EESTI PANK

EUROSÜSTEEM

FINANCIAL STABILITY REVIEW

2/2022

The Eesti Pank Financial Stability Review is released twice a year. The Financial Stability Review is Eesti Pank's main publication analysing financial stability, and it contains an assessment of the risks to the stability of the financial system, and an outline of the macroprudential measures taken by Eesti Pank.

Financial stability means the smooth functioning of financial intermediation under both normal and unexpectedly adverse circumstances. The aim of macroprudential policy is to increase the resilience of the financial system and to avoid systemic risks to financial stability building up. Macroprudential measures help reduce the damage caused by a financial crisis to the non-financial economy.

The Financial Stability Review covers the main areas of risk and identifies possible systemic risks. As the Estonian financial system is largely bank-based, the main focus of the analysis is on risks and vulnerabilities that could substantially harm the Estonian banking sector or affect its activities.

The Financial Stability Review is available at

https://www.eestipank.ee/en/publications/financial-stability-review

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EESTI PANK'S ASSESSMENT OF THE RISKS TO FINANCIAL STABILITY

Falling demand, high inflation and rising costs for servicing loans pose a threat to the ability of companies and households to repay their loans. Economic activity has declined in the second half of this year in Estonia and in Estonia's main trading partners. High inflation is reducing purchasing power and the capacity to service loans. Central banks have started raising monetary policy interest rates sharply to combat inflation, and the impact also increases the cost of servicing loans. The September forecast from Eesti Pank expects the economy to shrink this year by around 0.5%, and to grow next year by 1%. Geopolitical instability means, however, that there is more uncertainty than usual about the near-term future. Improved corporate profitability in 2021 and the financial buffers built up in recent years allow the hope that short-term problems with loan repayments will be coped with. The ability of households to repay their loans depends largely on whether unemployment starts to rise. The Eesti Pank September forecast expects that demand for labour and employment will both start to decline in the second half of this year, but unemployment will only rise a little. The forecast is that overdue loans will only increase a small amount next year, from 0.2% of the loan portfolio of the banks in September 2022 to 1%.

The rapid growth in the debt liabilities of companies and households has increased the danger of them becoming more indebted and so more vulnerable to a deterioration in the economic climate. The debt liabilities of households were already growing fast last year, while those of companies have started to grow increasingly fast this year. The market for credit has been supported by a very active real estate market, and so very fast growth has been seen in housing loans and in the debt liabilities taken on by companies to fund real estate. Strong demand caused prices in the housing market to rise much faster than household incomes, increasing the risk of a correction in prices. The growth in debt has exceeded the long-term capacity of the economy for growth since the end of 2021, and the gap has widened further this year. Declining economic activity means that a fall in demand for credit may be expected in the near future, but debt will still grow faster in the coming years than the economy as a whole. Debt growing faster than incomes means that companies and households will need to cope with higher levels of debt if the economic climate deteriorates. This intensifies the risk of more borrowers having difficulties in repaying loans, and of the loan losses of the banks increasing.

The tensions that have appeared in the money and capital markets in the second half of this year have increased the funding risks for some banks. The sharp rise in inflation together with the uncertainty caused by Russia's war in Ukraine and the deteriorating outlook for economic growth have made it harder to get funding from the money and capital markets. Funding is also made more expensive for issuers from Estonia because Estonia's geographic proximity to the war makes the risks in Estonia seem greater in the eyes of foreign investors. Although the Estonian banking sector is mainly funded from local deposits, banks have issued bonds more actively in recent years as well. The share of funding from bonds remains quite small for the banking sector as a whole at around 10% of all liabilities, and so the risk is quite limited and affects only a few individual banks. The subsidiaries of foreign banks could also be exposed to funding risks as their parents get their funding partly from the money and capital markets. This risk has been reduced as the share of funding that the parent banks get from the money and capital markets has decreased as well.

The most important neighbouring countries for the Estonian banking sector also face similar risks. Falling demand in domestic and foreign markets, high inflation and increasing costs of servicing loans are affecting the ability of companies and households in Latvia and Lithuania to repay their loans, and so loan losses could increase at the branches of Estonian banks operating in those countries. The high export intensity of the Swedish economy makes it vulnerable to a fall in demand in foreign markets. The Swedish economy also faces notable risks from high and rising levels of real estate prices and indebtedness, which make the economy less resistant to shocks.

Eesti Pank considers that a rise should be considered in the cyclical component of the countercyclical capital buffer to cover the risks from rapid growth in lending. The risks coming from rapid growth in lending have increased in recent years and the banks need to hold sufficient capital to be able to cope if the risks to their current loan portfolios were to materialise. Although borrowing activity is likely to decline somewhat as the economy cools, and the recent high inflation that has increased loan volumes will come down, the relatively good capacity

Eesti Pank's assessment of the main risks to financial stability

REDUCED CAPACITY OF COMPANIES AND HOUSEHOLDS TO PAY IN ESTONIA AND IN THE KEY NEIGHBOURING MARKETS FOR THE BANKS	Falling demand, high inflation and increasing loan servicing costs reduce the capacity of companies and households to pay, and the loan losses of the banks increase in Estonia and in their key neighbouring markets.	→
RAPID GROWTH IN BORROWING AND AN INCREASE IN INDEBTEDNESS	The loans of companies and households continue to grow fast and their debt starts to increase. The danger consequently grows of more borrowers than before having difficulties repaying their loans, and the loan losses of the banks increase.	↗
INCREASED RISKS TO THE FUNDING OF THE BANKS	Increased uncertainty and rising interest rates in the money and capital markets make it harder and more expensive for Estonian banks and their parent banks operating in neighbouring markets to issue bonds, and this puts pressure on their liquidity and their funding.	↗

Scale: 1 = minor risk and 6 = major risk. The arrow indicates changes in the risk level from the assessment of April 2022

1	2	3	4	5	6

of borrowers to borrow and the need for investment will help keep loan growth fairly brisk in the coming years. Raising the countercyclical capital buffer requirement should not have a significant negative impact on the funding of the economy, as the banking sector has sufficient own funds to cover the higher capital and buffer requirements. Capitalisation is also supported by the good profitability of the banks, which will probably improve further as money market interest rates rise, and the funding base is generally on a firm footing. Eesti Pank has decided to raise the additional buffer requirement for AS LHV Pank from 1.5% to 2% from 1 January next year, as the systemic importance of the bank has increased as its market share and assets have grown fast.

Macroprudential measures of Eesti Pank

Measure		**Requirement**
Countercyclical capital buffer		0% (1% from 07.12.2022)
Other systemically important institutions buffer	Swedbank AS	2%
	AS SEB Pank	2%
	Luminor Bank AS	2%
	AS LHV Pank	1.5% (2% from 01.01.2023)
Risk weight floor for mortgage loans*		15%
Requirements for issuing housing loans**	Loan-to-value (LTV) limit	85%***
	Debt service-to-income (DSTI) limit	50%
	Maximum maturity	30 years

* The floor is set for the average risk weight of the mortgage loan portfolio of credit institutions that use the IRB approach
** The limits may be breached by 15% of the volume of mortgages issued each quarter
*** The limit is 90% for loans guaranteed by KredEx

FALLING DEMAND, HIGH INFLATION AND RISING INTEREST RATES POSE A THREAT TO THE SOLVENCY OF COMPANIES AND HOUSEHOLDS

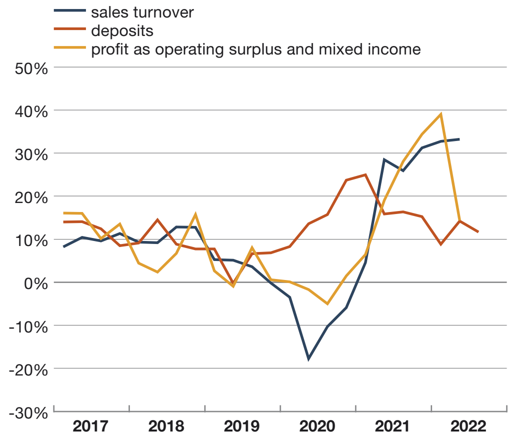
CONTRACTING ECONOMIC ACTIVITY WILL REDUCE THE INCOME OF BUSINESSES AND RAISE UNEMPLOYMENT

The financial results of businesses were mainly good in the first half of this year, but the first signs of the economic climate cooling were already apparent then. Sales revenues at companies were up more than 30% on the year (see Figure 1). Sales revenues grew rapidly in almost all sectors, though the growth came mainly from rising prices, while the growth in the volumes of products and services sold slowed. Evidence of this is that the growth in corporate value added was very fast at current prices, but at constant prices it was already in decline in several areas (see Figure 2). The data on corporate profits give quite mixed signals. Profits at current prices continued to grow over the year in the second quarter of the year, but GDP data indicate that profits may already have declined in quarterly terms. Improved corporate profitability in 2021[1] and the financial buffers built up in recent years allow the hope that companies will be able to cope with short-term problems with loan repayments.

Economic activity will decline in the second half of this year in Estonia's main trading partners as well as in Estonia. Although there are some differences between countries, the problems are relatively similar, with high inflation reducing purchasing power, domestic and foreign demand falling, and interest rates rising. Such an economic environment can also hurt sentiment, which then reduces the confidence to consume and invest, and so total demand may fall further (see Figure 3).

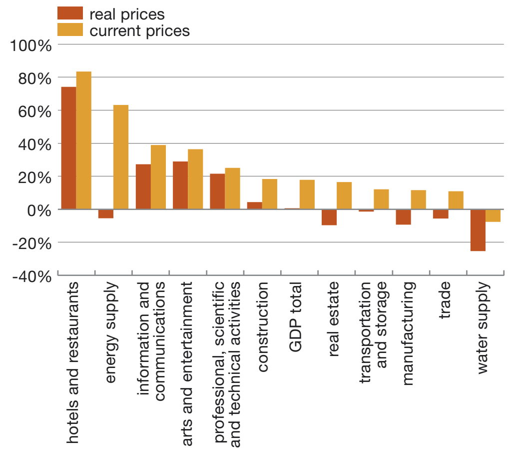
The ability of households to repay their loans depends above all on incomes, and so on whether unemployment starts to rise. The strong position of the labour market has so far supported demand and the capacity to pay, while unemployment has remained low in Estonia and in neighbouring countries. Unemployment generally reacts to changes in economic activity with a lag however, and so problems may emerge in the years ahead. The September forecast from Eesti Pank expects demand for labour to weaken in the second half of 2022 and employment to fall, but notes that this will happen from a very strong

Figure 1. Annual growth of corporate sales turnover, profit and deposits



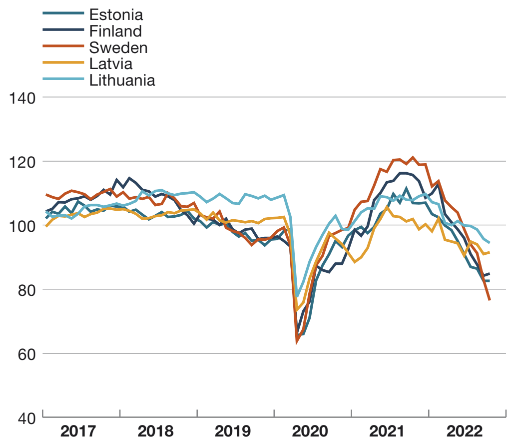
Sources: Eesti Pank, Statistics Estonia

Figure 2. Annual growth of corporate value added in Q2 2022



Source: Statistics Estonia

Figure 3. Economic sentiment indicator



Source: European Commission

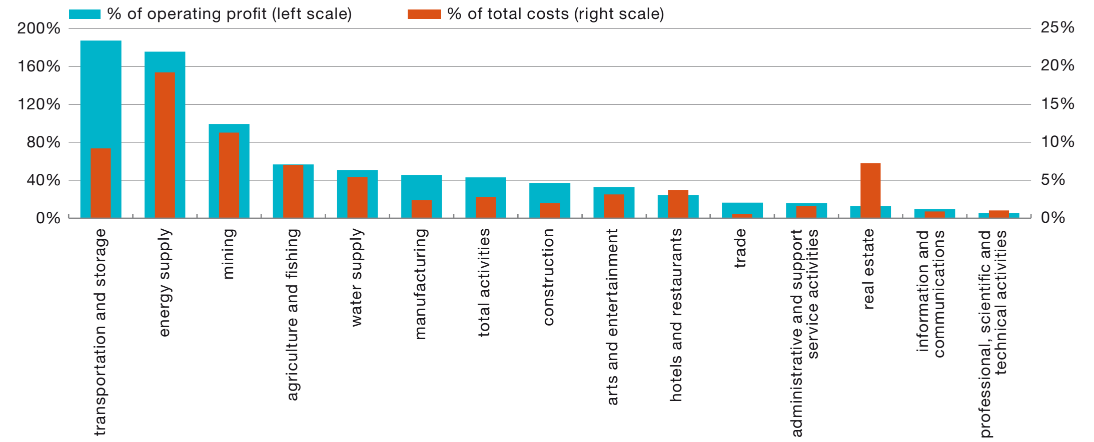
1 The profitability of businesses was a little better in the second quarter of 2022 than it was immediately before the pandemic.

starting point. Although demand for labour being weaker will push the unemployment rate up next year, the impact should remain limited. In the broad sweep, there will remain labour shortages in the labour market, and these will continue to exert upwards pressure on wages.

HIGH INFLATION LEAVES LESS MONEY FOR SERVICING LOANS

High inflation poses a threat to the ability of companies and households to repay their loans. If companies are able to pass the higher cost of inputs on to consumers, their capacity to repay their loans may even be improved for a short time with prices rising, as sales revenue and profit at current prices increase. Over the longer term though, high inflation will probably make companies less competitive and reduce demand for goods and services. High inflation will equally reduce the available cash flows of households and their capacity to cover their loans. If companies cannot pass higher input prices on to consumers, the negative impact of inflation will hit them first of all, and they will rapidly become less able to cover their loans.

