDS TO REPAY LOANS .....	15
2.1. The loan repayment ability of companies.....	15
Box 1. Lending between companies .....	17
Box 2. Risks to financial stability stemming from companies most affected by energy prices.....	18
2.2. The loan repayment ability of households.....	20
2.3. The real estate market .....	21
3. THE STRENGTH OF FINANCIAL INSTITUTIONS .....	24
3.1. Banks.....	24
Box 3. Assessment of the need for a countercyclical capital buffer .....	26
Box 4. Forecast and stress test of overdue loans in the banking sector .....	32
Box 5. Setting the rates for the systemic risk buffer and buffers for other systemically important institutions .....	34
3.2. Insurance companies.....	35
4. SYSTEMICALLY IMPORTANT PAYMENT AND SETTLEMENT SYSTEMS .....	38
4.1. Risks to the payment and settlement systems and the oversight assessment .....	38
APPENDIX 1. THE EFFECT OF LOAN GUARANTEES FROM KREDEX ON THE ESTONIAN HOUSING LOAN MARKET .....	40
APPENDIX 2. THE CHALLENGES OF A CHANGING ENVIRONMENT NEED BANKS TO REINVIGORATE THEIR BUSINESS MODELS.....	43
APPENDIX 3. THE IMPACT ON ESTONIAN FINANCIAL STABILITY OF THE RISKS TO THE NORDIC BANKING SECTOR BEING REALISED .....	48

## FINANCIAL STABILITY ASSESSMENT

The international financial environment became less confident at the start of 2016. Doubts about the outlook for global growth led to increased volatility in international securities markets and falls in the prices of financial assets. With commodities prices remaining low for a long time and inflation very low, central banks maintained their position of using accommodative monetary policy to support inflation and GDP growth. At the same time, the activities of banks in several European Union countries are continuously being affected by the problem assets that appeared at the time of the global financial crisis, and more and more by the combination of weak economic growth and low monetary policy interest rates.

There has been no reduction in the main risks to the stability of the Estonian financial sector, which arise from imbalances in the Swedish economy and from the funding of the large Nordic banking groups. Relatively strong growth continued in Sweden and the loose monetary policy environment saw rapid growth in loans with real estate as collateral and in real estate prices. Macprudential supervisory institutions in the Nordic countries have put in place measures to support the resilience of the banks, but this has not slowed the build up of risks in Sweden. Although the larger banking groups in the Nordic countries are well capitalised by international standards, their capital buffers have not particularly increased as a ratio to total assets while risks have been increasing, and in international comparison they are around the average.

The ability of Estonian companies and households to repay their loans remains good. Rapidly rising incomes have led to increased demand for loans from households. However, indebtedness remained at the same level for the second consecutive year and the coverage of debt liabilities with liquid assets increased further. Corporate results worsened further in the second half of 2015 though because of weak demand for exports and the continuing rapid rise in labour costs. Investment activity was sluggish, and so demand from companies for loans did not increase. Although sales turnover was down, companies managed to increase their liquid

assets. This means that the borrowing capacity of companies and households is being supported both by larger liquidity buffers than before and by low loan servicing costs, and also by the continuing rapid rise in household incomes.

Together with the rise in real estate prices, construction of residential property picked up, and increased supply restrained the growth in average prices in the second half of 2015. Demand for dwellings has been aided in recent years by relatively fast growth in wages, a labour market that favours households, and low interest rates, while credit growth has remained moderate. Alongside residential property, office and retail space is being developed at quite a rapid rate. The bigger banks remained fairly conservative in lending for real estate development however, and the volume of loans to real estate companies has not increased faster than volumes to other companies. However more has been lent to real estate companies by companies in other sectors than was the case before, which means that exposure to risks in the real estate market could affect businesses more broadly.

The resilience of the banks to risks remained strong. The portfolio of loans and leases was up around 5% over the year in 2015 and its quality remained generally good. The funding of the banks was mainly supported by growth in domestic deposits. The banks kept a high level of liquid assets and new liquidity requirements that started to apply from the start of 2015 will help to ensure that banks maintain their liquidity. The capital buffers of most banks increased last year and the share of CET1 capital was very large at the end of the year, standing at 35% of risk weighted assets for the banks on a consolidated basis. Although the low rate of base interest rates put pressure on the income of the banks, improved cost effectiveness means this has not really yet affected the return on assets, and profitability remained high by international standards. Weak GDP growth and low interest rates and additional legal requirements for the banking sector mean that banks will probably continue to make changes in their business operations.

## Risks to financial stability

Most of the risks to Estonian financial stability are small in the near future. Although there is a lot of uncertainty coming from the external environment, the risks are reduced by the financial buffers of the companies operating in the financial sector, the relatively good finances of households, and the high levels of equity in the banking sector.

The Eesti Pank assessment of financial stability for spring 2016 sees three main risks:

1. **The profitability of Estonian companies continues to be reduced by weak foreign demand and rapidly rising labour costs. This could weaken the ability of companies to repay their loans and thus worsen the loan quality of banks.**

The financial results of Estonian companies will continue to be affected in the foreseeable future by an unpromising outlook for exports and rapidly rising labour costs. In the first months of this year the economic activity in the euro area has proven weaker than expected and the March forecast of the European Central Bank concluded that growth in 2016 will be lower than was earlier foreseen. This means that the support from external demand for faster economic growth in Estonia will remain modest in the future. At the same time there was no reduction in the speed of growth of labour costs in 2015 and wage pressures are expected to remain strong for companies. The joint effect of these factors may worsen corporate results in future too and reduce the capacity of companies to repay their loans.

The uncertainty around GDP growth picking up and the weakness of demand for exports have led companies to reduce their investments. The funds left unused because investment activity has been sluggish have been used by companies to increase their liquid assets. Together with low loan servicing costs, this is supporting the ability of companies to repay. Investments remaining small in conjunction with labour costs rising faster than productivity could reduce the long-term growth potential of the economy and the competitiveness of companies, and through that, financial stability.

2. **A deterioration of financing conditions in financial markets for the Nordic bank groups could increase the liquidity risks of the banks operating in Estonia and risks to the financing of the economy. Reduced economic activity in the Nordic countries would have a negative effect on the income of Estonian exporters and their ability to repay loans.**

Risks to the Nordic economies come primarily from the heavy indebtedness of households, rapid rises in real estate prices and the large share of their funds that the banks get from the markets. The high indebtedness of Nordic households poses the danger that households will cut consumption if property prices fall or if interest rates rise and loan servicing costs increase. Reduced consumption will impact the revenues of companies and their ability to pay their loans, which would hurt the loan quality of the banks. Swedish bank groups are made vulnerable to a deterioration in credit conditions by the large share of market-based financing in their total financing. If international investors were to reassess the risks to the Swedish economy or banks, the financing conditions for the banks could change quickly and substantially.

The Estonian financial sector is exposed to the risks coming from the Nordic countries as those countries, led by Sweden and Finland, are Estonia's biggest trading partners. If the risks stemming from the imbalances in the Swedish economy were to be realised, it would reduce the income of Estonian exporters and weaken their ability to repay their loans. The vulnerability of the Estonian economy to the risks coming from the Nordic countries has increased in recent years as they have taken a larger share in the structure of Estonian exports than before. The content of the goods being exported from Estonia to Sweden indicates that import demand for Estonian goods is largely dependent on global demand, and on the general confidence that affects the investment decisions of Swedish companies. Any change in Swedish domestic consumption, however, would have a notable impact on demand for the output of Estonian exporting companies and on economic activity in the whole Nordic and Baltic region.

On top of this, the Estonian financial sector is vulnerable to risks from the Nordic banking groups, as more than 90% of the banks operating in Estonia are owned by large Nordic groups. Funds received from parent banks continue to account for a significant share, estimated at around one fifth, of the financing of banks operating in Estonia. The liquidity management of the biggest banks in Estonia is also closely linked with the parent banking groups, meaning that any possible financing or liquidity problems at the parent banks could also affect the banks in Estonia. If the parent banking groups were to reduce their funding of the banks operating in Estonia when faced with a significant increase in risk, it could have a serious impact on the credit supply.

**3. Rising incomes and low interest rates may accelerate the rise in Estonian real estate prices, and the growth in housing loans and loans to real estate companies. This would make the banks more vulnerable to risks coming from the real estate sector.**

A slower rate of growth in real estate prices and increased supply reduced the risk of excessively fast growth in real estate prices and lending in the second half of 2015. At the same time there was no reduction in the factors that have boosted demand for residential property in recent years. Despite slowing a little, growth in average wages remains relatively fast and financial markets do not expect interest rates to rise from their current very low levels any time soon. New residential property should be added to the market in the years ahead, which should restrain the rise in real estate prices.

The growth in housing loans did accelerate in 2015, but it was still quite moderate and the lending conditions of the banks have remained fairly conservative. To reduce the chance of risks building up in the future and to be ready to mitigate them, Eesti Pank introduced requirements for issuing housing loans in March 2015. Exceptionally, the banks are permitted to issue loans with a higher loan-to-value ratio than the requirement if the borrower uses the loan guarantees extended by KredEx, which acts as part of the national housing policy. From March 2016 KredEx started providing new guarantee products aimed at promoting energy efficiency, which could increase the volume of housing loans even further. If it appears that the down payment made by borrowers starts to decrease and this increases the risks to the loan and real estate market too much, Eesti Pank can change the requirements and review the permitted exceptions.

**Measures to lower risks to financial stability**

On 1 January 2016 Eesti Pank introduced a framework for assessing the countercyclical buffer needed to reduce the risks from cyclical credit growth, and set the buffer rate at 0%. The countercyclical capital buffer is collected when the systemic risk from rapid credit growth is growing, and is released when the risk in the credit market has diminished. The additional capital buffers built up during the growth phase of the financial cycle can help banks to cover losses that may arise during periods of stress and to continue supplying credit to the real economy. Eesti Pank assesses the need for the countercyclical buffer each quarter and the need for macroprudential

**The main risks to Estonian financial stability**

The profitability of Estonian companies continues to be reduced by weak foreign demand and rapidly rising labour costs. This could weaken the ability of companies to pay their loans and thus worsen the loan quality of banks.	→→→
A deterioration of financing conditions in financial markets for the Nordic bank groups could increase the liquidity risks of the banks operating in Estonia and risks to the financing of the economy. Reduced economic activity in the Nordic countries would have a negative effect on the income of Estonian exporters and their ability to repay loans.	→→→
Rising incomes and low interest rates may accelerate the rise in Estonian real estate prices, and the growth in housing loans and loans to real estate companies. This would make the banks more vulnerable to risks coming from the real estate sector.	↓

Compared to the last assessment in October 2015, risks have increased (↑), stayed the same (→) or fallen (↓)



measures more broadly twice a year as part of the Financial Stability Review.

Although growth in the credit issued by domestic banks accelerated a little and there is a danger that low interest rates will encourage real estate prices to rise faster, the indicators do not suggest that the credit cycle is developing too fast. The December forecast from Eesti Pank found that the volume of credit growing faster than nominal growth in the economy is a temporary effect, and the ratio of domestic bank loans to GDP will remain below 80% for the next two years. If the Estonian income level is to harmonise with the euro area average in the longer term, some financial deepening is also to be expected. As there is no sign of pro-cyclical behaviour by lenders or borrowers, Eesti Pank finds that 0% is the appropriate rate for the countercyclical capital buffer in 2016.

The stability of the financial system can be threatened not only by dangers arising from the

financial cycle, but also by risks arising from the structure of the economy and the financial sector. Structural systemic risks can be reduced by additional capital requirements with the introduction of a systemic risk buffer and other systemically important institution buffers. The requirement has been in place in Estonia from 1 August 2014 for banks to hold a systemic risk buffer of 2% of their total risk exposure, so as to reduce the exposure of the Estonian economy and the risks from the structure of the financial sector.

Eesti Pank plans to replace the current 2% systemic risk buffer from the third quarter of 2016 with two requirements:

1. A systemic risk buffer of 1% of risk exposures located in Estonia; the buffer rate will apply for all banks and banking groups authorised in Estonia
2. An other systemically important institutions buffer of 2% of total risk exposure; the buffer rate will apply to Swedbank AS and AS SEB Pank.

**Table 1. The macroprudential measures of Eesti Pank**

Instrument	Rate	From
Systemic risk buffer	2% / 1%*	1 August 2014 / Q3 2016*
Other systemically important institutions buffer	2%**	Q3 2016**
Countercyclical capital buffer	0%	1 January 2016
Housing loan requirements***		
loan-to-value (LTV) limit	85%****	
debt service-to-income (DSTI) limit	50%	1 March 2015
maximum loan maturity	30 years	

\* Eesti Pank intends to lower the buffer rate from 2% to 1% from Q3 2016.

\*\* Eesti Pank intends to set at 2% the buffer requirement for systemically important credit institutions from Q3 2016.

\*\*\* The limits may be breached by 15% of the volume of housing loans issued each quarter.

\*\*\*\* Up to 90% for housing loans guaranteed by KredEx.

# 1. FINANCIAL MARKETS

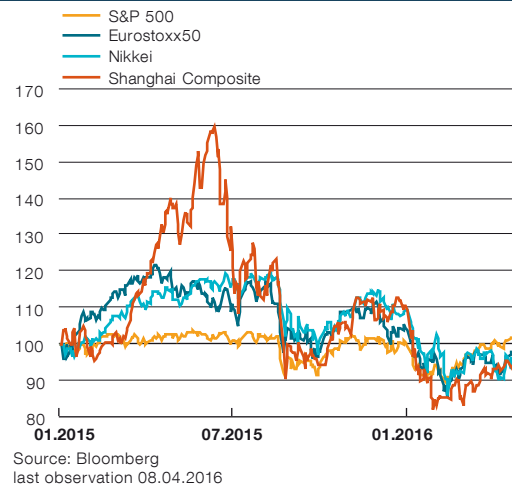
## 1.1. THE INTERNATIONAL FINANCIAL ENVIRONMENT

One factor affecting international financial markets in the second half of last year and the start of this was the accommodative monetary policy in many parts of the world, which contributed to the drop in interest rates in the money and bond markets of advanced economies. A second major impact came from the uncertainty about the sustainability of economic growth in China and worries about the possible impact of slower growth on the global economy, which led to increased volatility in the stock markets of developed countries. The Federal Reserve started to raise interest rates in the USA at the end of last year, but expectations for further rises have been put on hold because of the trends of development in the global economy and inflation. The appetite for risk was reduced further by the possibility that the United Kingdom might leave the European Union.

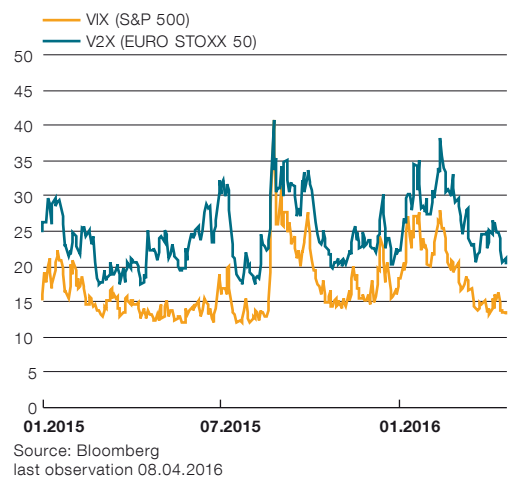
Economic indicators for China in the first months of this year pointed to a sharper slowing of growth than had been expected, and this led to significant volatility in the **stock markets** of advanced countries (see Figures 1.1.1 and 1.1.2). To calm the financial markets, China took steps that helped reduce the volatility and let the leading share indexes recover a little. However, the low oil price deepened the uncertainty about emerging economies that depend on exports of commodities and about the fortunes of energy companies. On top of this came a broadly based fall in the shares of the banking sector. The sentiment of market participants was affected by the exposure of the banks to emerging economies and energy companies, and also by the low levels of economic growth and the low interest rates, which together put pressure on the income of banks.

The profitability of the **European banking sector** was a little better in 2015 than in 2014, but it was still low. Data from the European Central Bank show the return on equity of the banks in the European Union averaged 7.8% at the end of the third quarter of 2015. The quality of assets remains poor and is improving very slowly

**Figure 1.1.1. Main stock indexes (1 January 2015 = 100)**



**Figure 1.1.2. Volatility indexes of stock markets in the USA and Europe**

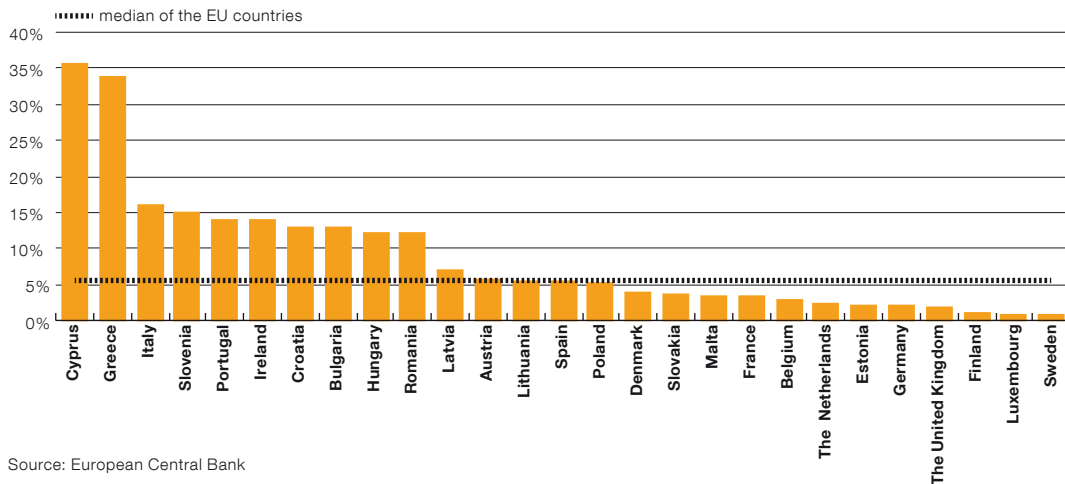


while economic growth is so slow. The assets of European Union banks that were overdue by more than 90 days accounted for 5.7% on average of total assets at the end of the third quarter, and less than half of this was covered by provisions. There are major differences in the quality of the loan portfolios in different countries though (see Figure 1.1.3). The large volume of problem assets limits the ability of the banks to lend and suggests that loan losses may increase in the future.

At the same time the banks in the European Union are more resilient than before in the face of risks because their capitalisation is stronger. The core equity tier 1 capital (CET1) of the European Union banks stood at 16% of risk-weighted assets at the end of the third quarter of 2015. Looking forward, profitability being lower than the cost of capital



**Figure 1.1.3. The share of non-performing assets in total assets in the EU countries as at 30 September 2015**

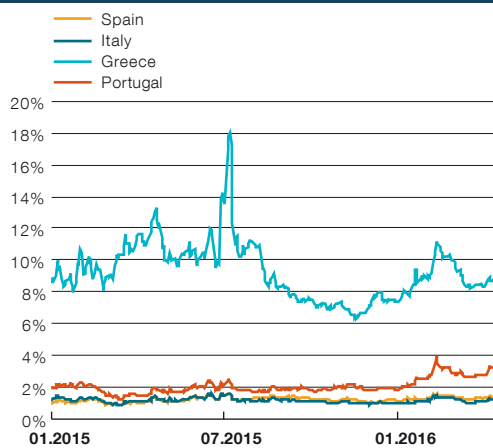


Source: European Central Bank

could damage the ability of the banks to increase their capital internally, raise the cost of funding for banks, or limit their access to financial markets.

Interest rates for the most part continued to fall in the **bond markets** of the euro area, which was largely the result of low inflation expectations and accommodative monetary policy, like before. At the start of the year doubts arose again about the sustainability of the sovereign debt of Greece and Portugal, and risk premiums increased (see Figure 1.1.4), but tensions lowered and risk assessments came down again following the decisions of the European Central Bank in March.

