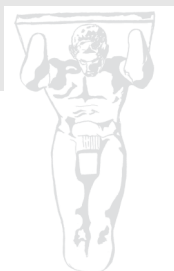


**BANKA  
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**BANK OF SLOVENIA  
EUROSYSTEM**



**BANK OF SLOVENIA STAFF ANALYSIS**

**ASSESSMENT OF SYSTEMIC RISKS  
AND THE RESILIENCE OF THE  
FINANCIAL SECTOR DURING  
THE COVID-19 EPIDEMIC**

**JUNE 2020**

*Title:* Assessment of systemic risks and the resilience of the financial sector during the covid-19 epidemic

*Issue:* May 2020

*Published by:* BANKA SLOVENIJE  
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\*The authors would like to thank all their collaborators and colleagues at the Financial Stability and Macprudential Policy Department at Banka Slovenije for all their helpful suggestions and comments, which have undoubtedly made this work better. The analysis is based on data available up to 30 April 2020, except where stated otherwise. There are preliminary assessments based on currently known information, and are thus subject to numerous uncertainties. The assessments are based on the assumptions described in the text, and do not take account of the mitigation measures set out by emergency laws and by ECB and EBA guidance.

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## EXECUTIVE SUMMARY

***The Covid-19 epidemic and the related measures entail a huge shock to the economy and the financial system.*** The anticipated contraction in the economy and the downturn on the labour market have brought a sharp increase in systemic risks to financial stability. The sheer magnitude of the impact of the Covid-19 epidemic has a noticeable mark on the assessment of systemic risks and the resilience of the financial system presented in this document. There has been a profound change in risk perceptions since March of this year; the risks as perceived now could not be foreseen in December's Financial Stability Review.<sup>1</sup>

***In the assessment of systemic risks and the resilience of the financial sector during the Covid-19 epidemic for this year, and even more so for next year, the risk at the highest levels and a decline in resilience prevails.*** At the same time the uncertainties are increasing, as the duration of the crisis is unpredictable given the possibility of a second wave of the epidemic, the consequences of the shutdown of the economy, which exceed the duration of the epidemic alone, and the potential secondary effects on the economy. In light of the large increase in systemic risks, it is vital to maintain the resilience of the banking system in the future.

***The measures to alleviate the economic consequences of the Covid-19 epidemic taken in recent months by governments and central banks will make a significant contribution to maintaining the stability of the financial system.*** These measures aim to preserve businesses and jobs, and to provide income to households during the epidemic period. The measures of most concern to banking are those allowing firms and households to defer loan repayments for 12 months, measures to promote lending to firms and households to bridge liquidity difficulties, and incentives for firms in the hardest-hit sectors. All the measures will also have a significant impact in maintaining the liquidity position and capital position of the banking system, or minimising their deterioration.

***Despite the good starting position, the government's intervention measures will be key to keeping firms alive and ensuring that households have income. Should the decline in the economy prove longer-lasting and larger, it will also be important to take further measures to alleviate the consequences of the epidemic.*** The magnitude of the crisis means that weaker and stronger firms alike have been hit, and will need loans to bridge liquidity difficulties. Micro and small enterprises, who find it harder to access financing and are thus more vulnerable, could be hit particularly hard. Before the introduction of the Regulation on macroprudential restrictions on household lending, there was a sharp increase in the banks' exposure to households, particularly in the consumer loans segment. In contrast to the previous crisis, the banks are more exposed to households than to non-financial corporations. This is introducing new uncertainty into the banking system in the upcoming period.

***Going into the crisis, the banking system's resilience to systemic risks was assessed as high, but there could be a deterioration in the liquidity position and the capital position as a result of the Covid-19 epidemic and the sheer magnitude of its consequences. Despite the elevated risks, the Slovenian banking system is in a better position than the banking systems of many other EU Member States.*** The banks have seen a huge improvement in credit portfolio quality in recent years, and the liquidity position and capital position at system level are good, and much better than at the outbreak of the last financial crisis. The banking system's total capital ratio on a consolidated basis is above the euro area average. The liquidity coverage ratio (LCR) is well above the level of the regulatory requirement, and Slovenia ranks high among EU Member States according to this measure. The banks recorded record pre-tax profits last year, which could help them cover future losses. The temporary macroprudential restriction of profit distributions by banks will also be of help here. The banking system therefore came into the crisis in good shape, but performance and profitability will deteriorate, given the magnitude of the shock and the huge decline in economic activity.

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<sup>1</sup> Assessing the consequences of the epidemic for the economic and financial system is extremely difficult. There are numerous uncertainties, a shortage of up-to-date data, and no similar events in the past that would make it easier to formulate scenarios of changes in the behaviour of economic entities in these circumstances and after the epidemic ends. This assessment of systemic risks is therefore mostly based on assumptions, simplifications, expert-designed scenarios and simulations. The assessments of systemic risks and the resilience of the financial system will therefore be subject to subsequent revision as new data is obtained, and experience is built upon when dealing with the consequences of the epidemic.

***The assessment of systemic risks and resilience is based on the risk dashboard as usually presented in the Financial Stability Review, but with a longer-term perspective, taking account of two scenarios for this year's developments in GDP.<sup>2</sup> Economic growth will decline by 6% this year under the milder scenario, and by 16% under the more severe scenario. Key risks and the resilience of the banking system this year and next year were assessed on the basis of these two scenarios.***

***In the event of the realisation of the milder scenario, the assessment is that the banking system could record a small loss this year.*** Growth in new household loans was slowing even before March of this year, while the forecast is for a decline in new corporate loans for investment purposes in particular, and an increase in short-term liquidity loans. Growth in the banking system's net interest income would be negative by the end of 2020. The key impact on bank performance this year would come from the net creation of impairments and provisions. Portfolio quality would deteriorate, but given the good financial and liquidity position of firms, which could mitigate the initial liquidity shock during the shutdown, the inflow of non-performing exposures is expected to be smaller this year. There would also be a deterioration in the household portfolio, as a result of rising unemployment and falling income. The debt moratorium measures at banks, the guarantee schemes to promote liquidity loans and the ECB/EBA guidance with regard to assessment of credit risk during the Covid-19 epidemic could reduce the inflow of new NPEs while the measures are in place. Banks could nevertheless opt to include some of the deferred payments in NPEs. Given the limited time that they are in place, there is a risk that the measures will only have a strong impact in the first year, and in the second year banks will be facing a major deterioration in portfolio quality unless additional measures are taken. The banking system's liquidity position would deteriorate, but the assessment is that there will be no significant impact on system liquidity in the upcoming months of the crisis. Over time, the increased risks in the economy and in the banking system would also put downward pressure on the banks' capital adequacy.

***Under the more severe scenario, the banking system would end 2020 with a large loss.*** In the wake of a large contraction in economic activity, credit portfolio quality would deteriorate sharply, and impairment and provisioning costs would increase markedly, eating up almost three-quarters of the banks' income. In the event of a longer-lasting crisis, interest income would also begin to decline sharply. Deposits by the non-banking sector would begin to decline (corporate deposits as a result of a lack of cash inflows during temporary shutdown or reduced operations, and household deposits as a result of reduced income), which would bring a deterioration in the liquidity position, particularly at banks with smaller liquidity surpluses. A significant downturn in the economy would severely reduce the banking system's capacity to absorb credit losses through the capital surplus.

***The simulations confirm that the total scope of the mitigation measures is large, and is enough to maintain or strengthen the banking system's credit capacity.*** The measures taken into account included the government guarantee for covering firms' liquidity needs, the macroprudential measure of restrictions on profit distributions by banks, and a package of supervisory measures related to relief for capital requirements, but no account was taken of the consequences of the macroeconomic shock, which reduce this capacity. The measures taken to curb the impact of the crisis on businesses and households are reflected in a theoretical increase of EUR 18.4 billion in credit capacity (equivalent to 47% of the balance sheet total). Given the decline in confidence (both at banks and at their customers), and the contraction in the economy, there is no expectation of supply or demand approaching this capacity.

***The decline in economic activity was not driven by internal imbalances in the economy, but by an external factor, and the recovery could therefore be faster than during the previous crisis, provided that the measures to preserve businesses and jobs are effective and sufficient.*** The elevated risk was first reflected on the supply side, and then in a fall in domestic and foreign demand, which indicates that it is a symmetric shock. The rapid globalisation of recent years has made businesses and households more and more connected, as a result of which a shock of this type could be even more intensive for small, open economies such as Slovenia's. The measures taken in other countries will therefore also be important, as a quick recovery in their economies, particularly in the main trading partners, would help with a faster recovery in the Slovenian economy.

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<sup>2</sup> The scenarios are taken from [Analysis of the impact of Covid-19 on the Slovenian economy](#), March 2020, published in a collection of analysis by Banka Slovenije staff, and available on the Banka Slovenije website.

# 1 ASSESSMENT OF RISKS AND RESILIENCE UNDER TWO SCENARIOS

*The first section presents an assessment of risks and resilience based on two scenarios, and the impact of the measures to alleviate the consequences of the Covid-19 epidemic in the form of changes to risks and resilience. The assessment of risks and resilience is based on specific assumptions,<sup>3</sup> which need to be taken into account when interpreting the results. The banks will certainly be operating in a significantly worse macroeconomic situation, but for now it is impossible to satisfactorily assess the impact of anti-crisis measures and whether they are effective and sufficient.*

Two of the three scenarios presented in Banka Slovenije's [Analysis of the impact of Covid-19 on the Slovenian economy](#) have been used in the assessment of risks and resilience. The scenarios are based on the following changes in macroeconomic aggregates in 2020, depending on the number of weeks of economic shutdown: under the milder scenario, GDP declines by 6.2% and private consumption by 2.4%, inflation stands at -0.1%, the unemployment rate rises to 6.0%, and general government debt rises to 69.5% of GDP. Under the more severe scenario, GDP declines by 16.1% and private consumption by 9.0%, inflation stands at -1.1%, the unemployment rate rises to 8.5%, and general government debt rises to 77.7% of GDP.

Table 1.1: Assessment of risks and resilience for the Slovenian financial system<sup>4</sup>

		Milder scenario: 6% decline in GDP in 2020		More severe scenario: 16% decline in GDP in 2020	
Assessment of risks and resilience	2019	2020	2021	2020	2021
<b>Systemic risk</b>					
Macroeconomic risk					
Income risk					
Risk inherent in real estate market					
Credit risk					
Funding risk					
Risk inherent in leasing companies					
<b>Resilience to systemic risks</b>					
Banking system: solvency					
Banking system: liquidity					

Colour code:

Risk	low	moderate	elevated	high
Resilience	high	medium	low	very low

<sup>3</sup> These are: 1) the calculation of the capital surplus takes account of the data for 31 December 2019, where meeting the capital adequacy requirement entails attaining the SREP requirement while using the countercyclical capital buffer, the Pillar 2 guidance and last year's profit; 2) the banks use the capital surplus and profit exclusively for covering NPEs; 3) the forecast probability of default (PD) is based on a partial scenario, as described in Appendix 4; 4) the emergency laws, moratoria, the ECB guidance with regard to IFRS 9 and the EBA guidance with regard to moratoria are not taken into account from the perspective of assignment to stage 2. Other assumptions and restrictions from the perspective of credit risk estimates are described in Appendices 4, 5 and 6. The calculation of profit in the banking system takes account of growth in loans under the two scenarios, and additional assumptions cited in footnote 6.