Figure 4. Share in total costs and operating profit of expenditure on energy as electricity, fuel and heating; average for 2018-2020

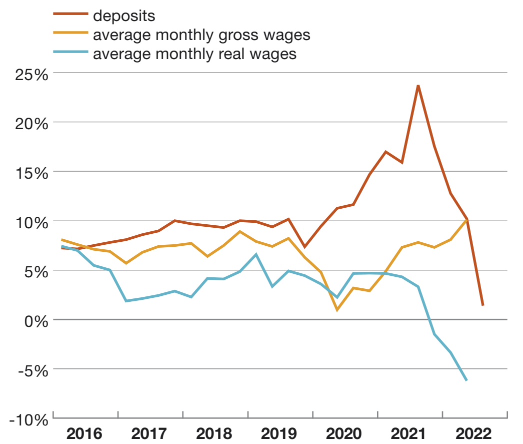


Source: Statistics Estonia

Rapidly rising energy prices are a threat above all to businesses where energy accounts for a large proportion of spending. Energy is the input that has risen most in price for a large share of companies, and the rapid rise in energy prices will hit hardest at companies in logistics, agriculture, real estate and various branches of manufacturing, as that is where energy costs are a large share of total corporate spending and profits (see Figure 4). Although energy costs also play a large role in the energy sector and in mining, companies in those areas of the economy will at the same time gain from higher energy prices, and so the total impact for them will be positive.

High inflation will over a longer period put pressure on the ability of households to service their loans. The first to feel the pressure will be households on lower incomes. Although incomes rose fast in nominal terms, high inflation had already reduced the purchasing power of wage earners by the middle of this year (see Figure 5). While there were still some sectors at the end of last year where the growth in real wages was positive, by the middle of this year purchasing power was declining for everyone. This means that inflation will leave households with less money than before after essential spending. Households on lower incomes are particularly vulnerable, as essential spending consumes a larger part of their incomes. People

Figure 5. Yearly growth in nominal and real wages and household deposits



Sources: Statistics Estonia, Eesti Pank

whose incomes are below the average and so are vulnerable are often those employed in accommodation and food service, real estate activities and branches of the service industry.

The incomes of people taking a housing loan are mainly higher than the average in Estonia, and so high inflation affects them a little less. The median net income of someone taking a housing loan in the second quarter was 1774 euros, which is about third higher than the Estonian median wage[2]. A little less than half of the loans were taken jointly with another applicant, and in that case the net median income totalled 2990 euros. The incomes of people taking car leases and consumer loans are generally higher than the average, but consumer loans have been taken more than other types of loan by households on lower incomes[3].

The decline in household savings indicates that households have been using their savings more than before since late autumn last year. It could be observed this summer that the deposits of households in banks shrank by around 10-30 million euros each month. Savings had grown fast for two years, but the yearly growth in savings dropped by the end of September this year to only 1.4%, indicating that less is being saved than before. The savings of private individuals remained quite large at the end of September at 11.15 billion euros, but it should be noted that deposits are distributed unevenly, and many people do not have any financial buffer. More than 17% of households responded to a survey in September that they were spending their earlier savings, and 4% said they were living in debt, while in May 13% were spending savings and 2% were in debt. The survey found that only 41% of households, or less than half, were saving money in September, while 51% had been a year earlier. Households on lower incomes have pointed to a more serious deterioration in their finances. Although the financial position of households with incomes above the average has worsened as well, a large part of them said in September that they were able to save at least a little[4].

Empirical research has shown that inflation can have a large, harmful impact on the ability of companies and households to pay their loans that may only be felt after a couple of years. The research in 2019 by Kukk and Levenko[5] found that if consumer price inflation rises above its target of 2%, overdue loans increase in both Western Europe and Central and Eastern Europe (CEE), but by more in CEE. The harmful impact of inflation peaks in CEE countries after seven quarters, and a rise of one percentage point in inflation leads to an increase of 0.3 percentage point in the share of loans overdue. Research by Staehr and Uusküla[6] finds that the effect may be even larger, as a rise of one percentage point in inflation in CEE[7] causes the share of loans overdue to rise by 0.5 percentage point after eight quarters[8].

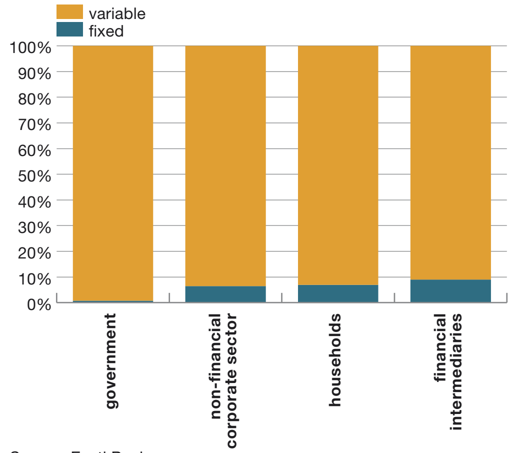
The results show that although inflation reduces the real value of debt liabilities, the purchasing power of borrowers is still weakened and so they have fewer resources available for paying their loans. High inflation may also reflect economic uncertainty, which has a detrimental impact on economic activity and the capacity to pay, but the estimates may also reflect how high inflation often grows together with economic upswings, which are usually followed by growth in overdue loans.

HIGHER INTEREST RATES CAUSE LOAN SERVICE COSTS TO RISE

A rise in interest rates generally has a negative impact on borrowers. Most of the loans issued by banks in Estonia have floating interest rates. The interest rate on such loans depends on the base interest rate, which is regularly adjusted in response to market conditions. The base interest rate is mostly either the European interbank money market interest rate Euribor, or a base interest rate set internally by the bank. Loans with floating interest rates are generally taken to mean housing loans, but the majority of car leases, corporate loans and loans to the general government also have floating interest rates (see Figure 6). This means that rising interest rates increase the loan

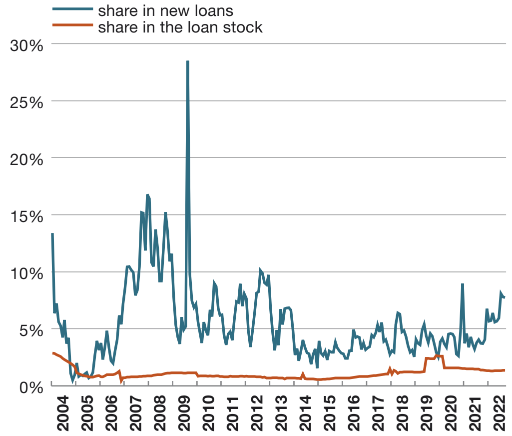
2 The general median wage in first quarter of 2022 was 1289 euros, and that of single applicants for housing loans was 1650 euros. This gap of 25–35% has been quite typical in earlier periods as well.
3 The financial behaviour of residents 2020. Turu-uuringute AS.
4 Estonian Institute of Economic Research.
5 Kukk and Levenko 2019: Macroeconomic imbalances and loan quality in panels of European countries.
6 Staehr and Uusküla 2020: Macroeconomic and macro-financial factors as leading indicators of non-performing loans. Evidence from the EU countries.
7 The CEE countries that Kukk and Levenko looked at were Czechia, Estonia, Hungary, Croatia, Lithuania, Latvia, Poland, Slovenia and Slovakia. The research by Staehr and Uusküla also covered Bulgaria and Romania.
8 Both pieces of research looked at the loans of companies and households together.

Figure 6. Share of loans with fixed and variable interest rates in the loan portfolio



Source: Eesti Pank

Figure 7. Share of fixed interest rate loans in total housing loans



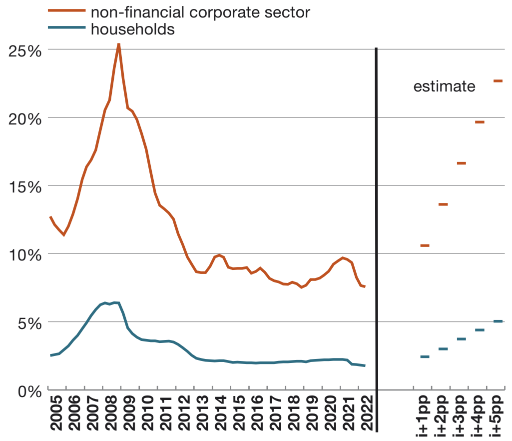
Source: Eesti Pank

payments of the majority of borrowers after some lag, meaning the danger increases of borrowers not being able to service their debts, especially when there are other factors acting on costs in the same direction. The share of loans in Estonia that have floating interest rates is one of the largest in the countries of the European Union.

The interest rates on existing fixed rate loans also rise as money market interest rates rise, but with a longer delay, depending on how long the interest rate is fixed for in the loan contract. The banks generally fix the interest rate in the loan contracts for a maximum of five years, after which it can be fixed again for a further period at the prevailing market conditions if the borrower wants to do that. There has been increasing interest of late in housing loan contracts with fixed interest rates[9], and they have increased to 8% of all newly issued loans (see Figure 7).

For the interest burden when interest rates rise, it is the financial position of companies that is affected first. Data from the second quarter of this year show that the interest expenses for households reached an estimated 1.8% of disposable income, and those for companies reached 7.6% of surplus from activities and mixed income[10]. If interest rates were to rise by one percentage point, the interest paid by households would rise to 2.4% of disposable income, and for companies it would reach around 11% of surplus from activities and mixed income (see Figure 8). A rise of five

Figure 8. Private sector interest burden



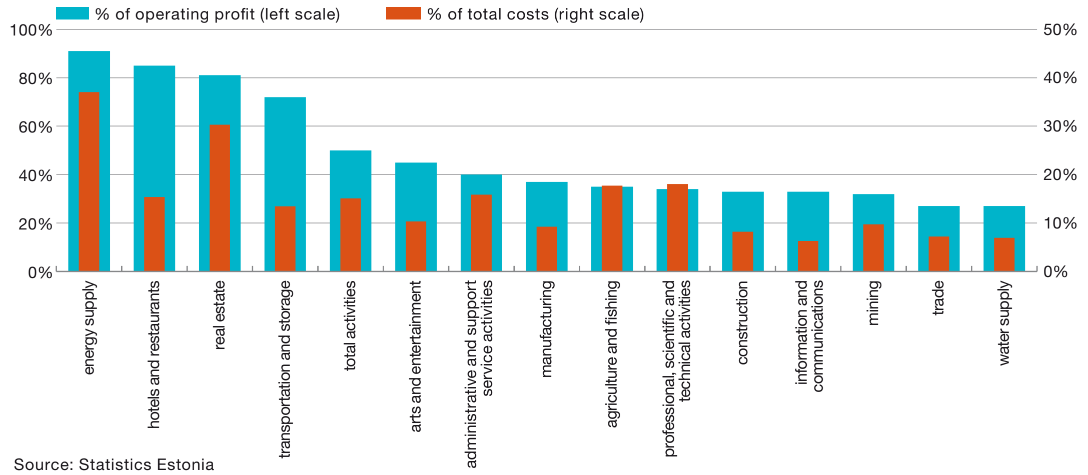
Sources: Eesti Pank, Statistics Estonia

percentage points in the base interest rates would leave households paying as much as 5% of their disposable income on interest expenses, while expenses for companies would reach 23% of surplus from activities and mixed income. It should be noted though that this calculation does not take account of any possible fall in income, or of other expenses increasing at the same time as interest expenses[11].

Higher interest rates have the biggest impact in sectors where financial leverage is high and interest is a large part of expenses, such as energy, real estate, transport and storage, and accommodation and food service

9 Loans with fixed interest rates are taken here to mean loans where the interest rate is fixed for longer than one year.
10 Disposable income and surplus from activities and mixed income also cover households and companies that have not taken any loans.
11 The calculation uses cumulative disposable income for four quarters and the surplus from activities and mixed income as at the first quarter of 2022.

Figure 9. Share of debt liabilities in total assets and share of interest expenditures in operating profit; average of 2018-2020



Source: Statistics Estonia

(see Figure 9). The debt of companies in energy, real estate and transport and storage is very large and loans to those sectors make up nearly half of the loans issued by the banks operating in Estonia. Whether companies in these sectors fall into difficulty with servicing their loans as interest rates rise will consequently be of great significance for the loan quality of the banks.

How a rise in base interest rates affects the average borrower with a housing loan

The median loan outstanding in the housing loan portfolios of the banks is around 50,000 euros, and the borrower was paying interest on it at the end of July of around 83 euros[12], while the total loan repayment under an annuity schedule was 253 euros a month. A rise of one percentage point in the base interest rate would increase the interest expenses by around 42 euros, but a reduction in the principal payment of the loan means the increase would be 24 euros a month, which is probably not an excessive change for the borrower in most cases. If the base interest rate were to rise

Table 1. The monthly loan payments to be made on the average outstanding loan under different interest rates

	i (31.07.2002)	i+1 pp	i+2 pp	i+3 pp	i+4 pp	i+5 pp
Median outstanding loan	50 000	50 000	50 000	50 000	50 000	50 000
Interest rate	2%	3%	4%	5%	6%	7%
Maturity in years	20	20	20	20	20	20
Interest payment in euros	83	125	167	208	250	292
Principal payment in euros	170	152	136	122	108	96
Total loan repayment in euros	**253**	**277**	**303**	**330**	**358**	**388**

Table 2. The monthly loan payments to be made on the average new loan under different interest rates

	i (Q2 2022)	i+1 pp	i+2 pp	i+3 pp	i+4 pp	i+5 pp
Median outstanding loan	100 000	100 000	100 000	100 000	100 000	100 000
Interest rate	1.9%	2.9%	3.9%	4.9%	5.9%	6.9%
Maturity in years	30	30	30	30	30	30
Interest payment in euros	158	241	324	408	491	574
Principal payment in euros	207	175	147	123	101	84
Total loan repayment in euros	**364**	**416**	**471**	**530**	**593**	**658**

12 The base interest rate that applied to a very large share of housing loans in July was still 0%.

by three percentage points though, as the markets currently expect, the loan repayment would rise by a total of 77 euros, while a rise of five percentage points in the base interest rate would increase the repayment by 135 euros a month. This would clearly have a much more serious impact on the family budget of the average borrower.