**Figure 1.1.4. Spread of ten-year government bonds of Spain, Greece, Italy and Portugal over Germany**



Source: Bloomberg  
last observation 08.04.2016

The main risks to the functioning of the **European financial sector** relate to a continued decline in the prices of financial assets and the low profitability of the banks. Although prices of a wide range of financial assets have fallen in recent months, they still remain in general higher than the long-term averages. Prices may be pushed down further by the low liquidity in some financial markets, which could become worse if stresses appear. The banks are made more vulnerable by the poor quality of the loan portfolio and the outlook for profitability is under pressure from weak economic growth and low interest rates. Other risks are the increase in the share of bad loans in some emerging markets and in sectors related to commodities. Connections between governments and banks are still a problem in some countries and could have a negative effect on the banks were there to be an increase in concerns about the sustainability of sovereign debt.

The development of international financial markets affects Estonian companies and households mainly through increased cost of funding or a reduced supply of credit. Should interest rates rise in money or bond markets, funding could become more expensive for the parent banking groups of the banks operating in Estonia and for companies that finance themselves in foreign financial markets, or accessing financial markets may become harder. Price changes in international financial markets affect not only financial intermediaries but also the value of the financial assets of companies and households and through that the profitability of the banks and the investment and consumption decisions of companies and households.

## 1.2. ESTONIAN FINANCIAL MARKETS

### Securities markets

The uncertainty about the global economy that affected stock markets around the world also affected the share prices of companies traded on the **Tallinn stock exchange**. The drop in prices was still relatively small next to those on other, larger, stock markets though (see Figure 1.2.1). In the second half of February prices turned upwards again and by the end of March the OMXT index had climbed to 8% above where it had started the year.

Trading activity did not change significantly in the first two months of the year and remained at around its average of 2015, but in March the daily average value of transactions reached 1.2 million euros, which is almost double the average for 2015.

The share of resident investors increased by 0.8 percentage point over the year and accounted for 61.6% of total market capitalisation at the end of March.

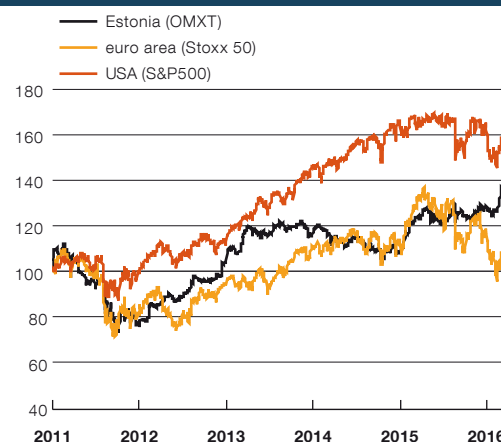
A total of 75 million euros of new **bonds** were issued in Estonia in 2015, which is similar to the amount issued in 2014. As a consequence of older bonds reaching maturity, the total volume of bonds on the bond market fell by 13% and at the end of the year stood at 573 million euros, or 2.8% of GDP.

As the local securities market is small in its volume and activity levels, it has only a limited impact on financial stability in Estonia.

### Investment and Pension Funds

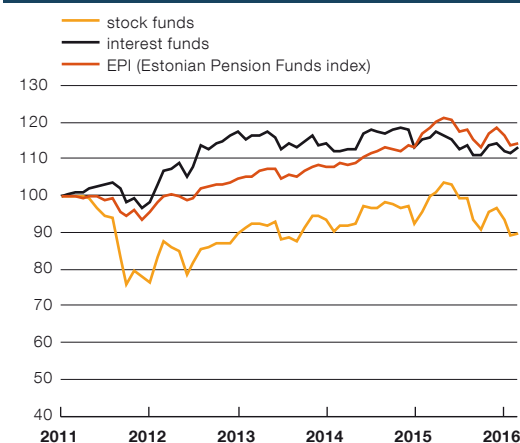
Falling prices on global securities markets also affected the returns of Estonian **funds**, especially those investing in shares (see Figure 1.2.2). The average net value of units in share funds was 10% lower at the end of February than a year earlier and the net value of units of funds investing in bonds was down 2.4%. The EPI index, which shows the overall returns on pension funds, was 3.9% lower at the end of February than a year earlier.

Figure 1.2.1. OMXT and other indexes (31 December 2010=100)



Sources: Bloomberg, Eesti Pank calculations

Figure 1.2.2. Average net asset value of funds and the EPI index (31 December 2010=100)



Source: Eesti Pank

The volume of investment fund assets shrank over the year by 6% to 584 million at the end of February due to falls in the value of the investments and to payouts. The assets of pension funds grew by 11% over the year in contrast because of contributions paid in and reached almost 2.8 billion euros at the end of February.

## 1.3. MARKET-BASED FINANCING OF BANKING GROUPS

### Financial strength of the groups of parent banks

Growth in the Nordic economies again varied from country to country in 2015. Swedish growth was among the fastest in the European Union, but it was largely based on domestic consumption

and real estate investment. Growth in the Norwegian economy was put under pressure by low commodities prices. The Finnish economy started to grow again having been in recession for three years, but the growth was only weak.

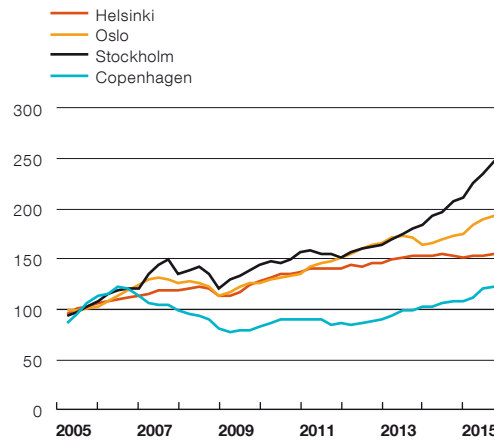
The central banks passed additional measures because of low inflation. The Swedish central bank cut its repo rate this February to a record low of -0.50% and is continuing to buy sovereign debt. Banks in Norway earn a fee for keeping deposits at the central bank up to the compulsory amount, but beyond that an interest rate of -0.50% applies. The interest rate on the standing deposit facility at the Danish central bank is -0.65%.

The measures taken by the central banks are mainly aimed at supporting investment by companies. Limits on supply have meant however that the measures have also favoured household indebtedness and continuing rises in real estate prices. Demand remaining strong has led real estate prices and volumes of housing loans to rise fast in Sweden, the home country for the biggest banks in Estonia (see Figures 1.3.1 and 1.3.2). **In consequence, the risks around household indebtedness and real estate prices have increased further.**

The main risk with **high household indebtedness** is that a drop in household disposable income or in confidence could lead to a weakening of domestic demand. This would then have a negative effect on companies and probably also on asset prices, and this effect could then be passed on through this to credit institutions. A weaker economic environment and increased loan losses could lead risks to be reassessed, raising the price of funding. This risk would be exacerbated by the use by Nordic banks of securities backed by real estate collateral for a significant part of their funding. Although banks are affected by the credit risks from housing loans with a lag, their loan portfolios would experience significant consequences were these risks to be realised, because of the large share of housing loans in the portfolios (see Figure 1.3.3).

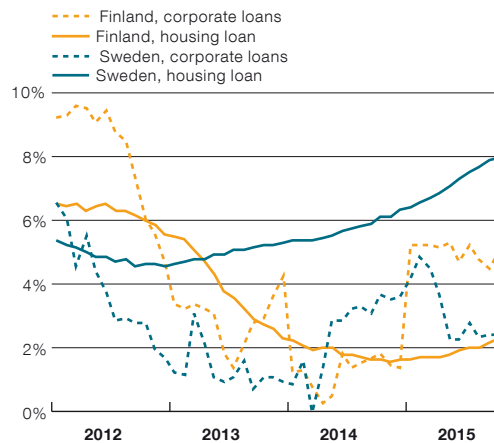
**The profitability of the largest banks in Sweden has still remained strong despite**

**Figure 1.3.1. Prices of apartments in Nordic capitals (2005 = 100)**



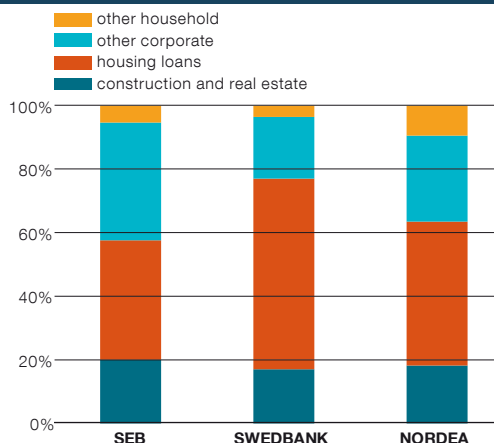
Sources: National statistics offices, Valueguard, Real Estate Norway, Eesti Pank calculations

**Figure 1.3.2. Annual growth in bank loans**



Sources: European Central Bank, Statistics Sweden, Eesti Pank's calculations

**Figure 1.3.3. Loans to the non-financial sector**



Source: Public reports of banking groups

**interest rates being negative**, and the return on equity of the largest banks is above 12%. As they operate as universal banks, they earn a large share of their profits from fees and from trading, and the activity of their clients and the loan growth are reflected in higher service fee income. The low cost for clients of servicing loans has kept the write-down rate the lowest in the European Economic Area. The banks have also reduced their operating costs.

The joint effect of the banks' own assessments of their capital needs and the additional supervisory requirements has been to strengthen capitalisation. The figures for capitalisation are high by international standards, as Swedbank had **core equity tier one (CET1)** capital of 24% of risk-weighted assets at the end of the year, SEB had 18% and Nordea 16%. The ratio of **core capital to total unweighted assets** was still only 4-5% despite the low levels of growth, and this is closer to the international average (see Figure 1.3.4).

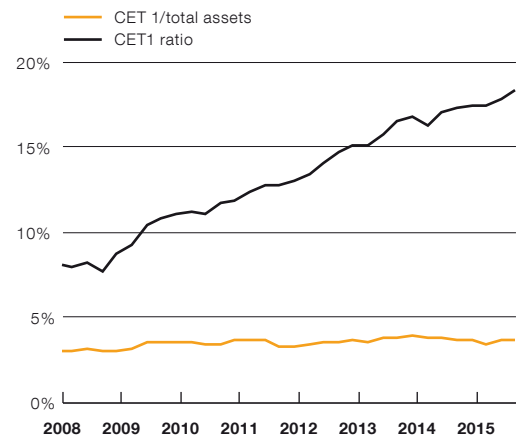
### Financing and liquidity of parent banks

The funding of Swedish banking groups is strongly market-based, making it vulnerable to changes in the risk assessments of investors. The conditions and prices of market-based funding have so far been quite favourable for the banks. The market interest rates on short-term covered bonds have been negative since the middle of 2015 (see Figure 1.3.5). Some banks have taken advantage of the market conditions to get advance financing for bonds with maturity in the future.

With prices falling on European stock markets in the second half of last year, the share prices of the Swedish banks are also down on the start of 2015, but by one third less than the average for the prices of shares in other European banks (see Figure 1.3.6). This suggests that market participants have seen the Swedish banks as less risky than others.

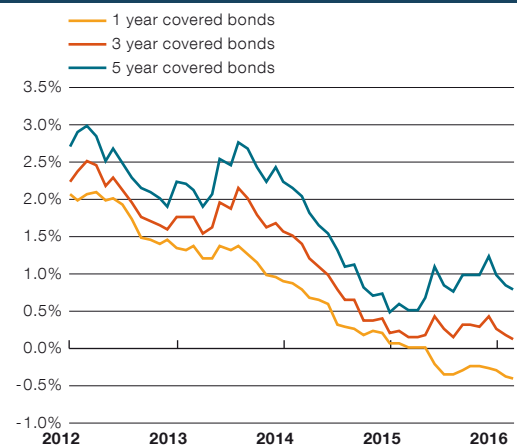
There are two main risks with the market-based financing of the Swedish banking sector, and if either or both were to be realised, the cost of funding could rise for the banks. The first and biggest risk is that real estate prices could drop sharply. This would directly affect the market

**Figure 1.3.4. The major banks' CET 1 capital ratios and CET 1 capital in relation to total assets**



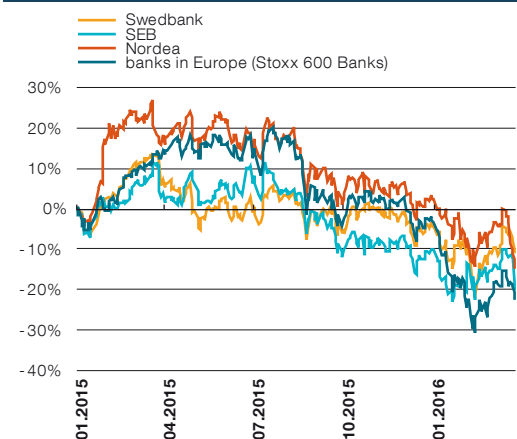
Source: Riksbank calculations

**Figure 1.3.5. Average bond yields of Swedish bank groups\***



Sources: Bloomberg, Eesti Pank calculations  
\*Swedbank, SEB, Nordea arithmetic average

**Figure 1.3.6. Changes in share prices of banks from the start of 2015**



Sources: Bloomberg, Eesti Pank calculations

interest rates on the covered bonds issued by the banks because of the fall in the prices of their collateral. This risk is reduced a little by the Swedish banking groups issuing covered bonds with a relatively high degree of over-collateralisation, which is 50% for most of the groups. Over-reacting market participants in nervous markets are not necessarily certain to take account of this however.

The second risk is that uncertainty may worsen and volatility could increase generally in the financial markets, which could raise the risk premiums demanded for the bonds issued by the banks. Investors have so far treated the bonds of Swedish banks as low-risk investments and demand for them has generally risen as assessments of global risks have increased. The effect of this risk on the cost and conditions of financing for the banks can be considered smaller than that of the first risk.

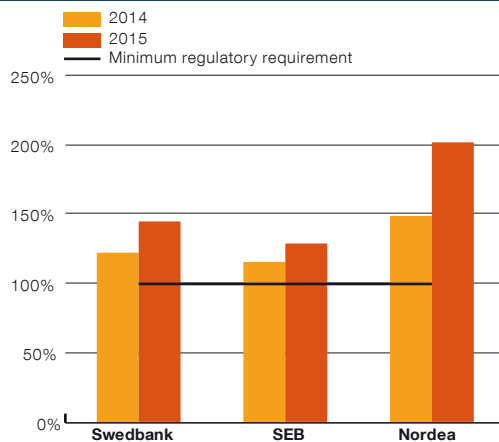
The liquidity of the Swedish banking groups has remained good and is supported by strong liquidity buffers. At the end of 2015 the banks exceeded the minimum liquidity coverage ratio of 100% with a large excess, both in overall terms and for the euro and the dollar separately (see Figure 1.3.7). The short-term liquidity coverage ratio for the Swedish krona has been quite low from time to time though. The Swedish central bank made a recommendation in the first half of 2014 that the lower limit on the liquidity coverage ratio for the krona should be set for the banks at 60%, but this recommendation has not been followed through yet. The banks themselves consider that they have sufficient buffers to meet their short-term liabilities should access to the financial markets be shut off completely. This gives grounds to say that the banks are not too vulnerable to liquidity risk.

### Macroprudential supervision measures

The Nordic countries have continued to introduce additional measures to reduce the build up of risks and increase the resilience of credit institutions.

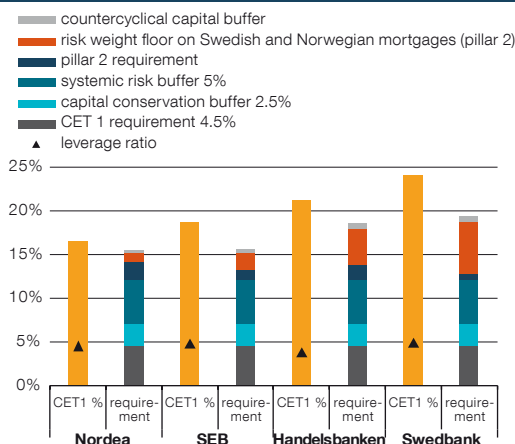
**Swedish** banks have to hold 2.5% of CET1 as a capital conservation buffer on top of the minimum

**Figure 1.3.7. Liquidity coverage ratio of Swedish banks**



Source: public reports of banking groups

**1.3.8. The CET 1\* capital ratios of the major Swedish banks and requirements in Q4 2015**



\* core equity tier 1 own funds  
Source: Swedish Financial Supervisory Authority

reserve requirement, and the larger groups are subject to a 5% systemic buffer requirement (see Figure 1.3.8). There is a further countercyclical buffer requirement of 1% that will be raised to 1.5% in June 2016 and to 2% in March 2017.

Besides these buffers, the banks are also subject to a risk weight floor to cover the risks from real estate loans for mortgages in Sweden and Norway. Risk assessments for corporate loans are also under review.

To reduce the share of interest-only loans, the Swedish supervisory authorities have announced plans to introduce a requirement for borrowers whose loan principal exceeds 70% of the value of their collateral to pay back at least 2% of the

principal each year as well as the interest, while borrowers whose outstanding loan is for 50–70% of the value of the collateral must reduce the loan principal by at least 1% each year. This is still only a recommendation for the banks, not a requirement, but if it is decided to extend the scope of supervision, such requirements could become binding on the banks as early as the second quarter of this year.

In **Norway** there is also a capital conservation buffer of 2.5% on top of the minimum requirement, and a 3% systemic risk buffer that will be raised to 5% for systemically important banks in July 2016. The countercyclical buffer requirement will be raised in June 2016 to 1.5%, and the principles for considering the risks from housing loans have been made stricter.

The requirements for systemically important banks in **Denmark** will rise gradually by 1-3 percentage points by 2019, depending on the risk category of each individual bank. The capital conservation buffer will rise to 2.5% by 2019.

Four systemically important banks have been identified in **Finland**, the two larger of which are subject to a 2% capital requirement and the other two to a 0.5% requirement. Finland has also started to regulate the loan-to-value (LTV) ratio, introducing a limit on LTV of 90% from July and 95% for first-time borrowers. Moves have also been made to reduce income tax deductions, and the share of interest expenses on housing loans that can be deducted from taxable income will be cut from 55% in 2016 to 25% in 2019.

## 2. ABILITY OF COMPANIES AND HOUSEHOLDS TO REPAY LOANS

### 2.1. THE LOAN REPAYMENT ABILITY OF COMPANIES

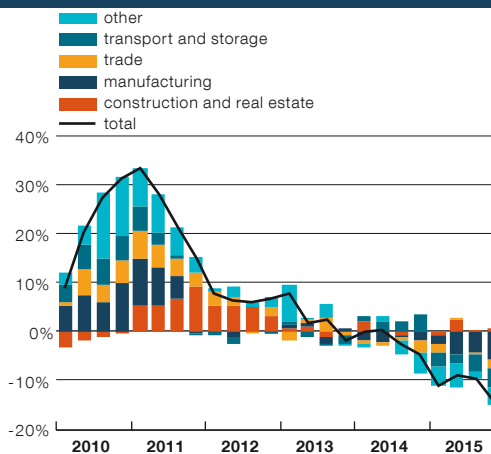
#### The general economic environment and corporate financial results

There continues to be uncertainty in the **external environment** and the difficult economic circumstances in several important trading partners for Estonia and the reduced demand for imports are dampening the ability of Estonian companies to export. Although the euro area economy grew by a relatively strong 1.6% in 2015, the figures for the start of this year have been weaker than expected, and the March forecast of the European Central Bank concluded that growth overall in 2016 will be lower than was earlier calculated.

Yearly economic growth in Sweden, Estonia's biggest trading partner, accelerated in the fourth quarter of 2015 to 4.5%. As Estonian exports to Sweden are largely inputs for Sweden's own exports, it was good for Estonian companies that Swedish exports increased together with domestic demand<sup>1</sup>. At the same time, the risk has again increased that imbalances in the economy will deepen in consequence of the expansionary monetary policy of the Swedish central bank.