<sup>4</sup> The assessment of risks and resilience differs from the risk dashboard published in the December 2019 Financial Stability Review. The assessment of risks and resilience builds on the risk dashboard, but has a longer-term perspective, and takes account of two scenarios for developments in GDP this year and next year (taken from *Analysis of the impact of Covid-19 on the Slovenian economy*, March 2020, published in a collection of analysis by Banka Slovenije staff on the Banka Slovenije

## 1.1 Milder scenario

Growth in household loans is expected to decline sharply. In the corporate segment there will mainly be a decline in long-term loans for investment purposes, but short-term liquidity loans will increase.

Net interest income across the system, which was already struggling in the low interest rate environment, will decline by 0.4% by the end of 2020. Net non-interest income will also decline. The key impact on bank performance in 2020 will come from the net creation of impairments and provisions. This would account for around 40% of the disposal of total income this year (taking no account of the mitigation measures put in place). The banking system would most likely record a loss under the milder scenario.

Credit portfolio quality will deteriorate, but given the sound financial and liquidity position of firms, which could mitigate the initial liquidity shock during the shutdown or during reduced operation, the inflow of non-performing exposures is expected to be minor in the first year. The NPE ratio in the non-financial corporations segment would rise to 8% in the first year and 12% in the second year. Alongside the portfolio of domestic non-financial corporations, the non-residents portfolio could also deteriorate sharply depending on the situation in the international environment. A deterioration is also expected in the household portfolio, as a result of rising unemployment and falling income.

The banking system's liquidity position is expected to deteriorate. Corporate deposits are highly likely to begin declining as a result of the shutdown or reduced operations, while household deposits could also begin declining as a result of the loss of income. Changes in cashflow could also have an impact on liquidity, and could be reflected in a decline in the LCR. The assessment is that the crisis will have a negative but not significant impact on the liquidity of the banking system in the following months.

The downward pressure on capital and capital adequacy could be increased by rising credit risk and income risk. It is estimated that the banking system could absorb an NPE ratio of 13% to 18%<sup>5</sup> across the entire portfolio using its capital surplus (continuing to meet minimum capital adequacy under the SREP, while using the countercyclical capital buffer (CCyB), the Pillar 2 guidance (P2G) and last year's entire profit), if impairments for performing exposures and other effects are ignored and only the increase in NPEs is considered. Having regard for the above, the absorption of NPEs in the first years, when impairment costs on performing exposures under IFRS 9 are expected to be highest, could be significantly lower.

## 1.2 More severe scenario

Amid a significantly larger decline in GDP, the banking system would end 2020 with a large loss. In the wake of a large contraction in economic activity, impairment and provisioning costs would increase markedly, eating up almost three-quarters of the banks' income. In the event of a longer-lasting crisis, lower lending activity and loan repayment difficulties, interest income would also begin to decline sharply.

The larger decline in economic activity compared with the milder scenario would also lead to a sharper deterioration in portfolio quality. Probability of default would be significantly higher than under the milder scenario, which would sharply increase the generation of new NPEs at banks. The NPE ratio in the non-financial corporations segment could rise to 9% in the first year and 16% in the second year.

A longer economic shutdown and a large decline in GDP would also increase the likelihood of credit losses and operating losses. Firms would be without cash inflows for a longer period, and would therefore use more of their funds in bank accounts, which would in turn raise funding risk for banks. The situation on the labour market would deteriorate, which would also lead to a contraction in household deposits. The decline in deposits by the non-banking sector would worsen the liquidity position, particularly at banks with lower liquidity surpluses. A significant downturn in the economy would reduce the banking system's capacity to absorb the accumulated adverse effects of risks through surplus capital.

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website). The effects of Banka Slovenije's macroprudential measure of restrictions on profit distributions by banks are taken into account for solvency, but Banka Slovenije's macroprudential recommendation on restrictions on profit distributions by leasing companies is not taken into account for leasing companies.

<sup>5</sup> Depending on how conservative the approach to estimating LGD is. See Appendix 5.

## 2 ASSESSMENT OF RISKS TO FINANCIAL STABILITY

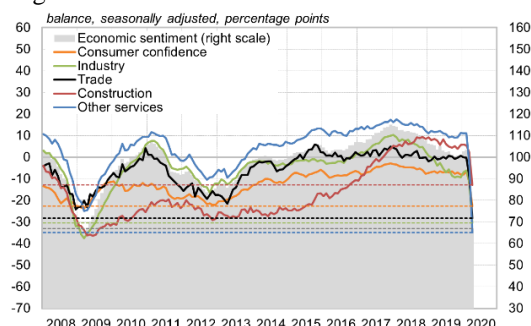
### 2.1 Macroeconomic risk

This year is expected to see a relatively sharp decline in GDP. Macroeconomic risk is therefore assessed as high for this year under the milder scenario, while the anticipated economic recovery means that macroeconomic risk is assessed as moderate for 2021. The economic contraction will be even more pronounced in 2020 under the more severe scenario, which will also result in a slower recovery in 2021. Macroeconomic risk is therefore assessed as elevated next year under the more severe scenario. There is also the possibility of a longer recession that, because of the secondary effects of the supply-side shock and the decline in confidence, will not be limited solely to the lockdown period, but such a scenario is not considered here.

The macroeconomic environment is changing significantly due to the economic shock caused by the spread of the Covid-19 epidemic and the measures to curb it. Economic activity has declined profoundly, while the risks with regard to ongoing economic growth have increased sharply. This is increasing the uncertainty on the labour market, with unemployment already rising.

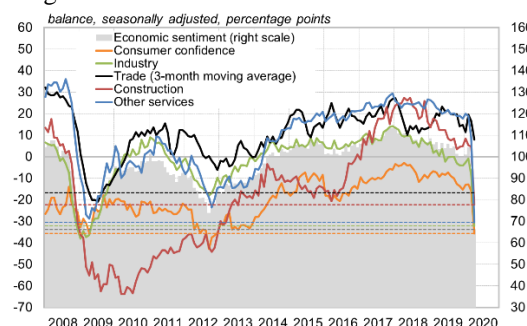
The elevated risk was first reflected on the supply side, and then in a fall in domestic and foreign demand. It is a symmetric shock, which has hit the majority of the world more or less equally. Uncertainty increased on the labour market, while unemployment will increasingly rise in the wake of the anticipated economic contraction. A large decline in private consumption can also be expected. The lockdown measures sharply reduced purchases that require personal contact or physical presence in a shop. Despite the potential problems on the supply side and the interruptions in supply chains, the sharp fall in oil prices and pronounced decline in demand will lead to lower inflation. In the wake of the sharp decline in GDP in 2020, and the heavy government borrowing aimed at mitigating the decline in economic activity, the ratio of general government debt to GDP can be expected to increase significantly.

Figure 2.1: Confidence indicators in the euro area



Note: The dotted lines indicate the latest data (April 2020).  
Source: Eurostat

Figure 2.2: Confidence indicators in Slovenia

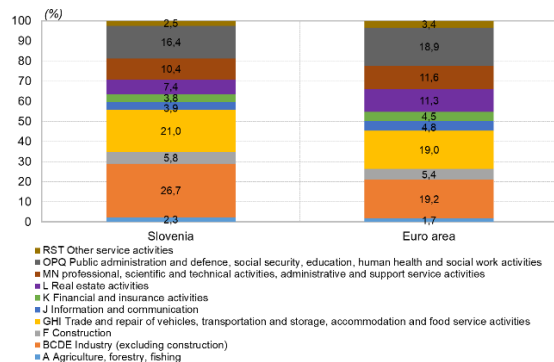


The impact of the shock is already being reflected in confidence indicators in the euro area and also in Slovenia: they declined sharply in April 2020 relative to their dynamics in previous years. The industry confidence indicator declined in Slovenia. According to firms' responses, the decline was driven by expectations of a decline in production, aggregate demand, exports and employment. The main downward pressure on the retail confidence indicator came from a deterioration in expectations with regard to the business situation and orders, while selling prices and stocks of goods had a positive impact. There was no significant change in the construction confidence indicator: trends were mainly positive in the area of employment, activity and the business situation, and outweighed the slight decline in order books and employment expectations. There was a deterioration in all indicators for the service sector, demand expectations recording the largest decline.

A comparison of the breakdown of gross value-added by sector reveals certain differences between Slovenia and the euro area average. The impact of the current economic shock in Slovenia could therefore be different, and more pronounced than in certain other euro area countries. Industry (Sectors B, C, D and E) accounts for a larger share of the Slovenian economy (26.7% of gross value-added in Slovenia, compared with 19.2% in the euro area overall), as does the combined sector (Sectors

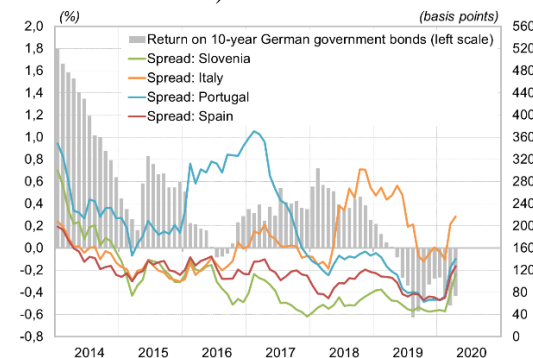
G, H and I) of wholesale and retail trade, transportation and storage, and accommodation and food service activities (21.0% of gross value-added in Slovenia, compared with 19.0% in the euro area overall). These two categories thus account for almost half of the country's total gross value-added. Given the profound impact of the economic shock on sectors in these two categories, and their relatively high share of total gross value-added, they will be hardest hit on the output side by a sharp slowdown in the economy.

Figure 2.3: Comparison in breakdown of gross value-added between Slovenia and the euro area



Sources: Eurostat, Bloomberg, Banka Slovenije calculations

Figure 2.4: Required yields on 10-year German government bonds and spreads of selected countries (latest data: April 2020)



**In light of the aforementioned features of the Slovenian economy, the impact of the current economic crisis on Slovenia could differ from certain other euro area countries.** For Slovenia, a worse-than-average evolution of the crisis would be a longer-lasting slowdown in activity in its main trading partners, as the Slovenian economy is strongly integrated into global value chains, and is thus relatively heavily dependent on the progress of the crisis in these countries. Another major factor in this course of events would be the longer maintenance of lockdown measures and measures to limit activity in certain sectors within the country. However, Slovenia has come into this crisis better-prepared than certain other euro area countries: firms had paid down significant debt in the preceding period, while the stock of loans for commercial real estate is relatively low compared with the euro area average, and the banks' exposure to this segment of the economy is thus also small. Household debt is also at lower levels than the euro area average, and households also have large savings in the form of bank deposits. For Slovenia the most difficult crisis would be one that lasted a long time (an L-shaped crisis), as many firms that will be dependent on government support over the short term would not be able to survive over the long term.

**The sectors of the Slovenian economy that can be expected to be worst affected are wholesale and retail trade, transportation and storage, and accommodation and food service activities, which are heavily dependent on tourism, and industry, which is strongly integrated into global value chains and is dependent on the situation in the main trading partners.** This impact is primarily attributable to the measures restricting the operations of firms in these sectors (the closure of hotels and restaurants, a ban on public gatherings, a ban on international travel, and border closures), and to the gradual, long-term nature of the recovery entailed by reduced demand amid increased uncertainty with regard to the presence and further spread of the virus. The adverse impact will also spill over into the transport sector via slowing economies and disruptions to global supply chains.