The size of the median loan is much larger for new housing loans at around 100,000 euros, and the interest the borrower pays on that is almost 158 euros a month, so the total monthly repayment under an annuity schedule is 364 euros. If the base interest rate were to rise by one percentage point, the loan payment would rise by 83 euros, and the total loan payment would increase by 52 euros a month. This would raise the loan repayments of the average single person with a loan from 20.5% of income to 23.5%. A rise of two percentage points in the base interest rate would raise the loan repayments to 26.5% of net income, a three percentage point rise would put them at 30%, and a five percentage point rise would raise them to 37%. This means that a new borrower would feel the impact of the change in repayments on their net income quite strongly.

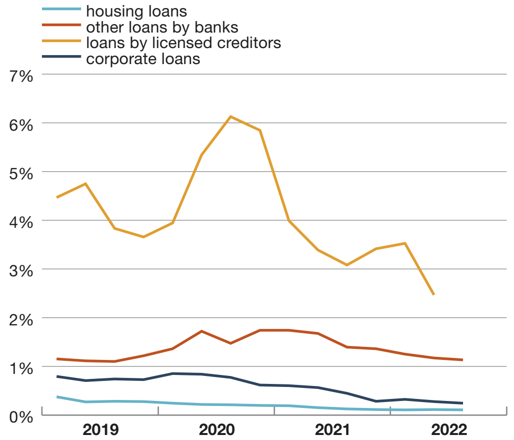
OVERDUE LOANS WILL INCREASE, BUT THE BANKS WILL BE ABLE TO COPE WITH THE LOAN LOSSES

The share of loans not repaid by their deadline has so far remained small for loans to companies and households (see Figure 10). Overdue corporate loans have increased slightly since the start of the year, but the level of overdue loans remains very low. The volume of housing loans and other loans issued to households that were not repaid by their due dates continued to decline in the middle of this year, reaching the lowest level of a decade. There had been no major increase by the middle of the year in the volume of housing loans that the banks themselves considered to be at increased credit risk. The share of loans from other creditors that are not repaid on time has also declined.

The main scenario in the September macroeconomic forecast from Eesti Pank finds the share of overdue loans will increase from 0.2% in September 2022 to 1% next year. Overdue loans will increase as falling demand reduces the income of companies, rising unemployment and high inflation eat into real incomes, and rising interest rates increase loan payments. If base interest rates rise higher than forecast, the level of overdue loans will be higher, especially corporate loans and consumer loans, and they will remain at that level for longer (see Figure 11). If Euribor were to rise to 5%, the share of overdue loans would reach around 1.5%. The direct impact of interest rates on the capacity to repay loans is limited, but a rise in them reduces economic activity, causing unemployment to increase and so reducing the capacity to pay.

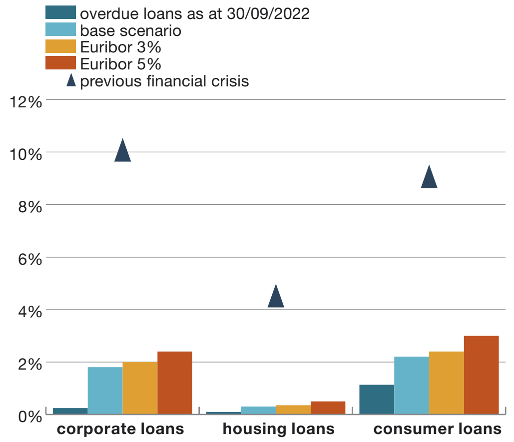
The profitability of the banks operating in Estonia is high and their capitalisation is good, and so they are able to cope with possible loan losses. The possible loan losses of the banks in the baseline scenario could reach up to 150 million euros in Estonia. This is less than half of

Figure 10. Share of loans overdue for more than 60 days



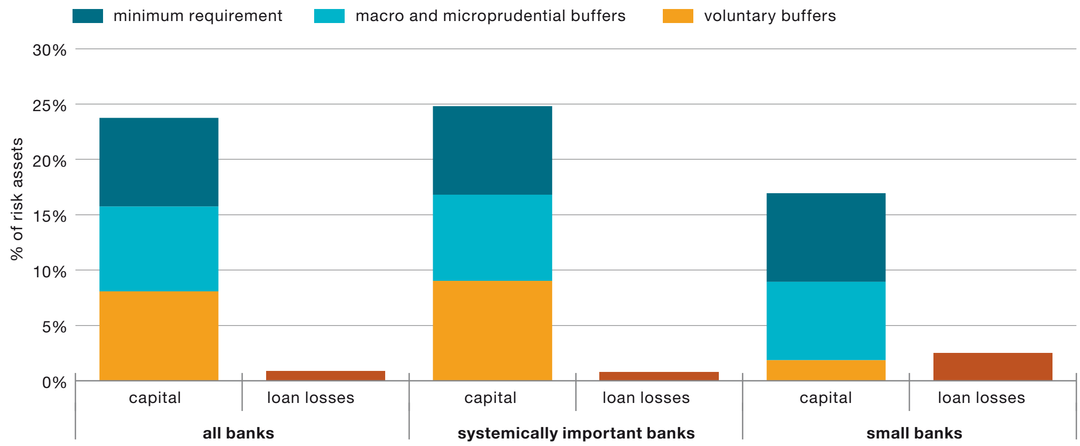
Sources: Eesti Pank, Finantsinspektsioon

Figure 11. Potential share of overdue loans within assets



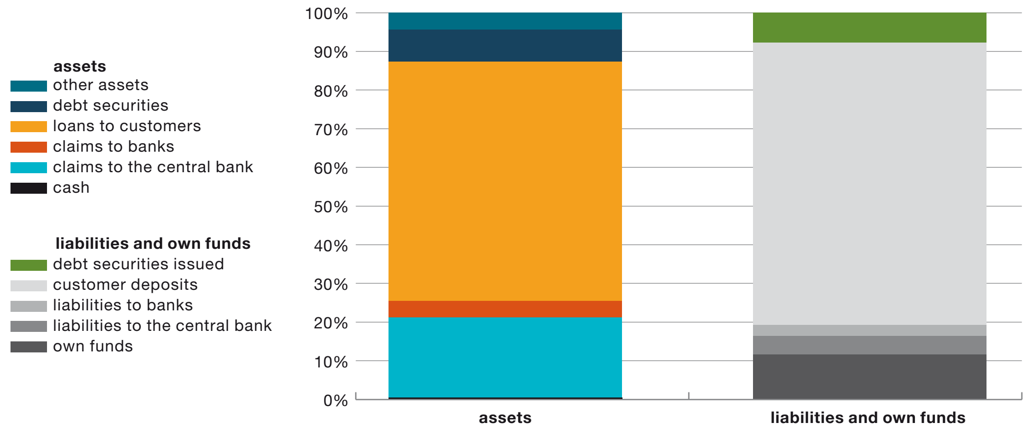
Source: Eesti Pank

Figure 12. The capitalisation of the banking sector and potential loan losses



Source: Eesti Pank

Figure 13. Assets, liabilities and own funds of the banking sector



Source: Eesti Pank

the profit of 405 million euros that the banks made in 2021. Possible loan losses would reach around 0.9% of risk assets (see Figure 12). The share of loan losses at systemically important banks would be smaller than the average at 0.8%, while it would be notably larger at 2.5% at the small banks. The difference arises largely because consumer loans are a larger part of the loan portfolio at small banks. If necessary, banks can cover the losses not only from profit but also from their voluntary buffers and the buffers required by supervisory authorities[13].

The profitability of the banks is also supported by rising money market interest rates. The interest income of banks is much more sensitive to changes in the interest rates than their interest expenses are. The main part of the assets of the banks are loans to clients (see Figure 13), around 80% of which are loans with floating interest rates. If money market interest rates rise, the interest income earned by the banks increases, with some lag. At the same time, the largest part of the liabilities of the banks at over 80% are client deposits. Some 90% of them are demand deposits, and the banks pay very low interest on them. This means that a rise in interest rates would not notably increase the costs on at least three quarters of the liabilities of the banks. Although other liabilities have started to increase in recent years among the liabilities of the banks, mainly through the bonds issued by the banks for which the terms and price are set by the market, this will affect the structure of liabilities very gradually and will not at first increase the interest expenses for the sector as a whole sharply. This means in the short term

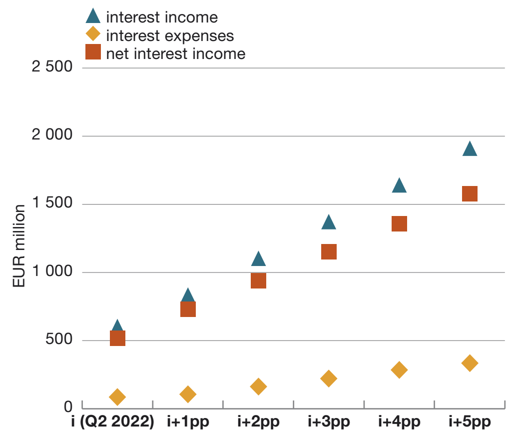
13 Balancing loan losses against capital assumes that the loan losses of the banks in other countries are similar to those in Estonia.

that the more the money market interest rates rise, the more profitable the banks will be.

It should still be noted though that rising interest rates will restraint the demand for loans, and so the loan portfolio will grow more slowly and so will the service fees and interest income earned by the banks. Higher interest rates may encourage bank clients to make more use of term deposits, increasing the share of liabilities on the balance sheet that are sensitive to interest rates, and so also increasing interest expenses.

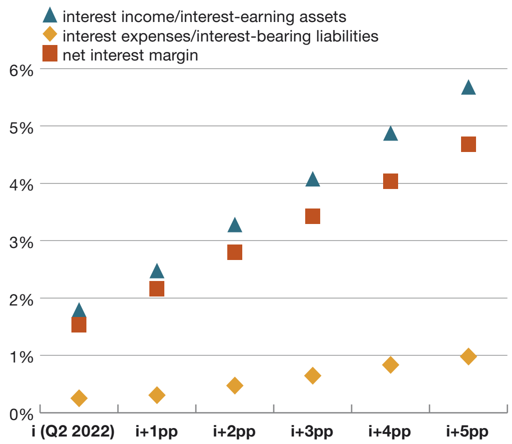
The net interest income of the banking sector will be boosted substantially by the expected rise in interest rates. Assuming that interest rates rise for both loan contracts with floating interest rates and liabilities with variable interest rates by one percentage point from their level at the end of July, the net interest income of the banking sector would increase by around 40% (see Figure 14), and the net interest margin would rise over the year in the second quarter from 1.5% to 2.2% (see Figure 15). This would mean additional income in the quarter of around 50 million euros for the sector as a whole, which would increase the annual return on assets of the banking sector in the second quarter from 1.1% to around 1.6%. A rise of three percentage points in base interest rates, which markets currently expect for the first quarter of next year, would bring additional income for the quarter of almost 160 million euros, and raise the return on assets to 2.8%. Euribor reaching 5%, which it last did in 2008 immediately before the global financial crisis, would almost triple net interest income, with the return on assets reaching around 3.9%[14].

Figure 14. Interest income and expenses at different interest rates



Source: Eesti Pank

Figure 15. Net interest margin at different interest rates



Source: Eesti Pank

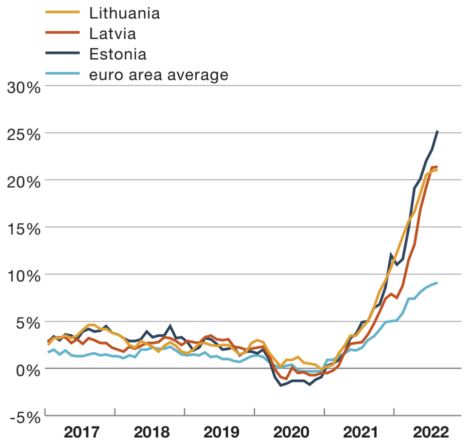
14 The calculation does not take account of possible changes in the assets and liabilities of the banks.

Box 1: The risks to financial stability in Latvia and Lithuania

A large part of the loan portfolios of the banks operating in Estonia are cross-border loans. In June 2022, 33% of the loans of the Estonian banking sector were issued through a branch operating in a foreign country, 8% of them in Latvia and 15% in Lithuania. There are other rapidly growing Estonian creditors besides Luminor operating in the Baltic region. Although the activities of small market participants are not yet systemically important for the financial systems and non-financial economies of the Baltic states, the rapid growth of smaller creditors increases their role in the financing of the economy. If the branches in Latvia or Lithuania need support from the Estonian head office, the available capital that was intended for lending to households and businesses in Estonia could be reduced. This would harm access to funding in Estonia and the smooth functioning of financial intermediation.

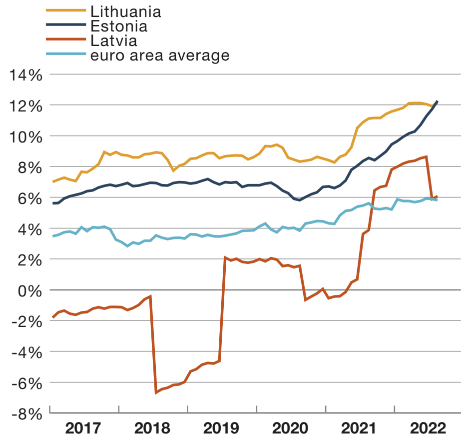
The war that Russia started in February has had a limited direct impact on the economies of Latvia and Lithuania, like in Estonia. The indirect or secondary effects of the war that threaten seriously to restrain economic growth in the Baltic states in the years ahead are a concern.

Figure B1.1. Annual change in the harmonised index of consumer prices



Source: Eurostat

Figure B1.2. Annual change in the stock of housing loans

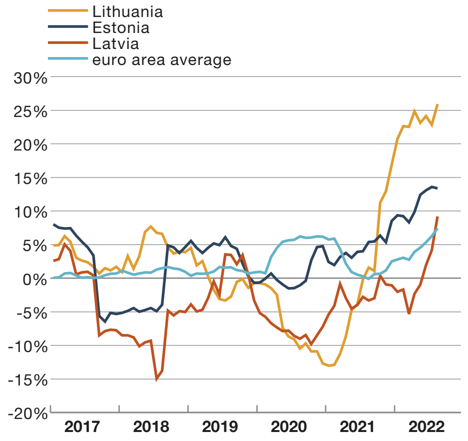


Source: European Central Bank

The main secondary effect is the inflation caused largely by high energy prices, which will limit consumption by companies and households and reduce the capacity of the non-financial sector to repay its loans. The cost of living has risen more in the Baltic states than anywhere else in the euro area (see Figure B1.1). All three Baltic states have introduced support measures to ease the impact of inflation, especially to mitigate high energy and heating costs. Although it is too early to forecast the final extent of these measures, it can still be expected that they will substantially help preserve the solvency of the non-financial sector and restrain the build-up of overdue loans.