The recession in Russia, where the economy was 3.8% smaller in the fourth quarter than a year earlier, and the depreciation of the rouble continue to restrict exports from Estonia and neighbouring countries. As the value added of trade with Russia is lower than the average, the direct impact on the Estonian economy of a reduction in exports is limited. At the same time, a large part of the decline in trade is passed on through intermediary businesses in wholesale trade and transportation and storage. Having shrunk for three years, the Finnish economy grew by 0.6% in 2015. There was faster growth of 2.7% in the Latvian economy and 1.6% in Lithuania, mainly thanks to increased private consumption.

Figure 2.1.1. Profit (operating surplus and mixed income) growth by sectors



Source: Statistics Estonia

**Growth in the Estonian economy** remained low in the second half of 2015, as GDP was 0.7% larger in the fourth quarter than a year earlier, and in the year as a whole it grew by 1.1%. Although private consumption grew a little more slowly, it still remains the main engine of growth. Weak demand in export markets and uncertainty about the future have reduced corporate investment, and this has in turn restricted GDP growth in Estonia. Exports were down for the third year in a row, mainly because of weak demand and some sector-specific shocks<sup>2</sup>. The price competitiveness of Estonian companies is also threatened by the depreciation of the Swedish krona and the Russian rouble and by rapidly rising wage costs.

The **results for Estonian companies** were mainly worse in the second half of 2015 and their sales turnover was down around 3% over the year. As wages continued to rise relatively quickly despite the slowdown, corporate profits fell by more than 10% (See Figure 2.1.1). Profits fell in most sectors, and fell most in transportation and storage and in manufacturing. The fall in profits in the manufacturing sector was primarily caused by a drop at large companies, while profits at companies with fewer than 100 employees actually increased.

<sup>1</sup> For more on the links between the Estonian and Nordic real economies and financial sectors, see Appendix 3.

<sup>2</sup> For more on the structure of exports and the reasons for the decline in exports see Box 4 of the Estonian Economy and Monetary Policy 1/2016 published by Eesti Pank.

## Payment capacity and financial status of companies

The stock of loans taken from companies in the Estonian financial and non-financial sectors increased by around 5% in 2015<sup>3</sup>. A simultaneous fall in borrowing from abroad meant though that the total debt liabilities of companies increased by less than 1%. **Indebtedness**, or the ratio of debt liabilities to GDP, declined slightly in 2015 to some 88% at the end of the year.

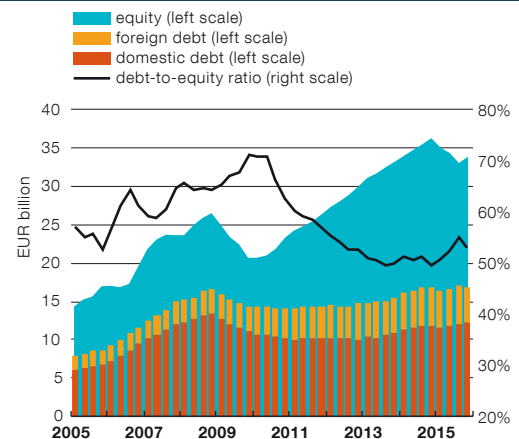
Lower profits and increased dividend payouts meant that corporate equity stopped growing, and in 2015 it shrank, raising the financial leverage of companies seen in the debt-to-equity ratio (see Figure 2.1.2). Profits earned earlier mean that despite falling a little, the level of corporate equity is still relatively high.

Investing less than before in fixed assets has made it possible for companies to increase their **liquid assets** relatively quickly from the cash flows freed up from investments, despite the fall in turnover. This increase has mainly been seen in rapid growth in deposits. The deposits held in banks operating in Estonia and abroad increased in 2015 by around 15% (see Figure 2.1.3). Growth in deposits also increased the coverage of debt liabilities by liquid financial assets. This suggests that low investment in fixed assets could have a short-term positive impact on financial stability. However, investments remaining small could reduce the long-term growth potential of the economy and the international competitiveness of companies, and through that could have a negative effect on financial stability. Increases in the solvency of companies and in their liquid assets are again being supported by the very low **base interest rates**, which mean that companies are spending a lot less on interest payments<sup>4</sup>.

3 For more on lending between companies see Box 1.

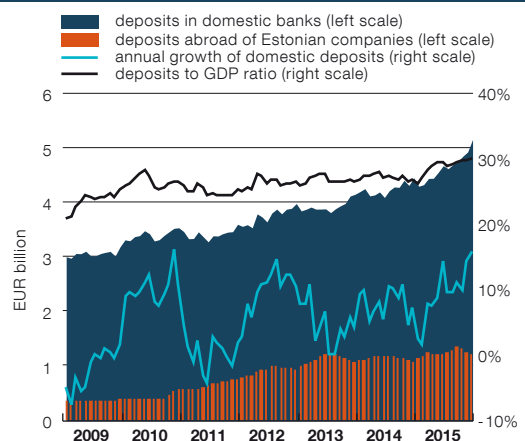
4 Although debt liabilities have increased in the meantime, the interest expenses paid on corporate debt liabilities in 2015 were an estimated 35 million euros less than in 2012 and 450 million euros less than in 2008. If the interest rate on all corporate loans were to be raised to the average level of the 6-month EURIBOR of the past ten years of 1.8%, the annual interest expenses would be some 250 million euros higher than at present.

Figure 2.1.2. Corporate sector debt and equity



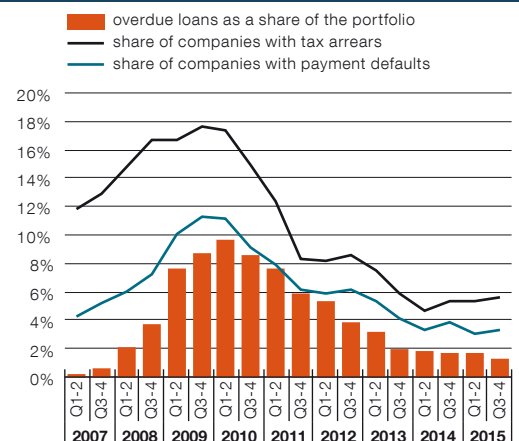
Source: Eesti Pank

Figure 2.1.3. Corporate deposits



Sources: Eesti Pank, Statistics Estonia

Figure 2.1.4. Payment behaviour of companies



Sources: Krediidinfo, Eesti Pank



### The payment behaviour of companies

The decline in company profits has not yet led to any great problems with payments. There was a slight rise in the second half of 2015 in the number of companies with **payment defaults and tax arrears**, but it still remains very low in comparison to the past ten years (see Figure 2.1.4). The share of companies with payment problems was again largest in accommodation and catering, construc-

tion, and manufacturing. The number of companies with tax arrears, which was the first indicator of payment behaviour to deteriorate during the last economic crisis, has risen most in the past couple of years for companies in manufacturing, agriculture, construction, and transportation and storage. The share of companies in those sectors with tax arrears is still not higher than it was at the start of 2007 though. The **number of bankruptcies** has fallen for six consecutive years and is very low.

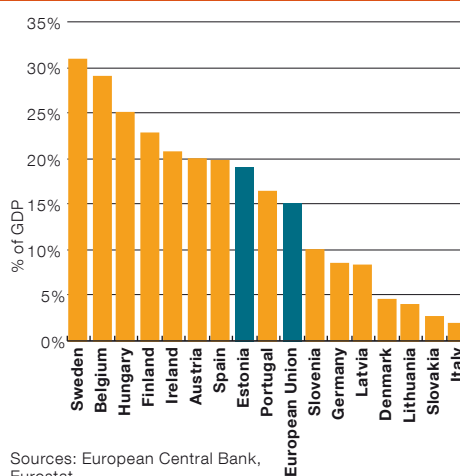
#### Box 1. Lending between companies

As well as borrowing from the financial sector and from abroad, companies in the real sector can also borrow from other non-financial companies. Lending between companies can increase the risks to financial stability for the lender, the borrower, and other creditors.

Estonian companies lend to each other more than the average in the European Union and the stock of loans taken from other companies stood at around 20% of GDP in Estonia at the end of 2015 (see Figure B1.1), while the average in the European Union was around 16%. Inter-company loans accounted for around 19% of all debt liabilities, which is a little above the European Union average of 17%. There are of course major variations between countries that are due to the financing habits of companies, the ownership structure of the business sector, legal standards, and probably to a large extent also the methods used for compiling statistics and related issues.

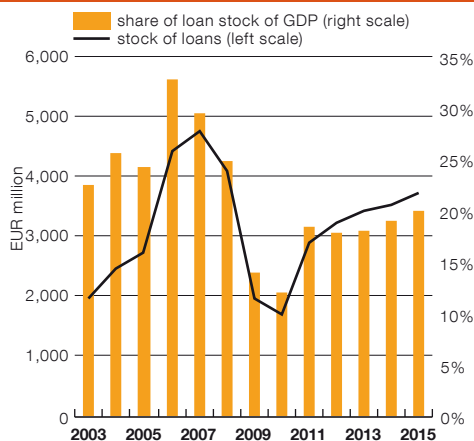
There was a significant drop in inter-company lending in Estonia at the time of the economic crisis, after which it increased again, though it remained well below the level it reached during the boom (see Figure B1.2)<sup>5</sup>. At the end of 2015 it was at about the level of the early 2000s as a share of GDP. The rapid increase while the economy was growing and the subsequent fall can largely be attributed to a reduction in the loans to companies in construction, retail and real estate. Since the crisis, inter-company lending has been driven most by the real estate and

Figure B1.1. Loans granted to non-financial companies by other non-financial companies



Sources: European Central Bank, Eurostat

Figure B1.2. Loans to non-financial companies by other non-financial companies in Estonia



Sources: Eesti Pank, Statistics Estonia

<sup>5</sup> Inter-company lending in the European Union in contrast has on average increased relatively constantly over the past ten years both in euros and as a share of GDP. In this sense, neither economic development nor access to any other form of financing is able to explain the differences in the growth rate. The amount lent between companies has increased in the past five years in countries like Sweden and Germany and also in Spain and Portugal.

logistics sectors. Loans taken by companies in real estate from other companies in the non-financial sector account for the largest share of all inter-company loans (see Figure B1.3)<sup>6</sup>.

Inter-company lending is considered to be less risky than other forms of lending from the standpoint of financial stability and macroeconomic imbalances. Firstly this is because it does not affect the net assets and liabilities of the business sector as a whole and secondly because a large share of inter-company loans are probably intra-group loans that may be made for the sake of group liquidity management, tax planning or similar.

At the same there can be reasons why inter-company lending is risky for financial stability.

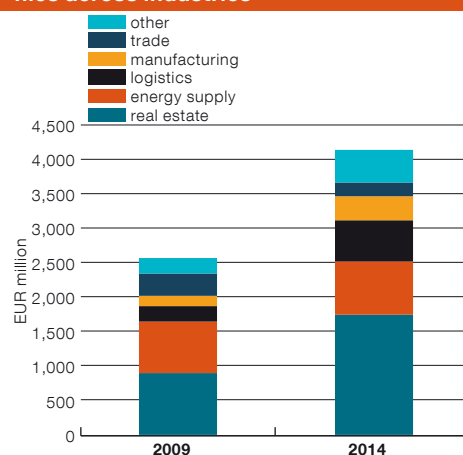
One reason is that it has been very volatile and pro-cyclical in Estonia. It picked up particularly in the years of rapid growth in precisely the sectors that were seeing excessive credit. The stock of loans received from other companies shrank from 3.5 billion euros to 2 billion euros in 2009, a drop of 40% in just one year. By comparison, the stock of debt liabilities from banks operating in Estonia shrank at the same time by 0.9 billion euros or 9%. Although the reduction in the stock of inter-company loans was spurred significantly by their mostly short-term nature, there was also a drop of more than 40% over the year in the volume of long-term loans.

A second reason is that the loan stock shrank during the crisis to a very large extent because of loans being written off. This means that lending between companies can carry relatively large risks for creditors.

Despite the growth in the volume of inter-company loans, they still play a much smaller role in the economy than they did before the crisis. For this reason the risk they pose to Estonian financial stability is not large. The risk is increased to an extent by the concentration of such lending in real estate sectors, which could amplify the pro-cyclical nature of that sector and increase the direct dependency of the assets of other companies on the behaviour of the real estate sector.

<sup>6</sup> For more on the funding of real estate companies see Box 2 in Financing of the Economy published by Eesti Pank in February 2016.

**Figure B1.3. Loans to non-financial companies by other non-financial companies across industries**



Sources: Eesti Pank, Statistics Estonia, Eesti Pank calculations

### **Box 2. Risks to financial stability stemming from companies most affected by energy prices**

Although low energy prices mostly have a positive effect on the economic circumstances of households and companies and on their ability to repay their loans, the effect on energy producers whose products depend on those prices is negative. In the worst case, persistently low energy prices can make it uneconomic for such companies to continue production. Even if production volumes are not cut, turnover and profit are reduced by lower product prices, making it harder for the companies to repay loans.

### The financial position

The economic climate has deteriorated for Estonian energy producers in the past couple of years and the turnover and profits of companies have both shrunk (see Figure B2.1). In the second half of 2015 coke and refined oil products were making a loss.

### Debt liabilities, financial leverage and indebtedness

Companies in the energy sector<sup>7</sup> have invested a lot since the economic crisis, and have largely funded their investments with loans and bonds. Their debt liabilities doubled as a result from what they were before the crisis and they were more than 2.5 billion euros at the end of 2015. Although the equity of energy companies has also increased in the meantime, their financial leverage, which is the debt-to-equity ratio, has climbed to around 95% (see Figure B2.2), at the same time that the figure for the business sector as a whole was around 55%. There has been a similar very large increase in indebtedness, which is the debt liabilities as a ratio to the value added of the sector, which has grown to around 300% and is more than triple the average for the business sector.

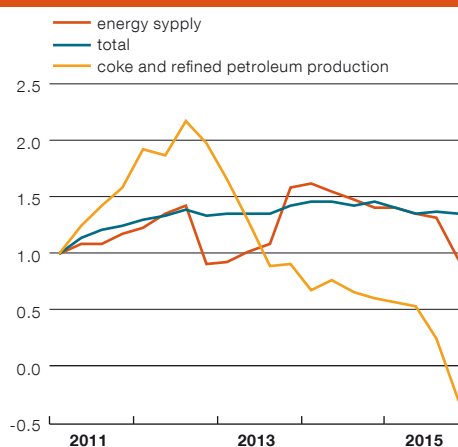
More than half of the debt liabilities are loans from abroad and bonds issued abroad. The stock of loans taken from banks operating in Estonia was around 370 million euros at the end of 2015, which is equal to around 14% of the debt liabilities of the energy sector and 4.5% of the portfolio of loans issued to companies by banks.

The debt liabilities and financial leverage of producers of coke and oil products have not increased so much since the crisis. Their debt liabilities were around 200 million euros at the end of 2014 and the financial leverage rate averaged 50%, and so was quite close to the average for the business sector. However a relatively large share of debt liabilities were taken from banks operating in Estonia compared to the case for the energy sector.

### Payment behaviour and risks

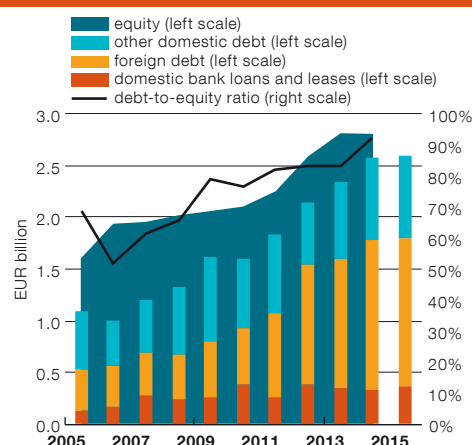
Despite the high financial leverage rate and the worse results, the payment behaviour of energy producers has remained relatively good and they have mainly been able to fulfil the liabilities they have taken on to business partners, the state and the banks (see Figure B2.3). The government decided in March on a temporary reduction in the environmental fees paid by the oil shale sector, which should ease the economic circumstances of companies in future.

**Figure B2.1. Company profits (sum of four quarters, Q1 2011 = 1)**



Source: Statistics Estonia

**Figure B2.2. Energy supply sector debt and equity**

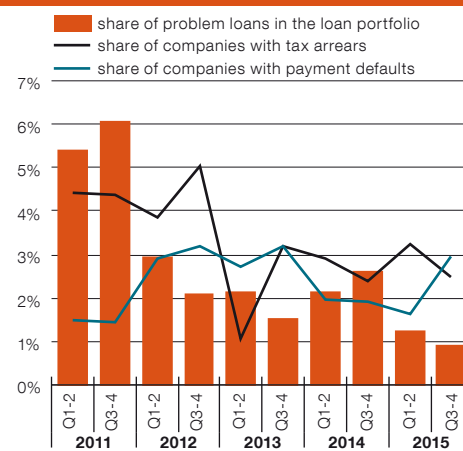


Sources: Eesti Pank, Statistics Estonia

<sup>7</sup> The sector covers companies in electricity, gas, steam and air conditioning supply.

Their future solvency depends mainly on how long energy prices remain low. The banks do not have large exposures to these sectors and the exposure is relatively well distributed between various banks. The relatively large share of other domestic debt liabilities means that payment problems in the energy sector would affect the assets of other sectors too. There can also be indirect effects from weak demand from companies in the energy sector and their employees for the goods and services of other companies.

**Figure B2.3. Payment behaviour of energy supply companies**



Sources: Krediidiinfo, Eesti Pank

## 2.2. THE LOAN REPAYMENT ABILITY OF HOUSEHOLDS

### The ability of households to repay their loans remains good.

Growth in wages was fast throughout 2015 given general economic developments, and in the final quarter the gross monthly wage was up by 6.4%. Unemployment fell last year to stand at 6% in the fourth quarter (see Figure 2.2.1). Strong wage growth and inflation of close to zero have helped households to build up their savings and yearly growth in deposits was 7.4% in the final quarter of 2015.

**Consumer confidence** was down noticeably at the start of 2016, with the confidence indicator falling below its long-term average in February and no improvement in sentiment becoming apparent in March. Consumers have become more wary about the future mainly because of lower expectations for the outlook for the national economy and the development of the labour market (see Figure 2.2.2). There was an increase in the share of those responding to sentiment surveys who thought the Estonian economy would deteriorate in 2016. Survey responses also show however that the financial position of households and their ability to save are strong, as few respondents said they had financial difficulties and almost half said they could save throughout the next 12 months.

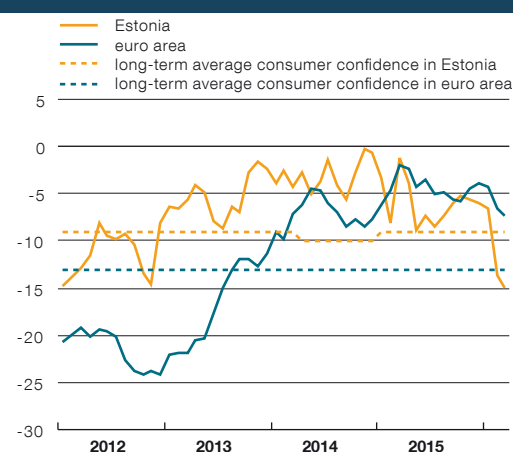
The **indebtedness of households** grew at a gradually increasing rate in 2015, finishing the

**Figure 2.2.1. Unemployment rate and average gross wage and deposit growth**



Sources: Statistics Estonia, Eesti Pank

**Figure 2.2.2. Consumer confidence indicator**



Sources: Estonian Institute of Economic Research, European Commission

year at 5.1%. Debt liabilities grew mostly in the form of housing loans and car leases.

The **financial position of households** has not deteriorated despite the rapid growth in debt liabilities, as it has been supported by strong wage growth. As a result, debt remained unchanged as a ratio to disposable income in 2015, but the ratio of debt to GDP did rise slightly (see Figure 2.2.3). The ratio of cash and deposits to household debt remained at 80% last year. The interest burden was 1.9% throughout the year and if the banks do not change the interest margins on their loans, then it is likely to remain at the same level until base interest rates rise again. The banks have been conservative in issuing loans to households and the share of overdue household loans in the loan portfolios of the banks fell below 1% in 2015.

The financial position of households remains strong in terms of risks to financial stability. Moderate loan growth is supported by good conditions in the labour market and strong wage growth, which is expected to continue at a slightly slower rate in 2016 as well.

