



EUROSÜSTEEM

# FINANCIAL STABILITY REVIEW

**2**  
2020

**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/series/financial-stability-review>

Review by                      Eva Branten, Gaili Grüning, Silver Karolin, Timo Kosenko, Raido Kraavik,  
Kristjan Mäe, Madis Laas, Taavi Raudsaar, Ulla Tischler

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Layout and design              Urmas Raidma

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# EESTI PANK'S ASSESSMENT OF THE RISKS TO FINANCIAL STABILITY

In the autumn 2020 assessment of Eesti Pank, the risks to the functioning of the financial sector next year are large (see Table 1). The banking sector was in a strong position when it faced the sudden deterioration in economic circumstances in the spring, and financial services have remained easily accessible throughout the crisis so far. If the economic environment remains uncertain and the number of loan clients with problems increases substantially at the banks though, the banks could decide to tighten their lending standards and conditions. This could concern the sectors that were affected most by the crisis or if the problems are worse it could affect the loan supply more broadly, making it harder for the economy to recover from the crisis. This risk is reduced by the strong capitalisation of the banking sector and its continuing good profitability, which help it to cope with the loan losses that will arise following the crisis.

The broad restrictions introduced to stop the spread of the coronavirus meant that a large part of economic activities could not continue in their previous form. This caused a broad contraction in the economy in the second quarter. As the virus receded and the restrictions were eased, confidence improved rapidly in the economy about the outlook for the future. In consequence the short-term outlook is more optimistic than was feared when the coronavirus crisis started. It remains unknown though how the health crisis will develop

over the coming months, and whether and how broadly restrictions will be introduced and how successfully the economy will recover under those circumstances. **The recovery in the economy is fragile and the danger remains that the exit from the crisis will not be smooth and that there will be setbacks.**

**The ongoing coronavirus crisis means that the main focus of the assessment of financial stability is on the credit risk of the banks.** The most important question for the banks in the coming months is whether and to what extent borrowers will face difficulty repaying their loans. The share of loans overdue by more than 60 days in the loan portfolio of the banks has so far been very small at below 0.6%. This has been helped by the banks making efforts to meet the needs of borrowers by allowing them to stop repaying the principal on their loans temporarily if needed, and by the support measures that were introduced during the crisis, especially the wage subsidy from Töötukassa, the Estonian unemployment insurance fund. At the end of September, loans that had been given a payment holiday made up a tenth of the loan portfolios of the banks.

Although the recovery of the economy has gone well so far, several branches of the economy remain seriously impeded. The rules introduced because of the need to maintain social distancing were particularly difficult for companies providing accommodation, food service, tourism, and leisure

Table 1. Eesti Pank risk assessment

	CURRENT SITUATION	RISK SCENARIO	
<b>THE ABILITY OF COMPANIES TO REPAY LOANS</b>	The economy has so far recovered faster than expected. The financial position of the sectors hit hardest by the crisis remains difficult. Companies that have been hurt by the crisis have been given payment holidays.	As the crisis deepens, serious problems affect other sectors including real estate and manufacturing. The volume of non-performing corporate loans increases considerably. Businesses cannot get financing for new investment on good conditions.	
<b>THE ABILITY OF HOUSEHOLDS TO REPAY LOANS</b>	Unemployment rose a little in the spring but then the labour market stabilised. Households have not so far had any serious difficulties in repaying their loans.	Unemployment increases in the sectors affected most by the crisis and jobs in other sectors are threatened. Many of those who lose their jobs fall into difficulties with repayments. The banks have to realise the collateral on loans.	
<b>THE BANKING SECTOR</b>	The banks are well capitalised and liquid. Profitability remains good. Loan impairments have not been substantial. Some borrowers have ended their payment holidays and started to make repayments again. The banks have continued to fund the non-financial sector on good conditions.	The recovery does not proceed smoothly and without setbacks, and borrowers face substantial difficulties in making repayments. Despite their strong capitalisation, the banks are less willing to finance the non-financial sector on good conditions.	

Scale: 1 = small risk and 6 = large risk. The direction of the arrow shows the change in the risk since the previous assessment in May 2020.



services. These sectors are not especially capital intensive though, and so they provide only a small part of the loan portfolio of the banks. **In the negative scenario, wide-ranging problems could affect real estate and industrial companies among others.** In that case the banks could face large numbers of borrowers falling into difficulties.

Many of the sectors that have been affected most by the crisis are labour intensive, and around one quarter of all those in employment work in those sectors. The ability of households to make their loan payments depends largely on the state of the labour market. Repaying housing loans can prove difficult for those who lose their jobs, though there has not yet been any sharp rise in unemployment. However, the wage subsidy measure that provided some respite to the labour market has been ended, and the new package of measures for companies in difficulties may not be enough to maintain the wages of underemployed employees. **If the labour market should deteriorate, households that lose jobs will be less able to repay their loans.** It is unlikely though that the banks will face large-scale loan losses, as housing loans are well secured and there is no current indication of a steep fall in prices in the housing market.

The banking sector remains well capitalised and this has allowed the banks to cope well with the first impacts of the crisis. The banks agreed on rules for granting payment holidays while the strictest coronavirus restrictions were in place, and they have continued lending. The interest rates on new loans issued by the banks have not changed significantly during the crisis. **The full extent of difficulties in the non-financial sector with repaying loans will not necessarily be apparent for the next 6-12 months though, and so the actual full impact of the crisis may hit the banks after some delay.** The negative scenario in the Eesti Pank economic forecast and the experience of the financial crisis of 2007-2008 indicate that the share of overdue loans in the portfolio of the banks could reach 5%.

**Eesti Pank does not currently consider it necessary to change its macroprudential measures.** At the start of the crisis, Eesti Pank decided as a preventative measure to cut its systemic risk buffer from 1% to zero. The buffers that were released to the banks let them cover loan losses and issue new loans.

# THE ABILITY OF COMPANIES HIT HARDEST BY THE CRISIS TO SERVICE THEIR LOANS HAS DETERIORATED

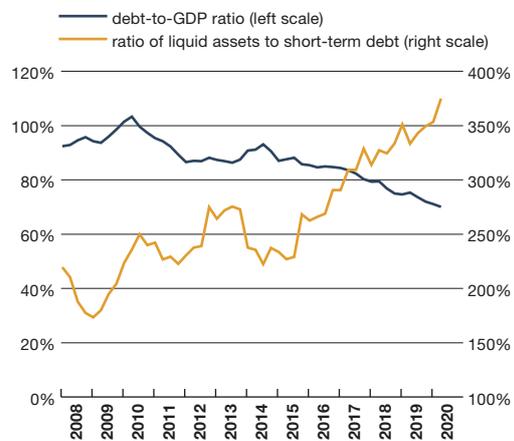
The restrictions imposed to stop the spread of the coronavirus have seriously worsened the state of the economy in Estonia. Companies have so far managed to make their loan payments more successfully than was feared at the peak of the Covid-19 restrictions in the spring. It has not been possible though for economic activities to continue to the same extent as before the crisis in several business sectors. The hardest blow fell on companies in tourism, accommodation and catering, though these provide only a small part of the loan portfolio of the banks. Loan losses are affected most by the real estate sector, which is a very large part of the loan portfolio. Although the real estate sector has not yet seen any systemic difficulties, that could change quickly if the crisis were to deepen. The support package from the government played a large role in backing confidence in the early phase of the crisis, but there may be structural changes in the economy in future meaning that companies will have to be more flexible and ready to adapt quickly to a new environment.

## RECOVERY FROM THE CRISIS MAY TAKE TIME IN SOME SECTORS

**The danger to financial stability has increased notably, as the Covid-19 pandemic and the restrictions introduced because of it have substantially worsened the state of the economy in Estonia.** The Estonian economy was already turning down in the first quarter of this year, and in the second quarter the contraction was as much as 7%. The contraction proved smaller than feared, and financial results improved quickly in the summer in many sectors. This was helped by an unexpectedly rapid recovery in domestic demand once the restrictions were lifted, and by a smaller decline than forecast in import demand from Estonia's main trading partners. There still remains a very great deal of uncertainty about the future developments in the economy though. Sectors that were affected most by the crisis are particularly vulnerable, especially accommodation and catering, entertainment and leisure, transport, and to a certain extent real estate. In the negative scenario, companies in many other sectors may also face difficulties.

**The sectors most affected by the crisis may not be able to recover rapidly the capacity to service their loans.** The financial results of some sectors have been hit hard and so the capacity of many companies to make loan payments has deteriorated. That capacity has so far been supported by the use of payment holidays, but as these end, an increase in overdue loans and loan losses may be expected in some sectors. No mass increase in overdue loans is expected in the short term though, as several sectors are doing better than had been feared. The banks have also indicated that they may extend the option of payment holidays.

Figure 1. Corporate debt and liquidity



Source: Eesti Pank

**The financial position of companies was relatively strong before the crisis.** Growth in investment was modest, and so corporate indebtedness continued to decline in the first half of 2020 (see Figure 1). The share of liquid assets has also increased since the start of the year, which may indicate that uncertainty has led to a desire to increase buffers against more difficult times.

**The measures taken to ease the pandemic have hit the financial results and capacity to make loan payments of businesses in accommodation and catering most of all.** Many businesses effectively had to stop their activities as their numbers of clients dropped sharply. Sales revenues of companies in that sector in the second quarter were less than half what they were a year earlier (see Figure 2), while those of companies offering accommodation and tourism services were down by more than 80%. The profit that companies in accommodation and catering typically earn in the second quarter was replaced this year by a loss. Although this sector provides only 1.4%

of the value added in the economy (see Figure 3), a large proportion of people in work are in this sector, which could seriously hurt the economic wellbeing of many households. The package of support measures planned for tourism companies may provide some relief for the accommodation and food service sector<sup>1</sup>. Entertainment businesses face similar risks, though they make up an even smaller part of the economy and of the corporate loan portfolio of the banks.

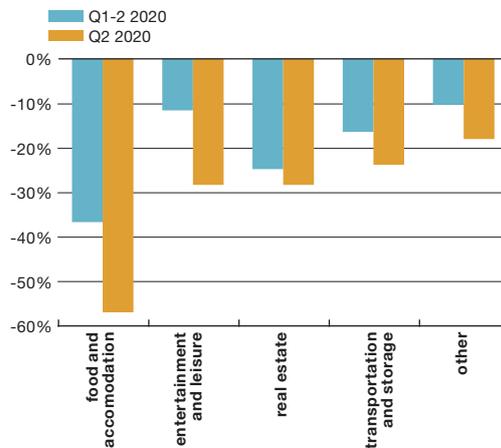
**Confidence improved in the service sector in the summer, though the outlook is not promising.** Companies estimated in August that demand in the next three months would be lower than in July, which could mean that the summer provided some relief for businesses while hard times lie ahead. As the spread of the Covid-19 virus is increasing again, no recovery in the share of tourists and foreign business clients is foreseen. It may be assumed then that companies providing accommodation and tourism services in the service sector will fall into the deepest difficulties, together with catering businesses that focused mainly on foreign clients.

**The restrictions introduced to restrain the spread of Covid-19 meant that passenger-carrying companies suffered most in the transport sector.** Companies in transportation and storage cover quite a range of activities, and so some companies, such as those that deliver goods from online stores, gained new opportunities from the situation. The ability of transport companies to adapt was reduced by their relatively poor financial position before the crisis, as their ratio of liabilities to assets or to equity is worse than those of other major sectors, especially for those companies that carry passengers.

**The relaxation of the restrictions did not ease matters for a lot of transport companies, and the recovery of the sector may take longer than expected.** The coronavirus crisis has caused companies to review their supply chains and trading partners, which may mean that recovery takes time for companies working in long-distance transport. The volume of passenger transport will not necessarily recover immediately, as it depends a lot on the return of tourism and entertainment, and the retreat of the virus.