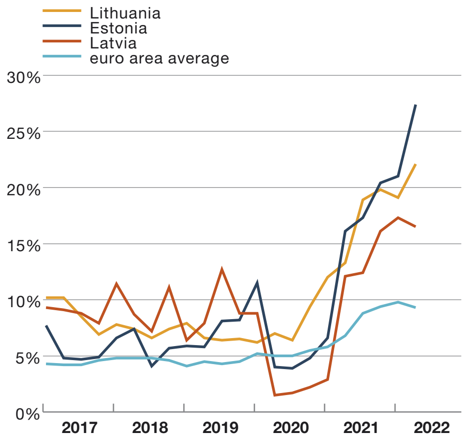
While the war can be blamed as the catalyst for higher prices for energy and fuels throughout the Baltic region at least, cyclical risks had already been building up before the geopolitical crisis erupted, especially in Estonia and Lithuania (see Figure B1.2). Despite the outbreak of war in February, growth in loans and real estate prices was strong in the first half of the year in Estonia and Lithuania (see Figure B1.3). Although real estate prices rose notably fast in Latvia as well, in that case the reference base was low and the growth in credit was slower, which may point more to restricted supply pushing prices up rather than to strong demand (see Figure B1.4). Like in Estonia, growth in real estate prices and credit in Latvia and Lithuania may be expected to decline. This will primarily be because of slower growth in the economy and rising interest rates that will leave companies and households with fewer funds available for investment.

Figure B1.3. Annual change in the stock of loans to companies



Source: European Central Bank

Figure B1.4. Annual change in the house price index

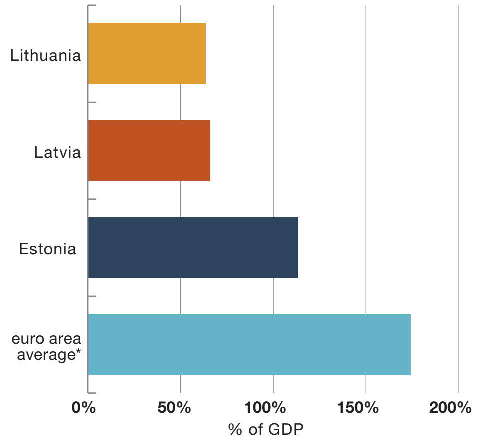


Source: Eurostat

All of the central banks in the Baltic region have taken steps to minimise cyclical risks. The most recent was the decision by the Lithuanian central bank to raise its countercyclical capital buffer to 1% from October next year.

Private sector debt in the Baltic states is below the average level in the euro area, and so the resilience of companies and households to a rise in interest rates is better than the average (see Figure B1.5). However, the share of loans with a floating interest rate is larger than the average in the euro area, and this makes borrowers more vulnerable to rises in interest rates. The share of loans in Estonia that have a fixed interest rate is the smallest in the euro area, and Latvia and Lithuania are not far behind. This means that a rise in interest rates will affect a relatively large share of lenders and borrowers throughout the Baltic states. A rise in base interest rates will equally increase the interest income of lenders, which will improve the capitalisation of the banks.

Figure B1.5. Private sector debt at the end of 2021



*As at 2020
Source: Eurostat

FAST GROWTH IN CREDIT COULD LEAD TO LARGER LOAN LOSSES IN THE FUTURE

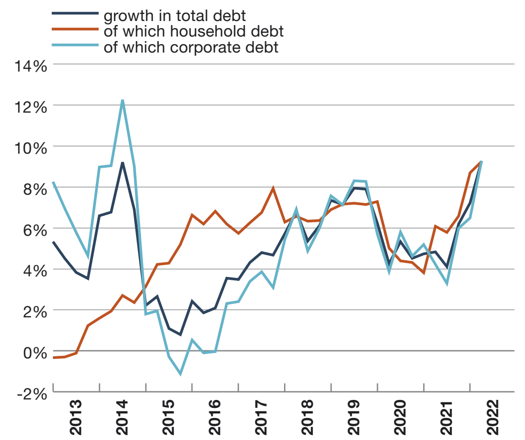
The economy in Estonia over the past few years has seen strong demand coupled with rapid growth in incomes and savings, and with interest rates low, the increase in borrowing has been substantial. Growth in borrowing has been particularly fast in the real estate sector, where the rise in real estate prices has been accompanied by increases in housing loans and in the amount borrowed by companies to finance real estate. The debt liabilities of companies and households have grown faster in the past year than the economy. This means that the non-financial sector is more vulnerable to a deterioration in the economic climate, and this could lead to larger loan losses for the banks if events take a turn to the negative. Eesti Pank has set the countercyclical capital buffer requirement for the banks at a base level of 1%, but the increase in risk has increased the need to raise the buffer requirement.

BORROWING BY BOTH COMPANIES AND HOUSEHOLDS HAS BEEN STRONG THIS YEAR

Annual growth in the debt liabilities of households and companies has been accelerating since the final quarter of 2021. Growth in household debt first picked up in the first half of 2021, and in the fourth quarter of the year the rate of growth in corporate debt also increased, causing the yearly growth in the total debt of the non-financial sector to accelerate to 9% in the second quarter of 2022 (see Figure 16). Faster growth in debt was driven by a strong demand environment, rising incomes, and increased capacity to borrow on the back of savings built up as deposits. The growth in debt liabilities has also been supported by low interest rates and the strong growth in deposits, and by the large supply of credit that the high level of capitalisation of the banks has allowed. Higher prices of late for real estate and various other goods and services have also increased the amounts borrowed. The main source of financing for the rapid growth in debt in the past year has been domestic bank loans and leases (see Figure 17), which will probably also decide the rate of growth in total debt in the coming quarters.

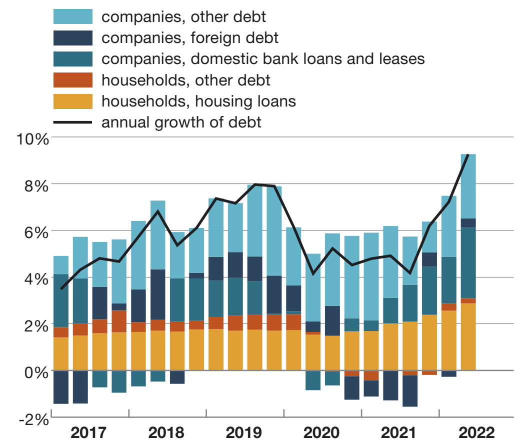
The rate of growth in borrowing from banks accelerated further in the third quarter and the amount issued in loans and leases to companies and households was 12% more by the end of September 2022 than it was a year earlier (see Figure 18). Growth in the loan portfolio in recent years has been driven mainly by strong demand for housing loans, and the housing loan portfolio increased by 12% over the year. Demand for consumer loans has remained relatively strong as well, though the portfolio of them grew by a more moderate 7% over the year as the money withdrawn from the second pension pillar was partly used to repay consumer loans. The growth in corporate bank loans and leases, like that in total debt, started to accelerate in the final quarter of 2021 to reach 12.5% by the end of September 2022, which is a similar rate to that for households.

Figure 16. Annual growth in the debt of the non-financial sector



Source: Eesti Pank

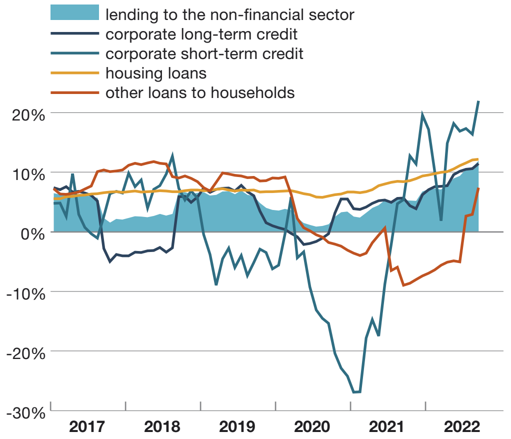
Figure 17. Contributions to the growth of non-financial sector debt



Source: Eesti Pank

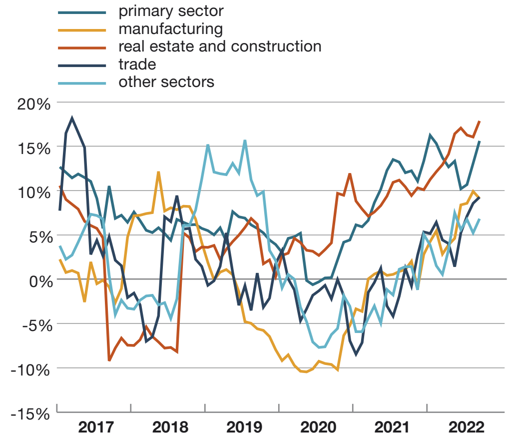
The main driver of the rapid growth in the corporate loan portfolio was financing for the real estate and construction sector. Although the yearly rate of growth in loans accelerated in various other business sectors too

Figure 18. Annual growth of bank loans and leases



Source: Eesti Pank

Figure 19. Annual growth of loans to companies by economic sector



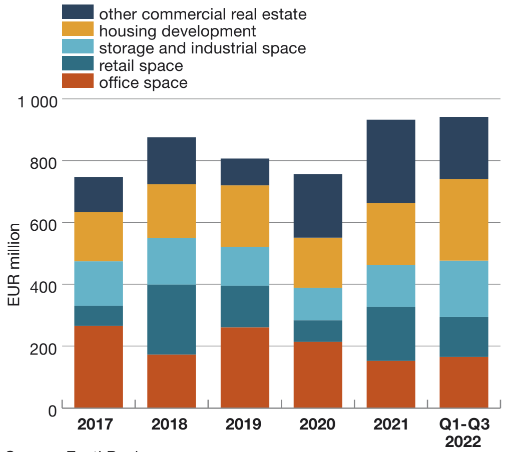
Source: Eesti Pank

(see Figure 19), the yearly growth in the large portfolio of the real estate and construction sector has remained above 10% for more than a year now. The share of the loan portfolio accounted for by companies working in areas related to real estate development has consequently increased to 41%, increasing the concentration in the loan portfolio and making it more exposed to the risks from the highly cyclical market for residential and commercial real estate. An average of 19% more has been granted this year in short-term loans as volumes of business and inventories have grown, and the largest part of those loans has been corporate overdrafts.

Larger amounts of new loans have been granted than last year to finance almost all the main segments of commercial real estate. Loans were granted most in the first half of the year for storage and production space and for development projects for residential property, and the value of loans in that segment was more than double what it was a year earlier (see Figure 20). The growth in lending for commercial real estate has been affected by demand-side factors and by the sharp rise in construction prices and low interest rates. Tight competition between the banks has also steered the dynamics of loan growth in this sector, as the share of small banks in the turnover of lending in the past couple of years has increased to around a third.

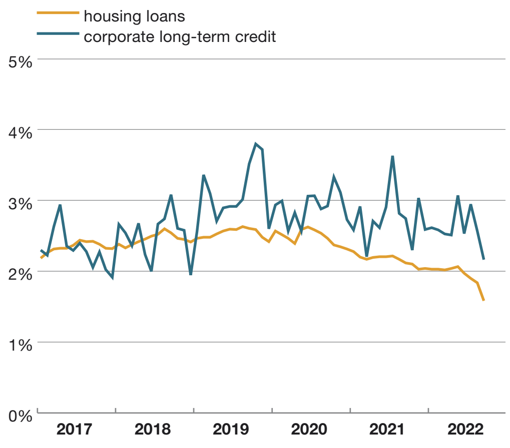
The lending conditions of the banks have encouraged borrowing. The bank lending survey shows that some banks have tightened their lending standards and conditions for corporate loans, but overall there has been no major change. The conditions on housing loans have eased

Figure 20. New long-term loans issued for commercial real estate purposes



Source: Eesti Pank

Figure 21. Average interest rate margin over six-month Euribor



A negative Euribor rate has been taken as zero
Source: Eesti Pank

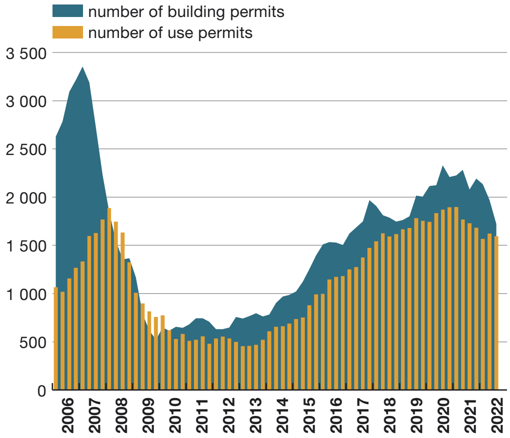
a little[15]. With base interest rates rising and competition between the banks tight, the interest margins on loans have fallen. The average annual interest margins on housing loans and long-term loans issued to companies have been falling since 2021 (see Figure 21).

STRONG DEMAND IN THE REAL ESTATE MARKET HAS ACCELERATED THE GROWTH IN HOUSEHOLD DEBT

Demand in the housing market remained strong in the first half of 2022, and prices rose fast. Demand was boosted by the rise in the average wage, accumulated savings, and the money withdrawn from second pillar pension funds[16]. Supply did not keep up with the increased demand as the addition of new residential space has been held back by higher prices for construction materials and supply difficulties (see Figure 22). In the secondary market, supply may not have grown as fast as it might, since sellers expected prices for housing to continue rising fast. The combined impact of these factors pushed the yearly growth in the price index for housing to 27% by the end of the second quarter of 2022 according to Statistics Estonia (see Figure 23).