## 2.3. THE REAL ESTATE MARKET

### The housing market

The rise in prices in the Estonian housing market that started in 2009 continued in 2015 at a slightly slower rate, and the real estate price index of the Estonian Land Board was up 7% over the year (see Figure 2.3.1). The fastest rises were in prices for apartments, which were up some 10% over the year. Land without buildings was up 4% and prices for residential land with buildings were about the same as a year before.

Demand for dwellings has been aided in recent years by relatively fast growth in wages, a favourable labour market, and low interest rates, while credit growth has remained moderate. The number of transactions with **apartments** was 3% higher in the first quarter of 2016 than a year earlier, with the number of transactions in Tallinn rising by 7% and the number elsewhere in Estonia remaining the same as a year before. The average transaction price for a square metre of an apartment rose by 3% in Estonia as a whole and by 1%

Figure 2.2.3. Household indebtedness

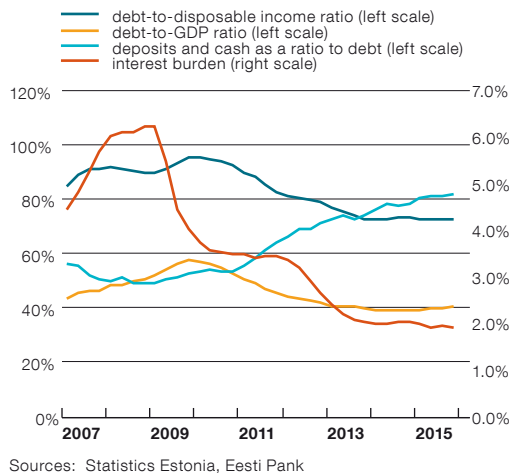


Figure 2.3.1. Real property price indexes (Q1 2009 = 100)

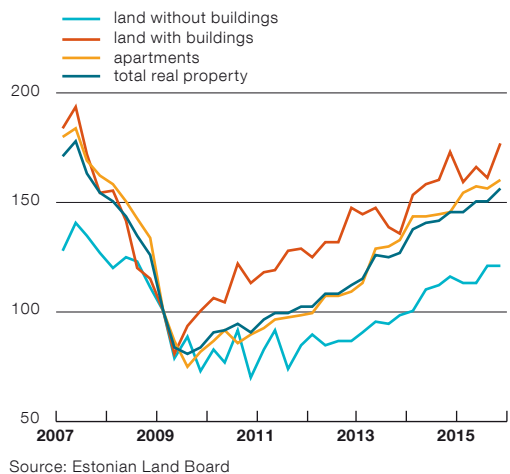
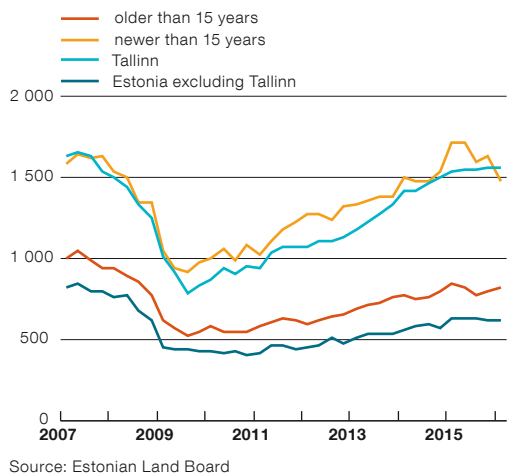


Figure 2.3.2. Average price of a square metre of Estonian apartments



in Tallinn, and it fell by 3% in the rest of Estonia. The average transaction price in Estonia was lifted by expensive apartments in Tallinn and by an increase in the share of transactions with new apartments (see Figure 2.3.2). Comparison of the components shows that transaction prices for apartments have remained relatively unchanged since the start of 2015.

Together with the rise in real estate prices, construction of **residential property** picked up in 2013-2014, with the result that there has been a steady increase in the amount of dwelling space with usage permits (see Figure 2.3.3). Expanded supply has led the rises in real estate prices to level off somewhat, as new developments are sold in a late stage of development and the number of apartments for sale on real estate websites remains quite high. Selling prices have not noticeably come down though as real estate companies are in a good financial position and they are opting to wait for buyers rather than lowering prices.

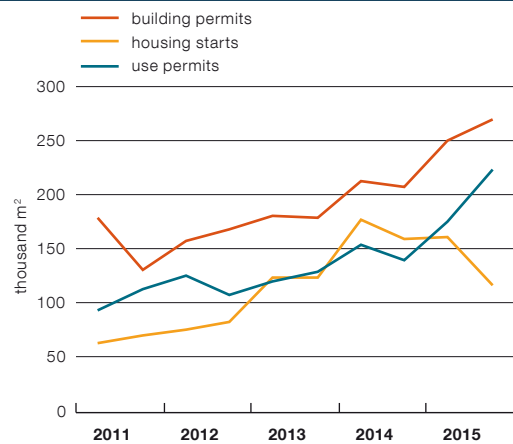
Slower rises in real estate prices and rapid wage growth combined in the second half of 2015 to improve the affordability of real estate, which is the ratio of the average square metre price of apartment transactions to the average net monthly wage (see Figure 2.3.4). The inertia in real estate development means that quite a large amount of new residential property will be added to the market in the years ahead. This should rein back the rises in prices, helping to maintain the affordability of real estate in the short term even when wage growth slows down.

### The commercial property market

Rapid development of commercial property, both office and manufacturing buildings and retail space, continued in 2015. Data from Statistics Estonia show construction was started on around 400,000 square metres of retail space and 250,000 square metres of office space in 2015 (see Figure 2.3.5). Usage permits were issued for 85,000 square metres of retail space and 128,000 square metres of office space.

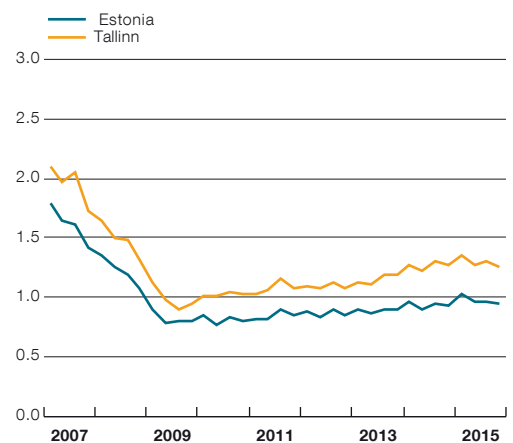
Some 44,000 square metres of new rental space was added to the **office building** market in

Figure 2.3.3. New housing in Estonia



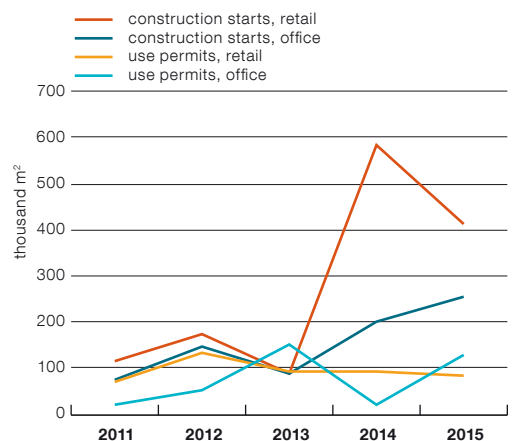
Source: Statistics Estonia

Figure 2.3.4. Ratio of the average transaction price of an apartment to the average gross wage



Sources: Estonian Land Board, Statistics Estonia

Figure 2.3.5. New retail and office space



Source: Statistics Estonia

Tallinn, where there is around 761,000 square metres of office space in total. Rent prices for high-end office space rose on average throughout the year by 2–3%. In 2016–2017 another 90,000 square metres or so of new office space will be ready, two thirds of which is already covered by pre-contracts or rent contracts. The addition of further commercial real estate not covered by a rental contract is keeping rises in rent prices relatively small, and more office space in lower quality classes may become vacant<sup>8</sup>.

Around 7000 square metres of new **retail space** was added to the market in Tallinn, where there is around 550,000 square metres of retail space in total, and a further 158,000 square metres of new space will be added in the coming years. Demand has remained high for modern and well-located retail space, meaning there is little free space and rent prices have risen by 3-5%.

---

<sup>8</sup> Data from [Real Estate Market Overview. Annual Review: Latvia, Lithuania, Estonia, Colliers International, 2016.](#)

## 3. THE STRENGTH OF FINANCIAL INSTITUTIONS

### 3.1. BANKS

#### Quality of assets and the loan portfolio<sup>9</sup>

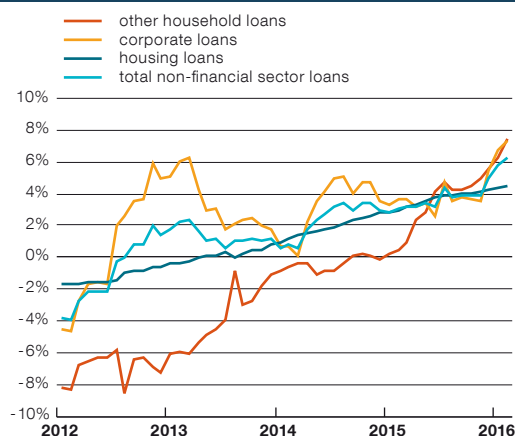
The total volume of loans and leases given by banks to the real sector stood at 16.3 billion euros at the end of 2015, an increase of 5% over the year (see Figure 3.1.1). Loan growth continued at the same rate in the first months of 2016 and in February it hit 6%.

The **corporate loan portfolio** grew in most sectors of the economy, and a major contribution was made by the industrial sector (see Figure 3.1.2). Only in infrastructure did the loan stock decrease. The stock of loans to the primary sector stopped shrinking in February having started to do so in the second half of 2015 mainly because of problems specific to the sector. Having reached 9% on average in the first half of 2015, loan growth to the real estate and construction sector tailed off in the second half of the year and was down to 3% in February 2016. Loans issued to this sector continue to account for a significant share of more than 34% of the corporate loan portfolio. This highlights the high degree of concentration in the loan portfolio and the risks associated with exposure to real estate. However, the banks are not currently actively increasing the volume of loans to the real estate and construction sector and their attitude towards financing real estate development remains quite conservative. In addition the share of loans to companies in real estate and construction in the corporate loan portfolio of banks operating in Estonia is comparable to the average for the euro area.

The **household loan portfolio** continued to grow steadily in 2015, increasing by 4.5% over the year to around 7.8 billion euros. A significant part in this was played by housing loans, and growth in such loans increased gradually during the year to reach 4.3% at the end of the year, which is 1.4 percentage points more than in the beginning of the year. It is calculated that around 8% more new loans were issued in 2015 than in the previous year and the turnover of housing loans was 14%

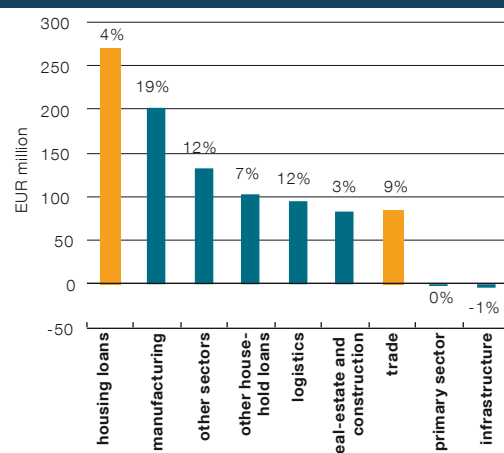
<sup>9</sup> The credit portfolio contains loans, leases and factoring to the non-financial sector.

Figure 3.1.1. Annual growth rates of banking sector loans and leases to businesses and households



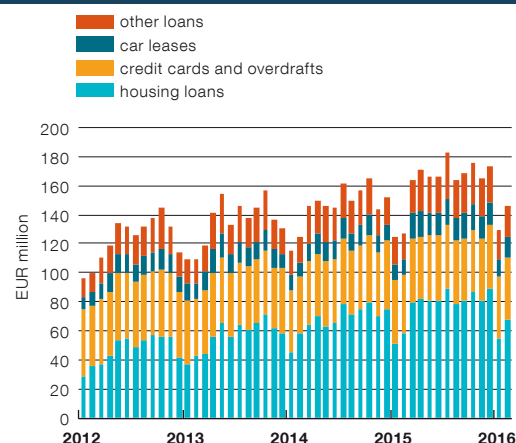
Source: Eesti Pank

Figure 3.1.2. Annual growth in loans and leases as at 29.02.2016



Source: Eesti Pank

Figure 3.1.3. Monthly new household lending



Source: Eesti Pank



higher in the last quarter of the year than it was a year previously (see Figure 3.1.3).

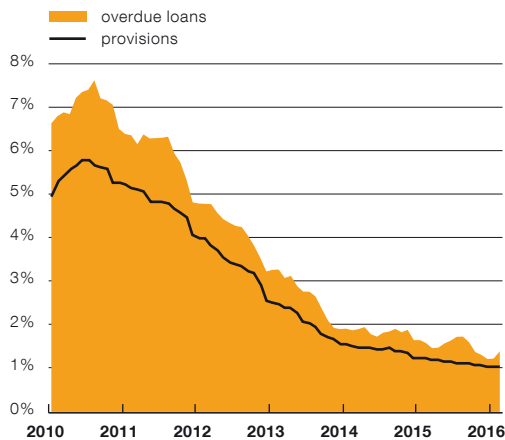
Housing loans account for about 40% of the loans to the non-financial sector, which is slightly above the average for the countries in the European Union, but as a share of total assets, the volume of these loans is one of the largest in the European Union. This is a reflection of the universal banking model used by banks in Estonia, the concentration of the domestic market and the preference of households for home-ownership over renting. It also indicates that the operations of banks in Estonia are less dispersed than is the average for the European Union.

The stock of other household loans grew by 5.5% over the year, with the growth driven by car leases, which increased by 15% in volume. In 2015, 2.9% more consumer loans were issued than in 2014 while the stock of overdrafts and credit card loans continued to decline at the same time.

The **loan quality** of the banks operating in Estonia remains good. Although the share of overdue loans started to increase from the end of the first quarter of 2015, partly because of weaker foreign demand and sector-specific problems in the primary sector, they shrank in volume again in the last months of the year. In February 2016 there were 201 million euros of loans overdue by more than 60 days, which is 1.4% of the loan portfolio and around 0.2 percentage point less than a year earlier (see Figure 3.1.4). At the same time the share of restructured loans in the loan portfolio remained at a similar level to the year before at 1.3%.

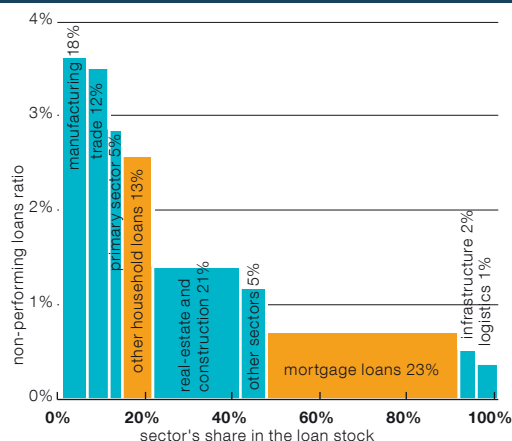
The loan portfolio primarily improved because of a decline in overdue loans to companies in real estate and construction and to households. The biggest growth in overdue loans was in loans to industrial companies and the primary sector. As those sectors make up only a small part of the loan portfolio of the banks (see Figure 3.1.5), an increase in overdue loans to that sector probably does not lead to any risk to financial stability.

**Figure 3.1.4. Share of overdue loans and provisions in the loan stock**



Source: Eesti Pank

**Figure 3.1.5. Structure of overdue loans as at 29.02.2016**



Source: Eesti Pank  
The area of the bar represents the sector's share in overdue loans

In February 2016 the banks had made provisions of 150 million euros to cover loan losses, equivalent to around 1% of the loan portfolio. This is 20 million euros less than a year before, but as around 74% of overdue loans are covered by provisions, then this reduction can be seen as generally appropriate for loan quality.

### Box 3. Assessment of the need for a countercyclical capital buffer

#### **The framework for assessing the counter-cyclical capital buffer requirement**

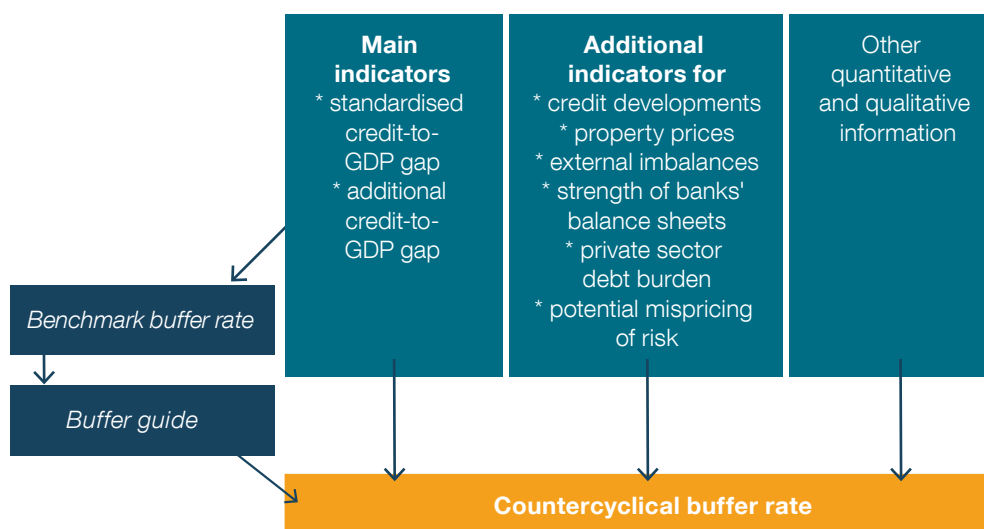
In 2015 Eesti Pank produced a framework to be used four times a year for assessing the need for a countercyclical buffer in Estonia<sup>10</sup>. The first decision on this buffer was taken by Eesti Pank at the end of November 2015, when the buffer rate was set at 0% from 1 January 2016.

The countercyclical buffer is a macroprudential measure that requires banks to hold additional equity if credit risk accumulates. The buffer should be introduced at a time when rapid credit growth is increasing systemic risk, and the buffer should be removed when the risk in the local credit market is lower or when clear signs of a financial downturn appear. Banks can use the additional capital buffers they have built up during the growth phase of the financial cycle to cover losses that may arise during periods of stress and to continue supplying credit to the real economy. The larger the systemic risk accumulation in the credit market during the growth phase of the cycle and the greater the imbalance that it creates, the higher the capital buffer is set so as to ensure the resilience of the banks.

The framework for assessing the countercyclical buffer requirement is based on the principles agreed by the European Union and also considers the specific requirements of the Estonian economy and credit cycle. Eesti Pank assesses the need for the countercyclical buffer each quarter and the possible need for macroprudential measures more broadly twice a year as part of the Financial Stability Review. The six-monthly assessment uses a more thorough analysis and takes in a look forward at the potential development of the economic and credit cycles. The quarterly assessment is based on indicators that have historically had a strong explanatory power for developments in the financial cycle.

Analysis of the need for the countercyclical buffer is supported by indicators that are important for showing the cyclical position, and expert opinions from Eesti Pank (see Figure B3.1). The main indicators are used to calculate the buffer guide, which is one component in the analysis. A

**Figure B3.1. Components of the assessment of the countercyclical buffer rate**



<sup>10</sup> The countercyclical buffer. The principles and indicators for setting the buffer rate in Estonia. Eesti Pank, October 2015.

key indicator is the credit-to-GDP gap, which can be calculated in two ways, as the standardised gap, which considers the total debt of the non-financial sector, and as the additional gap, which only considers loans issued by the banking sector. Assessment of the main indicators also considers the forecast produced twice yearly for the volume of loans issued by the Estonian banking sector and nominal GDP.