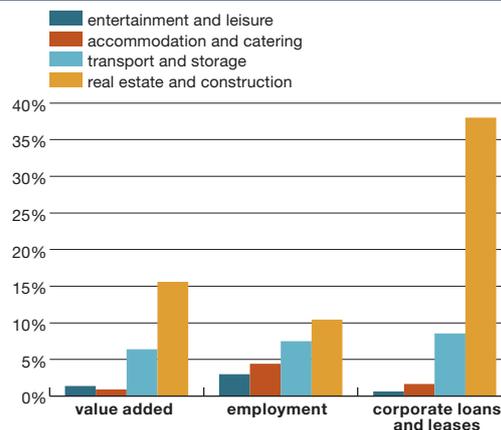
**The real estate sector was also dealt a heavy blow by the crisis.** The sales revenue

**Figure 2. Annual growth of corporate sales revenue**



Source: Statistics Estonia

**Figure 3. The share of business sectors in the economy and in the corporate loan portfolio of banks and leasing companies**



Sources: Statistics Estonia, Eesti Pank

and profit of real estate companies were down by more than 20% in the second quarter. The results of the real estate sector were affected by difficulties in other sectors, probably primarily problems in accommodation and catering and at some retail companies. Office real estate may also have had some effect on the results, as many people started working from home and so companies have tried to get reductions in rental prices or to reduce the space they are renting.

**There may also be structural changes in the future in commercial real estate.** The coronavirus meant that offices were used less, which may lead to long-term changes, and adapting to these could cause further problems for some real estate companies. More than a third of the commercial real estate loans of the banks were issued to

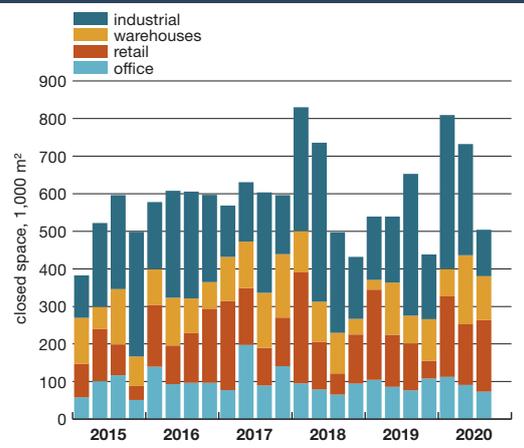
1 Press release of the Ministry of Economic Affairs and Communications of 30 September 2020.

finance office space, and this share has increased in recent years. This means that changes in how office real estate is used could cause problems in the loan portfolio of the banks. Although the number and turnover of transactions in the real estate sector are down substantially, there has been no serious fall in prices. The strong financial position of companies in commercial real estate before the crisis has helped to prevent prices from falling, but if circumstances remain difficult it is probable that some reduction is also to be expected in real estate prices.

**Unfinished projects in the commercial real estate sector are being completed, and new opportunities are being sought.** The number of permits for use issued for various types of commercial property in the first half of 2020 was high by the standards of other years, which indicates that a lot of projects in the final phase were completed during the crisis. Unlike in previous periods, permits for use were issued the most for industrial buildings. A relatively large number of construction permits were also issued (see Figure 4), which may indicate that companies in real estate and construction are actively seeking new opportunities. However, the fall in demand that has accompanied the contraction in the economy will make it ever harder to find tenants for new buildings. The consequence may be an increase in vacancies and some real estate companies may become less able to service their loans.

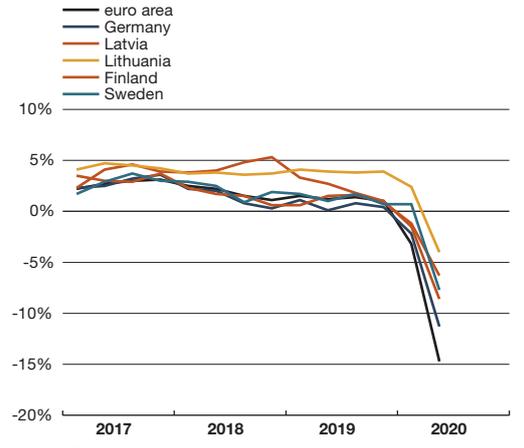
**The financial results and the solvency of industrial companies depend largely on how well Estonia's main trading partners do.** The financial figures for Estonia's main trading partners were down sharply in the second quarter, but the fall was still notably smaller than the average in the euro area (see Figure 5). In consequence the financial results for Estonian industrial companies have been better than expected. An improvement in foreign markets was indicated during the summer by the purchasing managers index for the euro area and by the confidence of Estonian industrial companies, but in August the outlook for the euro area turned down again. A threat to the industrial sector is that government support measures in several large trading partners will end at the end of the year, and this could cause demand in those countries to drop. The negative scenario of the Eesti Pank forecast also sees a fall in foreign demand as an important factor. It would particularly affect the industrial sector, and could in consequence cause a substantial deterioration in the

**Figure 4. Building permits issued for new construction, reconstruction and expansion of commercial buildings**



Source: Statistics Estonia

**Figure 5. Annual GDP growth of major trading partners**



Source: Eurostat

ability of the sector to pay its loans. Brexit is also a major source of danger, as the transition period for the departure of the United Kingdom from the European Union will be over at the end of the year. The consequence could be a reduction in demand for exports from Estonia.

**HOW THE ABILITY OF COMPANIES TO PAY WILL DEVELOP IS LARGELY DIFFICULT TO PREDICT**

**The impact of worse financial results and increased uncertainty on the ability of companies to service their loans has so far primarily been expressed through the use of payment holidays.** At the point where results were deteriorating and there was great uncertainty about the future, quite a large share of businesses took the chance to reduce costs by taking loan repayment holidays. At the end of September,

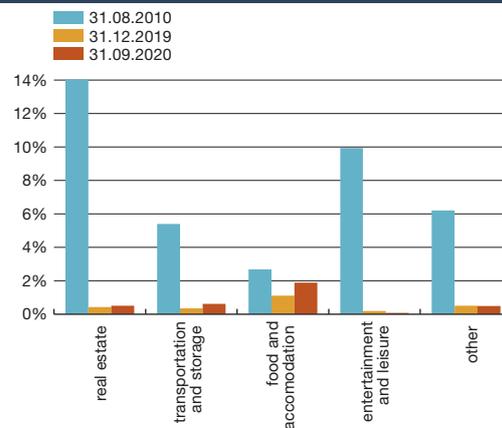
9.8% of all borrowers had taken a payment holiday, and holidays on corporate loans covered 15.6% of the stock of loans issued to businesses.

**Loans to the sectors that were hurt most by the crisis make up a fifth of the loan portfolio of the banks.** The sector with the biggest share is the real estate sector, and its loans make up 15% of the loan portfolio. Relatively few real estate companies have applied for payment holidays though in comparison to the accommodation and catering sector, and the majority of them should restart servicing their loans when the payment holiday is over. The share of loans that are overdue is likely to grow the most at companies in accommodation and catering and entertainment and leisure. Those sectors between them will probably not cause any major increase in overdue loans though, as they together account for only 1% of the loan portfolio. Loans to companies in transport and storage make up 3.8% of the loan portfolio, but that sector is very multifaceted and so overdue loans will arise in specific sub-sectors of it.

**Overdue corporate loans have not yet started to increase despite the deterioration in financial results** (see Figure 6). There have been fewer loans overdue than was feared because the economy has performed better than expected, the banks have offered broad payment holidays, and the financial position of companies was good before the crisis. The costs of loan servicing have also been held down by the very low base interest rates. An agreement for a simpler procedure for banks to grant payment holidays was terminated in September, and so it may be expected that companies falling into problems may in future delay their loan repayments. The banks may however continue to come to meet companies that have been temporarily affected by the crisis by granting payment holidays.

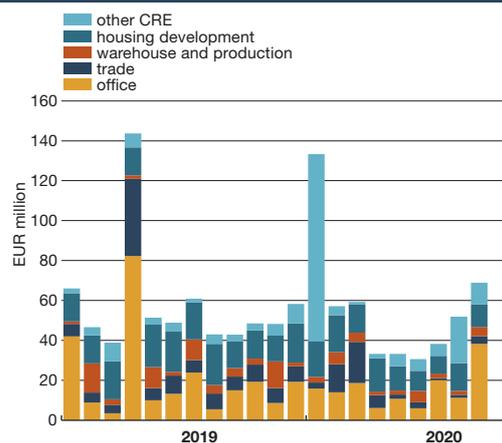
**Demand for loans has been modest during the crisis and the stock of loans has diminished in almost all sectors except for real estate and construction.** As the stock of housing loans to households has also continued to grow, the concentration of real estate loans in the loan portfolio of the banks has increased a little. Evidently this is largely because the maturities of real estate loans are longer than those of other loans, and it is probably a temporary phenomenon, though its effect on the quality of the loan portfolio of the banks may increase if there is a correction in real estate prices.

**Figure 6. Percentage of corporate loans overdue for more than 60 days by sector**



Source: Eesti Pank

**Figure 7. New commercial real estate loans by purpose**



Source: Eesti Pank

**The activity in issuing construction and use permits has not been reflected in new borrowing for commercial real estate.** The volume of commercial real estate loans in the first half of 2020 was close to the figures for earlier years, but this was boosted by a strong first quarter, and there has been a fall in new loans issued since April (see Figure 7). Reduced borrowing activity may indicate that there was activity in the real estate market in making preparations and looking for opportunities, but there were limits on the start of new construction and on transactions. This suggests there may be some pause in the appearance on the market of new buildings, which may ease the supply side in the market and restore some balance. The issuing of new loans recovered to its pre-crisis level in September though, indicating a recovery of confidence at real estate companies.

# DIFFICULTIES IN THE LABOUR MARKET MAKE HOUSEHOLDS LESS ABLE TO SERVICE THEIR LOANS

The crisis caused by the coronavirus has threatened jobs in many sectors. The crisis affected businesses in tourism, accommodation and catering the most at first, but if it continues then other sectors may also suffer. This makes it possible that many workers may see their incomes reduced or even disappear, which would substantially harm the capacity of households to service their loans. As the sectors affected most by the coronavirus crisis employ about a quarter of all those in work, so a reduction in the capacity of households to repay their loans could significantly impact the banking sector.

## HOUSEHOLDS HAVE NOT SO FAR HAD ANY SERIOUS DIFFICULTIES IN REPAYING THEIR LOANS

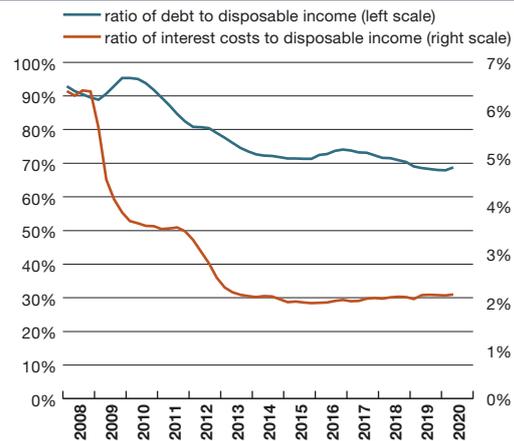
**Households were active in borrowing for several years before the coronavirus crisis broke.** Their debt liabilities were growing by around 6-7% a year, with rapid growth in volumes of both housing loans and other loans and leases. There was no increase though in household indebtedness, or the ratio of debt to incomes, as incomes were also rising rapidly. The interest burden of households, which is the interest costs on debt liabilities as a ratio to disposable income, was low in comparison over the preceding decade (see Figure 8).

**The volume of overdue bank loans to households, and the share of these loans in the portfolio of loans to households have not so far increased and remained very small at the end of September 2020** (see Figure 9). Neither have loan provisions as a ratio to the loan portfolio of the banks yet changed significantly. The level of overdue loans has probably not increased, as the banks have granted payment holidays to households. Below 5% of loans in the portfolio of bank loans issued to households had been granted payment holidays at the end of September.

**The labour market subsidies have also helped to maintain the capacity of households to service their loans.** Some 138,000 people in total received the wage compensation at some period between March and June this year. Relative to the number of people employed in the sector, the sectors that received the most in subsidies were accommodation and food service activities, administrative and support service activities, wholesale and retail trade, arts and entertainment, and manufacturing (see Figure 10).