**Because the sharp decline in economic activity was driven by an external shock, and not problems in the economy itself, the recovery could therefore be faster than during the previous crisis (e.g. medium-high positive economic growth by Q2 of 2021), provided that the measures to preserve businesses and jobs are effective and sufficient.** Given the uncertainty as to how long the consequences of the Covid-19 epidemic will last, the assessment of future developments could also be much worse. The consequences for the banking system will depend on how long the consequences of the epidemic last in Slovenia and globally, and on the potential for a second wave and the reimposition of measures. The main contribution to alleviating the consequences and to a gradual recovery will come from fiscal policy responses with financial assistance and stimulus for the economy, and favourable financing conditions from central banks. The measures taken in other countries will also be important,

as a quick recovery in their economies, particularly in the main trading partners, would help with a faster recovery in the Slovenian economy.

## 2.2 Income risk<sup>6</sup>

**Income risk is assessed as high for both years under both scenarios. The high impairment and provisioning costs under both scenarios would sharply reduce bank profitability, and could see banks in the red.** Here it should be noted that no account has been taken of the effects of the emergency laws, the EBA guidelines or the ECB guidance. If these measures were taken into account, performance would be better.

**Business conditions for banks have deteriorated sharply because of the Covid-19 epidemic and the resulting decline in economic growth, and bank performance indicators can therefore be expected to deteriorate.** The banks saw record profits in previous years: as seen in historical terms and in comparison with other euro area countries, banks in Slovenia generated above-average returns (See Appendix 2), while given the current situation, developments in income and costs at banks can be expected to be markedly less favourable. The net creation of impairments and provisions will have a decisive impact on profitability in the banking system.<sup>7</sup> The size of these costs, which will depend on the depth and duration of the decline in economic activity, is expected to have the greatest impact on bank profitability even in the short term.

**Net interest income, which was already struggling in the low interest rate environment, can be expected to decline further.** Taking account of the latest one-year interest rates and the loan scenarios taken from GDP scenarios, year-on-year growth in net interest income will decline from its current level of 1% into negative territory this year, reaching -0.4% under the first scenario and -0.8% under the second scenario. The impact on net interest income is forecast to be relatively small and gradual this year; the potential moratorium on loan repayments by bank customers is expected to be a factor here.<sup>8</sup> Long-term corporate lending is nevertheless expected to decline, while demand for short-term liquidity

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<sup>6</sup> Assumptions for the calculation of profit and ROE in the banking system:

- Year-on-year growth rates in net loans to corporates and households are taken into account for both scenarios. The calculation of interest income takes account of effective interest rates (latest interest rates, calculated on the basis of interest flows) for the two most important types of loan, i.e. household loans and corporate loans. The remaining interest income takes account of the falling dynamics seen last year, which coincided with expectations of a decline in interest income on account of the large holdings of liquid assets on bank balance sheets. No changes are taken into account for interest expenses, which have changed little over the recent period (high level of sight deposits, very low interest rates). Non-interest income is assumed to decline relative to last year, when one-off factors were at work (revaluations, dividends). The assumption is merely for aggregate non-interest income to exceed its stable core by the average for the period of 2016 to 2018. Operating costs are forecast to remain at the same level as last year, i.e. the year-on-year growth seen recently will decline to zero. Capital on bank balance sheets is assumed to remain at its current value, with the distribution of any net profit (i.e. profit after tax) generated last year to regulatory capital between June and the end of the year.
- Given the time constraints, the preliminary estimate of the banking system's impairment and provisioning costs for credit risk in 2020 is based on a number of simplifications and assumptions, which need to be taken into account when interpreting the assessments. Estimated impairment costs in 2020 amount to just under EUR 600 million under the milder scenario, and between almost EUR 900 million and approximately EUR 1.1 billion (depending on how conservative the estimate for PD is) under the more severe scenario. The estimate is derived by adjusting last year's internal estimates of impairment costs for the portfolio measured at amortised cost to the new macroeconomic scenarios. A linear shift in impairment costs is made on the basis of a comparison, as a result of which there is a risk of understatement of the non-linearity in estimates of PD and in estimates of transitions from stage 1 to stage 2 that could occur in a harsher economic situation. From this perspective, there is therefore a risk of the realisation of impairment costs being even worse. At the same time it should be noted that the analysis takes no account of the emergency laws, moratoria, or the EBA guidance with regard to the treatment of moratoria with regard to assignment to stage 2, which will significantly mitigate the adverse effects, particularly in the first year, while in the following years the macroeconomic picture is still highly uncertain. These limitations are described in detail in Appendix 6. Given the numerous simplifications and assumptions, it should be noted that the impairment values merely represent a rough estimate and not concrete forecasts, which could be more conservative, for example on account of pronounced non-linearities, more significant transitions from stage 1 to stage 2, the realisation of impairment costs in portfolios not covered by the analysis, or more conservative estimates of LGD, or less conservative, should the effects of the emergency laws, moratoria, EBA guidelines and ECB guidance prevail. The key impact on the future dynamics in the creation of impairments will come from the ongoing evolution of the epidemic, government measures and the macroeconomic picture, which for now are relatively uncertain.

<sup>7</sup> The figures for the first quarter of 2020 show that the net release of impairments and provisions at system level has come to an end. Impairment and provisioning costs amounted to EUR 12.5 million, still very low for now, and equivalent to less than 5% of gross income. Nine out of 17 credit institutions disclosed net costs in this item.

<sup>8</sup> The moratorium on repayments has an impact on bank cashflows, while interest accrues as normal and is disclosed under income.

loans will increase. Approvals of new consumer loans and housing loans will decline sharply, which will result in a gradual increase in the proportion of total loans accounted for by corporate loans.<sup>9</sup>

**The dynamics in loans will have a key impact on net interest income.** Two different estimates of growth in net loans, i.e. gross loans minus allowances, to corporates and households were drawn up on the basis of the macroeconomic scenarios.<sup>10</sup> The estimates range from -3% to -5% for corporates, and -1% to -2% for households under the first scenario, and from -5% to -21% for corporates and -3% to -10% for households under the second scenario. The large range of the estimates under the second scenario is indicative of the uncertainty in assessing the consequences of hitherto unexperienced falls in GDP. The first estimate for credit growth only discloses the impact of additional impairment costs on net growth in loans, while alongside the additional impairment costs the second estimate also includes the impact on net credit growth from the contraction in gross growth in loans caused by the deterioration in the macroeconomic environment.

Figure 2.5: Growth in net loans (to 31 December 2019), and impact of additional allowances in reducing net credit growth (for 2020)

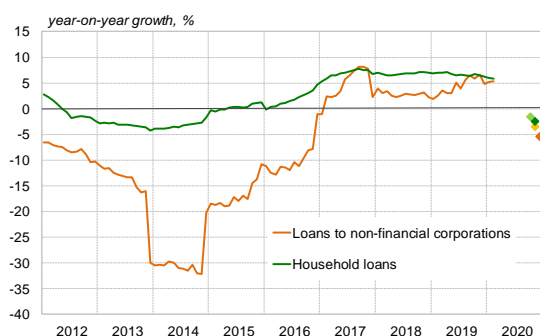
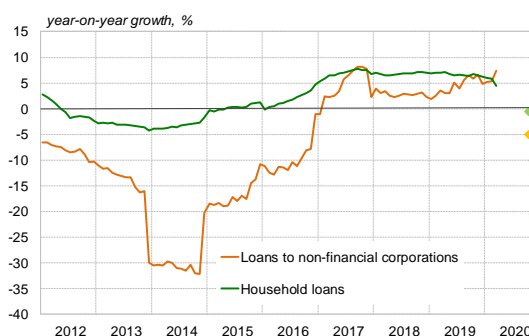


Figure 2.6: Forecast\* for net growth in loans based on a conditional VAR model (cut-off date is 31 March 2020)



Note: The estimates of gross and net growth in loans and impairment costs do not include the government's emergency measures or the ECB/EBA guidance with regard to the mitigation of undesirable procyclical effects of IFRS 9, which could have a significant impact on developments in credit growth in the future. The light shades of green and orange illustrate loans under the milder scenario, while the darker shades illustrate the more severe scenario.

Source: Bank of Slovenia

This could be linked to the current situation in the economic environment, and at firms and households, which is also being reflected in the banks' expectations with regard to credit activity (see note from the BLS). Similarly to the situation across Europe, these expectations are currently trending towards greater demand for corporate loans than for household loans. With regard to household loans in Slovenia, it is necessary to take account of the impact of macroprudential instruments, and also the deterioration in the situation for households caused by the Covid-19 crisis. When it comes to corporate loans, it should be highlighted that firms have heavily paid down debt in recent years since the financial crisis, and holdings of corporate loans on bank balance sheets have declined to record low levels. According to the latest data, the banks are expecting a sharp increase in demand for corporate loans, which to a great extent will be tied to other government activities, such as guarantees and moratoria. There are similar expectations at banks across Europe, with the difference that according to the latest BLS they are also forecasting a (more pronounced) loosening of credit standards for the second quarter of 2020, while banks in Slovenia (reporting banks in the BLS) have no such expectation.

<sup>9</sup> The responses from banks in Slovenia completing the Bank Lending Survey (BLS) suggest the same. In the most recent BLS from March and April 2020, of the five reporting banks who accounted for 60% of the banking system in terms of the balance sheet total at the end of 2019, and for 53% of loans to non-financial corporations, 65% of housing loans and 61% of consumer loans, only one was expecting a decline in demand for corporate loans over the next three months. The other banks were expecting a pronounced increase in all segments, while two of the five were also expecting an increase in long-term loans. All five of the banks were expecting a decline in demand for housing loans and consumer loans.

<sup>10</sup> Under the first approach, developments in net loans are estimated by maintaining the stock of gross loans at its level of December 2019, while allowances are increased by the additional impairment costs incurred in 2020. The sole impact on net growth in 2020 thus comes from the additional impairment and provisioning costs incurred in 2020. Income risk was also estimated on this basis. Under the second approach, net loans are estimated on the basis of a VaR model incorporating scenarios of macroeconomic variables input as exogenous variables. The endogenous variables are household loans, corporate loans, lags in both, the EURIBOR, and consumption in the equation for estimating household loans, and industrial production when estimating corporate loans.

The model-based estimation of developments in corporate loans is influenced to a great extent by the dynamics in GDP growth and growth in industrial production from the previous crisis. This affects the result, which shows a greater impact on corporate loans, although it is our opinion that the effects could be different on this occasion because of the different attributes of the banking system, the nature of the crisis, the sharper decline in confidence indicators for households, and the government measures, i.e. housing loans could see a larger decline, and corporate loans a smaller decline. These predictions are also being confirmed by developments in new housing loans, and new consumer loans in particular. Approvals of consumer loans in April were down around 70% on February.<sup>11</sup>

**Net non-interest income this year is expected to be down on last year.** The increase in non-interest income was a major factor in last year's rise in profit at system level. Even if the current rate of growth in net fees and commission, the most stable component of non-interest income, were to be maintained, net non-interest income could be expected to decline overall.<sup>12</sup>

**Growth in operating costs is expected to decline this year relative to last year.** No major changes in operating costs are expected over the short term. The majority of costs are relatively fixed, and labour costs account for more than half of the total (58%). Operating costs will nevertheless have relatively little impact on profit developments this year.