Additional indicators are used to confirm the findings of the main indicators, and they also give notice of the buffer rate diverging from the main indicators. These indicators are chosen so that all the figures for credit risk that are cyclically important for the whole economy are covered. If the credit-to-GDP gap remains negative for a long time for methodological reasons, the additional indicators take on an important role in assessment of the countercyclical buffer. It is particularly vital for the dynamics of credit growth and the reasons behind them to be analysed.

The expert opinion draws not only on these indicators but also on other quantitative and qualitative information that is important at the point where the assessment is being made.

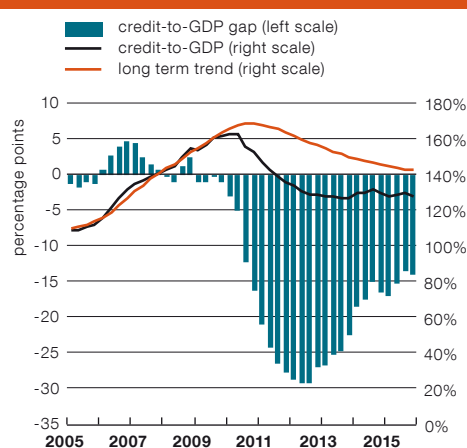
### Assessment of the need for a countercyclical capital buffer

The **credit-to-GDP ratio** of the Estonian non-financial sector did not change significantly in 2015, and remained at 128% at the end of the fourth quarter (see Figure B3.2). The standardised credit-to-GDP gap narrowed at the same time to -14 percentage points, as the long-term trend declined.

The yearly growth in loans from domestic banks accelerated at the end of 2015, leading the **loans and leases-to-GDP ratio** to rise to 78%. The additional credit-to-GDP gap narrowed as a result of a correction in the long-term trend to -26 percentage points (see Figure B3.3). As the credit-to-GDP ratio is negative, the benchmark rate for the countercyclical buffer is imputed to be 0% and it is principally additional indicators that are used for assessing the need for the buffer.

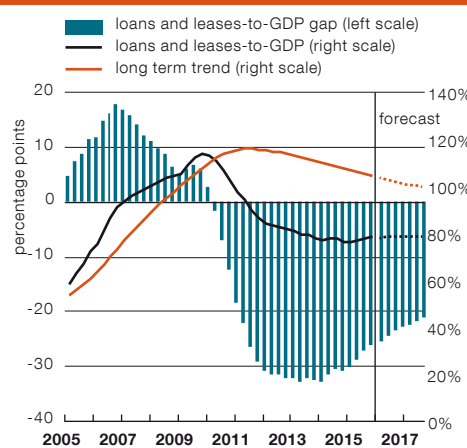
There was some increase in **credit growth in the non-financial sector**, which is one of the more important indicators for assessing the credit cycle, and this was caused by both companies and households borrowing more (see section 2.1 The loan repayment ability of companies and section 2.2 The loan repayment ability of households). Yearly growth in the loan portfolio was faster than nominal GDP growth in the second half of 2015 for the first time since 2009. The Eesti Pank forecast of December

Figure B3.2. Standardised credit-to-GDP gap



Sources: Statistics Estonia, Eesti Pank

Figure B3.3. Additional credit-to-GDP gap



Sources: Statistics Estonia, Eesti Pank

2015 expects yearly growth in loan volumes in the banking sector to average 4–5% in 2016–2017, which is the same level as nominal GDP growth (see Figure B3.4).

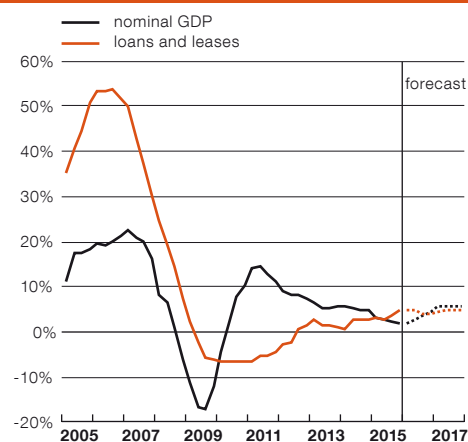
The dynamics of credit growth are largely dependent on developments in the real estate market. **Housing prices rose** more slowly throughout 2015 and the strong growth in wages at the same time halted the rise in the ratio of the average square metre price of apartments to gross monthly wages (see section 2.3 The real estate market). Moving forward, the risk remains of demand increasing for real estate and housing loans if incomes continue to rise and interest rates stay low. In recent years households have financed purchases of dwellings using relatively large down payments and the share of borrowed money did not increase in 2015.

As deposits have grown strongly in recent years, they have been enough to finance the demand for credit. The **loans-to-deposits ratio** of residents remained unchanged in 2015 and there was no significant change in the **lending conditions** of the banks either. This indicates that banks have not taken on excessive risk and increased the credit supply too far.

**Overall** it can be said that although the rate of credit growth has increased a little and low interest rates mean there is a danger of real estate prices starting to rise faster again, the indicators do not show any excessively fast development in the credit cycle. The December forecast from Eesti Pank found that the volume of credit growing faster than nominal growth in the economy is a temporary effect, and the ratio of domestic bank loans to GDP will remain below 80% for the next two years. If the Estonian income level is to harmonise with the euro area average in the longer term, some increase in financial deepening is naturally to be expected. At the same time, the growth in indebtedness should not be too fast in the short term, as that may cause borrowers problems with repayments if the economy turns downwards, and this would weaken the profitability of the banks and their capitalisation, and could impede the economy from reaching its long-term growth potential.

As there is no sign of pro-cyclical behaviour by lenders or borrowers, Eesti Pank finds that 0% is the appropriate rate for the countercyclical capital buffer in 2016.

**Figure B3.4. Yearly growth of loans and leases and nominal GDP**



Sources: Statistics Estonia, Eesti Pank

### Financing and liquidity

The most important source of funds for the Estonian banking sector is **deposits**. Deposits continued to grow in 2015 but since the end of the year they have done so at a slower rate than in the preceding months. Whereas client deposits were on average about 10% larger in 2015 than a year earlier, they were up 5.7% in

February 2016. This is because non-resident deposits were reduced, which affected one bank in particular, while residential deposits continued to grow strongly, increasing by 11.5%.

Non-resident deposits were down by 533 million euros over the year in February 2016 and the share of financing they supplied fell to close to 12% (see Figure 3.1.6). As non-resident deposits

are volatile by their nature, the exposure of the Estonian banking sector to the risks from servicing non-residents was also reduced.

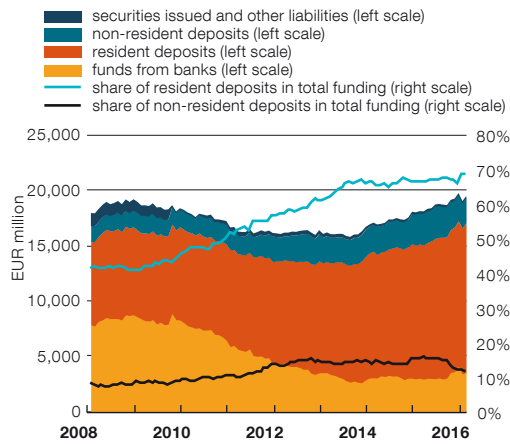
The reduction in non-resident deposits was offset to a large extent by the funds taken from banks and so there was a slight increase in those funds as a share of debt liabilities and the **loans-to-deposits ratio** climbed a little, to reach 1.04 in February 2016 (see Figure 3.1.7). The ratio of resident loans to deposits did not deteriorate though, but remained more or less solidly at 1.2. The loans-to-deposits ratios for different banks can vary a lot though, and while the banking sector as a whole is managing to fund itself almost in full from deposits, the same cannot be said of all the banks. The bigger banks assume that loans will continue to grow faster than deposits in the future and so their funding plans for the years ahead expect the loan-to-deposits ratio will rise a little.

The short-term liquidity position of the banks operating in Estonia remains favourable and their resilience to short-term liquidity shocks is good. This is confirmed by their **liquidity coverage ratios**, which show that in February 2016 all the banks licensed in Estonia<sup>11</sup> had more than enough liquid assets to cover the net outflow of funds during a 30-day stress period. This meant that most banks exceeded the regulatory requirements significantly.

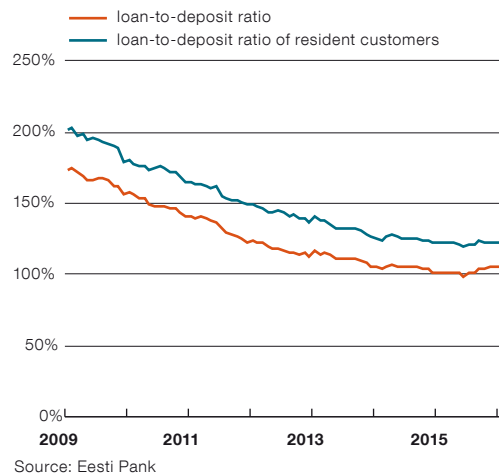
Like a year ago, the Estonian banking sector had 5.8 billion euros of **liquid assets** in February 2016 (see Figure 3.1.8). Their share of total assets has not changed particularly over the year, though large differences between banks remain. If liquid assets are taken more narrowly however, without the claims on parent banks, as they are taken in the calculation of the liquidity coverage ratio, it may be said that liquid assets more than doubled over the year. This is reflected in changes in the structure of liquid assets, where claims on banks have declined since the second quarter of 2015 while the liquid deposits at the central bank have increased.

11 Licensed banks operating in Estonia, which are Swedbank, SEB, DNB, Bigbank, Eesti Krediidipank, LHV, Tallinna Äripank, Versobank and Inbank, have to meet the liquidity coverage ratio.

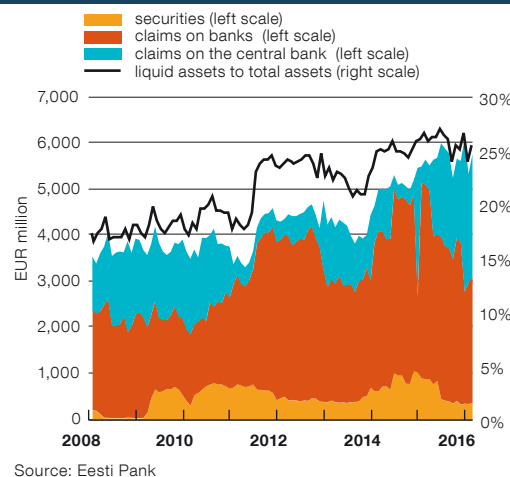
**Figure 3.1.6. Structure of funding**



**Figure 3.1.7. Loan-to-deposit ratio**



**Figure 3.1.8. Banks' liquid assets and their share in total assets**



Like at the end of 2014, there was a notable reduction in December 2015 in **claims on banks** used for group-level liquidity management. Unlike in the previous year though, the big banks did not return all the liquidity they brought in at the end of the year to the parent banks in the first months of the year. Claims on banks accounted for 48% of liquid assets in February, which is around 10 percentage points less than six months earlier and 26 percentage points less than a year previously.

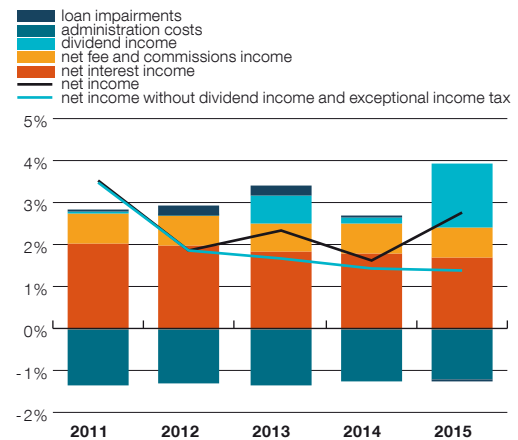
As receivables from banks have shrunk, so have **investments in bonds**. The volume of bonds of governments, banks and financial institutions, which made up around 76% of the bond portfolio at the end of February 2016 or around 1.5% of total assets, was down by 654 million euros over the year. The share of those bonds in liquid assets dropped by 11 percentage points over the year to 6%.

The decline in the investment in the bonds of banks and other financial institutions is primarily due to individual banks, but the reduction in the volume of sovereign bonds is more broadly based. As the returns on sovereign bonds have fallen to record low levels and are even negative in the short and medium-term segment of the yield curve in several countries, they have become less attractive as an investment. The banks operating in Estonia reduced their investment in the central government bonds of Germany, Belgium, the USA and Denmark in 2015. Group liquidity management considerations, mainly the small appetite for risk and the desire to find an optimal way of maintaining liquidity buffers when interest rates are low, mean that there is a heavy weighting of claims on central banks in the liquid assets used to meet the liquidity coverage ratio. The share of these claims hit 91% at the end of February 2016 and was around 39 percentage points more than at the same point in the previous year.

### Profitability

The banks operating in Estonia earned a total of 608 million euros in net profit in 2015. This was boosted a lot by the dividend income received by one bank and income tax paid for extraordinary dividends. Without the dividend income and

**Figure 3.1.9. Banking sector profitability in relation to total assets**



Source: Eesti Pank

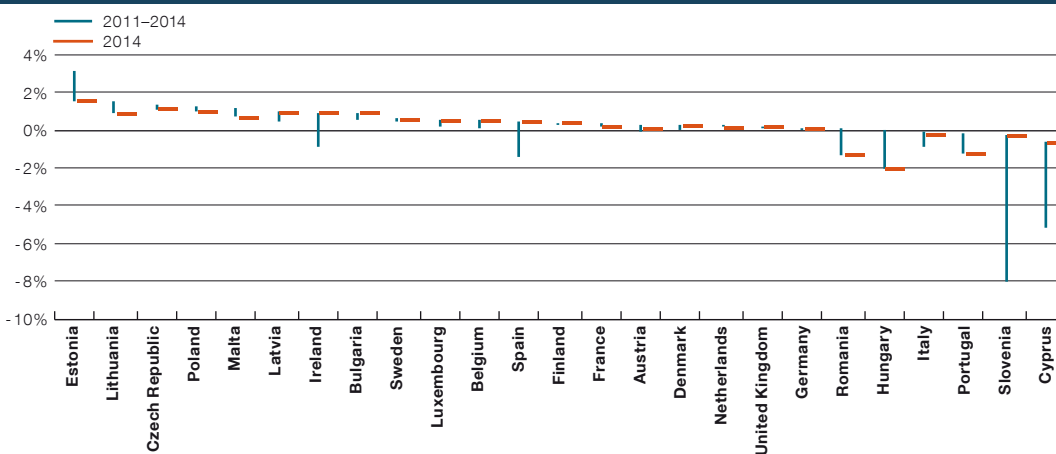
extraordinary income tax expenses, net profit would have been 308 million euros, which is 5.7% more than last year and means the **return on assets** of the banks was 1.4% in 2015.

Return on assets without dividend income and extraordinary income tax expenses was not notably different from the level of the previous year (see Figure 3.1.9). Although the contribution of net interest income to return on assets declined a little over the year, this was largely offset by increased efficiency of operation, which was reflected in slower growth in administrative costs than in assets. Loan losses also remained small in 2015.

The loan portfolio, which has grown quite strongly, has reduced the impact of generally low, and in some places negative, interest rates on the profitability of the Estonian banking sector. A small rise in the average interest margin in the loan portfolio and growth in fee and commission income have had a beneficial effect on profitability, and have been aided by the low level of price competition.

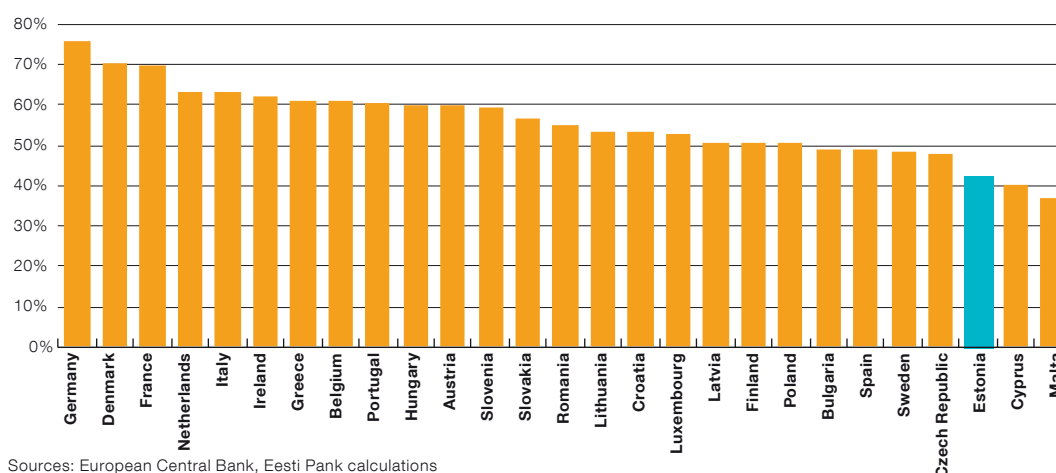
The profitability of the Estonian banking sector has been among the strongest in the countries of the European Union (see Figure 3.1.10). The Estonian banking sector is relatively highly cost-efficient, which may partly be because the expenses of the local units of foreign banking groups can be reflected at group level rather than local level (see Figure 3.1.11). Profitability is also aided by smaller loan losses than in other coun-

Figure 3.1.10. Return on assets of banks



Source: European Central Bank

Figure 3.1.11. Cost-income ratio of banks, 2014



Sources: European Central Bank, Eesti Pank calculations

tries and quite large spreads between interest income and interest expenses.

The strong growth in domestic deposits has helped to reduce the vulnerability that comes from possible changes in the cost of funds from parent banks. This has lowered the need to use funds from parent banks to finance the operations of the banking sector.

The risk to profitability of a possible, though currently highly unlikely, rise in base interest rates is eased by the large share of loans with floating interest rates in the loan portfolio. This means that a rise in interest rates would be passed on to borrowers relatively quickly. A general rise in interest rates would be accompanied by the currently negative deposit interest rates margins

turning positive, which would also support the profitability of the banks.

### Capitalisation

All banks in Estonia have to hold core equity tier one (CET1) capital of at least 9% of risk weighted assets. On top of the minimum reserve requirement of 4.5% there is a capital conservation buffer of 2.5% of CET1 and a 2% systemic risk buffer. Banks have to hold at least 12.5% of first and second tier equity in total.

Banks operating in Estonia are well capitalised. The consolidated **ratio of total own funds to risk weighted assets** stood at 35% at the end of 2015. An overwhelming majority of 99% of own funds continued to be in the form of **CET1**,

meaning the ratio of CET1 to risk assets was also high at 34.8%. The lowest figure for any of the banks was 11% (See Figure 3.1.12).

The capitalisation of most of the banks strengthened in 2015. The fall in the consolidated figure is mainly a reflection of the decision of the Swedbank group to pay out a larger amount in extraordinary dividends from profits earned earlier. This reduced the own funds of the bank by around a quarter, but its capitalisation still remained very high at 39%.

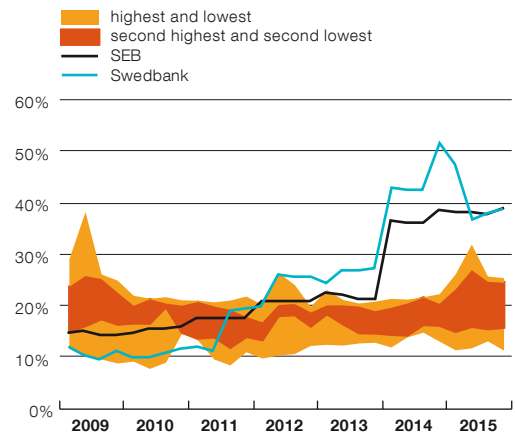
The biggest differences in the indicators for the banks were also due to differences in their risk profiles and the use of different methods for risk assessment. SEB and Swedbank have been authorised to use their internal models for risk assessment. From 2014 the banks that use internal models have been able to publish their capitalisation figures without the transition time limits, which raised the figures for those two banks substantially.

Internal risk assessments mainly draw on past experience of how much risk exposures with a similar profile have had to be written down by in the past. This means that the risk weightings for the Baltic states are higher than for the recent problems with loans issued in Sweden<sup>12</sup> (see Figure 3.1.13). Banks that do not use internal modelling have to use a risk weight of 35% for housing loans.