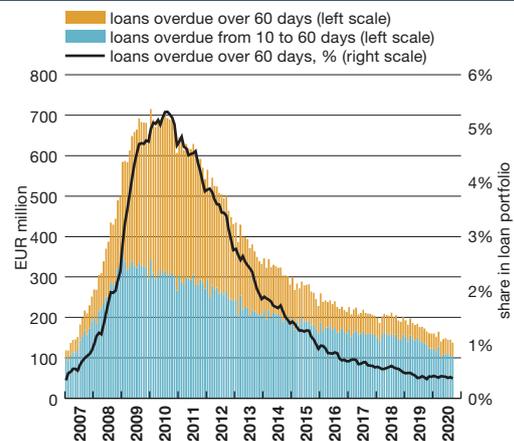
The impact of the wage subsidy measure has now ended, but there has so far been no new rise in unemployment in consequence. The registered unemployment rate was 7.6% in September, which is a little lower than at the end of the second

**Figure 8. Debt and interest burden of households**



Source: Eesti Pank

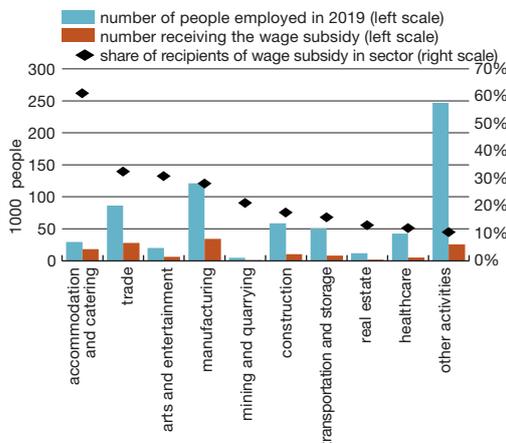
**Figure 9. Stock of overdue bank loans of households**



Source: Eesti Pank

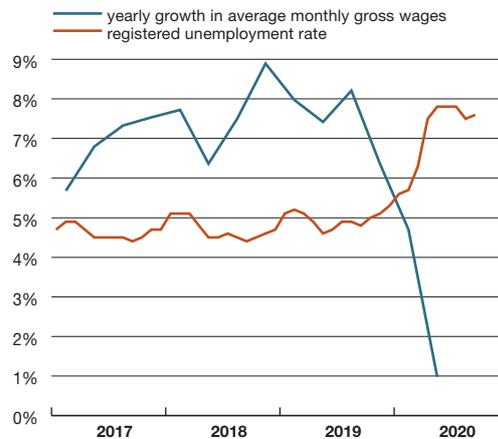
quarter and the start of the third quarter (see Figure 11). The average monthly gross wage in the second quarter of 2020 was 1% higher than it was in the second quarter of 2019, though the average wage was down in several sectors. The average wage fell most in retail and in accommodation and food service activities. **The forecast published by Eesti Pank in September 2020 expects unemployment to rise in the near future and to reach around 10% in 2021.** In the negative forecast scenario, the unemployment rate rises to around 14%.

**Figure 10. Number of recipients of the wage subsidy and their share in the employment of sectors**



Sources: Statistics Estonia, Töötukassa, Eesti Pank calculations

**Figure 11. Growth in average monthly gross wages and the registered unemployment rate**



Sources: Statistics Estonia, Töötukassa

**Some indication of a deterioration in the ability of households to service their loans can already be seen in consumption loans.**

The share of loans overdue has increased a little for consumption loans issued by banks and for consumer credit issued by creditors not associated with banks.

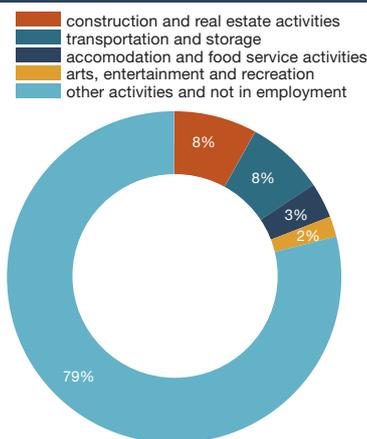
**BANKS WILL PROBABLY NOT FACE LARGE-SCALE LOAN LOSSES ON LOANS TO HOUSEHOLDS**

The risks for financial stability are different for different sectors and they depend on the nature of the sector itself and on how much the people working in that sector have in debt liabilities<sup>2</sup>.

**Around one quarter of all those employed in 2019 worked in the sectors affected most by the crisis, which were accommodation and food service activities, transportation and storage, construction and real estate activities, and arts and entertainment. The debt of households employed in those sectors is estimated to account for around 21% of the total debt of households** (see Figure 12).

If this share is applied to the total stock of loans issued by banks to households as at 31 August 2020, the stock of loans issued to households in the sectors most affected by the crisis can be estimated at around 2.2 billion euros. **Taking the**

**Figure 12. Approximate estimate of the distribution of debt of households by activity**



Sources: Eesti Pank, HFCS (2017)

**share that have received wage subsidies puts the value of loans to households working in the sectors most affected and having received state support at an estimated 560 million euros, or 5.4% of the loan portfolio.**

Payment difficulties will not arise for all of these loans, but probably only for a certain part of them. Whether households face payment difficulties when their incomes fall will probably also depend on the share of their income that goes on repaying their debts. **The median debt service-to-income ratio<sup>3</sup> is higher in several sectors affected most by the crisis than the**

<sup>2</sup> The Estonian Household Finance and Consumption Survey (HFCS) can be used to gain an approximate indication of the financial assets and liabilities of households that work in the sectors most affected by the coronavirus, and this can be used to estimate the scale of the problems that could accompany a deterioration in the ability to service loans. The last survey was conducted in 2017. The current analysis assumes that the distribution and structure of loans has not substantially changed, and the data are used to give an approximate estimate of the situation today. In our analysis, a household is associated with the sector of the main place of work of the household member who was the reference person for the household in the survey interview.

<sup>3</sup> The indicators indicators here and afterwards are calculated for households that have a loan.

**average for all households.** There is also quite a large share of such households that use a large part of their income to repay their loans. It is estimated that around a fifth of those households in the sectors most affected by the crisis that have a loan liability spend over 20% of their gross income on servicing loans. The debt of such households is estimated at 6% of the total debt of all households.

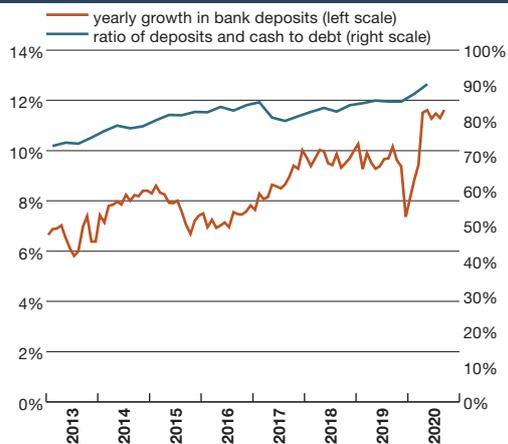
If the incomes of households fall or disappear completely, their ability to service their loans depends on the savings they have. **The savings of households have increased in recent years.** This is reflected in the rapid growth of deposits and in the increase in the share of households that are saving. Household deposits and cash as a ratio to debt have also increased, and were around 90% in the second quarter of 2020 (see Figure 13).

**Savings are very unevenly distributed though, and the savings of a large share of households are very small.** The median value of the liquid financial assets of households with loan liabilities is equal to less than one month of their gross income. This suggests that although the ability of households to service their loans has improved in recent years, there are people who remain very vulnerable if they lose income for even a short time if they become unemployed. It should also be noted that the median value of the financial assets of households in the sectors affected most by the coronavirus crisis is smaller than the average for all households.

The deterioration in the ability of households to service their loans does not necessarily mean that all problem loans will cause loan losses for the banks. **The extent of possible loan losses from housing loans also depends on how the value of the real estate used to secure the loan changes.** There are currently no signs in the housing market that would indicate a large fall in prices in the near future. Before the coronavirus crisis erupted, the housing market was moving more or less in step with the economy as a whole<sup>4</sup>. The rise in property prices was supported by rapid rises in incomes, though housing may have been a little overpriced compared to the price level indicated by fundamental factors for housing prices (see Figure 14). The danger remains that falling incomes could cause real estate prices to fall.

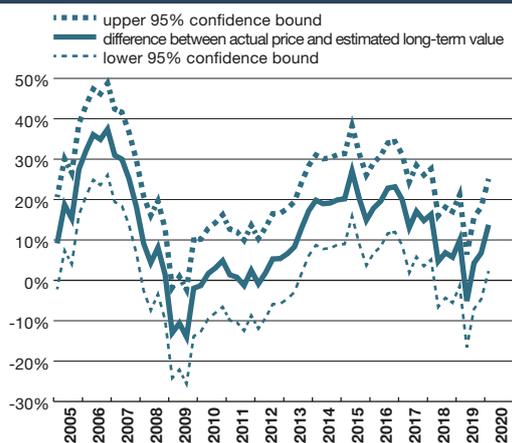
**The number of housing transactions has fallen during the coronavirus crisis** as there

**Figure 13. Growth in deposits of households and the ratio of deposits and cash to debt**



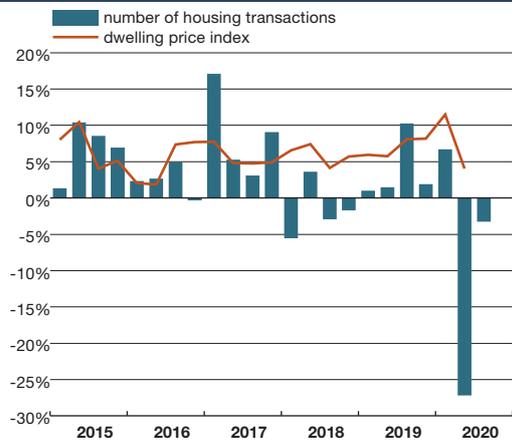
Source: Eesti Pank

**Figure 14. Over and undervaluation of residential real estate in the Eesti Pank model**



Sources: Statistics Estonia, Eesti Pank

**Figure 15. Yearly growth in the number of housing transactions and the dwelling price index**



Sources: Estonian Land Board, Statistics Estonia

4 See Eesti Pank. Financial Stability Review 1/2020 *Imbalances may arise in the real estate market.*

were 27% fewer transactions in the second quarter of 2020 than a year earlier, **though the average price in housing transactions has not yet fallen significantly** (see Figure 15). The price index for apartments in the second quarter was 6% higher than it was a year earlier, though data from the Land Board show the rise came from an increase in the share of transactions with new apartments, and from an increase in the average price of new apartments. At the same time the prices of apartments in the secondary market were down by 1% on average. The initial data from the Land Board show that the average square metre price in apartment transactions in the third quarter was 4% higher than a year earlier.

Loans that have a high loan-to-value (LTV) ratio are particularly sensitive to changes in real estate prices. The share of loans with high LTV in the stock of housing loans issued by the banks is lower than it has been in the past decade. **Around half of the stock of housing loans still have an LTV ratio of over 60% though<sup>5</sup>.**

The resilience of households and banks during the current crisis has been supported by the requirements for housing loans that Eesti Pank introduced in 2015. These requirements set limits on the LTV ratio, the debt service-to-income ratio, and the maturity of housing loans that are issued.

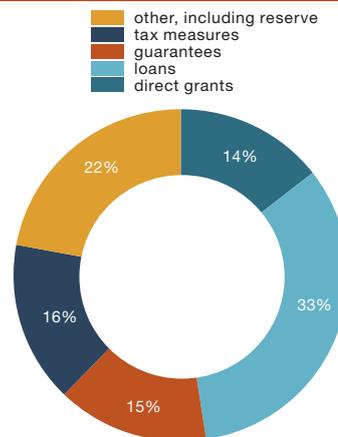
<sup>5</sup> If the LTV is 60%, the value of the real estate used as collateral needs to fall by more than 40% for it to have a smaller value than the outstanding loan. In the last economic crisis, housing prices in Estonia fell on average by 40-50%.

### BOX 1: THE AIM OF GOVERNMENT SUBSIDY MEASURES IS TO EASE THE IMPACT OF THE CRISIS

The government passed support measures in the spring to ease the obstacles posed by the crisis and to help the economy recover. The total value of the support measures in the additional budget in 2020 reached 2.346 billion euros (see Figure B1.1). The economic policy stimulus helps companies and households to survive the difficulties caused by the coronavirus. That the decline in the economy was smaller than feared was due not only to the subsidy measures, but also to a faster recovery than expected in export markets, and Estonia's general success in coping with the virus. The downturn is not yet over though and nor has its full impact been felt in all sectors.

The most eye-catching measure in the package of aid so far has been the wage subsidy from Töötukassa. This support was rapid and well targeted and totalled 257 million euros, and it reached some 138,000 people or one worker in five. The subsidy reduced the cost base of businesses and allowed them to preserve jobs. This kept households solvent and avoided a sharper rise in the unemployment rate. It should still be noted though that the number of those who were made unemployed was distorted by the prohibition on redundancies that accompanied the subsidy. Employment was also held stable to some extent because the summer period was the peak season for accommodation and catering despite the crisis, and that sector still needed more temporary labour. Despite the positive signs in the summer, the outlook for the labour market remains uncertain. Time is needed for companies to take staffing decisions and the sectors affected most by the crisis are now facing their low season. There is also a need for additional restrictions to keep the virus under control as it spreads more actively in the autumn, though it is still hard to forecast the scale of a new outbreak and the economic consequences it may have.