Figure 2.7: ROE under the GDP decline scenarios

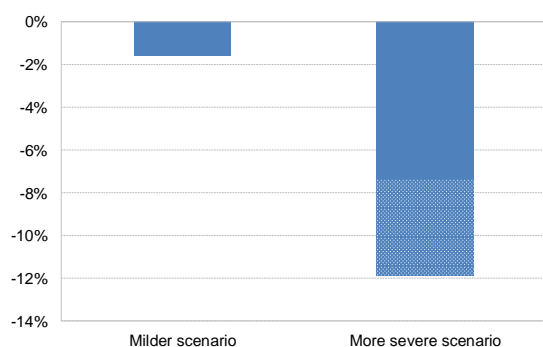
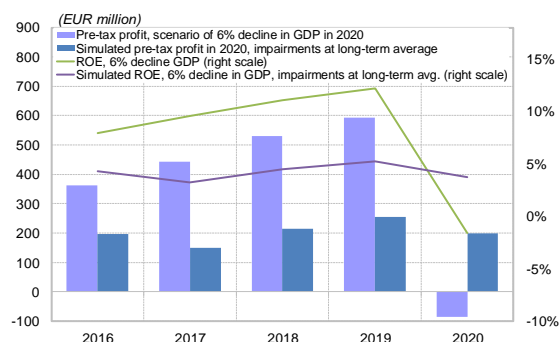


Figure 2.8: Actual profit and simulated profit where the ratio of costs and impairments to gross income is at its long-term average (milder scenario)



Note 1: The simplified simulation takes account of the scenarios for growth in corporate loans and household loans under the two GDP decline scenarios, a further decline in other interest income, no change in interest expenses, a decline in non-interest income, no change in operating costs, and an increase in impairment and provisioning costs as a result of the decline in GDP. Under the more severe scenario, the range of ROE is illustrated for (1) the decline in net loans, taking account solely of impairment and provisioning costs under this scenario and the maintenance of gross loans at the level of December 2019, and (2) the use of net growth in loans estimated on the basis of a basic VaR model from the more severe scenario and impairment and provisioning costs on the basis of a more conservative estimate for PD (left figure).

Note 2: In the right figure, the calculation of profit in 2020 takes account of net impairment and provisioning costs under the milder scenario for GDP decline (47% of simplified calculated gross income), and a 2% ratio of impairment and provisioning costs to gross income, namely the long-term average for the banking system since 1996, excluding the years of high impairment and provisioning costs (2012 to 2014) and the years of net release of impairments and provisions (2016 to 2019). This is the same illustration as for the 2016 to 2019 period.

Source: Bank of Slovenia

**The key impact on the banking system's operating result will come from net impairment and provisioning costs.** In recent years the net release of impairments and provisions has been a significant factor in the banks' high profits, but this year impairments and provisions will most likely be a major factor in the deterioration in their performance. Amid a persistent deterioration in the economic situation and loss-making on the part of the banks, this could also lead to a decline in capital and capital adequacy. According to the current assessments, under the milder scenario high impairment and provisioning costs could lead the banking system to make a small loss. Here it should be reiterated that no account has been taken of the government measures, or the ECB/EBA guidance, which provides interpretations with regard to the assessment of credit risk during the Covid-19 epidemic. Any gradual improvement in the economic situation once appropriate measures are taken to bridge liquidity difficulties at firms could also have indirect minor consequences in the banking sector. Taking account of impairment and provisioning costs, which will depend on the depth and duration of the crisis, and will also be strongly influenced by international accounting standards, impairment costs in 2020 would

<sup>11</sup> For more, see Section 3.4.

<sup>12</sup> Should the ratio of the most volatile component of non-interest income to net fees and commission remain at a similar level to the period of 2016 to 2018, non-interest income this year would be down almost 13% on last year.

approach EUR 600 million under the first scenario, and EUR 900 million under the second scenario, and could even exceed EUR 1 billion if a more conservative estimate for PD is used. The banking system would not be profitable, although the analysis does not take account of the effects of mitigation measures, which could have a significant impact on the banks' performance. In both cases the ratio of impairment and provisioning costs to gross income would be well above its historical average. Income risk is therefore assessed as high (red) in 2020 and 2021 alike under both scenarios. Should impairment and provisioning costs prove to be so high in 2020, they could not be expected to decline quickly in 2021, despite the economic recovery. The figures for the Slovenian banking system for the last two decades also reveal a gradual decline in the ratio of impairment and provisioning costs to gross income, for example in the years following the bank recovery and resolution process.

## 2.3 Credit risk

**With the economic shutdown, and given the anticipated major decline in economic activity, the banks have seen a sharp increase in credit risk.** Coming into the crisis, the Slovenian banking system was still slightly above the EU average in terms of the NPE ratio, but was among the countries with the largest improvement in portfolio quality (see Appendix 2). In light of the anticipated gradual increase in new defaults owing to the existing reserves in the corporate segment, credit risk is assessed as elevated (orange) in 2020, less than the high assessment for 2021 (red), when a further increase in inflows of NPEs is anticipated. Under the more severe scenario for GDP decline, the expected deterioration in portfolio quality is so large in both years that the assessment is already red in 2020. Here it should be reiterated that the quantitative assessments do not take account of the government measures, or the ECB/EBA guidance, which provides interpretations with regard to the assessment of credit risk during the Covid-19 epidemic, both of which could reduce the creation of new NPEs while the measures are in place.

**The increased inflow of new NPEs from new transactions in the final quarter of 2019 even before the outbreak of the Covid-19 epidemic indicated the possibility of a deterioration in credit portfolio quality as a result of the cooling economy.** After the outbreak of the epidemic, the radical worsening of the macroeconomic situation and the anticipated large decline in economic activity saw a significant rise in expectations of an increase in the inflow of new NPEs.

**Under the milder scenario the NPE ratio in the corporate portfolio could increase from 4.4% in February 2020 to 8% by the end of this year, and to 12% by the end of 2021.** The assessment is that probability of default (PD) in the corporate portfolio will increase from its current low level. However, the expectation is that in the early part of the crisis firms will to a certain extent defer default by using their internal reserves, and through business-to-business financing, credit lines, etc.<sup>13</sup> Under these assumptions the stock of NPEs in the corporate portfolio would increase by EUR 441 million in 2020 and by EUR 1.1 billion by the end of 2021, raising the NPE ratio to 8% and 12% respectively.

**A significantly larger deterioration in the quality of the non-financial corporations portfolio can be expected under the more severe scenario.** Transitions to default status would increase further under this scenario, and the NPE ratio in the portfolio would rise to 9% in 2020 and 16% in 2021.<sup>14</sup> The two-year inflow of new NPEs to non-financial corporations would reach approximately EUR 1.7 billion, EUR 550 million more than under the milder scenario.

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<sup>13</sup> In the last crisis the default rate rose to 7.8% in 2009, the year of the largest decline in GDP, but rose further in the following years, peaking at 23.3% in mid-2014. This was also the period when claims were being transferred to the BAMC.

<sup>14</sup> Given the greater uncertainty under the more severe scenario, the NPE values are also stated using a 90<sup>th</sup> percentile forecast from the PD model for non-financial corporations. In this instance the NPE ratio would rise to 11% in the first year and 18% in the second year.

Table 2.1: Estimated inflow of NPEs in the non-financial corporations portfolio on the basis of the PD model under the two scenarios for GDP decline

	NPE inflow	New NPE stock	NPE ratio
<b>Scenario PD, GDP -6%</b>			
- in one year	441	1.077	7,5
- in two years	1.112	1.748	12,2
<b>Scenario PD, GDP -16%</b>			
- in one year	716	1.352	9,5
- in two years	1.663	2.299	16,1

Source: Bank of Slovenia estimates

**Banks who are more exposed to firms whose operations will be largely shut down or heavily restricted even after the lockdown measures are lifted and the economy is rebooted will be more exposed to a large inflow of NPEs.** The banking system's exposure to firms in the sector of arts and recreation (EUR 130 million, of which casinos account for a large portion), accommodation and food service establishments (EUR 321 million), travel agencies (EUR 23 million) and passenger transport (EUR 76 million) amounted to EUR 663 million in February 2020 (4.7% of total exposure to corporates). Emergency measures in this segment, for SMEs and sole traders in particular, will have a key role in the revival of their business activities.

**The above forecasts for the deterioration in the banks' credit portfolio do not take account of any favourable impact from debt moratorium measures at banks, the government guarantee schemes to promote liquidity or the ECB/EBA guidance with regard to assessment of credit risk during the Covid-19 epidemic in reducing the inflow of new NPEs while the measures are in place.** Moratoria will not automatically increase banks' forborne exposures, but banks will nevertheless reclassify some of the deferred claims as NPEs while the measure is in place, if during individual assessment of debtors' creditworthiness they determine that probability of default has increased, and are predicting a default after the end of the moratorium. Given the limited time that they are in place, there is a risk that the measures will only have a strong impact in the first year, and in the second year banks will be facing a major deterioration in portfolio quality unless additional measures are taken. By 8 May non-financial corporations and households had submitted applications for moratoria on EUR 280 million of payments, in relation to debts of EUR 2,123 million or approximately 8% of the total exposure to the two sectors. The banks will reclassify some of these exposures as NPEs while the measure is in place, while some will be disclosed as non-performing after the end of the moratorium.

**The rapid deterioration in the macroeconomic environment could also be reflected in households' debt servicing capacity, which during the previous crisis was not so problematic, in contrast to non-financial corporations.** The future increase in NPEs depends on the credit standards used in the past (for household loans, particularly before the imposition of binding measures to restrict lending), the pace of the rise in unemployment, and the effectiveness of the emergency measures taken by the government.

**Loans to the non-banking sector in the rest of the world, primarily foreign firms, constitute a high-risk portfolio.** Of the total EUR 1.1 billion of loans made in this segment, 9.3% were non-performing before the crisis in February 2020. Alleviating the consequences of the epidemic in this part of the banking portfolio lies outside the realm of domestic policy, and mostly depends on the depth of the crisis in the countries where the firms do business, and the measures taken in these countries.

## 2.4 Risk inherent in the real estate market

**The risk inherent in the real estate market is assessed to be elevated in both years under the milder scenario. Under the more severe scenario the risk is assessed to be high in the first year, while it is expected to subside to moderate levels in the second year as the macroeconomic situation improves.**

**Slovenia faces the new situation with the Covid-19 outbreak without existing imbalances in the residential real estate market.** Growth in housing loans was moderate and stable: the year-on-year rate stood at 5.5% in the final quarter of 2019. Construction's share of employment in total employment increased from 6.3% in 2016 to 7.2% by the final quarter of 2019. The share of residential real estate

investment in GDP was stable and was not indicating an overheating of the construction sector. The stock of loans to the sectors of construction and real estate activities is merely around EUR 1 billion, significantly down from EUR 3.6 billion in 2012. Due to its scale, however, the crisis may have a strong impact on the residential real estate market and thus on the banking system.

**Slovenia experienced a strong growth trend in prices in the residential real estate market in the recent years.** From 2015 to 2019 prices grew, in terms of the nominal price index for all dwellings, 6.6% on average annually (4.6% in real terms). In the last quarter of 2019, the prices were up by 5.2% over same quarter in the previous year. This trend reflected the fundamentals, the improvement in income and a recovery in prices in the aftermath that followed the financial crisis. Various valuation indicators (price-to-income ratio and price-to-rent ratio) and a model estimate of the valuation gap suggest that in this period prices caught up with the fundamental level<sup>15</sup>, and are still not above the long-run trend.