To reduce the possible dangers in the risk assessments the own funds rates of the banks are also considered in relation to unweighted total assets.

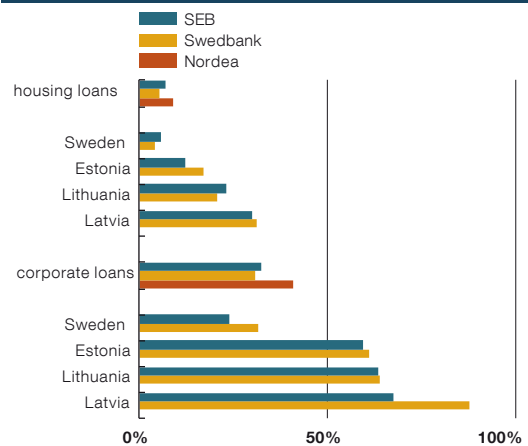
<sup>12</sup> When models based on internal analysis are used in Sweden, they have to base their calculation of capital needs on a risk weighting of at least 25%.

**Figure 3.1.12. CET 1 as a ratio to risk weighted assets**



Small banks are LHV Pank, DNB, Bigbank, Eesti Krediidipank, Tallinna Äripank, Versobank and Inbank  
Sources: Eesti Pank, public statements of banks

**Figure 3.1.13. Risk weights according to calculations of banks**



Source: Public reports of banking groups

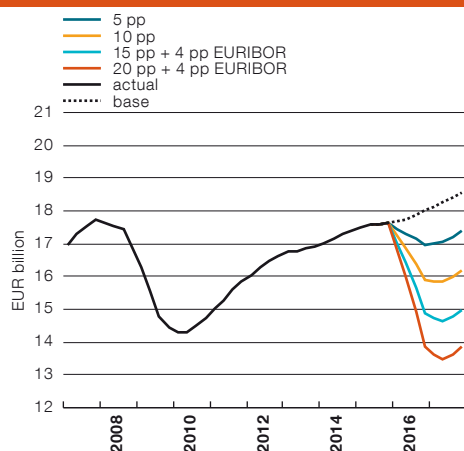
The average capitalisation rate of the banks in Estonia is also very strong in terms of **financial leverage** at 15%.

**Box 4. Forecast and stress test of overdue loans in the banking sector**

The stress test for analysing overdue loans is based on the Eesti Pank forecast and runs macro-economic scenarios, which are estimated separately with a VAR model and capture four negative shocks of different strengths. The scale of the strength of shocks in the risk scenarios ranges from a moderate negative shock where GDP growth is reduced by 5 percentage points up to a strong economic shock where growth is 20 percentage points lower than in the baseline scenario and which sees the stock of overdue loans reach close to its historical peak. The basis for the baseline scenario in the macro model is the macro forecast published by Eesti Pank last



**Figure B4.1. Real GDP assumptions in the base and risk scenarios**



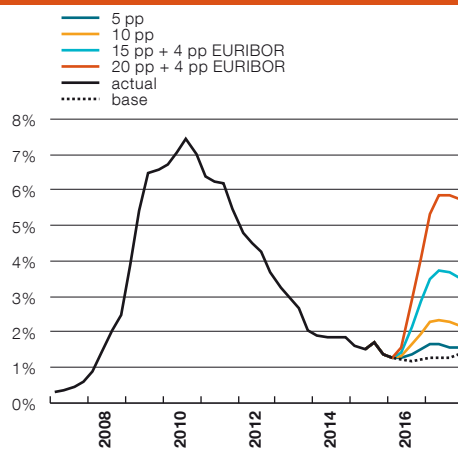
Source: Eesti Pank

December, which expects GDP growth in 2016–2017 to average 2.7% a year (see Figure B4.1). The effect of macroeconomic shocks is passed into overdue loans through the credit risk model for the banking sector, where an interest rate rise of 4 percentage points is added to the two most negative shocks.

In the baseline scenario the share of overdue loans increases slightly during the next year but it remains unchanged in the long term (see Figure B4.2). This slight increase in the baseline scenario is mainly due to the increase expected in unemployment in the years ahead. The share of overdue loans increases in the risk scenario where GDP growth is 5–10 percentage points less than in the baseline scenario to at most 2.5%. With the stronger shock the share of overdue loans climbs to around 6%, which is still below the historical peak reached in 2010.

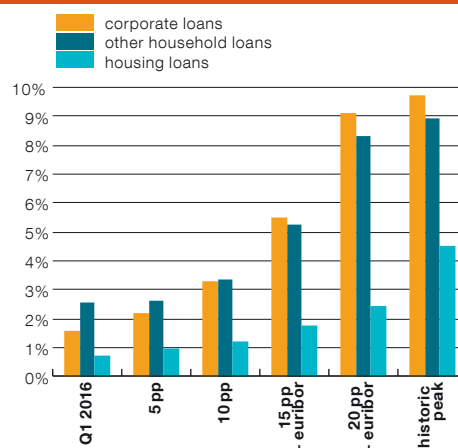
In the two most negative risk scenarios the strongest reaction is from corporate loans, and 9% of them are overdue in the case of the largest shock (see Figure B4.3). The increase in the share of corporate loans that are overdue stems from the fall in GDP growth in the risk scenario, higher unemployment, and higher borrowing costs. The share of other household loans that are overdue rises to 8.3% with the strongest shock, and the effect of the shock is passed on primarily through slower wage growth and higher unemployment. Housing loans are less

**Figure B4.2. Overdue loans ratio for base and risk scenarios**



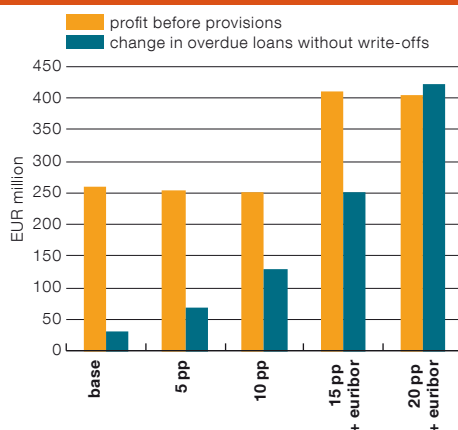
Source: Eesti Pank

**Figure B4.3. Share of overdue loans**



Source: Eesti Pank

**Figure B4.4. Profit and change in overdue loans, Q1 2016 - Q1 2017**



Source: Eesti Pank

sensitive to macroeconomic shocks and the share of such loans that are overdue rises to only 2.5% following the biggest shock. In this scenario real estate prices fall by around 24%.

Interest rates rise in the two most negative risk scenarios, and this increases the profit of the banking sector before write-downs by about 150 million euros, which helps cover the losses from overdue loans (see Figure B4.4). With the strongest shock however, the change in the volume of overdue loans is larger than expected profits. The share of overdue loans at smaller banks climbs to 18%, as they have a larger share of other household loans in their loan portfolios. The share of loans that are overdue for the whole of the banking sector reaches 4–6%, or 250–420 million euros, following the two strongest macroeconomic shocks.

### Box 5. Setting the rates for the systemic risk buffer and buffers for other systemically important institutions

The stability of a country's financial system can be affected by risks arising from the financial cycle, and also by risks that are fundamentally linked to the structure of the economy and the financial sector of that country. These systemic risks that are structural in nature can be reduced by the introduction of additional capital requirements in the form of a Systemic Risk Buffer (SRB) and an Other Systemically Important Institutions Buffer (O-SIIB).

Eesti Pank introduced a requirement on 1 August 2014 for all banks and banking groups authorised in Estonia to hold a systemic risk buffer of 2% of their common equity tier 1 capital. Eesti Pank identified Swedbank AS and AS SEB Pank as the systemically important credit institutions in Estonia in December 2015.

There were two reasons why the systemic risk buffer was introduced in 2014. The first was to increase the resilience of banks against the structural vulnerabilities of the Estonian economy, and the second was to reduce the risks arising from the structure of the financial system. From 2016 the law allows separate requirements to be used to reduce the risks stemming from the structure of the financial sector.

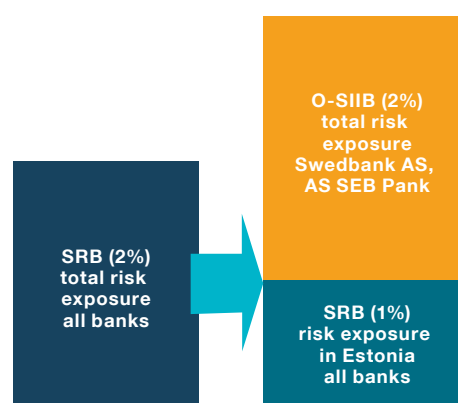
#### Planned buffer rates.

Eesti Pank plans to replace the current 2% systemic risk buffer from the third quarter of 2016 with two requirements:

1. A **systemic risk buffer of 1%** of risk exposures located in Estonia; the buffer rate will apply for all banks and banking groups authorised in Estonia.
2. An **other systemically important institutions buffer of 2%** of total risk exposure; the buffer rate will apply to Swedbank AS and AS SEB Pank.

The reasons for introducing the **systemic risk buffer** lie in the structural vulnerability of the Estonian economy, which arises primarily because the economy is small and open. This

Figure B5.1. Capital buffer requirements for mitigating structural systemic risk in Estonia



lets problems caused by unforeseen negative shocks emerge rapidly and to a greater extent than in many other European countries. The risks are compounded by the high proportion and concentration of exports and investment, the relatively large debt of the non-financial sector in relation to incomes, the comparatively modest level of household financial buffers, and the very bank-centred financial sector. Having sufficient capital on hand can help banks cope with unexpected financial problems however.

The reason for introducing an **additional buffer for systemically important credit institutions** is the high level of concentration in the Estonian banking sector, where the two biggest banks hold over 60% of the total assets of the banking sector with a value equal to 70% of GDP. Furthermore, the structure of the assets and liabilities of the biggest banks is similar, and so they are vulnerable to the same sort of risks. The additional buffer will help reduce the negative impacts that possible financial problems at one systemically important bank could cause for the functioning of the financial system and for the real economy.

#### ***Recognition by other countries.***

At some 26%, a relatively large part of the assets of the Estonian banking sector is held by branches of foreign banks. In order to increase awareness of the structural vulnerabilities in the Estonian economy and to ensure a level playing field, Eesti Pank is requesting the authorities of other member states to apply equivalent additional buffer requirements to the banks that provide banking services in Estonia through branches or directly cross-border for their risk exposure in Estonia.

#### ***Expected impact.***

At the end of the first quarter of 2016 all the credit institutions authorised in Estonia met the minimum requirements for own funds and the additional buffer with a sufficient margin. The own funds held by the systemically important banks exceeded the requirements as a ratio to risk weighted assets by more than 25 percentage points. As the rates for the systemic risk buffer and the other systemically important institutions buffer are adjusted, the effective rate for the buffer to cover structural risks will rise for the Estonian banking sector as a whole from 2% to 2.6%. The impact on the capitalisation of the banks and the financing of the economy of the increase is small, but the measures will shore up the ability of the banking sector to continue supplying important services even if there is an unexpected economic downturn.

### **3.2. INSURANCE COMPANIES**

The risks to the stability of the insurance sector in Europe have been unchanged in recent years. The sector is particularly vulnerable because of base interest rates sinking ever lower together with the increased probability that they will remain very low for a long time yet<sup>13</sup>. This has made the long-term liabilities of insurers more and more expensive, particularly affecting insurers that have a large share of liabilities with guaranteed returns on their balance sheet. At the same time the reinvestment risk has risen and main-

taining a similar level of investment income needs bigger risks to be taken. Overall the outlook for the sector is unfavourable in the current fragile economic climate. Whether and how much insurers increase their investment risk in order to achieve better returns is important for macroprudential supervision.

Steady growth in insurance premiums was a feature of the **development of the insurance market** in Estonia in 2015 (see Figure 3.2.1). In a small insurance market by international standards, the growth figures can be considered average. By the end of last year, the volume of the insurance market had climbed to close to where

<sup>13</sup> [Financial Stability Report, EIOPA, December 2015.](#)

it was before the economic crisis. The profitability of the insurance sector is also relatively stable. The level of profits in recent years has remained moderate and appears sustainable given the development of the market. The vulnerability of the sector to unfavourable developments in the external environment is limited by the small size of the Estonian insurance market and the small share of life insurance within it<sup>14</sup>.

Annual growth in premiums collected by **non-life insurers** has been remarkably constant for the past three years at between 6% and 7%, and it has been broadly based across types of insurance. The amount collected in premiums in the fourth quarter of 2015 surpassed the peak reached during the boom. The premium income of the sector was unchanged from the previous year at 34 million euros. Payouts on claims have grown at about the same rate as premiums collected, with the result that the net combined ratio<sup>15</sup> has remained at around 90%. This indicates that competition continues to be quite tight in the non-life insurance sector.

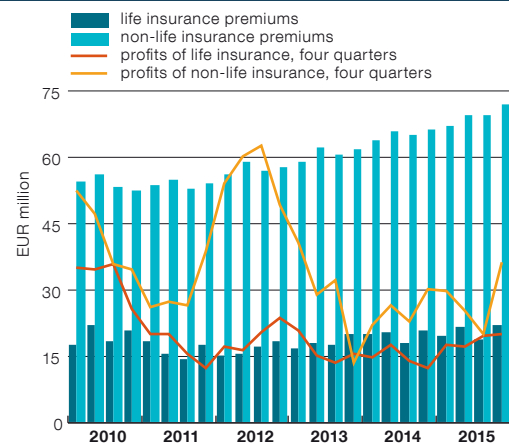
The part of the profits of non-life insurers that came from investment activity was smaller than usual last year but this was mainly due to the downward revision of prices of financial assets. Interest income has been unchanged in recent years. Changes have continued in the structure of the investment portfolio as insurers reduce the share of term deposits and replace them mainly with bonds and other fixed-income securities (see Figure 3.2.2). In total the operating profit of the non-life insurance sector was 36 million euros, which is a little above the average for recent years.

**Life insurers** collected 4% more in insurance premiums than in the previous year, which means that the development of the sector has become subdued after the incremental growth of around 10% over the previous two years. The market is still one third smaller than before the crisis but the

14 The assets of the insurance sector are equivalent to 8% of GDP and life insurance was about one fifth of the market at the end of 2015. The portfolio of insurance contracts with guaranteed interest rates accounts for some 40% of the liabilities of life insurers.

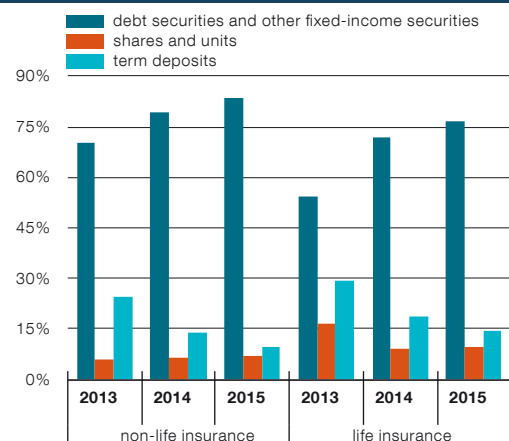
15 Net combined ratio = (claims paid out + operating costs) / premiums received = net loss ratio + net expense ratio.

**Figure 3.2.1. Premiums and profits of insurance companies**



Source: Statistics Estonia

**Figure 3.2.2. Investments of insurance companies**



Source: Financial Supervision Authority

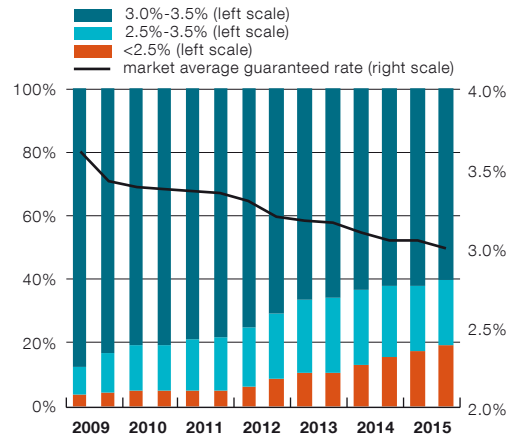
total profit of the sector in 2015 was the largest of recent years. Premium income improved significantly from 2014, though this was affected a lot by one insurer.

The net income of the life insurance sector from investment was relatively small in contrast. While net interest income was at the level of the previous year, the revaluation of financial assets had the main negative impact. Like non-life insurers, life insurers have consistently replaced the term deposits in their investment portfolios with bonds and other fixed-income securities (see Figure 3.2.2). Most of the bonds purchased are issued by central governments, and this restrains the risk level of the portfolio from rising.

The biggest challenge in life insurance when interest rates are low is to manage with reduced options for earning the income for products with guaranteed interest rates. The average rate guaranteed to insurance clients has gradually come down in recent years, and is now at around 3% (see Figure 3.2.3). This is still well above the return on the investments of the insurers, which was 1% in 2015. Although the net interest income of the insurers has not yet fallen significantly, the prevailing risks should be monitored with care.

Important changes were made at the start of 2016 to the laws regulating the insurance sector, as the updated European Union **Solvency II framework** was adopted. The directive is being implemented in Estonia through a new Insurance Activities Act. Unlike before, the new framework uses harmonised principles for assessing assets and liabilities at market value. Risk-based capital requirements were also introduced together with updated requirements for management systems and risk-based supervision.

**Figure 3.2.3. Distribution of liabilities resulting from guaranteed rate contracts by interest rate**



Source: Financial Supervision Authority

## 4. SYSTEMICALLY IMPORTANT PAYMENT AND SETTLEMENT SYSTEMS

### 4.1. RISKS TO THE PAYMENT AND SETTLEMENT SYSTEMS AND THE OVERSIGHT ASSESSMENT

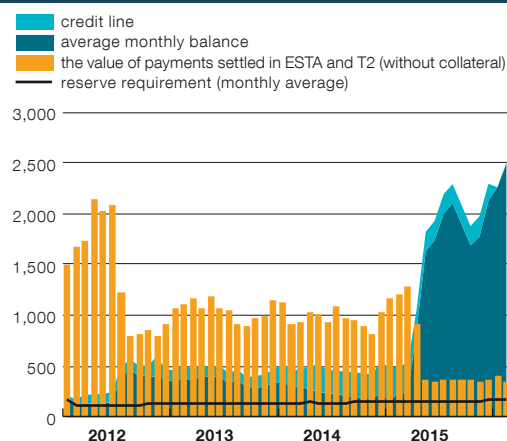
Eesti Pank oversees two systemically important systems, which are the TARGET2-Eesti real-time gross settlement system operated by Eesti Pank and the securities settlement system operated by the Estonian Central Securities Depository. Eesti Pank also has oversight responsibility for the card payments system, which is important because card payments make up a large share of all payments.

**TARGET2-Eesti** functioned without any major incidents in the second half of 2015, and the availability of the system was 100%. Incidents in the TARGET2-Securities (T2S) securities settlement platform led the TARGET2 settlement day to be ended later on two occasions. The European Central Bank led a pan-European TARGET2 crisis communication exercise in November to improve readiness for crisis situations, during which the functioning of communication between different countries and system participants in an emergency was tested. The crisis management procedures were followed in Estonia and the crisis communication was successful.

The banks had sufficient liquidity buffers at Eesti Pank for making settlements in TARGET2 without any disturbances and they only needed intra-day liquidity loans from Eesti Pank occasionally. Only two of the six banks that had set up the intra-day lending facility used the credit line, which is opened against pooled collateral, doing so on single occasions, and overnight credit was not required by any of the banks. Several commercial banks continue to hold substantially more than the reserve requirement at the central bank (see Figure 4.1).