**Figure B1.1. Classification of support measures**



Sources: Ministry of Finance, Eesti Pank calculations

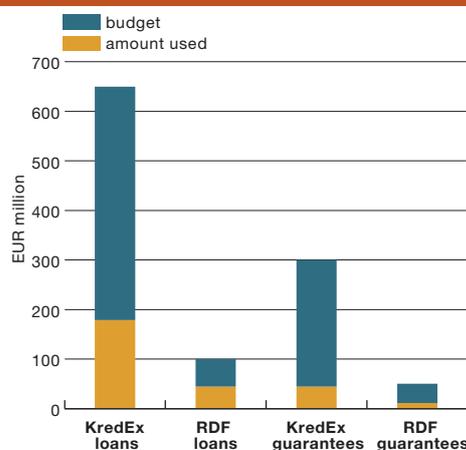
The government was prepared to help ease liquidity problems at companies through KredEx and the Development Foundation (RDF) by offering guarantees for new and existing loans and additional credit if needed. The wage subsidies of Töötukassa were used almost in full in three months, but the guarantees from KredEx and the Rural Development Foundation have not been used as actively (see Figure B1.2). By the start of October only 15% of the guarantee limits set for KredEx had been used and 23% of the Rural Development Foundation limits. The Rural Development Foundation had to change the initial criteria in its loan measure so that there would be enough money for the numerous businesses applying, while KredEx had to ease its conditions to attract interest from applicants. By the end of September, KredEx had issued loans worth 20% of its limit, or 179 million euros, and 84% of this was credit for nationally important projects. The state has also to a smaller extent given direct subsidies through ministries and through Enterprise Estonia. Even so a large part of the package of aid intended for businesses has remained unused.

The low take-up of the state measures does not mean that conditions need to be eased when new measures are planned, or that the goal should be set of issuing more loans. Demand for KredEx loans was probably low because the commercial banks continued lending during the crisis, and the economy recovered faster than expected. Equally, direct loans from the state may come with more restrictions such as prohibitions on payment of dividends. KredEx and the Rural Development Foundation should not be aiming to provide loans on the cheapest possible conditions, but should be the last resort for businesses that can no longer borrow from banks.

The loan guarantees have been little used partly because the banks granted the majority of payment holidays before the conditions for the state guarantees had been confirmed. As the growth in applications for payment holidays faded, the need for guarantees from the Rural Development Foundation and KredEx declined. The use of KredEx guarantees was initially restricted by the upper limit on credit losses, which meant that the banks had to be economically reasonable in using the measure.

When new support measures are planned, businesses could be given financial support more through guarantees than through direct state loans. Giving guarantees allows the state to achieve the same results while spending less money. Loans issued by banks with guarantees also allow the valuable perspective of the private sector to be maintained in assessing projects. If some of the risk remains with the banks, they will also have an interest in not wasting taxpayers' money on businesses that are not realistically viable.

**Figure B1.2. Usage of loan and guarantee measures**



Sources: Rural Development Foundation, KredEx, Eesti Pank calculations

# THE FINANCIAL HEALTH OF THE BANKS GIVES SUPPORT TO THE NON-FINANCIAL SECTOR

The change in the operating environment has so far only moderately affected the profit of the banks. Support and subsidies, and payment holidays have restrained the growth in overdue loans. The additional buffer requirements set earlier and the recommendation of the supervisory authority not to pay dividends in 2020 have ensured the capitalisation of the banks. The liquidity of the banks has been supported by the rapid growth in deposits and the support given by central banks. The biggest uncertainty looking forward is how long the crisis will last and how it will affect the operating environments of the banks.

## THE PROFITABILITY OF THE BANKS HAS CHANGED LITTLE

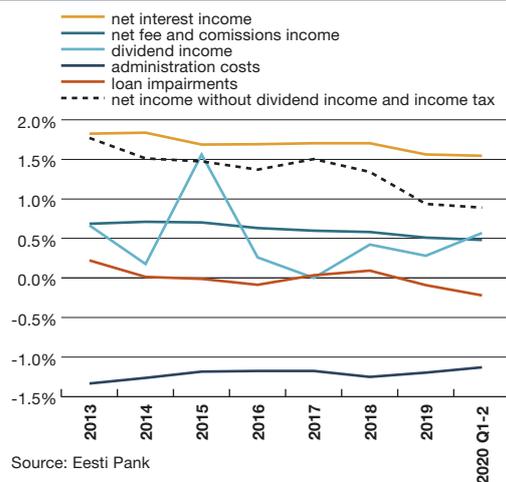
**The profitability of the banks in the first half of this year gave a limited reflection of this year's difficult economic environment.**

The aggregate pre-tax profit of the banks for the first half of the year not including dividends from subsidiaries was 75 million euros. This is around a fifth less than in the first half of last year, but annualised it gives a ratio to assets of around 1% (see Figure 16), which is around the average for the European Union last year.

**Profit was reduced mainly because provisions increased. Provisions have increased to 0.16% of assets, though this increase is still quite small.** Write-downs of loans may continue in the coming quarters, as the ability of clients to pay was supported in the first half of the year by assistance packages from the state and by the temporary payment holidays allowed by the banks. With a temporary payment holiday, the client is excused repayments of the principal of their loan for an agreed period, but continues to pay interest. This means that loans with a payment holiday are not yet necessarily problem loans, and there is no reduction in interest income. Provisions vary between banks as some have been more cautious while others have waited for clear effects to emerge.

**Net interest income changed little in the first half of the year.** Loans with a payment holiday continue to generate interest income, and although new loans were issued at a slightly slower rate in the first half of the year, the loan stock has not declined and the margins on new loans changed little. The modest increase in interest expenses came more from the banks that use market-based funding. Deposits grew while the restrictions were in place in the spring and on aggregate at the end of the first half of the year, about 66%, or two thirds, of the liabilities of the banks were demand deposits

**Figure 16. Profitability of the banking sector as % of total assets**



that are remunerated at a low rate. Charging a fee for deposits by passing on negative interest rates to clients has only occurred in individual cases in Estonia.

**While fee income fell slightly during the difficult period, this was offset by further savings on overall and staff costs.** The situation in the spring allowed the banks to direct clients to use more self-service options, and if this is maintained, it will allow the banks to cut costs on office rents and wage costs even further, though it makes it harder for customers to get advice through immediate contact.

**The capitalisation of the banks changed little in the first half of the year as the average indicators remained high and all the banks met the requirements with a margin** (see Figure 17). The capitalisation indicators for the Estonian banking sector are on average the highest in the European Union, though they vary between banks. The lowest figure at the end of the first half of the year was 17%. The level of own funds is high in some cases because of the earlier tax environment that encouraged the reinvestment of earnings<sup>6</sup>. This tax environment has encouraged

<sup>6</sup> While income tax is currently also to be paid only when dividends are paid out, paying dividends on a regular basis has been encouraged since 1 January 2018 by a discounted income tax rate.

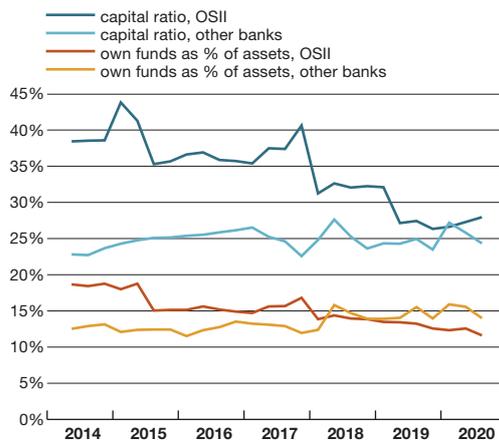
the banks that have been operating longer to build up significant capital buffers. The capitalisation rates for the bigger banks are also supported by the application of the internal ratings approach, which has allowed them to assess some of the risks as smaller than the standard approach used by other banks did, because the share of problem loans was quite low in recent years.

**Capitalisation indicators have also been supported in 2020 by the recommendation of the financial supervisor not to pay dividends.**

In consequence capitalisation only fell in the first half of the year at individual banks, where this was mainly because of the rapid growth in risk weighted assets. Only in a few cases have own funds been reduced a little by the falling value of assets. The change of risks does not affect the risk calculation of banks that use the standard method, as the risk weights are fixed over time. The more difficult economic situation should be reflected in the risk assessments of the banks that use the internal ratings approach. The growth in risk weighted assets has in some cases been restrained however because the high-risk loans have amortised more quickly than new ones have been issued in recent periods. The share of low-risk bonds has increased the volume of assets (see Figure 18).

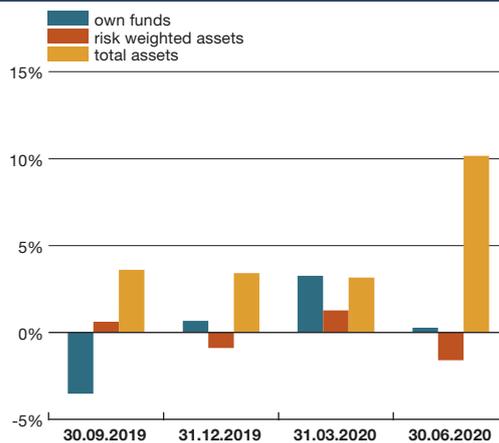
**A further increase in non-performing loans could be expected in the future.** How big this increase is depends on the duration and scope of the restrictions introduced because of Covid-19 and also on the impact of subsidies and support. The ability of the banks to cope with non-performing loans depends primarily on their ability to cover write-downs from income earned. Interest income is affected partly by the price of new loans that are issued, which changed little in the first half of the year. Interest expenses are affected by the large share of deposits in funding and by the measures taken by central banks. If business activity

**Figure 17. Capital and leverage ratios**



Source: Finantsinspektsioon

**Figure 18. Interest income and expenses as % of total assets**



Source: Finantsinspektsioon

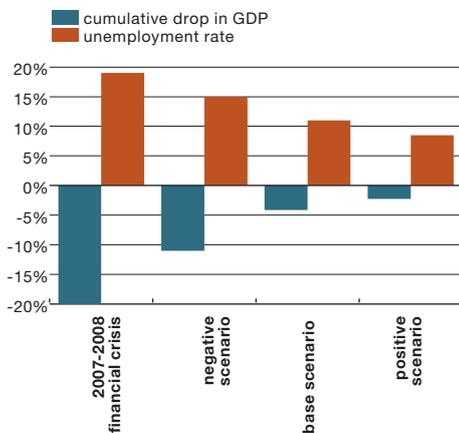
continues to decline, fee income could continue to fall and operating income before write-downs may be expected to decline in future. Should there be temporary losses, it is important for the reliable operation of the banks that they can cover them from the buffers they have as own funds.

**BOX 2: POSSIBLE OVERDUE LOANS AND LOAN LOSSES AT THE BANKS UNDER DIFFERENT MACROECONOMIC SCENARIOS**

The estimates of the possible overdue loans at the banks are based on the three scenarios in the economic forecast published by Eesti Pank in September. The economy contracts this year by around 2% in the positive scenario and by 4% in the baseline scenario. In the negative scenario the contraction this year is more than 4%, and is followed by a further fall of 6% next year. Unemployment peaks at 9% in the positive scenario, 10% in the baseline scenario, and 15% in the negative scenario (see Figure B2.1)<sup>7</sup>.

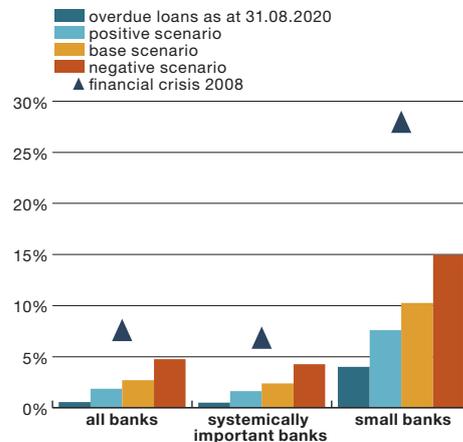
<sup>7</sup> For a fuller description of the scenarios see the Estonian Economy and Monetary Policy 3/2020.