**The Covid-19 epidemic and the measures to curb it will impact the residential real estate market through both the demand and supply channel.** The impact on demand was immediate and transactions are expected to decline significantly, which is due to a reduction of search by the buyers and a reduction of availability of houses for visit on the sellers' side. The impact on income, the expected reduction of GDP, rising unemployment, the reduction of confidence and uncertainty regarding the economic outlook will lower the demand further, given that real estate purchases are among the largest of household expenditures. On the supply side, construction companies may face difficulties in terms of liquidity due to lower revenue flows.

**The impact of the Covid-19 epidemic on the residential real estate market is assessed in terms of forecasts of residential real estate prices under two scenarios.** Under the milder scenario, GDP contracts mainly in the second quarter, and recovery starts in the third quarter of 2020. Under the more severe scenario, GDP contracts until the third quarter of 2020.

**The analysis is based on a structural VAR model, which provides forecasts of residential real estate prices, and an estimate of the deviation in residential real estate prices from the long-run trend.** The model enables the detection of significant overvaluation or undervaluation in the residential real estate market.

Figure 2.9: Real GDP and the projected paths under two scenarios (2019 Q4 = 100)

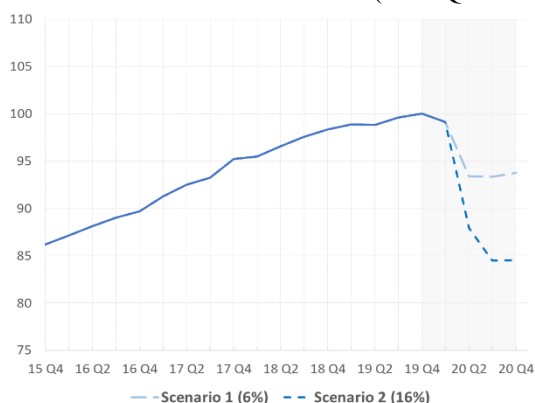
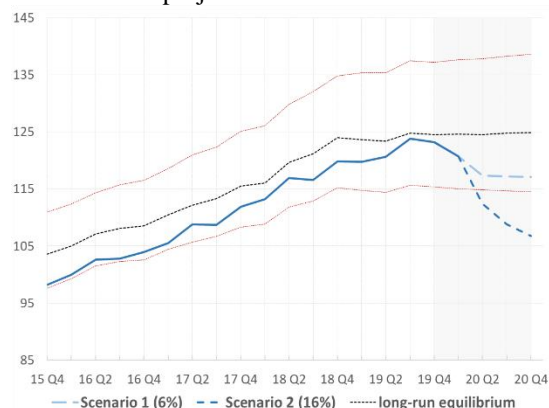


Figure 2.10: Real residential real estate prices and projections under two scenarios



Sources: SORS, Bank of Slovenia, authors' calculations

**Under the mild scenario, the residential real estate price index is forecasted to be lower by 5% in real terms and 3% lower in nominal terms by the end of 2020 compared to the end of 2019.**

<sup>15</sup> »The fundamental price level« stands for the equilibrium price in the RRE market that reflects the fundamental and objective demand and supply factors. The observed price fluctuates and reverts to a long run equilibrium trend, which is mainly determined by permanent or persistent developments in income and construction costs. The actual price tends to deviate from the long-run trend of the fundamental price due to transitory factors (e.g. accommodative monetary policy or misaligned expectations and optimism), duration of which is determined by the persistence of the transitory factor and the relative supply inelasticity in the construction sector. The latter, supply inelasticity, is a feature of the RRE market as the supply is limited to the existing housing stock in the short run and new production is also limited by existing capacity. In the longer run capacity can adapt when new projects filter through the planning and approval processes.

**Under the severe scenario, the residential real estate price index is forecasted to be lower by 13% in real terms and 11% in nominal terms by the end of 2020 compared to the end of 2019.**

Table 2.2: Forecasts of the residential real estate prices and valuation gaps under the two scenarios

	2017 Q4	2018 Q4	2019 Q4	2020 Q4
<b>Mild scenario</b>				
Nominal prices, annual growth (%)	10.0	9.1	5.2	<b>-3</b>
Real prices deflated by GDP deflator, annual growth (%)	7.6	7.1	2.8	<b>-5</b>
Valuation gap (%)	-3.2	-3.4	-1.1	<b>-7</b>
<b>Severe scenario</b>				
Nominal prices, annual growth (%)	10.0	9.1	5.2	<b>-11</b>
Real prices deflated by GDP deflator, annual growth (%)	7.6	7.1	2.8	<b>-13</b>
Valuation gap (%)	-3.2	-3.4	-1.1	<b>-16</b>

Notes: : The house price index for all dwellings in Slovenia is taken as the measure of residential real estate prices. Numbers in bold font are the forecasts. Valuation gap is the difference between the actual price and the estimated long-run equilibrium price.

Sources: SORS, Bank of Slovenia, authors' calculations

Residential real estate prices may fall by more than what is suggested by the model-based forecasts:

- Under the mild scenario the fall in residential real estate prices is not forecasted to be large.<sup>16</sup>
- The model does not capture some peculiar developments in the market. One such development could be the impact of the outbreak on tourism and the potential effect of increased supply in the residential real estate market in terms of apartments for sale or for long term rent that were previously reserved for tourism.
- The sudden contraction in income implies disruption in revenue flows and potential liquidity problems for the construction companies. That may lead these companies to sell the houses and flats at prices lower than the market, and »pull the market down«. As a result, the impact of the GDP contraction on the house prices can be larger.

**Contrary to the results from the model presented earlier, real estate prices could remain near the same level as before.** Once the restrictions are released, sales and purchases could continue at almost the same prices as before the crisis. This would happen if the Covid-19 epidemic and restrictions will not last too long.

## 2.5 Funding risk

**Funding risk is assessed as moderate in 2020 and elevated in 2021 under the milder scenario, but elevated in both years under the more severe scenario.** A long-lasting epidemic and consequences of greater magnitude could increase the risk, although this will also depend on the success of the emergency measures to alleviate the consequences of the epidemic. Deposits by the non-banking sector are the banking sector's main source of funding, but they could decline in the future given the current situation. Thanks to its low dependence on wholesale funding, the banking system is less exposed to adverse effects from the international financial markets.<sup>17</sup> In the event of the need to obtain new funding because of a contraction in deposits by the non-banking sector, other resources are available to the banks (ECB funds,<sup>18</sup> international financial markets, credit lines, etc.), although the ability to access these resources varies from bank to bank.

**The anticipated downturn in the economy and rise in unemployment will reduce savers' disposable income, thereby slowing growth in their savings at banks.** Year-on-year growth in deposits by the non-banking sector stood at 5.7% in February, and was outpacing growth in the balance sheet total. Household deposits growth was the highest (7.8% in year-on-year terms), while growth in corporate deposits was volatile, having slowed sharply from previous years.

<sup>16</sup> Much lower than expectations by certain other market participants, for example *Moje Finance* magazine (source: <https://mojefinance.finance.si/8960415/>).

<sup>17</sup> Wholesale funding accounted for 6.3% of the balance sheet total in February 2020, significantly less than at the outbreak of the previous crisis (the figure was 36% in December 2008).

<sup>18</sup> For more on monetary policy measures, see Appendix 1.

**The future developments in the stock of deposits by the non-banking sector, corporate deposits and household deposits in particular, are uncertain.** Sight deposits continue to make up the majority of corporate deposits (EUR 4.8 billion or 75% of the total) and household deposits (EUR 16 billion or 78%), which allows savers the immediate use of their savings to bridge any liquidity difficulties. It is firms in particular that are expected to use their savings, particularly those in sectors where operations were shut down or heavily restricted by government ordinance. The size of the contraction in corporate deposits will depend on how long the epidemic and the measures to curb it last, and on the government's emergency measures to alleviate the consequences of the epidemic (e.g. corporate liquidity loans). Rising unemployment and lower employee earnings (e.g. because of furloughing) will also bring a reduction in household deposits, although the effect is likely to be smaller because of reduced spending on durables and luxury goods, holidays, real estate, etc. For the moment there is no expectation of any major sudden withdrawals of funds from the banking system (by households) or switching between banks as a result of savers losing confidence in the stability of individual banks and the entire banking system on account of the current situation. The assessment is nevertheless that savers will be cautious, and will not commit to fixed-term accounts, which will further increase the proportion of sight deposits.

**Maturity mismatch is increasing funding risk in the event of sudden deposit flight from the banking system.** The increase in sight deposits is widening the maturity gap between assets and liabilities, although this effect could be reduced by the new corporate liquidity loans announced to alleviate the consequences of the epidemic, which are likely to be of short maturity.

**The banks' dependence on other sources of funding is low at present, and the ability to obtain new sources of funding varies from bank to bank.** Liabilities to the Eurosystem remain unchanged at 2.4% of the balance sheet total, while the proportion accounted for by wholesale funding increased to 6.3% in February as a result of issuance of debt securities. In the event of a need for additional funding, the banks can obtain funds in tenders for longer-term refinancing at the Eurosystem (TLTRO, PELTRO), which is a favourable form of funding for banks. They are able to obtain these funds because a relatively high proportion of the pool of eligible collateral at the Eurosystem is free: EUR 2.5 billion or 70% is unencumbered, equivalent to 5.9% of the balance sheet total.

**The subsidiary banks are in a slightly better position as far as obtaining funding is concerned: they have credit lines approved with their parent banks should additional liquidity needs arise.** The small domestic banks and savings banks are in a weaker position: their small size means that access to funding on international financial markets is harder, and they are more dependent on the functioning of the domestic interbank market. Volume on this market is currently very low, primarily on account of the banks' high excess liquidity.

## **2.6 Risk inherent in the performance of leasing companies**

**The outbreak of the epidemic will see leasing companies suffer a drastic decline in income from new business in the first and second quarters.** New business has primarily been based on vehicle leasing in recent years. This segment was additionally hit by the government ordinance temporarily prohibiting roadworthiness inspections and other procedures in connection with motor vehicle registration. This means that while the ordinance was in force<sup>19</sup> leasing companies were unable to conclude financing or insurance deals for cars that had to be newly registered (new or used cars). Taking account of the fall in the number of new vehicle registrations<sup>20</sup> in the first quarter, it can be predicted that leasing companies will see a similar fall in revenues in the first quarter on this account. A fall in revenues will also be seen in the second quarter.

**After allowing for other factors, new leasing business in 2020 might be down 20% to 50% in year-on-year terms, which would have a significant impact in reducing the stock of leasing business, increasing claims more than 90 days in arrears, and hurting performance.** A major decline in revenues, an increase in finance expenses from impairments and write-offs, and a small decline in labour costs and costs of services could see losses made in 2020 and 2021. Were total revenues is expected to fall by 20% and expenses to remain unchanged, leasing companies might see profit fall to EUR 40

<sup>19</sup> In April the government passed an ordinance amending the ordinance temporarily prohibiting roadworthiness inspections and other procedures in connection with motor vehicle registration and work at tachograph workshops in Slovenia. In the ordinance, the government stipulated that the prohibition of roadworthiness inspections and other procedures in connection with motor vehicle registration and work at tachograph workshops would remain in place until 19 April 2020.