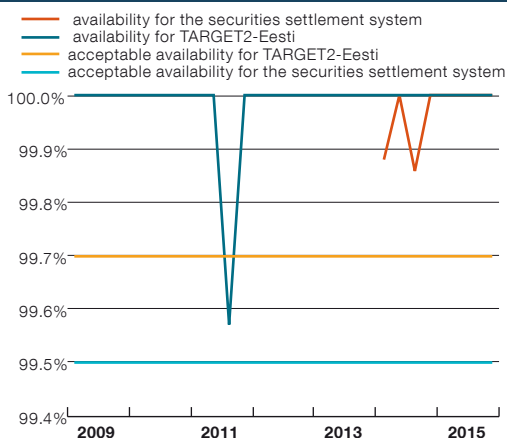
**The securities settlement system managed by the Estonian Central Securities Depository** saw no incidents in the second half of 2015 and had an availability rate of 100%. Each month it settled an average of 3900 transactions with a total value of 8.2 million euros. The settlement failure rate, which indicates the proportion of transac-

Figure 4.1. Value of interbank payments, reserve requirements, and balances held at the central bank



Source: Eesti Pank

Figure 4.2. Availability of interbank payment systems



Source: Eesti Pank

tions that were settled after the planned settlement date because the money or the securities were not present, was 0.01% of transactions (see Figure 4.2). The target of the Central Securities Depository for the settlement failure rate is below 1%.

Eesti Pank carried out an assessment of the securities settlement system in 2014 and made recommendations to the Central Securities Depository for ways to ensure the reliability of operation of the system. The Depository has implemented 19 of these recommendations and the result has been an improvement in its internal risk management. There are still nine recommendations that have not been implemented, and the deadline for doing

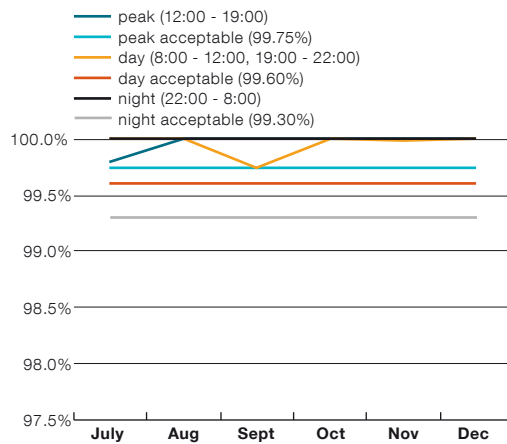
so was linked to when the technical implementing legislation for the Central Securities Depositories Regulation (CSDR) came into force. As this has been delayed and the Baltic depositories plan to unite in 2017 as the Nasdaq CSD, Eesti Pank is sending the outstanding recommendations to the Nasdaq CSD that is being created, and will observe whether the issues have been remedied in the system to be launched. These recommendations concern the minimisation of operating risks and business risks, and additions to the risk management framework.

There were three incidents in the **card payment system managed by Nets Estonia** in the second half of 2015 that led to a part of the card transactions initiated in ATMs and payment terminals not being completed. The incidents led to a drop in the service level, and availability was 99.79% at the peak time in July, while daytime availability in September was 99.74%, and in November it was 99.99%. The system operates around the clock seven days a week and authorisation of card payments was interrupted by these incidents for a total of 1 hour and 28 minutes during the half year (see Figure 4.3).

The most significant case in the second half of 2015 came on 19 September when Nets Estonia sent banks two copies of the payment file for the previous day in error. This was caused by an error created when changes were made to the system. Eesti Pank recommended that Nets Estonia plan to make its changes at a time when there are fewer card payments being made and when the consequences of any possible error are smaller. Nets Estonia was also advised to make the system controls more efficient so that dangers can be identified faster. Nets Estonia has done this and Eesti Pank considers that the measures needed to prevent the error reoccurring in the future have been taken.

Eesti Pank carried out an assessment of the card payment system following the principles of the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO). The result was that Eesti Pank advised Nets Estonia on how to eliminate the shortfalls identified. Eesti Pank is working together with the

**Figure 4.3. Availability of the card payment system Q3-4 2015**



Source: Eesti Pank

Financial Supervision Authority to minimise the settlement risk of the card payment system, as settlement is the responsibility of the banks that participate in the system.

**Eesti Pank is involved in overseeing the retail payments system STEP2, the gross payments system EURO1, and the securities settlement platform TARGET2-Securities (T2S), which are all important parts of the national infrastructure.** STEP2 functioned without incident in the second half of 2015. At the proposal of the banks in Estonia, it is planned to make a change in the STEP2 system from November 2016, and the impact of this is currently being assessed. This change will create an additional way for banks to send payment instructions to the system so that client payments made in the morning will be transferred to the payee faster. There were no serious incidents in the functioning of EURO1 either.

The central banks of the Eurosystem and oversight authorities have signed a cooperation agreement on oversight of the T2S securities settlement platform that was launched in June 2015. The work is mainly done in working groups led jointly by the European Central Bank and the European Securities and Markets Authority (ESMA), and both Eesti Pank and the Financial Supervision Authority represent Estonia in these groups. So far, oversight of T2S has focused on pre-launch assessment of the system and analysis of incidents encountered in T2S.

## APPENDIX 1. THE EFFECT OF LOAN GUARANTEES FROM KREDEX ON THE ESTONIAN HOUSING LOAN MARKET

The two key conditions for obtaining a housing loan are that the borrower have sufficient capacity to pay and that there be collateral for the loan. Banks usually issue housing loans for less than the market value of the real estate property provided as collateral, meaning the loan-to-value ratio (LTV) is usually below 100%. Low LTV ratios for housing loans help banks reduce the risks from a possible fall in the value of the collateral. Moreover, making a down payment is a way for borrowers to confirm their commitment and their desire to contribute to purchasing the property and to take responsibility for covering the loan liability over the long term, all of which also reduces the risks.

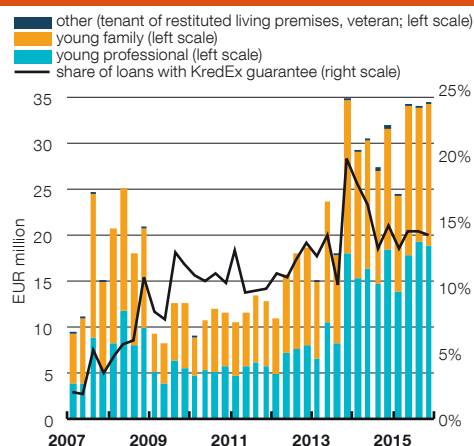
Although borrowers may be well able to pay their loan, the lack of sufficient resources for the down payment can hinder them in purchasing a place to live. The worst placed in this are certain groups in society such as the young, who need time to save up the money needed for a down payment or who do not have any real assets that they could use to make the initial payment in a purchase of a dwelling. A state can eliminate the market obstacles blocking access to housing by providing a support system that takes part of the collateral risk for itself by providing loan guarantees, allowing loans to be accessed with a smaller down payment. This role is played in Estonia by KredEx, a state foundation run under the Ministry of Economic Affairs and Communications that has been providing guarantees for housing loans since 2000.

### Housing loan guarantees from KredEx

As housing prices rose, so did the volume of loan guarantees given by KredEx, and it did so substantially. A larger number of loans with KredEx guarantees was taken in the past two years than in 2006–2008, when there was also very rapid growth in housing loans, and the share of new housing loans covered by guarantees is notably larger now than then. In the past couple of years the share of loans covered by KredEx guarantees has remained relatively stable at 14% even so (see Figure A1.1).

The volume of housing loans with KredEx guarantees may be boosted from this year not only by the growth stemming from normal price dynamics but also by an expansion of the target groups for guarantees, and the raising of the ceiling for guarantees. KredEx loan guarantees had previously been available to young professionals aged up to 35, young families with children aged up to 15, tenants in returned dwelling spaces, and military or Defence League veterans, but from 1 March 2016 this was expanded to include owners of energy efficient properties or people renovating properties to make them energy efficient<sup>16</sup>. The high price of energy efficient housing means that the upper limit of the guarantee for loans used to purchase such properties

Figure A1.1. Housing loans granted with KredEx guarantee by target groups



Sources: KredEx, Eesti Pank

16 One condition of a KredEx guarantee is that the property must be energy efficient and meet the minimum efficiency requirements by being in energy efficiency class C or better. In fact all newly built residential properties meet this requirement.



is higher at 50,000 euros than the guarantee limit for other groups, which is 20,000 euros. To use the housing loan guarantee it is necessary to pay a one-off fee of 3% of the amount of the guarantee.

The number of transactions being made with new housing has increased rapidly in recent years, which indicates that there should be sufficient demand for the new guarantee products. An important restriction on borrowing and the use of the guarantees is the income level of the general population and the ability to repay loans. Some movement between target groups for guarantees should probably be expected as well, as some young families and young professionals may prefer to use an energy efficiency guarantee to cover their down payment as the guarantee ceiling is then higher.

The Support of Enterprise and State Loan Guarantees Act sets a limit on the stock of guarantee contracts that KredEx can hold, and it allows the total value of such contracts for residential property to reach 96 million euros. At the end of 2015 the value of the portfolio of housing loans covered by KredEx guarantees was 38.6 million euros, which is some way below the limit for guarantees and so does not restrict the supply of guarantees for housing loans.

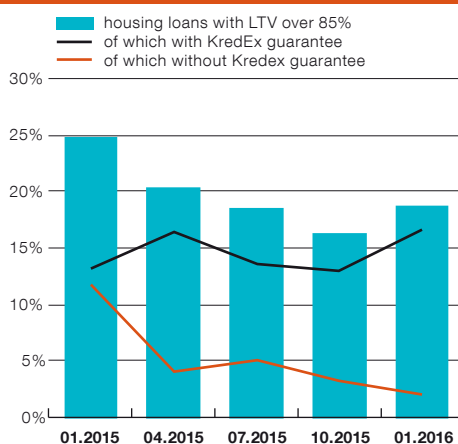
### The restriction imposed by Eesti Pank on the LTV ratio and the exception for KredEx guarantees

Eesti Pank introduced a limit of 85% for the LTV ratio for housing loans issued from 1 March 2015. An exception is made for housing loans with KredEx coverage, for which the LTV ratio can be up to 90%. KredEx guarantees for housing loans are a part of the state housing policy, so that is also considered when Eesti Pank designs its macroprudential tools. A second exception allows banks to issue up to 15% of their loans in a quarter with conditions that breach one or more of the Eesti Pank requirements for the LTV ratio, the debt-service-to-income (DSTI) ratio, and the maximum maturity.

From January 2015 the banks have to submit data to Eesti Pank on the conditions for new housing loans issued. These data show that the weighted average LTV ratio for housing loans fell by a few percentage points after Eesti Pank introduced the limit, but it then rose again in January to the same rate of 71% as a year before. The main cause of the small rise was that loans with KredEx guarantees made up a larger share of the loan turnover in January.

The share of loans with an LTV of over 85% among new loans fell over the year, to 19% in January 2016, which was due to housing loans with high LTV ratios that were issued without KredEx guarantees (see Figure A1.2).

**Figure A1.2. Share of housing loans with LTV over 85%**



Source: Eesti Pank

### **Consequences and risks**

From a macroprudential standpoint it is important to analyse trends in developments that could increase risks in the credit and real estate markets, and to react to them in time. The requirements for housing loans were introduced in March 2015 as a precautionary measure against possible excessive credit growth in the future.

Annual growth in housing loans was moderate in 2015 at around 4%, and growth in housing prices slowed. The lending conditions of the banks have remained relatively conservative and slightly fewer loans with a high LTV ratio have been issued. The slight increase in the volume of loans with KredEx guarantees mainly reflects the rise in prices in the real estate market.

The new energy efficiency guarantee product from KredEx will help to make new housing financed by borrowing more accessible. Given that there is some overlap between the target groups of the guarantees and that the income level of the general population is a limiting factor, it is hard at the moment to assess whether the new housing market measure will lead to excessively fast credit growth in current credit market conditions. At the same time, low interest rates are putting pressure on real estate prices, and this pressure might be added to by the new measure.

It is important that borrowers remember that the guarantees provided by KredEx help to mitigate the risks only to the bank. The guarantee makes the down payment smaller but may increase the risks to the borrower from a fall in the value of the collateral, and the guarantee also bears an additional cost. The risks in the credit and real estate markets may equally be increased if more additional mortgages backing the housing loan are issued with the aim of reducing the financial down payment.

In summary, Eesti Pank continuously monitors the credit and real estate markets and changes in the loan conditions declared by the banks in their regular reports and how they meet the requirements. If developments in the future indicate that risks are increasing too much, Eesti Pank is able to change the applicable requirements and review the permitted exceptions.

## APPENDIX 2. THE CHALLENGES OF A CHANGING ENVIRONMENT NEED BANKS TO REINVIGORATE THEIR BUSINESS MODELS

The financial crisis of 2008 left a serious mark on the operating results of the banks. As expected, the broadest negative impact of the crisis was on the heavily leveraged banking sector. Continuing problems are still evident in the period after the crisis as the recovery of the banks has been slower than that in the real economy.

The struggle to recover from the recession is particularly clearly demonstrated by the European banks. Their share prices have fallen by 36 percentage points against the general share indexes of the euro area since 2010, while in the USA in contrast the difference between the recoveries in the whole economy and the banks has been 26 percentage points (see Figure A2.1<sup>17</sup>). The banking sectors of both regions remain far from the peaks they reached before the financial crisis. The continuing weakness is illustrated by the negative sentiment of the financial markets that was expressed in the second half of last year, when the banking sector took a serious hit.

The operating results of the banks have been affected since the financial crisis by three main factors:

1. the large share of impaired assets that have remained on balance sheets since the crisis;
2. slow economic growth and low interest rates;
3. tighter regulation.

### Rapid changes in the environment of the banking sector in recent years

One of the main factors explaining the differences in the profitability of the banks is the share of **problem assets and non-performing loans** on the balance sheet. While the share of loans that are overdue has generally declined as economies have recovered, it has increased in the countries that were hit hardest by the crisis. The average share of non-performing loans in the European Union had fallen to 6% by the middle of 2015, but in some member states it still remained above 15%<sup>18</sup>.

The operating environment for banks in the years of weak growth since the crisis has been affected by the continuing cuts in benchmark interest rates by central banks. **Low nominal interest rates**<sup>19</sup> can benefit banks insofar as they encourage some new borrowers, boosting the lending activity of the banks. At the same time the expected weak economic growth has reduced the ability of borrowers to service their loans and restricted further demand for loans, reducing the profitability of credit institutions.

<sup>17</sup> Data as at 8 April 2016.

<sup>18</sup> [Risk Assessment of the European Banking System, European Banking Authority, December 2015.](#)

<sup>19</sup> The effect of low interest rates on the financial sector is described in more detail in [Financial Stability Review 2/2015.](#)

**Figure A2.1. Comparison of stock indexes of US and euro area banking sectors with the US and euro area main stock indexes (01.01.2006=100)**

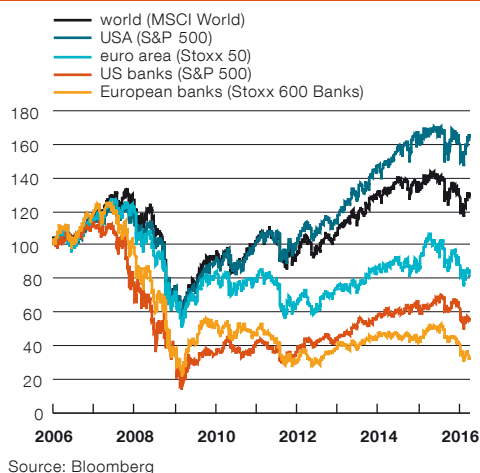


Table A2.1. The new legal standards affecting banks

	Goal	Main measures	The impact on banks	Implementation period
<b>Capital requirements</b>	To strengthen the solvency of banks	<ul style="list-style-type: none"> <li>The ratio of required capital to risk assets will remain at 8% but the capital requirement for CET1 will rise from 2% to 4.5%</li> <li>Five new capital buffers introduced</li> <li>Risk weights increased for several assets classes</li> </ul>	The biggest impact will be on banks whose balance sheets are most affected by changes in risk weights, such as investment banks. May provoke adjustments in the business model of banks.	2014–2021
<b>Leverage ratio</b>	To strengthen the solvency of banks	Own funds as a ratio to total assets of at least 3%	Biggest impact on banks with large-scale and low-margin operations. May lead banks to shrink and to focus on riskier assets.	2017
<b>Liquidity requirements</b>	To strengthen the liquidity buffers of banks	Liquidity coverage ratio for the short term and the net stable funding ratio for the long term, in order to prevent liquidity problems	Will push banks to prefer deposit-based funding, will reduce their dependence on short-term wholesale funding, and will raise the share of liquid assets on the balance sheet. Higher costs of funds may be expected.	2015–2018
<b>Structural reform in banking</b>	To protect banks against the possible risks from risky trading activities	Separation of proprietary trading from the units receiving deposits	Will principally restrain the profitability of investment banking as funding costs and general costs will rise and transactions become more complex.	2017–2018
<b>Resolution framework</b>	To reduce the negative influence of problems at the banks on the non-financial economy and the financing of the public sector	A more efficient framework for crisis resolution at banks including the creation of bail-in instruments	Costs of funding will increase and sources of funding will become more diverse. The framework will make banks hold some of their liabilities as bail-in instruments.	2016
<b>European Market Infrastructure Regulation (EMIR)</b>	To reduce the counterparty risk in the over-the-counter derivatives market	Centralisation of management of over-the-counter contracts	The main impact will be on investment banks. The management costs for over-the-counter contracts and liquidity costs will rise.	2012

Cuts in base interest rates have steadily reduced the ability of banks to earn net interest income<sup>20</sup>. In the first half of 2015 the net interest margins of the banks in the euro area were mainly below 2% of total assets<sup>21</sup> having averaged around 3% in advanced economies before the crisis<sup>22</sup>. It is made even more worrying that several central banks have introduced negative interest rates<sup>23</sup> and the commercial banks find it hard to pass these on to their retail clients. If the interest rates of the central banks remain low for a long time, the harmful effects will build up. This may persuade banks to change their business models and reduce the importance of activities that earn traditional interest income.

Furthermore the operations of banks have been affected considerably by the **introduction of new and extended laws regulating the banking sector**. Although tighter regulatory supervision of banks makes them less likely to fail and reduces the chances of serious problems emerging in a recession, the profitability of the banks may in consequence be reduced in the short term and investors may lose their appetite for banks.

20 [Financial Stability Review, European Central Bank, November 2015.](#)

21 Even below 1% in the United Kingdom, Finland, Luxembourg, Sweden and France. Data from [ECB Statistical Data Warehouse, Consolidated banking Data.](#)

22 [Bank Profitability: Financial Statements of Banks, OECD Banking Statistics 2000-2009.](#)

23 The European Central Bank first introduced negative interest rates on its standing deposit facility in 2014.

Investors are also left more uncertain because the cumulative effect of the regulatory changes is hard to assess. Legislation covering the different aspects of the operations of banks<sup>24</sup> can have contradictory impacts (see Table A2.1)<sup>25</sup>. Although many of the laws achieve their stated aims, they may have unintended side effects such as a reduction in lending to the non-financial sector or in profitability. In assessing the effectiveness of the legislation though, it is important to consider both the short-term costs of it and the benefit of improving the resilience of the banks in the face of economic shocks over the long term. It is estimated that the long-term positive impact in the euro area clearly outweighs the negative<sup>26</sup>. Regulatory changes have boosted the capitalisation of banks in the euro area from 8% in 2008 to 14% now, while the median loans-to-deposits ratio has declined from 140% to 110%. At the same time there has been a notable increase in non-bank financing, which is not regulated to the same extent as bank-based financing, making monitoring of the possible substitution effect important. The continuation of these trends could create additional risks to financial stability.

Legal clarity is important when new legislation is introduced, as this allows the banks to move over to a sustainable business model in time. Changes were introduced after the crisis in quite a short time, which may have had a negative impact on the banks. The legal climate is now more stable, permitting the banks to adjust their operations and adapt to the new environment.

### **Banks are reviewing the sustainability of their business models**

There are several reasons why banks are changing their business models<sup>27</sup>. One is that they are adapting to market forces and competitive pressures, including through mergers and acquisitions and general restructuring. Another is that they are reacting to changes in the legal environment, including changes in monetary policy, or the introduction of conditions for state aid or changes to those conditions. There are many others as well such as political changes or changes in the appetite for risk. Several of these changes have happened to some extent in recent years.