**Figure B2.1. Economic performance in different scenarios and in the financial crisis of 2007-2008**



Source: Eesti Pank

**Figure B2.2. Potential share of non-performing loans to assets**

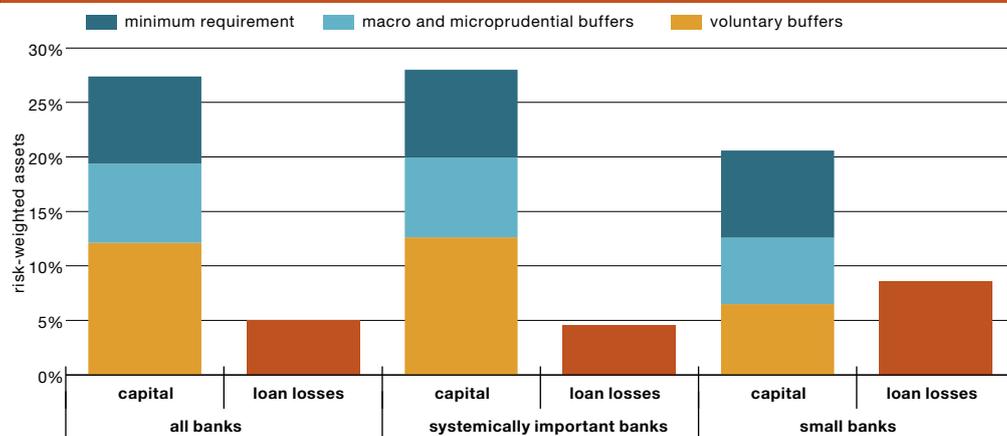


Source: Eesti Pank

To estimate the possible share of overdue loans in the loan portfolios of the banks, the Eesti Pank economic forecast scenarios are compared with what happened in the global financial crisis that started in 2008. A linear relation is assumed for the housing and consumption loans of households, so a rise in unemployment in the current crisis of one percentage point will lead to the same amount of overdue loans being added as in the financial crisis of 2008. For corporate loans, a further contraction in the economy of one percentage point will lead to the same amount of overdue loans being added as in the financial crisis of 2008. It is assumed that write-downs of loans will cover 60% of the volume of non-performing loans, which is also a comparable proportion to that seen in the previous financial crisis. Banks are divided for the calculation into two groups of systemically important banks and small banks. Given that the lending standards of the banks are probably tighter than they were before the financial crisis and the financial buffers of the non-financial sector are larger, these assumptions represent quite a conservative assessment.

The share of loans that are overdue at the banks operating in Estonia increases to around 2% in the positive scenario, 3% in the baseline scenario and 5% in the negative scenario. The share of non-performing loans at systemically important banks is a little smaller, but it is notably larger at the small banks (see Figure B2.2). It should be remembered in interpreting these results that the

**Figure B2.3. The capitalisation of the banking sector and potential loan losses**



Source: Eesti Pank

crisis caused by the coronavirus is unpredictable and that there is very large uncertainty around possible overdue loans.

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 even in the negative scenario (see Figure B2.3)<sup>8</sup>. The loan losses at some banks could exceed their current voluntary buffers, but they can also use the buffers imposed by supervisory institutions.

<sup>8</sup> The calculations of overdue loans are for the loans issued by the Estonian units of the banks. To compare the loan losses of the banks with their own funds, the calculation of loan write-downs is extended with loans issued by branches, and it is assumed that overdue loans there would increase to the same extent as for loans issued by the Estonian units.

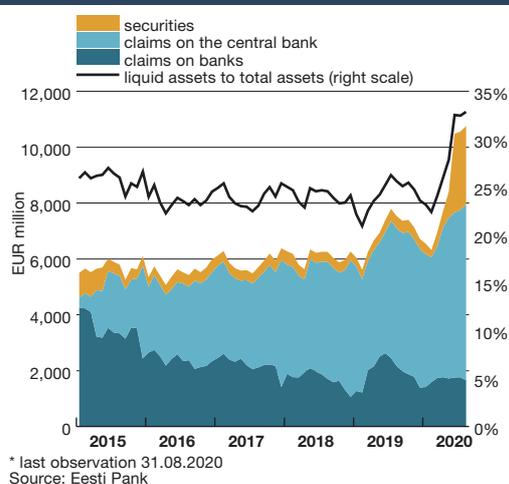
**The funding of the banks has been supported during the coronavirus crisis by growth in deposits.** At the end of August the yearly growth in deposits was almost 16%, while the growth in the loan portfolio slowed down by the same point to around 1.5%. Overall the loan-to-deposit ratio had reached 0.90 by the end of August. In the same period the growth in resident deposits from the non-financial sector was 11.4%, and the loan-to-deposit ratio fell to 0.98.

Banks wanting to expand their operations rapidly have in recent years increased the share of market-based funding that they use. This makes the banks more vulnerable than before to risks coming from market pricing. At the peak of the current crisis, the cost of funding rose and access to it became more limited. Equally though, covered bonds, which local banks have used more in recent years than previously, are more resilient to risks than unsecured bonds.

**The central bank offers additional liquidity on favourable terms to the commercial banks through its monetary policy operations.** Eesti Pank usually provides the commercial banks with liquidity through main refinancing operations and monthly long-term refinancing operations with three-month maturity. All the refinancing operations will be fixed-rate tender procedures with full allotment for as long as necessary and at least until the end of the April 2021 deposit period. The third Targeted Long-Term Refinancing Operation (TLTRO-III) was launched in September 2019, and its terms were eased further in March and April this year. The terms of the longer term refinancing operation were eased partly to support the liquidity of the banks and so their lending to the non-financial economy.

**The volume of liquid assets at the banks has increased in 2020 to the highest level of recent years.** The large liquidity stock of the

**Figure 19. Liquid assets of banks and their share in total assets\***



banking sector reduces the risks to the operation of the financial sector. Liquid assets reached 32.9% as a share of total assets by the end of August 2020 (see Figure 19). This has been supported primarily by an increase in the volume of liquid securities from the participation of the banks in the TLTRO-III. Even without those transactions, the share of liquid assets in total assets was still high at around 27%. The strong resilience to a possible net outflow of funds throughout the possible stress period is shown by the liquidity coverage ratios of the banks, which exceed the limits with a good margin so that the average for the sector at the end of the first half of this year was 166%.

**There was little change in the first half of the year in the group-level financial strength of the Nordic banking groups operating in Estonia.** The impact of the pandemic can also be felt in the other regions where the groups operate, but the support measures have so far kept the increase in non-performing loans moderate and the buffer requirements introduced earlier and the recommendation not to pay dividends in 2020

have supported the capitalisation of the groups. The capital adequacy ratio stood at 22.2% for the SEB group and 20.2% for the Swedbank group at the end of the first half of the year, while the volume of non-performing loans has remained below 1%. The markets have had a generally favourable view of the groups, as their share prices recovered strongly after falling in the spring and the yields on their bonds have again fallen (see Figure 20). The capacity of the banks to cope has been supported by the measures taken by governments, the central banks and the financial supervisors. Even so, uncertainty about the future development of the operating environment of the banks throughout the region has increased.

## MACROPRUDENTIAL MEASURES

To increase the resilience of the financial sector, Eesti Pank sets macroprudential measures that it regularly reviews and adjusts in response to how the financial sector and the economy are functioning (see Table 2).

**In March this year Eesti Pank decided to lower the systemic risk buffer rate from 1% to 0%.** Eesti Pank has decided to maintain the countercyclical buffer, which is assessed mainly from the alignment of growth in the debt of the non-financial sector with that of the economy, at

**Figure 20. Average senior bond yields of banking groups\***



0% and it does not consider it likely that the rate will be raised in the remainder of 2020.

To ensure the resilience of the banks against the risks from housing loans, Eesti Pank has set an average risk weight floor of 15% for the mortgage portfolios of banks that use internal ratings in calculating capital requirements.

Buffer requirements for systemically important banks remain, and are at 2% for Swedbank AS, 2% for AS SEB Pank, 2% for Luminor Bank AS, and 1% for AS LHV Pank.

**Table 2. The macroprudential measures of Eesti Pank**

Instrument	Requirement	Since
Systemic risk buffer	0%	1 May 2020
Other systemically important institutions buffer		
Swedbank AS	2%	1 August 2016
AS SEB Pank	2%	1 August 2016
Luminor Bank AS	2%	1 July 2018
AS LHV Pank	1%	1 January 2019
Countercyclical capital buffer	0%	1 January 2016
Risk weight floor for mortgage loans*	15%	30 September 2019
Housing loan requirements**		
loan-to-value (LTV) limit	85%***	
debt service-to-income (DSTI) limit	50%	1 March 2015
maximum loan maturity	30 years	

\* The floor is set for the average risk weight of the mortgage portfolio of credit institutions that use the IRB Approach.

\*\* Share of loans breaching the limits may not exceed 15% of the volume of housing loans issued each quarter.

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

### BOX 3: CHANGES TO THE FRAMEWORK FOR DEFINING SYSTEMICALLY IMPORTANT CREDIT INSTITUTIONS IN ESTONIA AND CALIBRATING BUFFER RATES

In 2020, Eesti Pank is adjusting the methodology used to designate O-SIIs. The change in the methodology has been driven by the substantial structural changes in the Estonian banking sector. The most important of these is that at the start of 2019 Luminor completed the merger of its Baltic units into a cross-border banking group with its head office in Estonia and branches in Latvia and Lithuania. This led to a considerable increase in the ratio of banking sector assets to

GDP from 103% in 2018 to 134% in 2019. Without that, the Estonian banking sector is relatively small and concentrated, as it is mainly dominated by a few systemically important institutions that are strongly interlinked with the domestic economy. Furthermore, the role of smaller domestic banks has increased in the domestic market in recent years. Further growth in local banks may be expected in future, and so the framework needs to consider an increase in the systemic importance of credit institutions in the Estonian banking market.

To reflect the soundness of the banks in the domestic financial system, Eesti Pank extended the framework for assessing the systemic importance of banks with two optional indicators for “Private sector deposits from local depositors” and “Private sector loans to local borrowers”, giving them a total of 50% of the total score (see Table 3).

**Table 3. Point scores for key indicators from the EBA methodology and the adjusted methodology**

Criterion	Indicators	Weight in the EBA methodology	Weight in the adjusted methodology
<b>Size</b>	Total assets	25.00%	12.50%
<b>Importance (including substitutability/financial system infrastructure)</b>	Value of domestic payment transactions	8.33%	4.17%
	Private sector deposits from depositors in the EU	8.33%	4.17%
	Private sector loans to recipients in the EU	8.33%	4.17%
<b>Complexity/crossborder activity</b>	Value of OTC derivatives (notional)	8.33%	4.17%
	Cross-jurisdictional liabilities	8.33%	4.17%
	Cross-jurisdictional claims	8.33%	4.17%
<b>Interconnectedness</b>	Intra-financial system liabilities	8.33%	4.17%
	Intra-financial system assets	8.33%	4.17%
	Debt securities outstanding	8.33%	4.17%
<b>Importance in the Estonian financial system</b>	Private sector domestic deposits		25.00%
	Private sector domestic loans		25.00%

After the framework changes there will be no change to the list of other systemically important institutions or to the additional buffer requirements set for them (see Table 4). All banks that exceed the threshold value of 350 basis points are automatically classed as systemically important credit institutions. Eesti Pank generally applies a buffer rate of at least 0.5% to the credit institutions that pass the minimum threshold of 350 basis points in the assessment of systemic importance, which is adapted from the methodology of the European Banking Authority. If the points score for systemic importance is between 350 and 1200 basis points, the benchmark rate is found linearly, and the result rounded to the nearest 0.5 percentage point. All the banks that score more than 1200 basis points are subject to a buffer requirement of 2%.