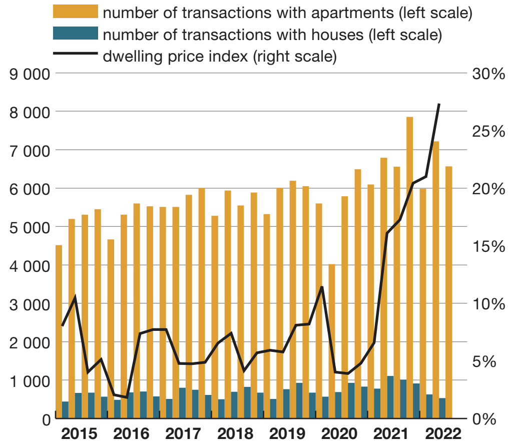
Demand for housing declined in the third quarter, and prices rose less quickly. High inflation reduced consumer confidence and the purchasing power of households, and so the demand for housing loans also fell. At the same time the impact of withdrawals in the second pension pillar on demand for housing loans has become steadily weaker. Data from websites for selling real estate show that the supply of residential real estate on the market has started to increase. The number of purchase and sale transactions of single family homes started to fall at the start of the year, and in September and October the number of transactions with apartments was also notably smaller than it was a year earlier[17]. Preliminary data from the Land Board show that the average square metre price of transactions with apartments in the third quarter remained broadly around the levels reached in the second quarter. The average price of transactions with new apartments has fallen in most recent months, though this indicator is quite volatile as the small size of the market means the

Figure 22. Four-quarter moving average of building and use permits for dwellings



Source: Statistics Estonia

Figure 23. Annual growth in housing prices and number of transactions



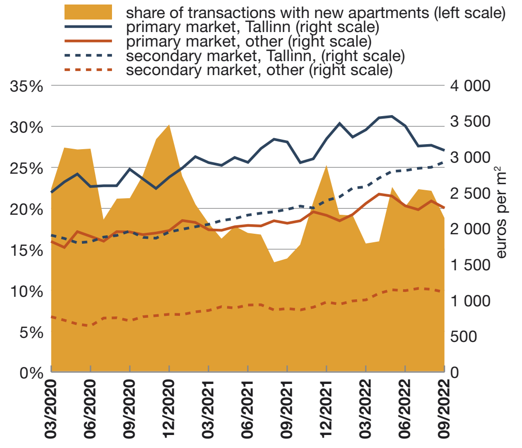
Sources: Statistics Estonia, Estonian Land Board

monthly average is influenced more by the specific characteristics of the real estate sold during the month, but the rise in apartment prices on the secondary market has also slowed (see Figure 24).

The rapid rise in prices for residential real estate means that the housing market is overpriced. Changes in housing prices are explained in the Eesti Pank model by incomes, the number of dwellings, and changes in interest rates. The factor that has affected housing prices the most over the years has been the rise in incomes. The increase in the number of dwellings has had a smaller impact. Interest rates have at different times pushed prices up and down. The rise in prices in 2021 and 2022 was supported by rapid rises in incomes, and the

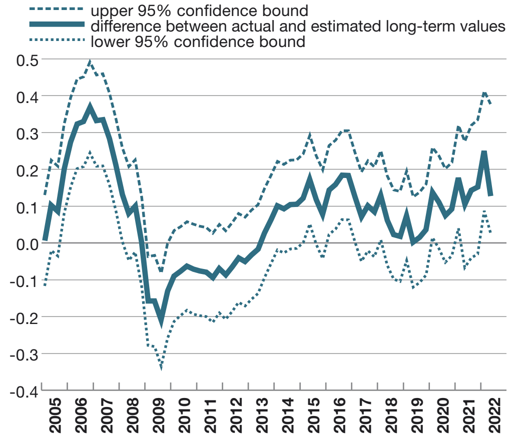
15 Changes in the conditions for housing loans are covered in more detail in Box 2.
16 Households have withdrawn around 1.3 billion euros from the second pension pillar since the third quarter of 2021.
17 It should be noted here that the first and largest withdrawals from the second pension pillar fund were made in September 2021, and they significantly increased the volume of transactions in the housing market.

Figure 24. Share of transactions with new apartments and average price per square metre



Source: Estonian Land Board

Figure 25. Over or undervaluation of the housing market in the baseline model of Eesti Pank



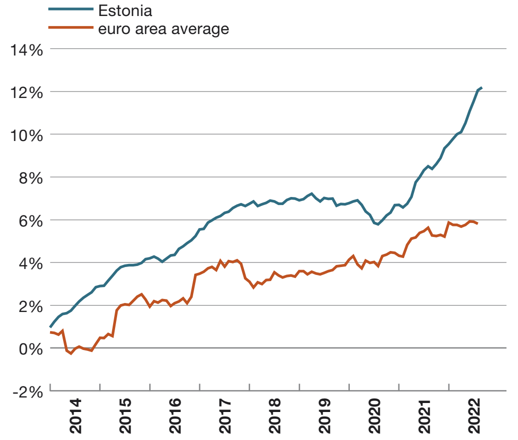
A value of 0.1 denotes overvaluation of 10%
Sources: Statistics Estonia, Eesti Pank

model shows that residential property was slightly overpriced (see Figure 25). The overpricing has been pushed further by high inflation in recent quarters, with the result that the real incomes of households have shrunk.

The active housing market and rapidly rising prices have seen the growth in housing loans accelerate this year. The yearly growth in housing loans reached 12% in September, which is notably faster than the average in the euro area, although the housing markets in several other euro area countries are active and lending is growing relatively fast (see Figure 26). With demand strong, 18% more housing loans were issued in the third quarter of 2022 than a year earlier, and their total value was almost a third higher (see Figure 27). The slowdown in transaction activity is reflected in the value of housing loans with a lag, as some of the loans are issued to purchase new property that is only being finished, and sales transactions are often signed a long time before the money for the loan is transferred. Borrowed money was used less for financing housing transactions in 2020-2021, but it has recovered to its long-term average this year (see Figure 28).

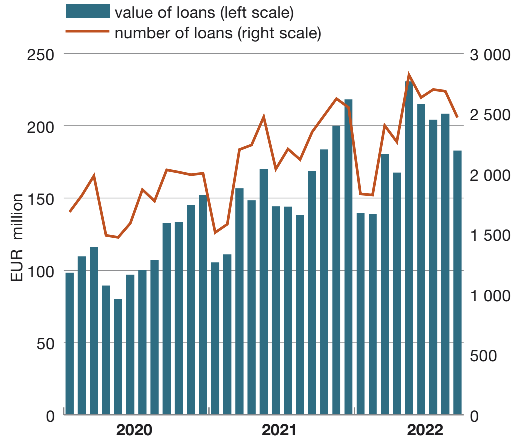
Real estate prices rising faster than incomes and increased competition between the banks have meant that an increasing share of loans are issued at close to the limits set by Eesti Pank for lending by the banks. Eesti Pank has set limits on the conditions on loans issued by the banks in order to help keep balance in the housing loan market and limit excessive growth in lending. There has been an increase

Figure 26. Annual growth of the housing loan stock



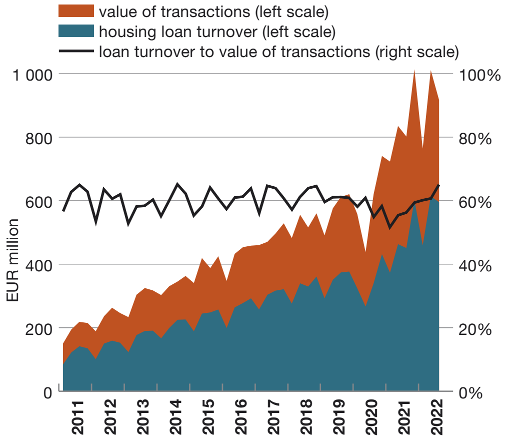
Sources: European Central Bank, Eesti Pank

Figure 27. Number and value of housing loans issued in a month



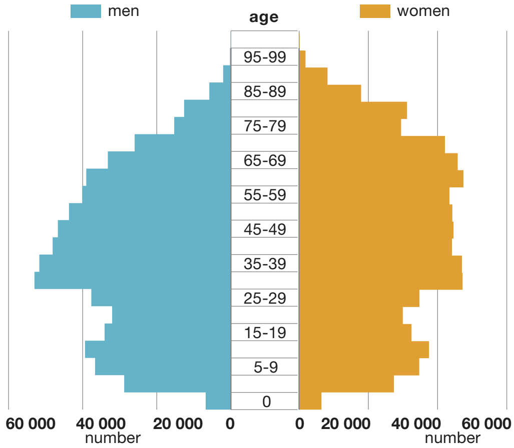
Source: Eesti Pank

Joonis 28. Transactions in the housing market and housing loan turnover in a quarter



Transactions with apartments and land with residential buildings
Sources: Estonian Land Board, Eesti Pank

Figure 29. Population of Estonia by age group in 2022



Source: Statistics Estonia

in the share of new housing loans where the loan repayments remain just below the limit of 50% of the net income of the borrower, given the possible rise in interest rates. There has also been an increase in the share of loans issued with the maximum maturity of 30 years (see Box 2). This could indicate that the profile of the new borrowers has become riskier on average.

Looking forward, the impact of the factors supporting demand for housing and housing loans has weakened. High consumer price inflation has reduced confidence and the capacity to buy housing and take housing loans. The cost of servicing loans is being increased by the rise in base interest rates. However, the September forecast by Eesti Pank expects overall inflation to start to ease in the coming year, allowing the purchasing power of households to recover over time if incomes continue to grow rapidly. The supply of new housing will presumably not, however, increase, as a fall in demand and rising financing costs and other costs have made development more expensive and riskier. At the same time, a rise in supply in the secondary market as demand fades could even push prices downwards. Growth in housing loans is expected to continue, but at a slower rate than before.

Demand in the housing market will at the same time be supported over the long term by the growth in the population. The cohorts in Estonia reaching the age where they tend to leave their childhood homes and rent or purchase their own are notably smaller than earlier ones (see Figure 29), but the population of Estonia has been increased since February 2022 by more than 35,000 refugees under temporary protection[18]. The rapid growth in the population will first of all increase demand for rented property and push prices for it up, but it may be expected that the impact will in future pass more broadly into the housing market.

INCREASING INDEBTEDNESS MEANS THAT BANKS NEED TO ENSURE THEY HAVE SUFFICIENT CAPITAL BUFFERS

Although the outlook for growth in the economy has deteriorated, the growth in borrowing by Estonian households and companies was very strong at the end of summer, pointing to an increase in cyclical risks. Growth in borrowing may be considered high enough to create additional risk if it is consistently faster than growth in nominal GDP, meaning that indebtedness increases. The two main indicators that Eesti Pank uses to assess the growth in lending and the credit cycle are the change in indebtedness in the non-financial sector, and the deviation of the rate of yearly growth in debt from the long-term average nominal growth in the economy over eight years. These indicators suggest that the risks from rapid growth in borrowing have increased in Estonia.

- **Indebtedness in the non-financial sector in Estonia will increase in the coming years.** Indebtedness continued to decline in 2022 despite the rapid growth in debt, and by the end of the second quarter the debt-to-GDP ratio had come down to its level of 2005

18 https://www.politsei.ee/et/ajutise-ja-rahvusvahelise-kaitse-taotlejate-arv.

at 109%. The ratio fell largely because the steep rise in inflation meant the nominal size of the economy increased sharply this year. The Eesti Pank September forecast suggests that inflation will be lower in the years ahead and with economic growth still moderate it may be expected that indebtedness will soon start to increase gradually (see Figure 30).

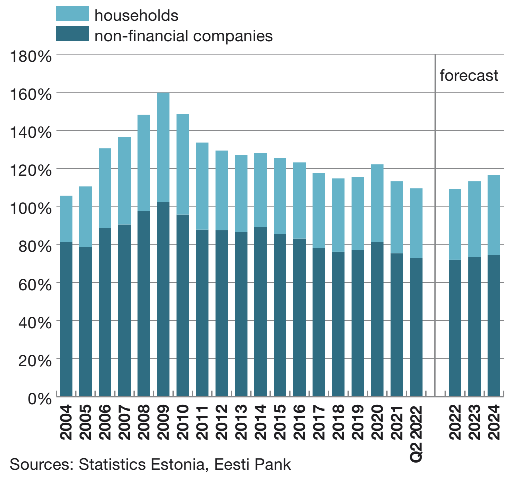
- **Growth in debt is faster than long-term growth in the economy.** Revised data show that the yearly growth in the debt of the non-financial sector was already a little faster than the eight-year average nominal growth in the economy at the end of 2021, and that the difference in growth rates widened further in the first half of this year. The Eesti Pank September forecast expects debt to continue to grow fast in the coming years, exceeding both long-term GDP growth and growth in the current year (see Figure 31).

Borrowing growing faster than incomes will increase the vulnerability of the non-financial sector. This means that companies and households will have to be ready to cope with larger loan repayment burdens. If the macroeconomic circumstances should unexpectedly and sharply deteriorate, there could be problems in repaying loans that could be made worse by the earlier rapid growth in borrowing. This makes it important for the banks to hold additional own funds while lending grows fast so that they can cope with increased loan losses in future.

The European Systemic Risk Board (ESRB) also believes it is important to ensure the resilience of the financial system. In a warning issued at the end of September 2022[19], the ESRB emphasised that the substantially increased risks this year mean that member states should consider all micro and macroprudential measures that could help ensure the resilience of the financial system. For the banking sector, this means increasing the cyclical capital buffers, managing risk conservatively, and setting aside sufficient provisions. The banks also need to consider the increased risks when planning their capital and making decisions about distributing profits.