The classic business model of the banks is based on the net interest margin. This works on the assumption that the price of loans is higher than the price of funding. In comparing the profitability of banks however, the business model is treated as being the same for all of them.

There is no single method for classifying business models. Descriptions of business models are based on indicators that cover balance sheets, income statements and ownership structures, together with various risk and regulatory indicators and geographical orientation and quantitative indicators. Ayadi et al (2015) use indicators for the European banks to define **five business models** – universal banks, regional universal banks, universal banks with diversified risks, specialised banks and investment banks<sup>28</sup>.

---

24 Such as their business areas, sources of funding, income structure, risk aversion, size or geographic area.

25 [Overview of the Potential Implications of Regulatory Measures for Banks' Business Models](#), European Banking Authority, February 2015.

26 [Eurosystem contribution to the European Commission's call for evidence on the EU regulatory framework for financial services](#), European Central Bank, 2016.

27 See [Ayadi, R., De Groen, W.P.\(2015\), Banking Business Models Monitor 2015, Europe, HEC Montréal](#).

28 The authors use the terms “diversified retail (type 2)”, “focused-retail”, “diversified retail (type 1)”, “wholesale” and “investment”.

The credit institutions operating in Estonia are **regional universal banks**, which are defined as operating in a certain geographical area and focusing on their core activity of lending out retail deposits<sup>29</sup>. The Nordic banks operating in Estonia are classed as **universal banks**, which have more variation in their funding base, business loans and trading portfolios, and cross-border operations<sup>30</sup>.

Comparison of the business models reveals that in 2005–2014 the banks of Europe reacted in different ways to similar changes in their economic environments. The universal banks were the only ones to maintain the profitability of their assets and equity throughout the period. The advantage they gained was not used to grow their loan portfolios, meaning that their average loan growth was less than at banks with other business models, but to set up loan provisions and refinance liabilities. The return on the assets of regional universal banks was high, except during the crisis years of 2011–2012, while they were in the middle for return on equity. They were more cost efficient and suffered relatively small loan losses, and they grew their loan portfolios at the same time.

No major changes in the operating environment can be detected from comparison of the sources of income in the business models, and with some exceptions the sources of income for the banks remained stable. During the crisis all the universal banks earned more from net interest income, and it now provides a larger share of their income than it did on average before the crisis. Their trading income has recovered in the same way. After the financial crisis the share of interest income increased at investment banks, and the share of income from trading shrank. The most volatile was the income of the specialised banks, partly because they bore notable losses from trading activities during the crisis.

Some banks changed their business model in order to maintain profitability, a process that accelerated in 2013–2014. Among regional universal banks, 92% kept their current business model, which was the highest figure for any group of banks, while the lowest figure was 80% for universal banks. The most popular new business model was the **universal banks with diversified risks**, which stands out for its modest business lending and large trading portfolio, extensive retail deposits and tight integration with other banks<sup>31</sup>. As a rule, banks have a limited area of operation and are focused on their domestic market alone. This business model has been profitable, gaining higher returns on assets and equity than others<sup>32</sup>.

### The effect of the changed environment on the Estonian banking market

The big Nordic banks operating in Estonia (Swedbank, SEB, Nordea and Danske Bank) have recovered notably faster since the financial crisis than the average European bank. This is a reflection of the smaller share of problem assets at those banks and of the relatively strong position of the economy in the region. At the same time the share prices of those banks have

29 In 2005–2014 business loans were equal to an average of 79% of the total assets of regional universal banks and retail deposits to 70%.

30 In 2005–2014 business loans were equal to an average of 69% of the assets of universal banks and retail deposits to 37%. Liabilities to other banks were equal to 43% of assets. Universal banks are those with at least one subsidiary or branch in another country.

31 Business loans provided 56% on average of the assets of universal banks with diversified risks in 2005–2014, the trading portfolio provided 31%, and loans provided 10%. Retail deposits were equal to 71% of assets and liabilities to banks were equal to 14%.

32 The return on assets of universal banks with diversified risks was 0.5% in 2005–2014 and the average for banks was 0.48%, while their return on equity was 8.1% against an average of 7.6%.

moved sharply downwards since the second half of 2015. New ways of earning income are being sought in this region so that better financial results can be achieved.

The banks operating in Estonia, as regional universal banks, mainly fund themselves with retail deposits. There have been several changes in the activities of the banks in recent years. The most apparent of these are the cuts in operating costs that have reduced the number of ATMs and shrunk the network of branches, and the redirection of their focus onto specific segments of the market. More detailed and less obvious changes have also been made in the range of products and in price policies.

Accordingly, it can be assumed from the changes that have occurred or will occur in the operating environment that adjustment will continue in the banking sector. There are several points to consider here. One is that the small size of the market means it can be thought that the **banks will not make any fundamental changes in their business models** in the near future. It may be assumed that to maintain their profitability they will reassess the income structure and increase the share of service fees and trading income, and focus on more profitable operations and optimise their costs. Another is that there are fewer opportunities for making further cuts to preserve the status quo of the business model and the banks will need to **offer something innovative in the local market** to justify changes in the income structure and increased service fees.

A third possibility is that the **geographical operating principles of the groups could be reassessed**. Before the crisis the banking sector in Europe saw a trend of mergers and acquisitions that reduced the number of credit institutions by one third in ten years, but since the crisis the Nordic banking groups have been focused on their home markets and have cancelled their earlier plans for expansion. A key to designing strategy is to have a definition of the home market, which is not necessarily limited by national borders in Nordic countries. Changes in the operating environment however may narrow the scope of the domestic market. A fourth possibility is that **some business lines or weakly integrated subsidiary units may be sold**. It is probable that over time a combination of several of these possibilities will happen.

Major changes in the activities of the Nordic banks have already been in evidence in recent years. Several banks have tightened up their activities in the retail market and reduced the network of branch offices it requires. Time will tell what changes the region's bank groups will introduce further. It is clear that the business environment of the banking sector is constantly changing, and some further optimisation of the business models may be expected in future.

### APPENDIX 3. THE IMPACT ON ESTONIAN FINANCIAL STABILITY OF THE RISKS TO THE NORDIC BANKING SECTOR BEING REALISED

Large and growing household indebtedness and continuing rapid rises in real estate prices in Sweden and the other Nordic countries have increased imbalances in the economies there and the risks to financial stability. The Nordic economies are tightly interconnected by trade and financial intermediation, so problems in one country can easily be transmitted to the others.

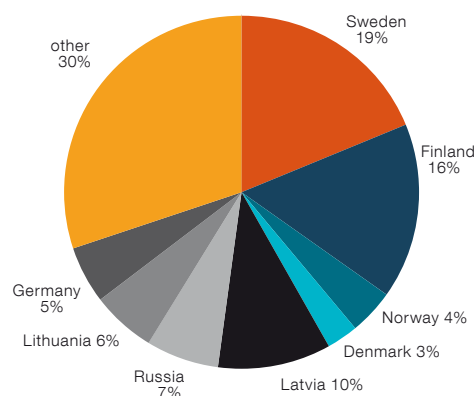
The close foreign trade and investment links between the Estonian economy and the Nordic countries mean that the Estonian economy and financial sector are also vulnerable to risks coming from those countries and Sweden in particular. They affect the stability of the Estonian financial sector through the income and solvency of Estonian exporting companies and through the liquidity of the banking sector and possible changes in its funding. This makes it important to estimate how far negative influences from the Nordic countries could be passed on into the Estonian economy and financial sector.

#### The Nordic countries and Estonian exports

The share of Estonian exports going to the Nordic countries has remained relatively steady at 36–38% since Estonia joined the euro area. The major drop in exports to Russia in recent years has increased that share a little, and in 2015, Sweden, Finland, Norway and Denmark together took 42% of Estonia's goods exports (see Figure A3.1). Sweden and Finland are Estonia's two biggest export partners and so it is very important for Estonia that developments in those economies should be favourable. A further illustration of the dependence of the Estonian economy on that area is that around half of the foreign direct investment in Estonia comes from Sweden and Finland. A reduction in demand for imports resulting from a shock of any kind to those economies would have a negative effect on Estonian exports and so on the whole economy. To assess the possible effect more accurately we should look at the structure of goods exports to the two countries.

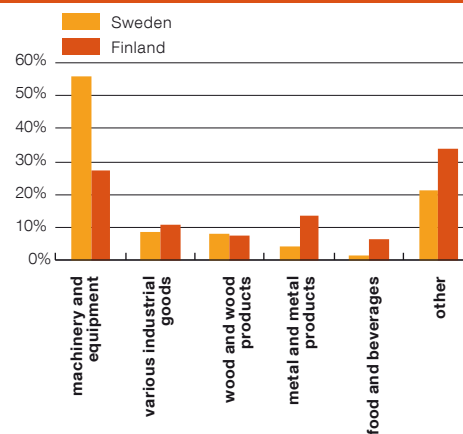
There is a major preponderance of machinery and equipment in goods exports to Sweden, and they account for up to 60% of all the goods exported there (see Figure A3.2). The next biggest group of goods in exports is various manufactured goods, chiefly furniture, and wood exports, both of which account for around 10% of goods exports to Sweden.

Figure A3.1. Estonian goods export partners in 2015



Source: Statistics Estonia

Figure A3.2. Structure of Estonian goods exports to Sweden and Finland in 2015



Source: Statistics Estonia



These groups of goods supply three quarters of all exports to Sweden, and that is in turn equal to 15% of all Estonia's goods exports. A very large proportion of around 80% of the exports of machinery and equipment are base stations produced in Estonia for communications networks, data processing and similar equipment, and parts for them. The demand in this area is clearly international, and data from the Swedish statistical office show that such goods make up one of the biggest export items from Sweden. This suggests that orders in this area are probably affected not so much by the economic circumstances in Sweden as by demand in Sweden's export partner countries and by the general global development of the sector.

Exports of wood and furniture are much more sensitive to processes in the destination countries. The main wood product exported to Sweden is sawn timber and it may be assumed that there is relatively little re-export of that. The use of sawn timber is quite tightly bound up with what happens in the real estate sector. Production of industrial goods is generally directly linked to end consumption.

Exports of goods to Finland are equally distributed between groups of goods. The biggest single share is again machinery and equipment with 27%, but in contrast to Sweden, Finland mainly takes electric motors, conveyor belts and similar products. Metal products are also important with 13% of all goods exports, as are wood with 8%, furniture with 11%, and processed food with 7%. Export volumes for most groups of goods other than machinery and equipment, wood, and mineral products are larger than the volumes destined for Sweden, and a larger share of the goods exported are intended for consumption in Finland.

There is quite a large share of investment goods in Estonian exports to Sweden and Finland. This means that any sort of impact on Estonian exports will first be felt through a reduction in corporate investment in those countries and only then through a change in consumption behaviour. Clearly the trend of growth in Swedish domestic consumption has a significant effect on the Estonian economy as the volume of exports to Sweden is large even without machinery and equipment. In the wider picture, global demand and the development in particular economic sectors is probably still more important together with the general confidence of companies, which affects their future investment decisions. The blow to Estonian exports and the Estonian economy would be much larger if some risks to the Swedish economy were to be realised so suddenly and extensively that the impact was transmitted to other countries that are closely connected to Sweden, such as Finland, Latvia and Lithuania, causing confidence among businesses and consumers to fall in the whole region.

### **The links between banking in the Nordic countries and in Estonia**

Another way apart from goods exports that Estonia is exposed to risks from the Nordic countries is through the banking system. Some 90% of the Estonian banking market is held by Nordic banking groups, and the banks in Estonia are connected to their parent banks to a greater or lesser extent by liquid assets and funding. In February 2016 funding from parent banks supplied 20% of the funds of the Nordic banks operating in Estonia and claims on parent companies were equal to 9% of total assets. Although the difference between funds from parent banks and the corresponding claims was slightly negative as a ratio to total assets at -8%, there are large differences in the ratio at different banks (see Figure A3.3). While some banks have lent a substantial share of their assets to their parent banks, funding from parent banks is an important source of funds for others.

Being part of a larger group may in one way reduce the risks for banks in Estonia, but in another way it may prove a channel through which liquidity shocks affecting the parent bank can reach the subsidiaries or branches operating in Estonia. The Nordic banking groups are most immediately vulnerable through their funding, which is mainly market-based and requires constant refinancing. If investors were suddenly to reassess the risks to the Nordic economies or banks as being much higher, if the economy in one country were to turn down for example or real estate prices to fall, funding could quickly become more expensive for the banks, and access to the markets more restricted.

Furthermore, the banking groups are indirectly vulnerable to the risks stemming from the high level of household indebtedness. So if real estate prices were to fall or interest rates to rise and loan servicing costs with them, households might reduce their consumption. This would impact the revenues of companies and their ability to pay their loans, which would hurt the loan quality of the banks.

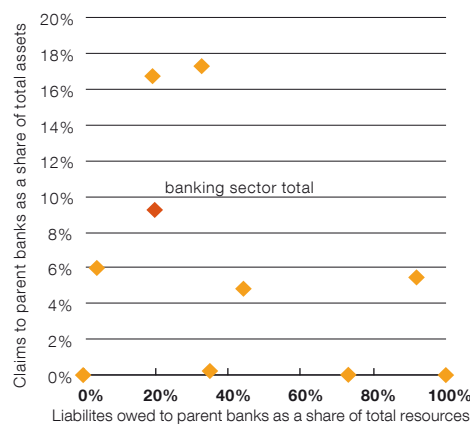
### Possible negative scenarios

Since the global financial crisis, economic studies have paid particular attention to the role played by international banks in transmitting shocks from the banking system of one country to that of another. There is no single agreed answer to the questions of how the head offices of banking groups react in a liquidity shock, and what motives and considerations are crucial for liquidity management within groups in these circumstances. Broadly speaking though, the answers can be divided into two hypothetical scenarios.

In the first scenario, liquidity management centres on the needs of the head office. A hierarchical order of this sort is quite common in theoretical models of international banking<sup>33</sup>. This means that a liquidity shock hitting the Nordic countries would see the subsidiaries and branches in Estonia supporting their parent banks, and intra-group cash flows being directed to the head office. In this way the parent banks would pass the liquidity problems on to the banking system in Estonia, which could lead to the credit supply being reduced. The banks most affected by this would be those that are most dependent on their parent banks<sup>34</sup> and it would be hard for them to find alternative sources of funds quickly.

In the second scenario the group level liquidity management is resolved by taking account of the specific features of the location of group members<sup>35</sup>. Among the home markets of the group,

**Figure A3.3. Relations between Estonia's banks and their Nordic parent banks as at 29.02.2016**



Source: Eesti Pank

33 See eg Bruno, V., Shin, H.S., (2011). *Capital flows, cross-border banking and global liquidity*. Working Paper. Princeton University

34 Jeon, B.N., Olivero, M.P., Wu, J. (2013). *Multinational banking and the international transmission of financial shocks: Evidence from foreign bank subsidiaries*. *Journal of Banking & Finance*, Volume 37 Issue 3, March 2013, pp 952–972.

35 This scenario is based on Cetorelli, N., Goldberg, L.S. (2012). *Liquidity management of US global banks: Internal capital markets in the great recession*. *Journal of International Economics*, Volume 88 Issue 2, November 2012, pp 299–311.

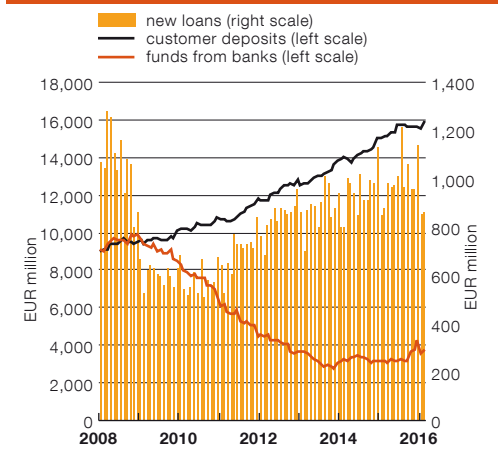
some places are more important for funding and others for investment. If there is a liquidity shock, support would be sought first from those places that are usually able to attract local funding. Meanwhile, places that are important to the group for investment and where operations are profitable would remain untouched. How the shock affecting the parent bank would reach group entities in Estonia in this scenario depends on how the parent bank sees its operations in Estonia. The banks operating in Estonia are relatively profitable, but at the same time, domestic deposits in the Estonian banking sector have grown strongly in recent years. The differences between the banks give grounds for believing that the impact of any negative developments at the parent banks would not necessarily be the same for all the banks in Estonia. It is important to remember that the group entities in Estonia are so small for the parent banks that their contribution to supporting the Nordic banking groups would not be enough to make a difference in the event of problems arising.

### Experience from the previous crisis

The Swedish banks fell into difficulties during the global financial crisis at the end of 2008 when demand for their covered bonds dropped and both Riksbank and the Swedish state treasury had to intervene in the covered bond market. As demand grew for safe haven investments, which did not include covered bonds at that time, the state treasury issued additional short-term sovereign bonds. The money raised from the sale of those bonds was then invested in the covered bonds of the Swedish banks. After some time, the Riksbank allowed the banks to use their covered bonds as collateral for loans from the Riksbank. The peak value of the bonds used as collateral for the central bank reached 500 billion krona and loans from the Riksbank to the banks were of 375 billion krona.

The Estonian banks were affected in autumn 2008 by the global crisis that hit their Nordic parents as deposits started to be directed from banks operating as subsidiaries of foreign banking groups into banks operating as branches. This was done in order to qualify for from the generous deposit guarantee scheme that applied to branches at the time if it proved to be necessary. At the end of 2008 the loans and deposits of units of parent banks operating in Estonia also started to decrease rapidly, after which loan turnover also dropped sharply (see Figure A3.4). By the middle of 2009 the funding of the banks and the volume of bonds issued were down around 15% and the amount issued in loans to companies and households in the second quarter of that year was just a little over half the amount a year previously.

**Figure A3.4. Banks' liabilities and new loans granted to the non-financial sector**



Source: Eesti Pank

The operating environment of the Estonian banking sector has changed a lot since then.

1. Although the minimum reserve requirement for banks is now noticeably lower than before the euro was adopted, at 1% instead of the 15% of 2006–2010, the banks operating in Estonia have been subject to a liquidity coverage ratio requirement since the start of this year. This requires banks to have sufficient liquid assets to cover a possible outflow of deposits or other liabilities for 30 days. Liquid assets deposited in parent banks are

generally not included in the calculation of the requirement.

2. The banks have to put in place a recovery plan and submit it to the financial supervision authorities, describing the additional measures that could be taken to improve liquidity after it has deteriorated, and they must review this plan at regular intervals.
3. Under the currency board, the ability of the central bank to provide liquidity support if needed was quite limited, but in the Eurosystem there are more ways of doing this, including emergency liquidity assistance.

### **Conclusion**

The high levels of household indebtedness in the Nordic countries mean there is a direct risk to the economy from lower private consumption. The structure of goods exported from Estonia to Sweden indicates that Estonian exporters are particularly vulnerable to a reduction in investment from Swedish exporting companies. Swedish demand for imports depends primarily on global economic activity and the general confidence of companies, which affects their investment decisions. A fall in domestic consumption in Sweden would also strongly affect demand for the output of Estonian exporters as an estimated 40% of goods exported from Estonia to Sweden are destined for domestic consumption. The effect on Estonian companies would be larger if the other Nordic countries were to see a reduction in economic activity at the same time.

The banks operating in Estonia are directly vulnerable to risks from the Nordic countries as 20% of their liabilities come from their parent banks and their liquidity management is closely connected with the parents. If the volume of funds and loans from the parent banks were to decline sharply, it would have a major impact on the funding of companies and households in Estonia, although it is estimated that the impact would be less than before the financial crisis. It is hard to assess how the parent banks would act if they were subjected to liquidity problems, but the banks operating in Estonia are better protected than before the crisis by the current liquidity requirements, which are stricter than previously, and by the improved safety net.