**Table 4. Score of the banks operating in Estonia in basis points as at 31 December 2019**

Institution	Overall score		Criteria				
	Base*	Adjusted**	Size	Importance (including substitutability/ financial system infrastructure)	Complexity/ cross-border activity	Inter-connectedness	Importance in the Estonian financial system
<b>Luminor Bank AS</b>	4599	2867	3650	2812	7457	4478	1134
<b>Swedbank AS</b>	2150	3429	2944	3498	860	1297	4708
<b>AS SEB Pank</b>	1548	2103	1823	2148	845	1374	2659
<b>AS LHV Pank</b>	733	823	806	904	204	1018	914
Bigbank AS	148	90	153	116	208	113	33
AS Coop Pank	133	179	162	157	35	179	225
AS Inbank	130	95	123	95	137	164	60
AS TBB pank	57	50	42	50	12	125	43
Holm Bank AS	11	15	15	10	1	18	19

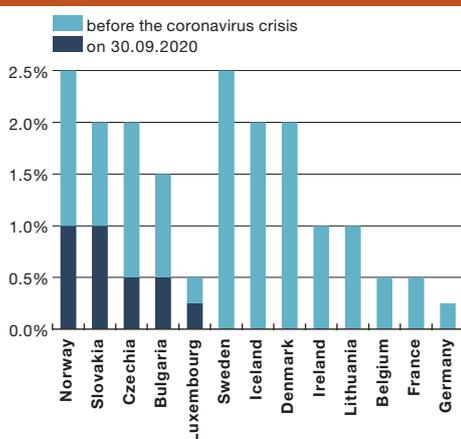
\* The automatic score is calculated using the EBA methodology

\*\* The adjusted score takes account of the structural changes of the Estonian financial system. A fifth category has been added with two optional indicators for private sector domestic deposits and private sector domestic loans.

## BOX 4. CHANGES TO THE MACROPRUDENTIAL MEASURES IN EUROPEAN COUNTRIES

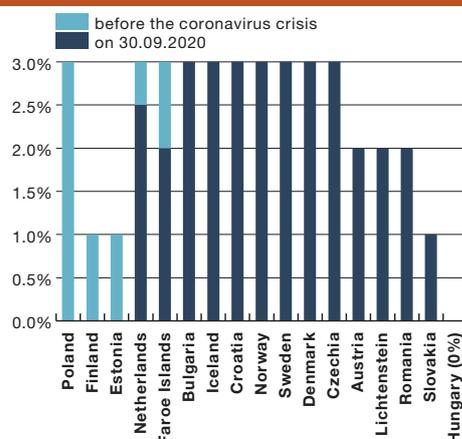
Most of the European countries that had introduced a countercyclical buffer requirement because of rapid credit growth responded to the economic difficulties caused by the coronavirus restrictions by lowering their buffer rates (see Figure B4.1) or postponing an earlier decision to raise the buffer rate. The systemic risk buffer rate was cut to 0% in Estonia, Finland and Poland, and it was also reduced in the Faroe Islands, which come under Denmark, and in the Netherlands (see Figure B4.2). The additional requirements that stem from systemic importance were generally not changed in the first half of the year, but in some cases increases in them were postponed.

**Figure B4.1. Countercyclical capital buffer rates in EEA countries**



Source: European Systemic Risk Board

**Figure B4.2. Systemic risk buffer rates in EEA countries**



Source: European Systemic Risk Board

## APPENDIX. THE FINANCIAL SECTOR NEEDS TO TAKE ACCOUNT OF THE POSSIBLE SHARP CHANGES NEEDED FOR A TRANSITION TO AN ENVIRONMENTALLY SUSTAINABLE ECONOMIC MODEL

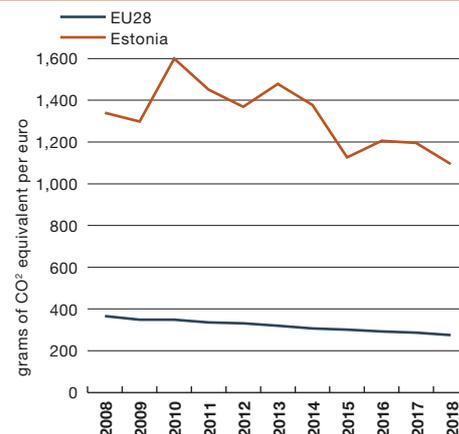
### Ambitious climate goals are putting pressure on branches of the economy that cause environmental harm

Economic activity oriented towards growth can cause irreparable environmental damage. Serious attention has been paid to the dangers that could accompany climate change. Companies have started to consider environmental impacts more and more when making investments and other economic decisions. Changes should also be expected in the financial sector, where environmental, social and governance (ESG) principles could become central when lending and investment decisions are made.

The European Union has become a key leader for climate and environmental issues. In December 2019 the European Commission presented its European Green Deal strategy for economic growth, which sets a target of reducing the European Union's net greenhouse gas emissions to zero by 2050. The Estonian government supports this goal<sup>9</sup>. As the greenhouse gas emissions of the European Union have been cut by a fifth in the past 20 years, it will not be possible to achieve zero emissions by simply continuing on the same path. Achieving the target will require massive adoption of new technologies and substantial changes to the structure of the economy. The European Green Deal sets out several further steps that can be taken to achieve this, such as passing a European climate law<sup>10</sup> or creating a just transition mechanism or subsidy and loan facility for a fair transition in cooperation with European Investment Bank.

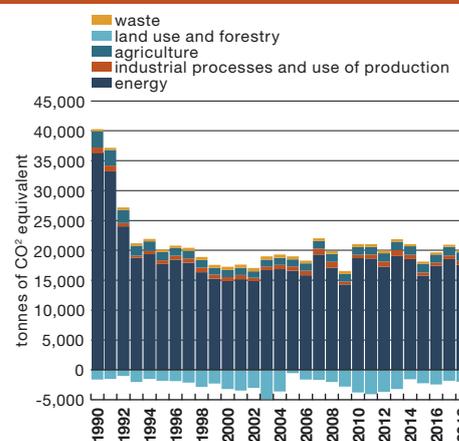
The current long-term goal of Estonian climate policy is to become a low carbon emission economy, which means reducing greenhouse gas emissions this decade by 70% from the level of 1990, and by around 80% by 2050<sup>11</sup>. Greenhouse gas emissions will need to be cut by 60% by 2050 from the level of 2018. The Ministry of the Environment estimates though that Estonia's emissions will be reduced by only 30% over the next 30 years if current policies are continued<sup>12</sup>. Emissions of greenhouse gases by Estonian companies as a ratio to value added are several times larger than the European average, which means that one unit of value added in Estonia contains much more greenhouse gas (see Figure A1). Given the European Union's target of achieving climate neutrality, or zero net emissions, it may be assumed

**Figure A1. Greenhouse gas emissions of companies as a ratio to value added**



Source: Eurostat

**Figure A2. Contribution of sectors to greenhouse gas emissions**



Source: The Environment Agency

9 European Council meeting of 12 December 2019 – [Conclusions](#).

10 European climate law seeks to enshrine the goal of zero net greenhouse gas emissions in European Union law.

11 Decision of the Riigikogu on the fundamentals of climate policy until 2050. April 2017.

12 Explanatory note on the fundamentals of climate policy until 2050.

that serious pressure will be put on Estonia to reduce greenhouse gas emissions even faster. This makes it probable that the Estonian government will have to take serious steps this decade to achieve its climate policy goals. As 88% of Estonia's emissions of greenhouse gases come from the energy sector<sup>13</sup> (see Figure A2), there will be major challenges in the oil shale sector above all. Other sectors will also have to support the transition though, and so achieving the climate goals could bring changes to many branches of the economy.

Achieving the goal of climate neutrality will require large-scale public and private investment<sup>14</sup>. It has been calculated that in order to achieve the goals set out in the Paris climate agreement, the global energy industry will need to invest around 700 billion euros, or around 1% of global GDP, more than it does today each year until 2050<sup>15</sup>.

It has been estimated that for Estonia to reach the goal of climate neutrality by 2050, investment of 17.3 billion euros would be needed, of which 75% would be private sector investment. This would mean investment of around 4% of GDP over the decade that has just started, falling to 2% of GDP after that. The analysis shows that the biggest impact in 2021-2030 would fall on the energy sector if renewable energy sources were brought into use and energy efficiency improved. Structural change in the transport sector, including the transition over to electric vehicles, will take time. The return on reducing greenhouse gas emissions in agriculture and industry is limited, but investment will also be needed there to move gradually to climate neutrality<sup>16</sup>. The most painful and sharpest transition would be expected to be that in the energy sector.

The search is already underway for active opportunities for directing investment into environmentally sustainable projects. The review of the Capital Markets Union Action Plan in 2017 by the European Commission focused on initiatives that would move markets to make long-term investments by looking not only at the financial risks but also at the environmental and social side effects. Applying ESG principles when making investment and financing decisions is seen as a way of strengthening financial stability by reducing the risks to sustainability<sup>17</sup>. It has been suggested that in future the capital requirements on banks could be lowered if sustainable projects are funded. It is important for the financial sector to adapt to these events and if necessary to make the structure of its assets more environmentally sustainable.

An important bottleneck in funding and environmentally sustainable investment is the way the projects are selected. Investments are generally not irreproachably environmentally sustainable, as there are always negative side-effects. The European Union is setting up a taxonomy of projects to prevent greenwashing. The aim of this is to set common criteria for defining projects as environmentally sustainable.

## The pricing of climate risks is complex and incomplete

Properly accounting for and appropriately pricing climate risks, which include physical and transitional risks, would allow an economy to transition more smoothly to a more environmentally sustainable model. There is however a lot of uncertainty about climate risks and the assessment of the risks in financial markets is still in an early phase and is not complete. This is because of inappropriate consideration of the externalities of corporate activities, market failures caused by a lack of information, and the lack of a single taxonomy.

The release of data and information on climate risks by companies is insufficient, incomplete and inconsistent. It is insufficient because only a small proportion of companies release information on their climate risks and often do not release enough. It is incomplete because the information that

13 [Greenhouse Gas Emissions In Estonia 1990-2018](#). National Inventory Report.

14 See also *The Financing of the Economy*, February 2017, Box 7 *The funding of investments to support a low-carbon economy*.

15 Intergovernmental Panel on Climate Change [GLOBAL WARMING OF 1.5 °C: Summary for Policymakers](#).

16 Stockholm Environment Institute Tallinn. *Reaching climate neutrality in Estonia, 2019*. October 2019.

17 *Strengthen financial stability by incorporating Environmental, Social and Governance (ESG) factors into investment decision-making*, 31.01.2018 HLEG final report.

is released often does not reflect the carbon footprint over the whole life-cycle of the product, but only over part of it. It is inconsistent because there is a lack of standards for the release of information. This all makes it difficult to ascertain the accuracy of the information that is released. A further illustration that the data are deficient is that rating agencies may give different environmental scores for the same assets, though this inconsistency has decreased over time<sup>18</sup>.

The lack of price differentials between green assets and other assets in financial markets indicates that actors in those markets do not have a common understanding of those risks. Even so, several research papers have found that financial risks related to climate change have started to be considered more in recent years<sup>19</sup>. Better pricing of climate risks needs not only the information gaps to be filled, but also modelling and scenario analysis to be improved and methodologies to be harmonised. Inadequate pricing of climate risks may cause asset prices to be more volatile, which is a major risk to financial stability.

Investment in green assets has grown rapidly in recent years. The net volume of green bonds denominated in euros increased more than tenfold in 2013-2019, to stand at more than 100 billion euros in 2019<sup>20</sup>. Green bonds are still only a small part of the global bond market and of the total amount of investment needed for an economy to achieve climate neutrality.

### Achieving the climate goals could bring risks to the financial sector

Serious steps towards a low carbon-intensity economic model will affect how the financial sector works and could pose risks to it (see Figure A3). The risks may appear from the rapid transition to an economy with low carbon emissions and in the form of physical risks<sup>21</sup>. 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. Transition risks are those that come from sharp changes in the economic environment that may arise from strict climate and environmental

**Figure A3. Channels of impact from climate risk to financial stability**



Source: Eesti Pank; see also footnote 22

18 European Systemic Risk Board. European Central Bank. [Positively green: Measuring climate change risks to financial stability](#). June 2020.

19 See e.g. Monasterolo, I.; de Angelis, L. (2020). *Blind to carbon risk? An analysis of stock market reaction to the Paris Agreement* Ecological Economics, vol 170, 106571 and Delis, M. D.; de Greiff, K.; Ongena, S. (2019). *Being Stranded the Carbon Bubble? Climate Policy Risk and the Pricing of Bank Loans*.

20 European Systemic Risk Board. European Central Bank. [Positively green: Measuring climate change risks to financial stability](#). June 2020.

21 [G20 Green Finance Study Group](#) (2017), NGFS. *Macroeconomic and financial stability. Implications of climate change*. July 2019.

policy, or from changes in the habits of consumers and markets, and from the introduction of new technologies.<sup>22</sup>

Physical risks are much harder to prevent, but extreme weather phenomena have been encountered much more frequently than before in recent decades. A consequence of climate change in Estonia has been more frequent storms. Increased precipitation, floods and erosion in coastal areas, and a rise in sea levels are also forecast<sup>23</sup>. The average temperature has risen by almost two degrees, which is significantly more than the global average<sup>24</sup>.