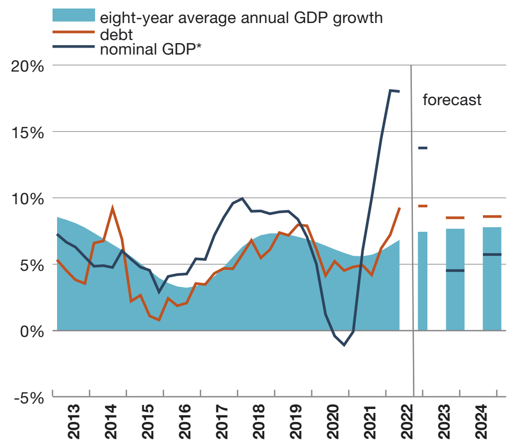
Many countries in Europe have in the past couple of years decided to raise their countercyclical capital buffer rates. The harm that the Covid-19 pandemic caused to economies proved short lived in most countries, and the pandemic

Figure 30. Non-financial sector debt to GDP ratio



Sources: Statistics Estonia, Eesti Pank

Figure 31. Annual growth of non-financial sector debt and nominal GDP



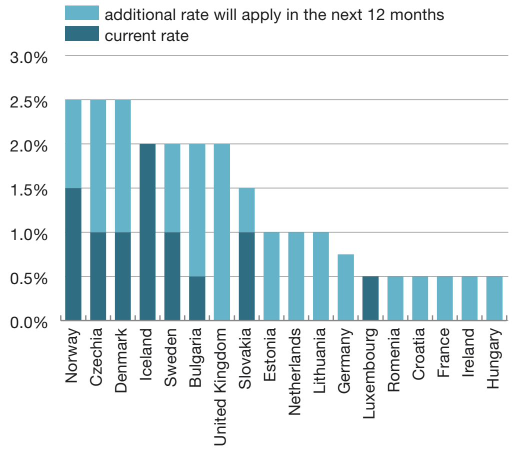
* Four-quarter moving average yearly GDP growth
Sources: Eesti Pank, Statistics Estonia

recession was followed by strong growth, especially in the real estate sector using financing from loans. Several countries have applied various macroprudential measures against cyclical risks, including raising the countercyclical capital buffer rate, and by 30 September 2022, 18 countries in Europe had decided to raise their buffer rate above zero. The higher buffer rate will start to apply in most of those countries within the next 12 months (see Figure 32).

When calculating their institution-specific capital buffers, the banks need to consider the countercyclical capital buffer rates applied not only in Estonia but also in other countries. If a bank operating in Estonia has credit risk positions in a country that has set a positive

19 https://www.esrb.europa.eu/pub/pdf/warnings/esrb.warning220929_on_vulnerabilities_union_financial_system~6ae5572939.en.pdf.

Figure 32. European countries with a countercyclical capital buffer rate above 0% as at 30.09.2022



Sources: ESRB, BIS, Eesti Pank

buffer rate, then the principle of automatic reciprocation applies. This means that the bank has to hold the appropriate amount of additional own funds to cover those positions. Foreign banks that have lent to residents of Estonia have to follow the same principles. Taking account of the locations of the credit risk positions of the banks licensed in Estonia and assuming that the buffer requirements are in force in all the countries, the average institution-specific countercyclical capital buffer rate for the Estonian banking sector is estimated at 0.88%.

The base requirement of the countercyclical capital buffer applies to the banks in Estonia at 1%, and the banks have to meet that requirement from 7 December 2022. This is a buffer rate that remains unchanged under normal circumstances and that is intended to ensure that the capital buffers of the banks cover the systemic risks from the macro environment. Rapid growth in credit means additional risk for the economy and financial system though, which can be counteracted by the cyclical component of the buffer. This part of the countercyclical capital buffer requirement has so far been at 0%, but the quarterly assessment of the credit cycle indicates that Eesti Pank may decide to raise the buffer rate above the base requirement. It should be remembered that the aim of this measure is not to stop credit from growing, but to make sure that the banks hold sufficient capital to prevent a possible crisis. The banks are always able to use the capital buffers they have accumulated to cover loan losses. Eesti Pank can also reduce the buffer requirement quickly so that banks can use the capital released to continue lending to companies and households and so avoid any financing stress that could arise in a crisis.

The indicators for growth in credit suggest that Estonia should consider raising the cyclical component of the countercyclical capital buffer. The risks from the credit cycle have clearly increased over the past year and the relatively good capacity of borrowers to repay their loans, with rapid growth in incomes and relatively large financial buffers at companies and households, and the need for investment suggest that credit will continue to grow fairly quickly in the years ahead. The economy cooling will however probably lead to lending activity slowing a little from its high level in the middle of 2022. The volume of credit has been increased of late by high producer prices, consumer prices and real estate prices, which have acted to increase growth in borrowing, but this factor will weaken over time. It will become clear in the months ahead how much and for how long the weaker confidence in Estonia and in foreign markets will restrain borrowing and so stop cyclical risks building up in future. It is important though for the banks to hold larger capital buffers to cover the risks from the rapid growth that there has already been in lending.

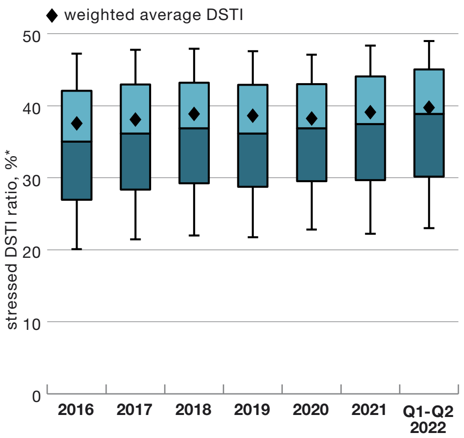
The good position of the banking sector means that access to loans would not particularly be affected by a rise in the capital buffer requirement. The Estonian banking sector currently meets the capital and buffer requirements with sufficient margin. The good profitability of the banks is also supporting capitalisation, and it will probably improve further in the near term as money market interest rates rise. The danger of the banks starting to restrict lending also remains small because most banks have a stable funding base. This means that a small rise in the countercyclical capital buffer rate should not have a significant negative impact on the financing of the economy. All systemically important banks should be able to meet the additional requirement from the own funds they hold voluntarily or from profits. The higher requirement will in any case come into force after a year, allowing the banks sufficient time to accumulate additional capital if needed. Obliging the banks to maintain an additional part of their own funds will help ensure that they have sufficient capital if the credit risks that they took on while lending was growing fast were to materialise. If the Estonian economy were to deteriorate so far that there was a sharp increase in loan losses or serious stresses in financing, Eesti Pank could review its decision to raise the buffer requirement.

Box 2: The conditions of the banks for issuing housing loans and the macroprudential requirements

The conditions on housing loans issued have been a little easier this year than before. This is partly because competition between banks has increased as lending has been active, and partly because the average price of residential property has risen fast, meaning that loans have had to be bigger. The lending conditions are framed by the Eesti Pank requirements that help balance the housing loan market and prevent credit bubbles from inflating.

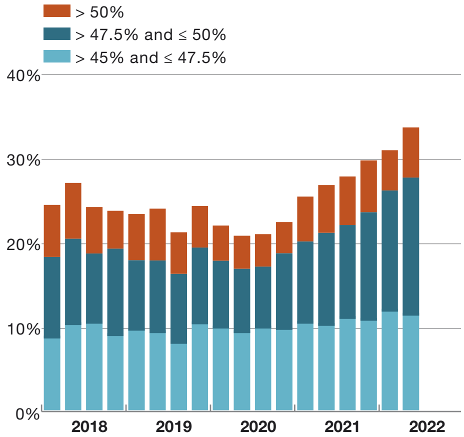
The dynamics of the debt service-to-income (DSTI[20]) ratio indicate that the share of riskier loans has increased. The average DSTI ratio and the median value have increased (see Figure B2.1), which means that loan repayments account for an increasing amount of the borrower's income. There has been a particular increase in DSTI ratios close to the limit at between 47.5% and 50%, where

Figure B2.1. Distribution of new housing loans by stressed DSTI ratio



Sources: Eesti Pank, Finantsinspektsioon

Figure B2.2. Share of housing loans with a higher stressed DSTI ratio



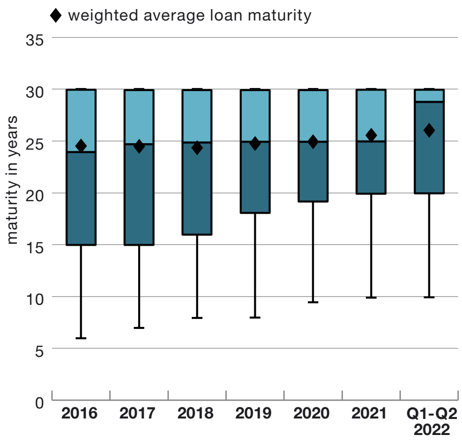
Sources: Eesti Pank, Finantsinspektsioon

16% of the volume of loans issued in the second quarter was to be found (see Figure B2.2).

The average maturity of housing loans has lengthened (see Figure B2.3). The biggest change has occurred since the second half of 2020, when housing prices jumped rapidly. Ever more loans are being taken with the maximum maturity of 30 years, which reflects the desire of a large part of borrowers to spread their repayment burdens over the longest time possible.

The loan-to-value (LTV) ratio has not notably changed this year. The weighted average LTV has even fallen a little, and there has been an increase in the part of the distribution of loans that has low LTV values (see Figure B2.4). This could indicate that savings are being used more, or that there has been an increase in purchases of other real estate. The share of housing loans

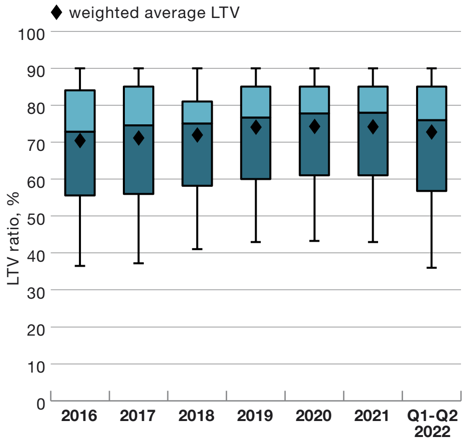
Figure B2.3. Distribution of new housing loans by loan maturity



Sources: Eesti Pank, Finantsinspektsioon

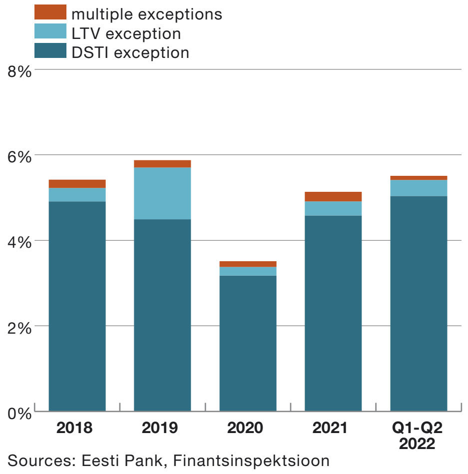
20 The debt service-to-income (DSTI) ratio is calculated for loan repayments with an annual interest rate of at least 6%.

Figure B2.4. Distribution of new housing loans by LTV ratio



Sources: Eesti Pank, Finantsinspektsioon

Figure B2.5. Share of housing loans with permitted exceptions



Sources: Eesti Pank, Finantsinspektsioon

that are covered by KredEx has also declined, as it was 21% in the second quarter of 2022, which is 10 percentage points lower than its peak in the second half of 2020. KredEx started issuing guarantees from April to new target groups of families with a lot of children and people living in rural areas, but the take-up of this has so far been modest and, as expected, these guarantees have mainly replaced earlier guarantee products.

More than 90% of the housing loans issued came within the limits set by Eesti Pank. Exceptions were used in the first half of 2022 to breach one or more of the limits for around 6% of loans, which is substantially less than the amount permitted of 15% of the loans issued within a quarter by value (see Figure B2.5). The majority of the exceptions were for breaches of the DSTI limit, and they were mainly used by the large banks that benefit from certain scale effects. For smaller banks, exceptional conditions for just a few individual housing loans could lead them to exceed the limit for exceptions.

The Eesti Pank assessment of the sufficiency of the housing loan requirements

The requirements regulating the issuance of loans are mainly structural in nature, as their impact on the loan market is a stabilising one over the long term. The limits that the requirements set can however be tightened if credit is growing too fast. Amendments to the requirements may also be considered with the aim of ensuring that they work as intended.

The housing loan requirements in Estonia have fixed the lending principles in the local loan market and helped avoid excessively risky lending. Some of the housing loan requirements in Estonia are more conservative than those in other European Union countries, such as the DSTI limit. The requirements are general in nature and apply to the whole of the housing loan market, and they frame the conditions defined by the internal rules of the banks. Those internal rules may be even more restrictive towards characteristics of the borrower such as income or age, or the purpose of the loan such as purchase of secondary real estate. Eesti Pank considers that the housing requirements have generally been successful as structural measures covering the whole of the market. They have helped restrain those banks looking to grow fast from applying excessively loose lending standards.

Eesti Pank does not currently see any need to tighten the requirements. Although the growth in housing loans has been very fast and household indebtedness is forecast to increase in the years ahead, a decline in demand for loans will stop loan growth being too fast as the macroeconomic environment deteriorates. The current 50% DSTI limit remains an adequate and effective measure for framing loan conditions. Rising interest rates are illustrating the importance of the related condition that the calculation of the DSTI ratio must consider whichever is higher of an interest rate of 6% or the interest rate plus 2 percentage points.

The effective application of the DSTI limit is supported in Estonia by the maximum maturity requirement of 30 years, and there is no need to tighten or loosen this requirement. Eesti Pank is not in favour of the principle applied in some countries, where the principal on loans is not paid and the borrower pays only the interest on the loan[21].

The banks are able to accommodate their clients by breaching the limits by up to 15% of the volume of loans issued in a quarter, but they have generally only done this in exceptional cases. The use of such exceptions in the loan market as a whole has been smaller than is permitted by the regulations. Allowing the banks flexibility when making decisions on loans helps the market to function more smoothly and helps ensure that the requirements are followed correctly. The banks are able to breach the limits when faced with various non-standard cases without acting against the objectives of the regulation.

21 If a bank in Estonia offers payment holidays to clients when issuing housing loans, the DSTI limit is calculated without considering the payment holiday.