<sup>20</sup> According to figures from the chamber of commerce, the number of new vehicle registrations in the first quarter of 2020 was down 29% in year-on-year terms, while the March figure was down 63% in year-on-year terms.

million in 2020,<sup>21</sup> down 42%, while a 50% fall in revenues would see them make a loss of EUR 36 million.

**The systemic risks in 2020 and 2021 are assessed as elevated under the milder scenario, and high under the more severe scenario.** The assumption under the milder scenario is that the performance of leasing companies in 2020 and 2021 will be impacted to a limited extent. Profitability is forecast to remain positive at system level, and the risk consequently remains elevated. Under the more severe scenario, there is an additional increase in risk, as the fall in new business is assumed to be 50% in 2020, which would entail an operating loss, and a larger impact in the form of a reduced stock of leasing business and an increase in claims more than 90 days in arrears in 2020 and 2021. The risk is therefore assessed as high.

## **2.7 Risk inherent in insurance corporations**

**The epidemic is expected to result in rising risks in the insurance sector in three areas in particular.** With regard to macroeconomic risk (1), there is expected to be a sharp decline in gross written premium as a result of the drastic deterioration in the macroeconomic situation and the decline in turnover with an adverse impact on insurance corporations' profitability in 2020 and 2021. Market risks (2) are worsening further, owing to the huge rise in volatility on the equity and debt security markets. Entities doing business mostly or exclusively in the segment of voluntary supplementary pension insurance remain the most vulnerable. To cover their guaranteed returns, they will have to use their own resources to compensate for a lack of return on the financial markets, which will have a significant impact on their profitability and capital adequacy. In connection with the increased volatility, downgradings for securities held by insurance corporations will act to reduce their capital adequacy (3), which could be particularly problematic for insurance corporations who already have a relatively low SCR. The adverse effects of the epidemic will also be reflected in other risk areas (liquidity and funding, interactions/imbances, operational risk) that are currently a lower risk.

## **2.8 Risk inherent in mutual funds and the domestic capital market**

**The increased uncertainty and volatility on the capital markets are increasing liquidity risk.** The coming months are expected to bring an increase in net withdrawals from mutual funds, partly in the quest to preserve asset values, and partly to provide additional liquid assets. No mutual fund operated by a domestic management company is yet to impose a freeze on withdrawals, and, according to the SMA, no management company is reporting any difficulties with liquidity or asset valuations.

**Even before the spread of the Covid-19 epidemic, the poorly developed domestic capital market offered limited investment opportunities and limited options for firms in seeking alternative financing.** The epidemic has further reduced these opportunities, which could lead to greater volatility in domestic asset valuations compared with other similar markets.

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<sup>21</sup> Under the assumption that all revenues fall by the same amount, as does the historical cost of merchandise and material sold, while other items in the income statement remain unchanged from 2019. Only leasing companies that entered into new business in 2019 were included in the income statement analysis.

### 3 ASSESSMENT OF RESILIENCE TO SYSTEMIC RISKS

*The banking system's resilience to systemic risks was relatively high coming into the crisis, but could deteriorate in a long-lasting epidemic. Maintaining and strengthening the banking system's resilience is extremely important to compensating for the sharp increase in systemic risks. It was to this end that Bank of Slovenia adopted the Regulation on the macroprudential restriction of profit distributions by banks<sup>22</sup>. Other emergency measures could also have an impact on the banking system's liquidity position and capital position.*

#### 3.1 Solvency of the banking system

**Despite the significant uncertainties as to how events will develop, and the considerable increase in risks, the banking system's resilience from the perspective of solvency is assessed as medium in 2020 under the milder scenario. Under the more severe scenario, with the accumulation of adverse effects, particularly from credit risk and income risk, resilience is highly likely to diminish in the following years.**

**The banking system remained well-capitalised at the end of 2019, although there was considerable variation from bank to bank.** The banking system's total capital ratio stood at 18.5% on a consolidated basis at the end of 2019, while the common equity Tier 1 capital ratio stood at 17.8%, both above their euro area averages (see Appendix 2). Slovenian banks meet their capital requirements with the highest quality forms of capital (CET1), which in recent years they have primarily increased via retained earnings and other reserves. Last year the banks also increased their capital via the issuance of subordinated debt securities (Tier 2 capital), with the aim of providing MREL-eligible instruments. The inclusion of subordinated bonds in Tier 2 capital increased the proportion of total capital that it accounts for to 4.4%, which is still less than the average figure in the euro area (12.6%). Last year's credit growth also brought an increase in risk-weighted assets, which ended 2019 up 5% in year-on-year terms. The small domestic banks and savings banks, which are weaker in capital terms, improved their capital adequacy via recapitalisations. Despite the increase in regulatory capital, their leverage remained a half lower than the average in the Slovenian banking system.

**Despite the significant uncertainty surrounding how events will develop, and the major increase in risks, it is our assessment that the downward pressure on capital adequacy in the first year will mainly come from the adverse effects of changes in credit risk.** In the future, as the consequences of the epidemic increase in scale, which will be reflected in an accumulation of the adverse effects of the increased risks, resilience is most likely to diminish, particularly at banks that are weaker in capital terms. In dealing with the consequences of the epidemic, the banks will be helped by ECB measures, while their solvency will also be strengthened by Banka Slovenije's macroprudential measure restricting profit distributions by banks.<sup>23</sup>

**The Covid-19 epidemic and the resulting economic shock are adversely affecting corporate performance and the labour market, which will increase risks in the banking system and put downward pressure on capital adequacy.** The adverse effects of the increased risks, credit risk and income risk in particular, will have an impact on capital, and will also drive changes in risk-weighted assets. The banks have recorded profits in recent years, thereby generating the basis for growing capital and capital adequacy. The ability to increase capital via good performance will diminish markedly over the next year amid the increase in income risk (described in detail in the first section) and potential losses. Taking into account the loss forecast under the milder scenario, the banking system's total capital ratio<sup>24</sup> on an individual basis could fall to below 20%, while it could approach 18% taking into account the loss forecast under the more severe scenario. The stock of regulatory capital as at 31 December 2019 was taken into account, without any consideration of the macroprudential measure of restrictions on profit distributions by banks, while the assumption was that risk-weighted assets would remain unchanged. Taking into account the macroprudential measure, the losses forecast under the milder scenario and more severe scenario would be absorbed by the retained earnings from the previous year. Under an even more severe scenario, it is estimated that the banking system's capital adequacy would decline despite last year's profits being taken into account. It should be reiterated that the operating

<sup>22</sup> Official Gazette of the Republic of Slovenia, No. 49/20 of 10 April 2020.

<sup>23</sup> For more, see Section 4.

<sup>24</sup> Taking account of the current figure for total capital ratio as at 31 December 2019.

result and its impact on capital adequacy will depend of the length of the Covid-19 epidemic and its consequences, which cannot yet be entirely predicted. The observed values could therefore differ from the forecasts.

**Developments in capital adequacy over the next year will be impacted by the adverse effects of increased credit risk, via a change in risk-weighted assets.** The deterioration in the credit portfolio will raise the NPE ratio, and will act to increase average risk weights for calculating risk-weighted assets, thereby reducing the total capital ratio. Contrastingly, a decline in risk-weighted assets and a resulting increase in the total capital ratio could come from (1) a decline in credit activity caused by the economic downturn, and (2) a decline in the net exposures that form the basis for calculating risk-weighted assets, owing to an increase in impairment costs. The estimates of credit capacity presented in Section 4 confirm that the Slovenian banking system's current level of capitalisation enable for credit support to be provided to businesses and households, even in the event of a large macroeconomic shock.

**Simplified analysis was used to estimate the NPE ratio that the banks could cover with the capital surplus while maintaining capital adequacy (meeting the SREP requirement while using the CCyB, the P2G and last year's entire profit).**<sup>25</sup> The assumptions used here are that (1) the capital surplus and last year's profit amounted to EUR 2.6 billion<sup>26</sup> as at 31 December 2019, and (2) the banks use the surplus solely to cover credit losses. On the basis of the analysis it is assessed that the reserves of capital at system level are sufficient, although difficulties could arise in particular in the first year of the more severe scenario, and under more conservative assumptions in connection with the approach to creating impairments under IFRS 9. It is estimated that the banking system could absorb an NPE ratio of between 13% and 18% using its capital surplus and last year's profit (depending on the assumptions with regard to estimates of LGD described in Appendix 5), where no account has been taken of impairments for performing exposures or other effects. If the latter are all taken into account, the banks' capacity to absorb NPEs could be significantly lower in the first years in particular, when impairment costs for performing exposures under IFRS 9 are expected to be highest. Impairments for performing exposures are highest immediately after the outbreak of a crisis, especially in the event of a sudden reversal in the macroeconomic environment. Here it should be noted that the differences between the banks mean that the absorption capacity at certain banks is significantly smaller even under the milder scenario. The estimate of the potential increase in NPEs that would use up the banks' entire capital surplus, taking account of impairments for performing exposures, is highly dependent on (1) the implementation of IFRS 9, which varies from bank to bank, (2) the impact of the emergency laws and application of the ECB and EBA guidance with regard to the treatment of IFRS 9 at banks, (3) the severity and dynamics of the anticipated recession, which has a profound impact on the distribution of impairments created for performing exposures and for transitions from performing to non-performing status in each year, and on other estimated parameters, (4) how conservative the estimate of LGD is, and (5) effects from non-credit risks, which are not covered in this analysis.

**A comparison of sustainable capital with the estimated inflow of NPEs on the basis of probability of default in the non-financial corporations portfolio<sup>27</sup> reveals the banking system's actual resilience to the estimated increased inflow of NPEs.**<sup>28</sup> The largest new inflow of NPEs is expected in the non-financial corporations portfolio. Taking no account of impairments for performing exposures, the banks could withstand a rise in the NPE ratio in the non-financial corporations portfolio to 25% using the estimated capital surplus and last year's profit. Given that impairment costs for performing exposures could increase sharply at the outbreak of the crisis, this absorption capacity could be significantly lower in the first years, which would entail risk to the banking system, particularly in the event of the realisation of the more severe scenario in the first years, when the creation of impairments for performing exposures under IFRS 9 is expected to be more extensive. It should be noted that these estimates are at system level, which means that it is likely that not all banks would be able to withstand

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<sup>25</sup> In contrast to the analysis in Section 4, which is concerned with the banking system's credit capacity and assumes that the banks halt credit activity when certain threshold capital ratios are approached, here it is the capacity to absorb NPEs that is being estimated, for which the banks are able to also use the CCyB when forced to do so.

<sup>26</sup> Taking account of the use of the CCyB, the P2G and the entire net profit from 2019.

<sup>27</sup> Based on Table 2.1.

<sup>28</sup> Comparison based on calculations set out in Appendices 4 and 5. A conservative estimate for LGD was used in calculating the simulation of NPEs while using the capital surplus and last year's profit.

this pressure. The banks have differing sizes of capital surplus, and differing risk levels in their portfolios.

**Here it should be reiterated that the banks will use the capital surplus to cover losses from various sources, both operating losses and changes to risk-weighted exposure amounts.** It is also important to be aware that the capital surpluses and the structure and risk level of investments vary from bank to bank. For banks with a weaker capital position and smaller surpluses, namely the small domestic banks and savings banks, covering the losses from various risks could present a major challenge. The calculations are based on specific scenarios, which could unfold differently because of the Covid-19 epidemic. Any change in the assumed dynamics of the scenarios would affect the level of impairments for performing exposures, which would eat into capital surpluses.