These physical risks can cause interruptions to business activities, higher prices for commodities, reduced labour productivity, and a fall in the value of real estate. More frequent droughts and floods will make agriculture less productive. Businesses may suffer not only from direct losses but also through supply chains. Adapting to climate change may also require additional investment. Households may suffer a loss of working capacity and people may find that their ability to do their job is interrupted. This could cause increased insurance losses for the financial sector, a fall in the value of the collateral for loans, and reduced solvency among borrowers. Extreme weather events may also interrupt the usual functioning of the financial sector.

Climate goals becoming increasingly ambitious has increased the probability of transition risks being realised. Higher targets could cause changes in climate policy, such as the introduction of a carbon tax or a sharp rise in it, the introduction of emissions-based vehicle taxes, cuts in various environmentally harmful subsidies or an increase in subsidies for environmental sustainability. This could result in a loss of jobs in some sectors and a general rise in the price of the consumer basket. Stricter regulations could raise operating costs for businesses or reduce demand for their products.

If the transition risks affect companies, assets or investments, they could become economically unsustainable, which could cause them to lose their value entirely. Technological development may make companies that use outdated technology less competitive. Empirical analyses differ on whether the benefits of new green technology will outweigh the costs arising from the changes it brings<sup>25</sup>. If the preferences of consumers and markets change, there may be reduced demand for goods and services that are environmentally harmful, and so there may be less interest in investing in such assets. Transition risks could also affect the value of real estate if regulations or consumer preferences for energy efficiency change.

The transition risks will be expressed for the financial sector through business, credit, market and legal risks. Business risk could occur through the reputational harm that could come from financing projects that over time become seen as unacceptable. Credit risk might increase if the profits and jobs in certain sectors suddenly fall. Market risk would be realised if the transition risks make investors revalue their assets. Legal risk occurs if investors hold financial sector institutions responsible for covering up or insufficiently releasing information about the transition risks<sup>26</sup>.

Estonia is small and open, which could be both an opportunity and a source of threat. The small size and the flexibility of the economy could increase the capacity to adapt to difficult circumstances and support projects that could require a lot more time and resources in bigger countries. At the same time, the performance of Estonia's exporters is directly dependent on trading partners. The competitiveness of Estonian export goods may be reduced if companies are not able to adapt to tighter climate regulations in target markets or to the changing expectations of consumers in them.

22 Based on information from NGFS [Climate Scenarios for central banks and supervisors](#) and Bank of England [The Bank of England's response to climate change](#).

23 For more see *Estonia's future climate scenarios until 2100 and Assessing the effects of climate change and developing adaptation measures on the topics of planning, land use, human health and rescue capacity*.

24 *Adapting to climate change in Estonia - ready for force majeure?* Antti Roose (2015).

25 NGFS [Macroeconomic and financial stability. Implications of climate change](#). July 2019.

26 NGFS [Macroeconomic and financial stability. Implications of climate change](#). July 2019. G20 [Green Finance Synthesis Report](#), 2017. July 2019.

The banking sector faces the difficult challenge of starting to consider ESG risks when making lending decisions. 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. That alignment could affect the risk level of the client, depending on changes in the law under the regulations. One of the simplest solutions is to avoid any projects that clearly run contrary to the environmental targets, such as those in the oil shale sector. Another option is to set a limit on the share of the portfolio that can go to environmentally harmful sectors. A third approach is to apply environmental impact criteria systematically when assessing loan projects, and to use them for deciding whether to approve a loan application.

Uncertainty about climate change and climate regulations could increase the risks of the banks. It is risky for a lender to finance projects where the sustainability is doubtful because there is uncertainty about the environmental regulations that may be passed in the future. It is also risky to fund new environmentally-friendly technology though, as the legislative environment may affect how competitive it is. Companies and projects often have both environmentally sustainable and environmentally harmful sides, which makes it hard to calculate the risks.

### European banking supervision is paying increasing attention to climate risks

Changes in the economic environment and in economic policy in response to climate risks are affecting the operations and risk management of banks. Banking supervision will also need to adapt. Both the European Central Bank and the European Banking Authority consider that climate risks should be considered in both the operating plans of the banks and in their risk management. This will help to reduce the negative impact of those risks and to support movement towards the goals of sustainable financing.

The European Central Bank considers climate risks when drawing up its own risk assessments and in its supervisory activities. Although climate risks currently only have a small impact, it is probable in future that they will affect banks in the euro area both directly and indirectly. Analysis by the European Central Bank has shown that on average 15% of the portfolios of the largest banks are loans to companies with large carbon footprints. A sharp transition to a low-carbon economy could substantially impact climate-sensitive sectors and affect the quality of the loan portfolio of the banks.

Awareness of the climate risks is increasing in the European banking sector, but those risks have an impact over a longer time period than that generally considered by banks and supervisory authorities when making risk assessments. For this reason the principles for managing climate risk still need to be established and few banks have a methodology available for assessing those risks. To speed this transition up, the European Central Bank drew up guidelines<sup>27</sup> for the banks it supervises, with the aim of clarifying how banks should add consideration of environmental and climate risk to their business strategies and risk management frameworks, and what the banks should disclose about those risks in the interests of transparency<sup>28</sup>. The European Central Bank expects the banks to add climate risks to their framework for assessing risks, to consider climate risks when granting loans and to then monitor those risks both in their own portfolios and in their stress tests. The European Central Bank plans to use the guidelines to start a dialogue with the banks about the principles for managing climate risk and their plans for applying such principles.

The European Banking Authority published its roadmap for sustainable financing in December 2019<sup>29</sup>. It covers the work of the European Banking Authority in managing sustainable financing and climate risk, but also states that banks should already consider climate risks pre-emptively when setting their strategies, managing risks, publishing information, and analysing risk scenarios

27 [ECB. Guide on climate-related and environmental risks. May 2020.](#)

28 The public consultation lasted until 25 September and the final version of the guidelines is being developed from that.

29 [ECB. ECB Action Plan on Sustainable Finance. December 2019.](#)

The European Banking Authority has by now drawn up guidelines on issuing and monitoring loans<sup>30</sup>, which will apply from 30 June 2021. The guidelines set out requirements for risk management and for assessing the creditworthiness of consumers, and the lending criteria for financing environmentally sustainable activities. The banks should add ESG principles into their own risk management. The principles of environmentally sustainable lending should be applied when the targets and strategy for lending are set. Assessment of the credit risk for corporate loans should consider the possible impact of environmental factors and climate change.

The guidelines have a list of additional conditions that apply when environmentally sustainable loans, or green loans, are issued, and the banks must apply these conditions when issuing such loans. Both the criteria for environmentally sustainable lending and the process for assessing how the borrower complies with the conditions need to be defined. When loans are issued, the exposure of the borrower to ESG factors should be estimated and the impact on climate change, and the strategy of the borrower for mitigating these should be assessed. The European Banking Authority recommends that a heatmap of economic sectors may be used to do this, to show the climate and environmental risks of the sector concerned. Loans or borrowers with higher environmental risks would call for a more thorough analysis of the borrower.

The European Banking Authority has also worked with other European supervisory institutions to produce a proposal for a technical standard for disclosing ESG risks<sup>31</sup>. It is expected that in future the ESG criteria will be integrated more closely into banking regulation. The European Capital Requirements Regulation tasks the European Banking Authority with analysing how they can be applied during the Supervisory Review and Evaluation Process (SREP) and whether it would be reasonable to handle the risks of loans intended for environmental protection and sustainability differently to those of ordinary loans.

### The Estonian banking sector is moderately exposed to climate risks

Although the dangers from physical risks to the Estonian financial sector are generally small, the transition risks could cause surprises. The transition risks will particularly affect business sectors with large greenhouse gas emissions<sup>32</sup>. In Estonia this means primarily the energy sector, but also transport, manufacturing and agriculture. Those sectors are exposed to changes in consumer preferences or technology and it is also those sectors for which clear political targets have been defined by the Riigikogu<sup>33</sup>. Climate policy may undoubtedly also affect other parts of the economy substantially in both good ways and bad. In many cases the impact will depend on the precise nature of the political decision. Simplifications are made here as not all impact channels can be foreseen, and those sectors are considered here where the negative impact of climate policy is more probable because of large greenhouse gas emissions.

Although the transition may have a positive impact in the longer term, the rapid structural change in the economic environment could in the short term hurt the least green parts of the economy. It may be difficult for businesses to adapt to the requirements set by environmental change. The competitiveness and the asset prices of branches of the economy with large carbon emissions could decline, while their funding costs rise. This would reduce the ability of the businesses affected to service their loans.

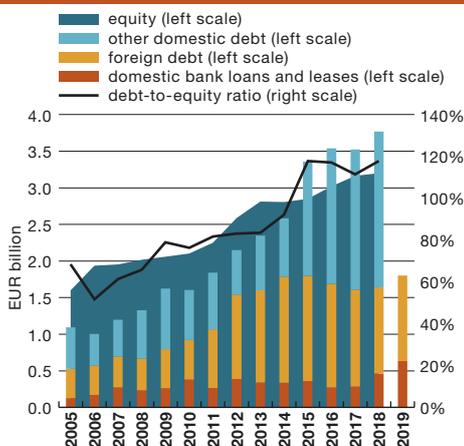
The financial starting position of sectors exposed to transition risk may not be sufficient to let them cope with change. Debt levels are generally high, which would cause difficulties in accessing the capital needed for new investments. The most important companies in the energy sector

30 [EBA. Guidelines on Loan Origination and Monitoring. May 2020.](#)

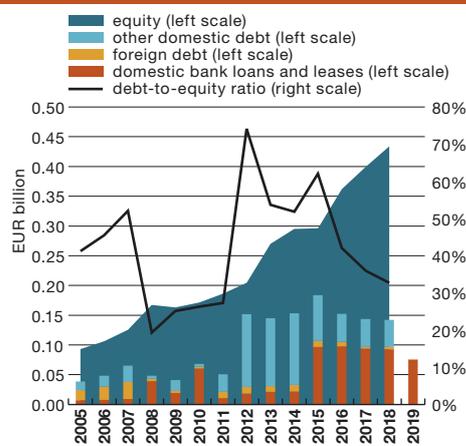
31 The proposed standard was under public consultation until the start of September: [EBA. Joint Consultation Paper. ESG Disclosures. April 2020.](#)

32 European Commission [A Clean Planet for all A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy.](#) November 2018.

33 Decision of the Riigikogu on the fundamentals of climate policy until 2050. April 2017.

**Figure A4. Debt and equity of the energy supply sector**

Sources: Eesti Pank, Statistics Estonia

**Figure A5. Debt and equity of the mining industry**

Sources: Eesti Pank, Statistics Estonia

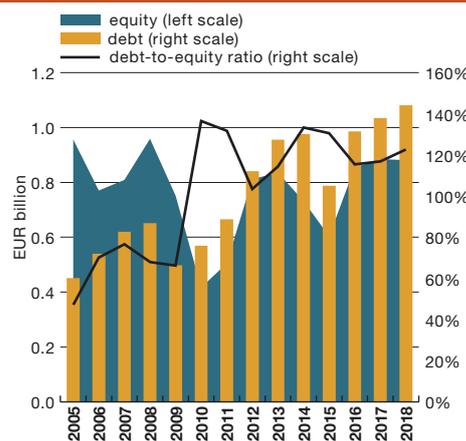
are state-owned, so it may be assumed that they will be able to access capital for investment on relatively favourable terms, and the emergence of risks to financial stability can in this case be considered small. The general debt level of the energy sector has risen in the past decade, which may make it harder for some companies to adapt to the changes (see Figure A4). Bank loans are quite a small part of the total debt of the sector, though the amount taken as bank loans from Estonia has almost doubled over the past year. Quite a lot of debt capital has been taken from abroad, but the share of other debt liabilities is also large, probably because of intra-group lending between companies. Annual reports also indicate that the debt level in the energy sector is notably higher than in other sectors exposed to climate risks.

Equity has grown faster than debt in mining (see Figure A5). This has improved the resilience of the sector and its ability to make investments to cover the transition. The debt level of the sector is volatile though and could start to rise rapidly if additional investments were needed.

The debt level in transport has grown very strongly in recent years and the financial position of the sector has deteriorated (see Figure A6). Bank loans provide around half of the total debt of the transportation and storage sector. The large share of bank loans means that transport could cause some vulnerability in the banking sector.