TENSIONS IN THE MONEY AND CAPITAL MARKETS ARE AFFECTING THE FUNDING OF THE BANKS

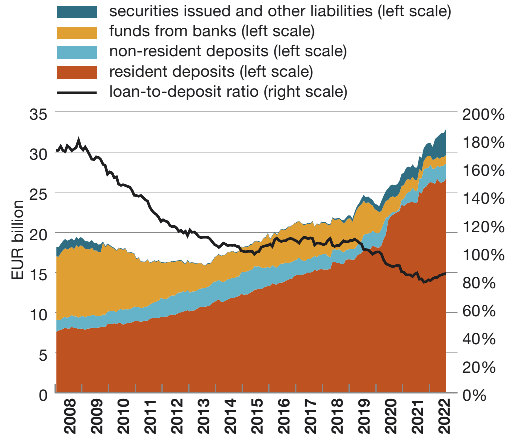
The steep jump in inflation, the war launched by Russia in Ukraine, and the gloomier outlook for economic growth have increased general uncertainty and tensions in the money and capital markets. Estonia is further affected by its geographical proximity to the conflict area, while the climate for financing has become more difficult and interest rates are rising. Several of the banks operating in Estonia partly finance themselves by issuing bonds, and so events in the money and capital markets directly affect their funding. The funding of banking sector in Estonia is also affected indirectly as several banks are exposed to movements in the money and capital markets through their parent banks, which partly finance their activities by issuing bonds. Increased tensions in the money and capital markets could make borrowing more expensive for the non-financial economy, and if access to financing were to deteriorate substantially, the supply of loans may be reduced. As the share of the funding of the whole sector that comes from bonds remains small though, the risk remains limited.

Although the Estonian banking sector is mainly funded from local deposits, money has increasingly been raised by issuing bonds. The strong growth in domestic deposits has helped reduce the need of the banking sector as a whole for additional resources. A decade ago the loan portfolio of the whole Estonian banking sector exceeded its deposits, as the loan-to-deposit ratio was 112% at the end of 2012, but in August this year deposits were substantially greater in value than the loan portfolio, and the loan-to-deposit ratio had fallen to 85% (see Figure 33). The importance of funding from banks, including parent banks, has diminished consistently, while funding from issuing bonds has come to play more of a role over the past three years. The bonds issued by the banks accounted for 10% of all the liabilities at the end of August 2022, and the banks that had issued bonds most actively in the last three years had a market share of 23%.

The funding models of the banks vary. There have been fewer banks in recent years that have a loan portfolio that exceeds their deposits and so are dependent on additional funding, and their market share has declined. Those banks are mainly financed either by their parent banks, or by issuing bonds. There are few banks that rely mainly on funding from parent banks, and they are small and had market share of around 5% in August (see Figure 34). The other banks that fund themselves from bonds have market share of 10% and have issued both covered bonds and unsecured bonds.

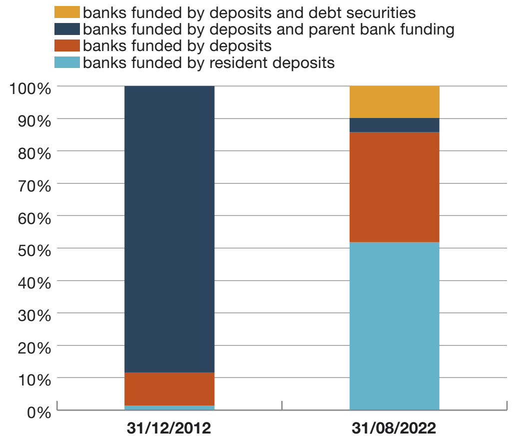
A few banks have used non-resident deposits alongside the domestic deposits to fund their activities, and the non-resident deposits at some banks are much larger than the local deposits. For some banks this reflects a specific business line that they have pursued, and several banks use specialised online platforms to take deposits from large markets[22]. The market share of the banks where non-resident deposits are more than half of total deposits has increased in the past

Figure 33. Structure of the liabilities of banks and their loan-to-deposit ratios



Source: Eesti Pank

Figure 34. Market shares of banks with different funding models



Source: Eesti Pank

22 The banks themselves have stated publicly that the deposits come mainly from large European Union countries like Austria and Germany.

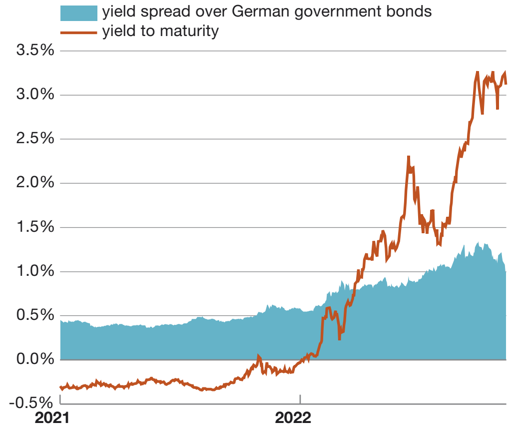
three years, but it remains relatively small at a little over 3% at the end of August 2022.

Tensions and risks have increased in financial markets. The sharp rise in inflation and the gloomy outlook for economic growth have combined with tighter monetary policy to increase tensions and risks in the global financial markets. Market interest rates have become more volatile, as market participants are constantly adjusting their expectations for inflation and the risks to the outlook for the economy.

Increased tensions in financial markets and the general rise in interest rates are also reflected by the rise in market interest rates on the bonds of the banks. As interest rates rose generally in 2022, so the market interest rates on the bonds issued by banks continue to climb. On top of that, investors clearly consider the risks to be greater than before, as the risk assessments by market participants shown in the interest rate spread over sovereign bonds have also become more pessimistic (see Figure 35). Higher market interest rates not only affect the financing of the banks, but they also affect their compliance with the minimum requirement for own funds and eligible liabilities (MREL), as the market interest rates also rise on the bonds that the banks use to meet that minimum requirement.

Intra-group liquidity management means that the movements in money and capital markets also affect the subsidiaries of Swedish banks operating in Estonia. Strong growth in domestic deposits has helped reduce the dependence of subsidiaries in Estonia on financing from their parent banks, but tensions in financial markets can still have an impact at the level of the parent group

Figure 35. Yield to maturity of covered bonds issued in euros by LHV and Luminor

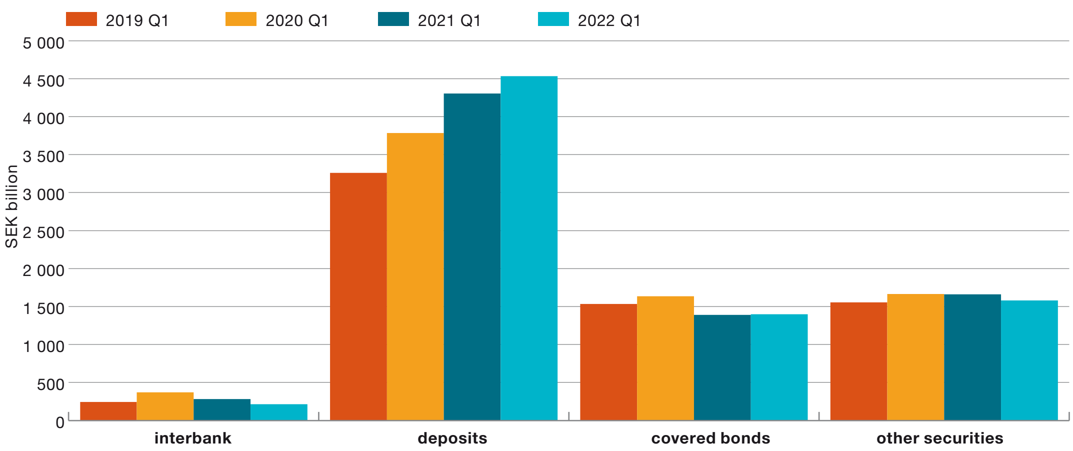


Bonds maturing in 2025
Data as at 09/11/2022
Sources: Bloomberg, Eesti Pank calculations

and so affect the loan supply from the subsidiaries in Estonia, or their liquidity through group-level liquidity management, as the parent banks based in Sweden get part of their funding from the money and capital markets. The parent banks were net lenders to the subsidiaries and branches operating in Estonia during the previous financial crisis, but the subsidiaries now have more deposits than loans and so if there were major tensions in the financial markets it could happen that the subsidiaries help to ease the liquidity situation at the parent bank, or help to fund the parent.

The funding of the largest banks in Sweden depends on depositors and investors retaining confidence, and on the domestic and international capital markets functioning well. The banks are funded by roughly equal shares of deposits from households and businesses, and securities issued in the capital markets (see Figure 36). At the same time, the banking sector

Figure 36. The funding of the major Swedish banks



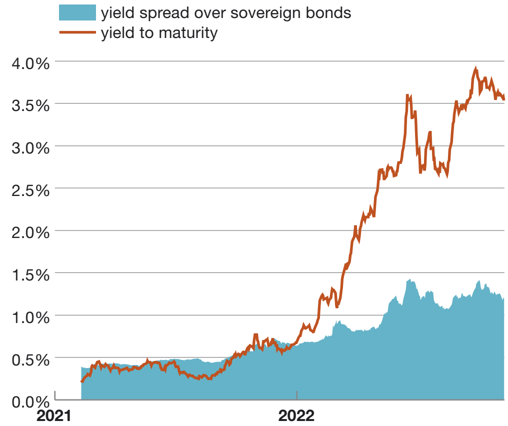
Source: Riksbank

has increasingly funded its activities through deposits, which has reduced the need for long-term market-based financing, and made funding more stable. The loan-to-deposit ratio in the Swedish banking sector fell from 162% in 2018 to 139% in the first quarter of 2022. Some two thirds of the securities issued are denominated in foreign currency though, and the short-term funding of the banks comes mainly from securities issued in dollars. When the volatility in the securities markets was increased significantly by the war in Ukraine, inflation and rising interest rates, uncertainty was also transmitted to the US dollar markets. For a short time this made it harder for Swedish banks to issue securities in dollars. If this were to happen again and to last for longer, the banks may face some problems in accessing funding, and in meeting their US dollar liquidity requirements.

Like the market interest rates on the bonds issued by banks in Estonia, the interest rates on the covered bonds of the Swedish banks increased as interest rates rose generally. Risks are also assessed to have increased, which is illustrated by the wider interest rate spreads of the bonds of the banks over sovereign bonds (see Figure 37). Investors clearly consider the risks to be larger than they were before.

The Swedish banking sector is also vulnerable to risks coming from the high levels of household debt, the overvaluation of real estate, and the large share of corporate real estate loans in the loan portfolios of the banks. Long-term covered bonds provide a substantial part of the financing structure of the banks, and so the rise in interest rates is also transmitted into the interest rates on long-term housing loans. This increases the loan servicing costs of households. Higher monetary policy interest rates have a major effect on loans for commercial real estate. Swedish commercial real estate companies have

Figure 37. Yield to maturity of covered bonds issued in SEK by SEB and Swedbank



Bonds maturing in 2026
Data as at 09/11/2022
Sources: Bloomberg, Eesti Pank calculations

become increasingly indebted in recent years, and this makes them more vulnerable to a rise in loan servicing costs. If the economy were to turn down and financing conditions to change, the market value of real estate could fall, increasing the risks to the financial companies that have funded projects and to the developers themselves.

It is highly probable that the uncertainty and tensions will continue in the money and capital markets moving forward. This means it will be harder and more expensive for the banks to access additional funds from money and capital markets, increasing the risks to financial stability. However the Estonian banking sector as a whole is now less vulnerable to the stresses in money and capital markets because of the strong growth in domestic deposits, and a relatively small part of the Estonian banking sector is currently directly exposed to those risks. The indirect exposure to the parent banking groups in Sweden has also been reduced, as deposits have grown fast at the banking-group level and so reduced the need for market-based funding.

APPENDIX 1. ASSESSING THE TRANSITION RISKS IN THE BANKING SECTOR

Climate change and environmental damage are among the greatest challenges facing the world today, and they demand attention from all areas of life, including the economy and financing. The transition to a climate-friendly and sustainable economy means reducing the demand for carbon-intensive products. To maintain output and profitability, companies need to review their supply chains and change their production models. This increases their costs and means greater credit and reputation risk for the banks that finance them. This will probably cause the value of some assets in the banking sector to change, and the changes in lending policy will affect the structure of the financing of the economy.

The financial sector has an important role to play in combating climate change, because of its ability to affect different stakeholders through their financing conditions, and also through other activities such as:

- investing in solutions with low carbon emissions;
- financing technology to reduce emissions;
- funding work to adapt to climate change;
- reporting transparently on how projects impact the climate; and
- engaging businesses and policymakers.

The banking sector needs to weigh the environmental, social and governance (ESG) risks when making decisions on lending. When making decisions on loans, the banks will have to consider not only the return on the project and the solvency of the client as usual, but also how well aligned the project is with environmental targets.

The changes that society needs to make to transition to a climate-friendly economy will be accompanied by risks for the financial sector. These risks may appear from the rapid transition to an economy with low carbon emissions and in the form of physical risks. Transition risks are those that come from sharp changes in the economic environment that may arise from strict climate and environmental policy, or from changes in the habits of consumers and markets, and from the introduction of new technologies. Carbon-intensive sectors of the economy are particularly exposed to transition risks. Physical risks cover the direct loss of assets that may be caused by long-term changes in the environment, such as a rise in the average air temperature or in precipitation, or from extreme events caused by climate change such as storms, floods, forest fires or drought.

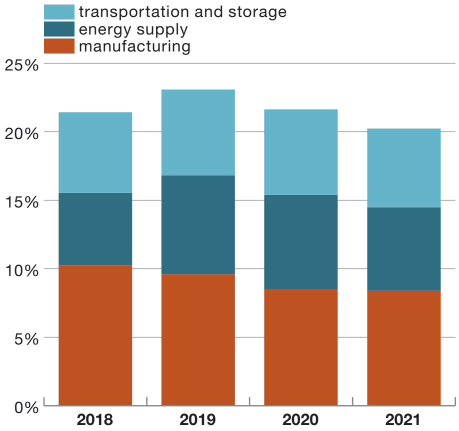
The European Central Bank published the results of stress tests covering the whole economy of the euro area in summer 2021. The analysis assessed the resilience of companies and banks to climate risk. The exposure to extreme weather events as a physical risk was very different across countries and by hazard type. The companies facing the highest physical risk were mainly concentrated in southern Europe, where 25% of businesses can be classed as companies at high physical risk. In Northern and Central European countries, 5% of companies are exposed to high physical risk[23]. This suggests that the exposure of the Estonian banking sector to physical risks is limited. However, the exposure of Estonia to transition risks is estimated to be above average[24].