### 3.2 Liquidity of the banking system

**The banking system's resilience from the perspective of liquidity is medium in the first year and low in the second year under both scenarios. It is also assessed that the crisis will have a negative but not significant impact on the liquidity of the banking system in the following months. The banking system's current good liquidity position is nevertheless expected to deteriorate as the Covid-19 epidemic lasts and its consequences increase in scale.**

**The banking system's liquidity position is currently good, and no major changes caused by epidemic are yet evident.** There was a high stock of primary and secondary liquidity<sup>29</sup> last year and in the first quarter of this year. Primary liquidity was equivalent to 13.5% of the balance sheet total in March (EUR 5.7 billion), while the figure for secondary liquidity was 18% (EUR 7.5 billion). The liquidity coverage ratio (LCR) is well above the level of the regulatory requirement, and ranks Slovenia second among EU Member States (see Appendix 2).<sup>30</sup> The LCR stood at 288% in March, although there was considerable variation from bank to bank. The proportion of the pool of eligible collateral that is free also remains high (70%, or EUR 2.7 billion), which allows the banks to obtain additional funding from the ECB. The LTD ratio for the non-banking sector stood at 76% in March. In the current situation, the ratio will be driven down by the anticipated decline in loans to the non-banking sector, which is highly likely to be mitigated by the emergency measures targeting corporate liquidity loans. Downward pressure on the LTD ratio will also be slightly mitigated by the anticipated decline in corporate and household deposits.

**The banking system's current good liquidity position will deteriorate in the future because of the Covid-19 epidemic and the magnitude of its consequences. This will also reduce the banks' resilience.** Covid-19 is hitting corporate activity (temporary shutdowns), which could increase firms' use of funds held in bank accounts. A similar change in behaviour could also be seen in the household sector, on account of the decline or total loss of income (for more, see Section 2.5). The scale of the use of free funds by households and firms will determine what the general impact on the economy will be, which could also have an impact on banks and cashflow in the banking system. Changes in cashflow could also have an impact on liquidity, and could be reflected in a decline in the LCR.

**Another factor in the deterioration in the banking system's liquidity position over the coming year will be the moratoria on borrowers' payments covered by the government measure to alleviate the impact of the epidemic on the economy.** The impact of the measure on liquidity will of course depend on the magnitude of the epidemic's impact on the economy. The simulation in Appendix 3 illustrates that in line with the macroeconomic scenarios presented and the subsequent assumptions, the crisis will not significantly weaken the banks' resilience to liquidity risk.

**The preliminary results of the analysis based on the simulation show that, on the basis of the existing assumptions, the estimated effects of the crisis and the loan moratoria on bank liquidity over the remainder of the year are not cause for concern under the milder scenario, but also show that there is a need for close monitoring if the crisis evolves according to the more severe scenario** (see Table 3.1). The current monetary policy measures adopted by the ECB to support bank liquidity are sufficient. It is therefore too early at this stage to discuss other measures to support bank liquidity.

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<sup>29</sup> Primary liquidity consists of cash on hand, balances in accounts at Bank of Slovenia, and immediately redeemable claims against banks and savings banks. Secondary liquidity is based on liquidity ladder data, and consists of Slovenian government securities and foreign marketable securities rated BBB or higher.

<sup>30</sup> The latest available data for EU Member States is for September 2019.

Table 3.1: Simulation of decline in banks' net cashflows in 2020<sup>(a)</sup>

		Milder scenario	More severe
Crisis and loan moratorium measure <sup>(b)</sup>	amount, EUR million	1,327	3,042
	as share of liquid assets*	6%	15%
Crisis without loan moratorium measure <sup>(c)</sup>	amount, EUR million	826.3	2,088
	as share of liquid assets*	4%	10%
Notes:			
(a) Assumptions: (1) some loans to NFCs become non-performing, or subject to moratorium; (2) sight deposits by NFCs and households decline, as a result of the decline in value-added and wages envisaged in each scenario.			
(b) Loans subject to moratorium reflect the envisaged scenario-specific decline in value-added and in wages.			
(c) The estimate for non-performing loans is taken from the estimates in Appendix 4.			
* Liquid assets here correspond to the numerator in the second-bucket liquidity ratio as at 31 March 2020.			

Source: Banka Slovenije estimates

**In dealing with the consequences of the Covid-19 epidemic, which will affect the banking system's liquidity position, the banks will be aided by monetary policy measures adopted by the ECB. The purpose of these is to ensure sufficient liquidity in banking systems and liquidity support for businesses.** Slovenian banks held liabilities to the Eurosystem in the amount of EUR 1,043 million in March, and are expected to increase these liabilities in the future as the duration and magnitude of the epidemic increase, either on the grounds of prudence, or because of an additional need for liquidity. The latter is particularly true of banks with smaller liquidity surpluses. The ECB monetary policy measures are presented under ECB measures in Appendix 1.

In addition to monetary policy measures, the ECB has allowed banks to reduce the LCR to below 100%. This will help banks with smaller liquidity surpluses in their liquidity management and their ability to cover outflows. The LCR in the Slovenian banking system stood at 288% in March, which entails a liquidity surplus of EUR 6.9 billion over the regulatory requirement (100%).

### 3.3 Firms

**As soon as the epidemic was declared and the shutdown was put in place, firms had to face the issue of liquidity.** The emergency laws adopted to mitigate the liquidity shock, to preserve firms' capacity to continue in business after the rebooting of the economy, and to preserve jobs could help to keep the majority of the economy alive. Firms entered this crisis with more financial resilience than before the previous crisis. The high profits recorded in previous years, the lower leverage and the large stock of liquid assets at banks are indicative of a much-improved financial position at firms. Leverage had declined to 89%, the lowest figure of the last 15 years. Indicators of corporate creditworthiness and debt servicing burden had also reached the best levels to date. The good starting position coming into the recession was able to mitigate the first liquidity shock at firms, but the government's emergency laws will contribute the lion's share to bridging liquidity difficulties in the first year of business. These are particularly important for micro and small enterprises and the sole traders sector, who constitute a more vulnerable group. According to the liquidity ladder data, claims against corporates increased as expected in March. It is important that if the recession outlasts the epidemic and the measures to curb it, measures needed to prevent greater damage to the economy will remain in place.

### 3.4 Households

**The financial structure of households' assets and their debt indicators before the epidemic showed relatively high resilience to a deterioration in the economic situation.** Given the extremely adverse consequences of the epidemic, resilience can be expected to deteriorate in the following quarters, as a result of the rise in the unemployment rate to 6% under the milder scenario or 8.5% under the more severe scenario, while employment declines by between 1.8% and 4.7%.<sup>31</sup> Unemployment in April of this year was up 13.9% on March, and up 19.9% on last April.<sup>32</sup> Even people whose jobs have been

<sup>31</sup> The source for the unemployment and employment rates is *Analysis of the impact of Covid-19 on the Slovenian economy*.

<sup>32</sup> Source: Employment Office

preserved could see their gross disposable income decline, which together with the fall in confidence will result in a major decline in gross saving and investment by households. Further evidence of the possibility of such a response from households comes from the survey on income and living conditions (SILC),<sup>33</sup> which reveals that 80% to 90% of respondents with outstanding housing loans<sup>34</sup> class their repayments as a medium or heavy burden. The proportion of households who over the course of one year have on several occasions fallen into arrears in the payment of housing expenses<sup>35</sup> has declined in recent years (from 16% in 2014 to 10% in 2018), but it is likely that arrears will return to the levels seen in the previous crisis.

**Another significant factor in the behaviour of households was developments on the financial markets, given that investments in equity, shares and mutual fund units account for almost 30% of household financial assets.** In just a few weeks in March, global stock market indices lost more than 30% from their peaks earlier in the year. The stock market indices gradually recovered in late March and April, which has also been reflected in disposable household assets. The proportion accounted for by currency and deposits, which are the most liquid assets and the most stable in value, an important factor in households' resilience during an economic downturn, has remained stable at 48% in recent years. Household indebtedness as measured by the ratios of financial liabilities to disposable income and to GDP also declined, despite nominal growth in liabilities of 4.8% in 2019 and 5.8% in 2018. Under the scenarios of GDP decline, it can be assumed that the ratio of financial liabilities to GDP would increase, as households cannot be expected to significantly pay down debt over the short term. The ratio of household financial liabilities to GDP (30.8%) nevertheless remains below the euro area average (65.4%).

**The high growth in consumer loans seen even during the period of slowing economic growth in Slovenia and its main trading partners led to an increase in risk in the consumer loans segment.** Banka Slovenije introduced a macroprudential recommendation in 2016 and 2018 with the aim of preventing loosening of credit standards at banks in the area of housing loans and consumer loans. Year-on-year growth in housing loans has been stable since the introduction of the recommendation, at between 4% and 5%. Thanks to the moderate growth in housing loans, there was no need to tighten the measures. However, the risks inherent in the high growth in consumer loans did not diminish. The average maturity of consumer loans continued to lengthen, the average loan amount continued to increase, and growth in consumer loans remained high (a year-on-year rate in excess of 10% for more than two years). The banking system's exposure to consumer loans increased despite the recommendation. The ratio of consumer loans to GDP has also increased over the last three years.

**To stem the build-up of risks, in 2019 Banka Slovenije imposed a binding macroprudential measure on household lending, which in the final months of last year and the first two months of this year was reflected in a decline in year-on-year growth in consumer loans.** A further steep decline in year-on-year growth in household loans is expected as a result of the Covid-19 epidemic. New consumer loans in March were down 26% on February, while the April figure was down around 70% on February. New housing loans in March were up approximately 7% on February, while the April figure was down 11% on February.<sup>36</sup>

**The Covid-19 epidemic will hit the labour market, which in turn will bring a deterioration in household debt servicing capacity.** Households' need for additional liquid assets to deal with the consequences of Covid-19 will also increase.

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<sup>33</sup> The survey in Slovenia is conducted by the SORS, and data availability is to 2018.

<sup>34</sup> More than 60% of the survey respondents had no such burden in 2018.

<sup>35</sup> Housing expenses include all costs related to housing: housing loans or mortgage loans, rents, insurance, electricity, water, gas, heating, etc.

<sup>36</sup> The monthly changes in March and April are based on figures from the SISBON database.

**Deviations from the cap on DSTI were simulated,<sup>37</sup> under the assumption of a 10% to 50% decline in borrowers' income.<sup>38</sup>, <sup>39</sup>** The maximum allowed DSTI depends on the borrower's income, therefore deviations indicate the share of potentially problematic borrowers. The analysis assumes that the borrower's income declines immediately after loan is granted. This scenario can occur when the borrower is furloughed because of Covid-19, and receives 80% wage compensation in place of his/her full pay. The borrower's DSTI can markedly increase also if the borrower loses his/her job and is entitled to unemployment benefit.<sup>40</sup> The analysis indicates that the level of deviations is relatively sensitive to a change in the borrower's income. This is the case both for housing and consumer loans. In 2019, around a quarter of consumer loans and a sixth of housing loans did not comply with the cap on DSTI. In the event of a 20% decline in income, the level of deviations would increase by 15 percentage points (to 41%) for consumer loans and by fully 22 percentage points (to 38%) for housing loans. This indicates potential difficulties for these borrowers in the repayment of loans and other debts.