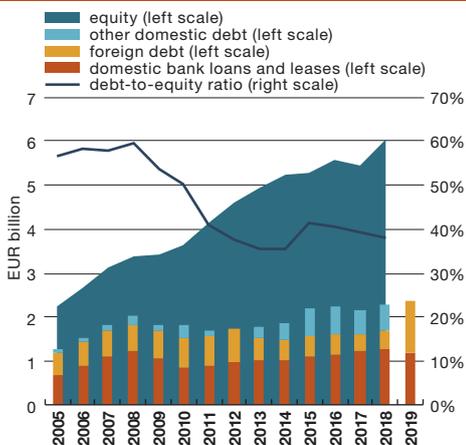
The debt-to-equity ratio of the manufacturing sector is better than those of energy or transport, and this should allow the sector to cope better with changes (see Figure A7). It should be noted though that there are many parts of the manufacturing sector that are strongly affected by climate regulation. Their financial position does not necessarily allow them to cope with changes that cause large losses.

Sectors exposed to large transition risks are not a massive part of the corporate loan portfolio. Loans to companies in mining, energy, and transportation and storage together account for around 15% of the corporate financing portfolio. Adding the manufacturing sector, which is

**Figure A6. Debt and equity of the transport sector**

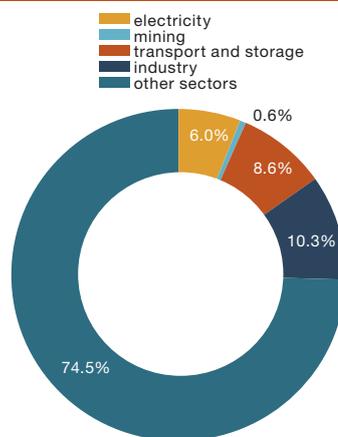
Sources: Eesti Pank, Statistics Estonia

**Figure A7. Debt and equity of the industrial sector**



Sources: Eesti Pank, Statistics Estonia

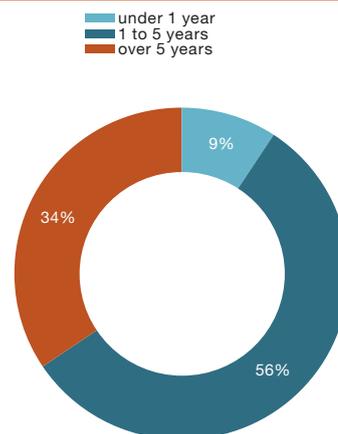
**Figure A8. Bank loans, leases and factoring to businesses as at 31.07.2020**



Source: Eesti Pank

energy intensive and could be vulnerable to risks if carbon pricing was introduced, raises the share of loans to 25%. It may be noted that there are also companies in the vulnerable sectors that are not particularly exposed to the transition risks, and so the exposure of the banks to the sectors facing large transition risks may be smaller than Figure A8 suggests.

**Figure A9. Bank loans, leases and factoring by length in sectors more exposed to climate risk**



Source: Eesti Pank

The share of longer-term loans for over five years in the sectors most affected by climate risk is similar to others at 34% (see Figure A9). This means that a relatively large part of those loans are exposed to climate risks. If real estate and construction are added to the vulnerable sectors<sup>34</sup>, the share of the sectors exposed to climate change in the loan portfolio becomes much larger<sup>35</sup>. The risks to real estate and construction are quite small in Estonia though, as the chance of physical risks being realised is small. More precise analysis of the exposure of the loan portfolio of the banks to climate risk is not possible because of a lack of data and classifications.

Assessing the transition risks is made more complicated because it is not known what climate policy measures will be introduced and how they will affect different sectors. Given that Estonia's emissions are concentrated in the energy sector, it may be assumed that this is the sector where climate policies will have the most impact. If energy companies had difficulties repaying their current loans, the impact on the total loan portfolio of the banks would still be small. However, the growth in the loan portfolio of the energy sector is affected by the transactions of individual large companies. If the sector needs to make additional investment, the volume of bank loans could increase rapidly, and that would then make the banks more vulnerable to climate risk.

<sup>34</sup> Classification sectors taken from Battiston *et al.* *A climate stress-test of the financial system*, and corporate data in the annual reports submitted to the commercial register.

<sup>35</sup> The sectors exposed to climate changes are here real estate and construction companies, utilities, transport companies, and energy-intensive companies and those handling fossil fuels. The general position is that assets connected to fossil fuels will be negatively impacted by climate risk, while the impact on the assets of other sectors may be negative or positive depending on the nature of the asset. Climate risks will make the values of those assets more volatile and so will pose a risk to financial stability.

Most of the Estonian banks have become less willing to lend to the sectors that are most exposed to climate risk. This could indicate that they are less willing to finance projects with a large carbon footprint.

### The Estonian insurance sector is not very exposed to climate risk

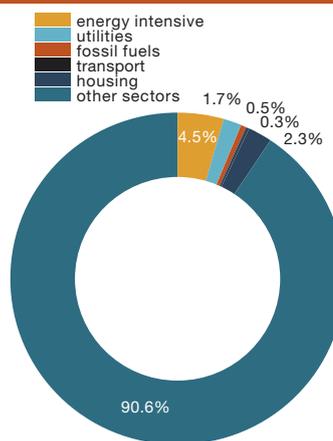
The insurance sector is affected by similar risks to those of the banking sector, but there are also sector-specific features. The risks are also slightly different for life and non-life insurers and for reinsurers.

The physical risks to the insurance sector are associated with increased cases of loss and payouts of claims because of weather events, though the assets of insurance companies could also be affected. This particularly concerns the life insurance sector, which holds longer-term assets. A report by the Bank of England<sup>36</sup> noted that insurance companies use complex methodologies for managing physical risks on the liabilities side, while paying less attention to how the same risks may affect their assets.

The transition risks for the insurance sector come primarily from a revaluation of financial assets. To a lesser extent, insurance companies should also consider that there may be a reduction in the insurance premiums from high carbon-intensity sectors on the liabilities side. Furthermore, parties that suffer damages from climate change may seek compensation from those they consider responsible, who in turn may want their losses compensated by insurance companies under liability insurance.

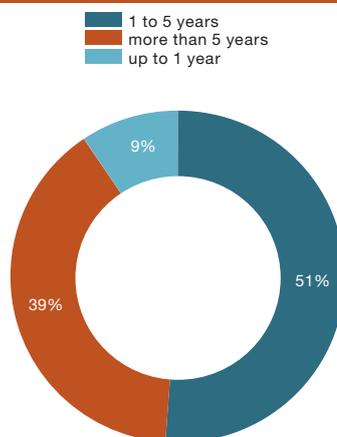
The assets of the Estonian insurance sector exposed to climate risk at the end of 2019 made up around 9% of total assets<sup>37</sup>. This can be seen as a conservative estimate of the direct exposure to climate risk, as some of the sectors included are not very exposed to it<sup>38</sup>. The largest share of assets exposed to climate risk were invested in energy intensive sectors (see Figure A10). A more accurate estimate of the climate risks related to real estate would need data on individual real estate objects. It should be noted that this analysis does not consider second-round effects that come from the relations between parties within the financial sector. As a large part of the assets exposed to climate risk have more than five years to maturity (see Figure A11)<sup>39</sup>, they may be affected to a greater or lesser extent by transition risks.

**Figure A10. Assets of the insurance sector by climate-sensitive sectors and other sectors**



Data from the end of 2019  
Source: Finantsinspeksioon

**Figure A11. Climate-sensitive assets of the insurance sector by time until maturity**



Data from the end of 2019  
Source: Finantsinspeksioon

36 Bank of England. Prudential Regulation Authority. *The impact of climate change on the UK insurance sector. A Climate Change Adaptation Report by the Prudential Regulation Authority*. September 2015.

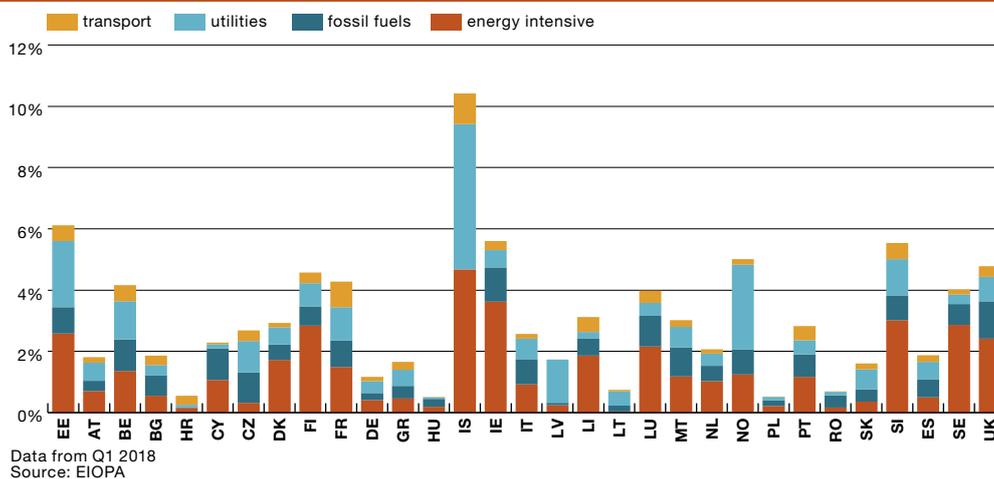
37 The classification of sectors sensitive to climate risk is taken from Battiston et al. (2017), which is adapted for the data on the Estonian insurance sector. See Battiston, S.; Mandel, A.; Monasterolo, I.; Schütze, F.; Visentin, G. (2017). *A climate stress-test of the financial system*. Nature Climate Change, vol. 7, pp 283–288.

38 In contrast to the approach of Battiston et al. (2017), some sectors at the higher NACE Rev2 level are taken into the calculation, which may include activities that are less affected by climate risks.

39 Indicators weighted by volume of assets. Only assets for which maturity data were available for analysis have been included.

The share of assets of the European insurance sector as a whole that are sensitive to climate risk is estimated at between 10% and 13% if the real estate sector is included<sup>40</sup>. There are quite wide differences in the volumes and structures of these assets between countries (see Figure A12).

**Figure A12. Climate-sensitive assets excluding housing in the total assets of insurers**



Climate risks may also be passed on through reinsurance. If damages from climate risks increase globally, insurance premiums could also rise in countries where the reinsurance of the insurance sector is linked to international reinsurance markets. Several of the insurers operating in Estonia have signed reinsurance contracts with international reinsurers.

Climate risks may discourage insurers from offering insurance services in certain regions, to certain economic sectors, or for certain types of risk. The European Insurance and Occupational Pensions Authority (EIOPA) estimated that around 63% of the costs arising from natural disasters in Europe in 2018 were uninsured<sup>41</sup>. The lack of insurance against a large part of climate-related damages will increase risks for other parts of the financial sector, including banks. Climate change could though offer insurance companies the chance to develop new products with improved capacity for risk assessment as demand for such products grows.

EIOPA and ESMA, the institutions that regulate the insurance sector and financial markets, have included climate risks in their strategies<sup>42</sup>, their development of the regulation of the financial sector, and their risk assessments and stress tests. EIOPA carried out a stress test in 2018 where one of the risk scenarios was for several natural disasters in a short period in various parts of Europe. The result of the stress test was that the natural disaster scenario had limited impact on the European insurance companies because of their reinsurance mechanisms, but the risk was that losses accumulated at a small number of reinsurers<sup>43</sup>.

### Climate risk currently has little impact on financial stability

Risks from the climate and the environment more broadly are becoming a part of risk analysis in the financial sector. Although the banks and insurers in Estonia are exposed to climate risk, it is unlikely that climate risks will substantially threaten financial stability in Estonia over the medium term. Even if the physical or transition risks should be realised, the financial sector is strong enough to continue financing the economy on good terms. Companies and households may however find it

40 EIOPA. *Financial Stability Report*. December 2018.

41 EIOPA. *Financial Stability Report*. June 2019.

42 ESMA. *Strategy on Sustainable Finance*. 6 February 2020.

43 EIOPA. *2018 Insurance Stress Test Report*. EIOPA. *Financial Stability Report*. June 2019.

harder to access financial services if they are directly involved in parts of the economy where those risks are realised.

To avoid becoming more vulnerable to climate risks, the financial sector should already start adapting its activities to face them. Given how rapidly climate regulation can change, it will become ever more risky to take positions in sectors that are exposed to climate risk. The financial sector should develop its capacity to take account of climate and environmental risks in its risk management and to assess those risks to its counterparties.