Estimating the transition risks of the banking sector needs the carbon footprints of financial companies and the carbon-intensity of their assets to be measured. A larger carbon footprint or greater carbon-intensity indicate larger risks, as they make it harder to adapt the portfolio. Several indicators are used internationally that allow the carbon footprint of economic sectors to be compared, and so the carbon-intensity of the loan portfolio of the banking sector to be estimated.

The share of the loan portfolio of the banking sector that goes to economic sectors with large carbon emissions can be considered first. Sectors that have large greenhouse gas emissions are

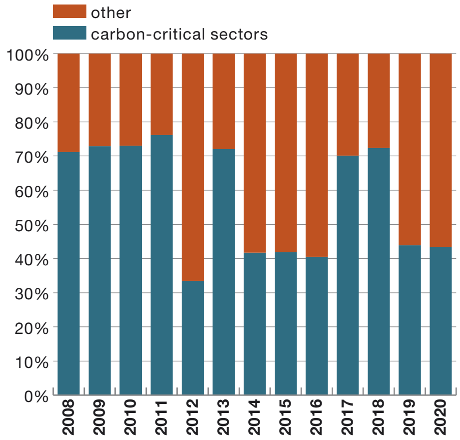
23 Countries in southern Europe are threatened most by forest fires, while countries in Eastern, Northern and Central Europe are threatened above all by the increased frequency of floods.
24 https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281~05a7735b1c.en.pdf.

Figure A1.1. Loans to carbon-intensive sectors as a share of the total corporate loan portfolio



Data as at 31 May 2021
Sources: European Environmental Agency, AnaCredit database, Eesti Pank calculations

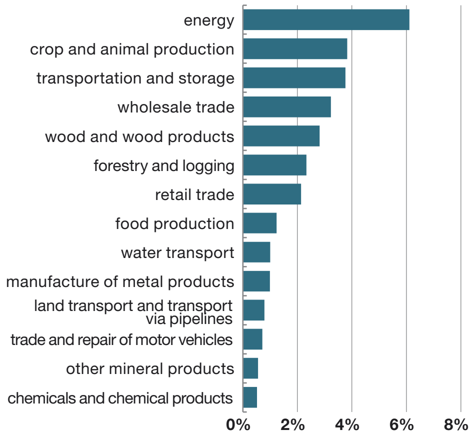
Figure A1.2. Loans to carbon-critical sectors as a share of the total corporate loan portfolio



Sources: European Environmental Agency, AnaCredit database, Eesti Pank calculations

the most sensitive to changes in climate policy[25]. In Estonia this means primarily the energy sector, but also transport and manufacturing. The share of loans in the loan portfolio of the banking sector that have been issued to the three most carbon-intensive sectors has held steady for the past three years at 20-23%, which is around 5% above the European Union average (see Figure A1.1).

Figure A1.3. Loan positions of the most carbon-critical sectors



Sources: European Environmental Agency, AnaCredit database, Eesti Pank calculations

Focusing only on the sectors with the largest carbon emissions overlooks however those sectors that have average carbon-intensity but dominate in the loan portfolio and so are important in assessing the transition risks of the banks. The share of Carbon Critical Sectors (CCrS) in the loan portfolio is calculated from the total carbon emissions of each sector, and the share of that sector in the loan portfolio of the banking sector. Faiella and Lavecchia (2020) created the CCrS index by ordering economic sectors firstly by their carbon emissions, and then by their weight in the loan portfolio. The positions within the two indexes are averaged, and the sectors in the top quartile are considered carbon critical. The list of carbon critical sectors in 2022 contained electricity generation, industry, transport, retail and agriculture. Carbon critical sectors have accounted for 33-76% of the loan portfolio in Estonia in different years (see Figure A1.2).

More detailed observation of the position of carbon critical sectors in the loan portfolio shows the energy sector to be most exposed to transition risks at 6% of the whole loan portfolio, followed by production of crops and animals at 4% of the portfolio, transportation and storage at 4%, and wholesale at 3% of the portfolio (see Figure A1.3).

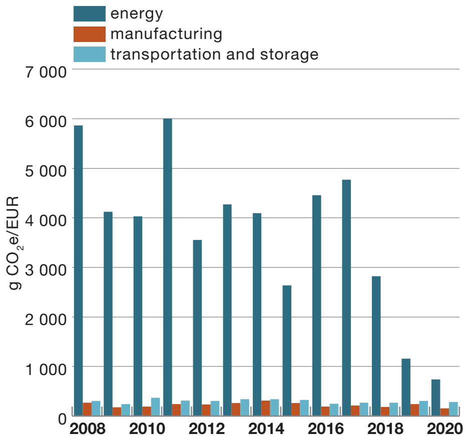
The third method of assessment is Loan Carbon Intensity (LCI), which points the focus directly at the loan burden of particular economic sectors, and assesses the carbon intensity of each euro borrowed. The LCI shows how many grams of carbon are emitted by each economic sector per year for each euro borrowed, as $LCI_{jt}=Emissions_{jt}/LoanStock_{jt}$, where j indicates the economic sector

25 European Commission A Clean Planet for all A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy. November 2018.

and t is time. The data show that the carbon-intensity indicator for loans in recent years has fallen substantially for the sectors with the largest emissions. It is reasonable to focus here on the sectors with the largest carbon emissions, as the LCI indicator is not directly comparable across sectors. The exposure of the Estonian banking sector in international comparison measured by the LCI indicator is however quite similar to that in other European countries. Sectors with high LCI indicators accounted for 27.6% of the total loan portfolio of the banking sector in 2020.

Data from the European Environment Agency on carbon emissions for each economic sector have been used in calculating all three indicators. This means the analysis considers only the exposure of the banking sector to transition risks that come directly from the carbon emissions of the clients of the banks, or scope 1[26].

Figure A1.4. Loan carbon intensity



Sources: European Environmental Agency, AnaCredit database, Eesti Pank calculations

The analysis is based on detailed aggregate loan data from the banks and data on carbon emissions by industry, and shows that the exposure of the Estonian banking sector to transition risks is considerable, but of a similar magnitude to that in other countries in the euro area. The three assessment methods find different results, as the carbon critical sectors assessment finds that 43% of the assets in the corporate loan portfolio were exposed to transition risk in 2020, loan carbon intensity finds 27.6% were, and the calculation for sectors affected by climate policy returns 21%.

26 The greenhouse gas emissions from the activities of an organisation or company are divided into three scopes: scope 1 is for direct emissions from sources owned or controlled by the company such as production; scope 2 is for indirect emissions from the energy purchased; and scope 3 is for all other indirect emissions that occur as a result of upstream or downstream activities in the company's value chain.

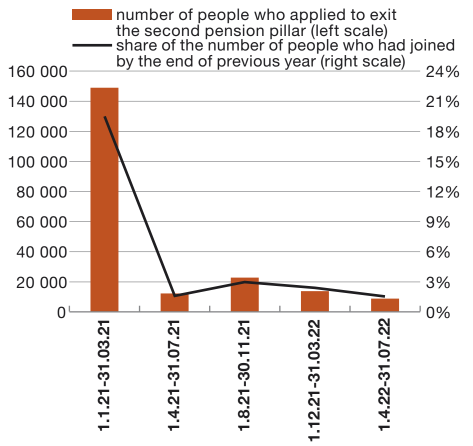
APPENDIX 2. THE EFFECT OF THE PENSION REFORM ON PENSION FUNDS

Changes to the pension system started to apply at the start of 2021, the most important of which was that pension investors could exit the second pension pillar before reaching retirement age. Eesti Pank carried out an impact analysis before the change came into force[27], and one of the impacts it considered was the possible effect of the pension reform on financial stability. The main ways that Eesti Pank considered the reform might impact financial stability were that it could create liquidity problems for funds whose assets were largely illiquid, that the increased need for liquidity could lead to changes in the asset structure of pension funds, that rapid sales of assets could cause losses, and that various new risks could arise for pension savers as the Guarantee Fund does not cover incorrect and therefore loss-making transactions made by individual investors. Eesti Pank also pointed out that before the change came into force, people were notably more passive about saving pension assets voluntarily than doing so automatically through the second pillar, and there may be relatively fewer investors in the future who are prepared to increase their pension savings independently, given the savings habits of people in Estonia.

The original pension reform law was amended to extend the time allowed for payouts to five months, which helped the funds cover the withdrawals within the time limit allowed for them without any major hitches. There had been several rounds of withdrawals from the second pillar by August 2022, with the largest departures coming during the first round in 1.1.2021–31.03.2021 as almost 20% of savers left. The share of pension savers leaving the pillar was notably smaller in subsequent rounds and was generally below 3% (see Figure A2.1). Although the number leaving in the first round was relatively large, the funds did not suffer any short-term liquidity problems because of the early withdrawals, and the payouts were made on time.

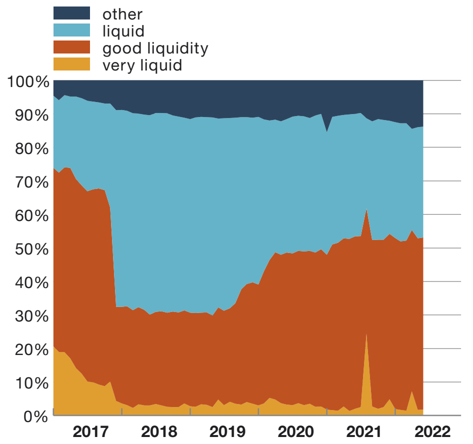
The share of liquid instruments in the asset structure of the funds as a whole has increased a little. In early 2019 before the pension reform, 30% of assets had very good or good liquidity[28], but by the time the reform first passed the Riigikogu that share had increased to almost 50% (see Figure A2.2). At the end of June 2022, 53% of assets were in that category. The volume of the least liquid assets has not particularly changed since the pension reform came into force, and 14% of assets are in that category. The share of foreign bonds in the holdings of funds has fallen since early 2021 from 25% to 10%, while the share of

Figure A2.1. The number of people who have exited the second pension pillar



Sources: Pensionikeskus, Eesti Pank calculations

Figure A2.2. Pension fund investments by liquidity



Source: Eesti Pank

27 Impact analysis of the changes to the pension system, November 2019 (https://www.eestipank.ee/en/press/eesti-pank-has-prepared-detailed-impact-analysis-changes-pension-system-01112019).

28 The liquidity of assets uses the following classification: very liquid means deposits and money market instruments; good liquidity means foreign fund units; liquid is foreign securities and Estonian shares; and other means assets with low liquidity including real property in Estonia, fund units, unlisted bonds and similar.

foreign equity funds has increased from 33% to 41%, and the share of equities has increased from 13% to 21%. The changes for other instruments have been quite marginal.

Developments in financial markets were generally positive and supported the sale of the assets needed to cover the payouts. Rapid sales of assets in financial markets often mean that the assets have to be sold at below the market price, but there was long enough between applications for withdrawals being submitted and the payouts being made for this risk to be reduced. Beneficial trends in financial markets also helped reduce this risk, as the prices of the assets continued to rise, and so they did not need to be sold at a loss. The overall EPI index rose for example by 8% during the first round of withdrawals and by 5% during the second. The volatility and uncertainty in financial markets meant that the results for the third and fourth rounds were negative, meaning that people who withdrew their savings during those rounds got less money on average from the funds than they would have had at the point they applied to withdraw. The EPI index fell by 1.4% during the third round and by 10% during the fourth round, showing that the risk remains that a fall in the market during the withdrawal period can reduce the value of the investment.

Relatively little use has been made of individual pension investment accounts for independent pension saving. One of the main changes of the pension reform was to allow people to invest their own money through independent accounts in the second pillar. A relatively small number of pension savers have so far made use of this option. There are only a little over 4300 such active investors[29] and as at 13 September 2022 they accounted for less than 1% of all pension savers. Earlier Estonian Household Finance and Consumption Surveys[30] have shown that financial assets are still dominated by deposits, which partly illustrates a conservative attitude to investing financial assets, and partly the preference of people in Estonia for investment in real assets rather than financial investment. The banks also report that a part of the money withdrawn from the pension pillar has been put into real estate. Investing independently in securities markets also requires quite a lot of knowledge, skill and time, meaning that this is not necessarily a good option for a large proportion of pension savers, and there is no guarantee that independent investors will be any more successful in their investments than, for example, pension funds. Although too little time has passed since the pension reform to draw any conclusions about whether the results of individual investors have been better or worse than those of the pension funds on average, the first signs indicate that the returns for those who have invested through an individual pension investment account have been lower than the average for pension funds[31].

The option of exiting the second pillar early has created the risk that some pension savers may decide to withdraw their money from the second pension pillar before reaching retirement age because of volatility in securities markets, a sharp fall in prices or temporary financial difficulties. It was not possible for pension savers to exit the second pillar early before the pension reform, which meant that the risk of savers withdrawing from investments was very low, as it could only be done by switching fund, or almost non-existent, but this risk has materialised after the reform. This risk has been clearly illuminated by what has happened with savings in the third pension pillar. When securities prices dropped and incomes fell during the previous global financial crisis, the volume of early withdrawals from the third pillar funds increased (for more see page 23 of Financial Stability Review 1/2020), and so making the second pillar voluntary has meant the same may happen to that pillar in the future.

In conclusion the impact of the pension reform on pension funds has so far been quite modest. The introduction of the pension reform allowed savers in the second pension pillar to withdraw the money they had saved early, which was a major change from the earlier system. It can now be observed, a year and a half later, that the impact on pension funds has remained relatively limited.

29 The number of active investors includes people who make payments into the second pillar by obligation and whose active choice in the second pillar is a pension investment account.

30 The Estonian Household Finance and Consumption Survey 2013 and 2017. https://statistika.eestipank.ee/#/en/p/LEIBKONDADE_VARAD_JA/r/2432/2240

31 How did savers through LHV PIK fare last year? (in Estonian) https://fp.lhv.ee/news/newsView?newsId=5638379.

Pension fund managers had enough time to make the payouts on time in the first round of withdrawals, when there were the largest number of departures. The share of liquid instruments in the structure of the assets of the pension funds increased, but there was no major change in the share of the least liquid instruments. The trends and development in the financial markets were favourable at first, and so the investors who decided to withdraw their money early did not suffer additional loss.