Table 3.2: Simulation of deviations in DSTI in 2019 versus the change in income

(EUR million)	Total loans	Actual	-10%	-20%	-30%	-40%	-50%
Consumer loans	1,207	320 (26%)	409 (34%)	491 (41%)	589 (49%)	696 (58%)	817 (68%)
Housing loans	1,122	175 (16%)	296 (26%)	424 (38%)	562 (50%)	713 (64%)	855 (76%)

Sources: BSMAP and survey data. The figures illustrate the total amount of loans that would fail to comply with the cap on DSTI. The figure in parentheses is the previous figure expressed as a proportion of all new loans for the year.

<sup>37</sup> Deficiencies in the analysis: (a) The data for income is not necessarily aligned with the Regulation on macroprudential restrictions on household lending, as income can also include income exempted from attachment, which is not counted in income for the purposes of the regulation. (b) The data for debt servicing costs does not include leasing liabilities, and is therefore likely to be understated. Non-compliance with the cap on DSTI is therefore most likely also understated. According to the preliminary data from SISBON, the average leasing liability in 2019 was around EUR 200. (c) In survey data the borrower's total debt does not necessarily include debt with all lenders. Some banks only reported debt owed to them, while others only reported the amount of new loan. (d) It has previously been found that survey data is not always reliable, and can vary from bank to bank, and from year to year. (e) Not all data comes from the same data source. The data for housing loans and for consumer loans for the final quarter of 2019 is taken from the regular BSMAP reporting, while the data for consumer loans for the first three quarters of 2019 is from surveys.

<sup>38</sup> In cases where there are multiple borrowers (data for the final quarter of 2019 and subsequently), the assumption is that income declines equally for all borrowers.

<sup>39</sup> For the purposes of the Regulation on macroprudential restrictions on household lending, DSTI is calculated by incorporating the income received over the preceding 12 months. This means that even if income instantaneously falls to zero, the DSTI would decline only gradually. Deviations in DSTI are calculated under the assumption that income instantaneously falls for the entire period of 12 months. Analysis of this type is reasonable, as without the data for income, the data for DSTI alone says nothing about the borrower's burden.

<sup>40</sup> The amount of cash benefit received in each of the first three months is 80% of the average monthly wage received by the claimant in the eight months preceding unemployment (or in five months for claimants aged under 30), 60% for the next nine months, and 50% after a year. The cash benefit may be no lower than EUR 530.19 and no higher than EUR 892.50 gross. The amount of time that the benefit is received depends on the claimant's age and years of service before losing employment. For more, see (in Slovene) [https://www.ess.gov.si/iskalci\\_zaposlitve/denarno\\_nadomestilo](https://www.ess.gov.si/iskalci_zaposlitve/denarno_nadomestilo).

## 4 IMPACT ON THE BANKING SYSTEM FROM MEASURES TO ALLEVIATE THE CONSEQUENCES OF THE EPIDEMIC

The government, Bank of Slovenia and the ECB responded very quickly to the immediate economic consequences of the epidemic with a wide range of measures, which are illustrated in Appendix 1.<sup>41</sup>

The borrowers' moratorium measure could have a favourable impact in reducing credit risk at banks, but only while it is in place. During this period the liquidity pressure at firms could be reduced, but the payments deferred under the moratorium will not automatically be reclassified as forborne. Instead this will be left to individual assessment on a case-by-case basis. At the same time the banks will define default using days past due on the basis of changes to the deferral of payments, which will affect the definition of non-performing exposures. Given the limited time that they are in place, there is a risk that the measures will only have a strong impact over a horizon of one year, while afterwards the banks will be facing a major deterioration in portfolio quality unless additional measures are taken. Corporate liquidity loans are also expected to have a positive impact. They will be approved with a government guarantee. The measure will make it easier for numerous firms where a shutdown or contraction in operations has caused a loss of liquidity to bridge the period until the situation normalises. Because the law allows guarantees on loans with a maturity of up to five years, this measure will significantly increase the capacity for firms to survive during this period.

To help ensure sufficient liquidity in the system, the ECB has allowed banks to temporarily reduce the LCR to below 100%, which is explicitly permitted in contingencies by the CRR. This will help banks with smaller liquidity surpluses in their liquidity management and their ability to cover outflows. The LCR in the Slovenian banking system stood at 288% in March, which entails a liquidity surplus of EUR 6.9 billion over the regulatory requirement (of 100%).

Bank of Slovenia introduced a temporary restriction on profit distributions by banks with the aim of increasing the banking system's resilience to financial shocks, maintaining financial stability, and preventing disruptions to the financial system. The banking system's regulatory capital will therefore increase by EUR 523 million thanks to the retention of the profit generated last year in its entirety,<sup>42</sup> which is forecast to increase the total capital ratio on an individual basis by 2.3 percentage points to 22.4%. The ECB SSM measures, which encompass the relaxation of the P2G requirement and the relaxation of eligibility criteria for covering Pillar 2 requirements (Pillar 2 relief) allow banks to free up capital, which amounts to EUR 1.6 billion across the Slovenian banking system.<sup>43</sup>

**The banks will be able to use this capital to cover losses from increased risks, although one of the key objectives of these measures is ensuring adequate liquidity and new bank lending to the worst-hit businesses and households.** Understanding the loan capacity (»room to manoeuvre«) of the Slovenian banking system is becoming paramount, especially in realisation to various macroeconomic shocks and taking into account the mitigation measures put in place at the level of the government (government guarantees, SID banka bonds), Bank of Slovenia (restrictions on profit distributions), and the Single Supervisory Mechanism as well as Bank of Slovenia (capital relief).

**Credit capacity as understood in this material is merely the theoretical capacity of the banking system to supply loans to businesses and households with regard to its current capital position, and with regard to the impact of various exogenous factors.** It is therefore the maximum loan supply that still ensures a solvent and stable banking system. The capacity estimate is not directly related to the loan growth predictions, but merely entails the hypothetical maximum that is available when the current (static) position is taken into account, ignoring the fact that banks and their customers will continue to adjust their behaviour to the changing economic situation (new or increased risks, the liquidity position, demand for loans, etc.).<sup>44</sup>

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<sup>41</sup> Measures put in place by 30 April 2020 are illustrated.

<sup>42</sup> Taking account of the profit after tax in 2019 on an individual basis for all banks other than the branches, which does not capture subsequent revisions by one bank. Here it should be reiterated that the increase of EUR 523 million in regulatory capital relies on all the banks opting to include their entire profit in regulatory capital.

<sup>43</sup> The estimate takes account the relaxation of the P2G requirement and the P2R, while the CCoB is still binding (the supervisor is lenient in dealing with non-compliance) and is not taken into account in the estimated capital surplus from the SSM measures.

<sup>44</sup> For more information on the behaviour of banks (as envisaged by the banks themselves in the BLS) see Section 2.2.

**The methodology is based on reverse stress tests, using a top-down modelling approach, which estimates the banking system's loan capacity on the basis of a target capital ratio and the deterioration in the quality of the loan portfolio.<sup>45</sup>**

In the analysis one of the calculations is focused on the effect of specific measures adopted to alleviate the impact of the crisis on businesses and households. The impact is assessed via changes in the banking system's loan capacity. The measures include the state guarantees for covering firms' liquidity needs, the macroprudential measure on the restrictions on profit distributions by banks, and the package of supervisory measures related to relief of capital requirements.<sup>46</sup> The scenario does not take into account the macroeconomic shock (compared to the two scenarios presented in the footnote), but focuses solely on estimating the effect of the measures on the banking system's loan capacity.<sup>47</sup>

The increase in loan capacity is introduced via three channels: (i) changes to the target capital ratio or capital requirements, (ii) changes to the capital position (inclusion of retained earnings or losses), and (iii) changes to the effective risk weights (as a result of changes in the investment policy for increased loan capacity and/or the effect of types of guarantees).

- i) The **effect of the reduction in the capital ratio** is primarily recognised in the simulations as an increase in the risk exposure amount, which results in an increase in the loan capacity when the relevant risk weights are taken into account. The risk weights are calculated for end-2019 data for the segments of non-financial corporations and households. The simulation assumes that the excess loan capacity is primarily (75%) earmarked for servicing non-financial corporations, which is reflected in the use of slightly higher risk weights than if the loan capacity had been allocated to the households segment to a greater extent.
- ii) The **effect of retained earnings** or the loss effect<sup>48</sup> is recognised directly as an increase or decrease in regulatory capital. Consequently the actual change in capital has a direct impact on the loan capacity via changes in risk exposure amount (keeping the capital ratio at target levels).
- iii) The **effect of guarantees** on the loan capacity is recognised through the effective reduction of risk weights in the case if the collateral is in the form of a Slovenian government guarantees or SID banka bonds.

**The simulations confirm that the total impact of the mitigation measures is large, as evidenced in an increased loan capacity that significantly exceeds the requirements (demand), even in the case of severe stress realisation.** The effects of the (alleviation measure) scenario are presented below for each measure individually and jointly for the overall effect, which is not directly a sum of the individual parts.

- The **effect of government guarantees** releases between EUR 180 million (in the case of SID banka bonds) and EUR 260 million (in the case of Slovenian government guarantees) of capital in the case of unchanged capital ratio and a static balance sheet, which is consequently reflected in additional loan capacity in the amount of EUR 1.3 billion and **EUR 1.9 billion** respectively.

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<sup>45</sup> The calculations are based on data from banks and savings banks on an individual basis as on 31 December 2019. The approach used in the calculation leverages on a static balance sheet and income statement assumption, with the exception of an increase in impairments and provisions. The time horizon is up to the end of 2020. The calculations include only the effect of the deterioration in the quality of the loan portfolio via the estimated increase in impairments and provisions, as presented in Section 2. Other components of the banks' earnings remain the same as the values at the end of 2019.

<sup>46</sup> The effect is simulated on the full package of capital relief (P2G and P2R), i.e. a decline in the capital ratio to 13.0%, and on taking into account of a more realistic decline in the capital ratio to 15.0%.

<sup>47</sup> Two other scenarios were analysed in addition to the described scenario (these scenarios cannot be equated to the scenarios for analysing credit risk cited in the other sections), which also result in sufficient and excess loan capacity. The first envisages a decline in GDP in line with the milder scenario, and thus a deterioration in the quality of the loan portfolio that is reflected in additional impairments and provisions in the amount of just under EUR 0.6 billion. The target capital ratio declines to 18.0%, which still ensures high enough capital adequacy of the banking system, despite the assumed increase in supervisory capital requirements (compared with 2019). The second scenario envisages a decline in GDP in line with the more severe scenario, and thus a deterioration in the quality of the loan portfolio that is reflected in additional impairments and provisions in the amount of approximately EUR 0.9 billion (or EUR 1.1 billion if more severe credit risk parameters are taken into account). The target capital ratio declines to 15.0%, which even in the severe stress situation ensures the adequate capitalisation of the banking system and exceeds the current supervisory capital requirements, while taking account an additional voluntary buffer of 1 percentage point.

<sup>48</sup> If the increase in impairments and provisions exceeds other components of the income statement.

- The **effect of retained earnings** in the amount of 100% of the end-2019 profit increases the capital strength of the banking system by more than EUR 0.5 billion,<sup>49</sup> which is reflected in additional loan capacity in the amount of **EUR 3.9 billion**.
- The **largest effect comes from capital relief**: given the full release of the capital surplus over the capital requirements, taking into account the relaxation of the eligibility criteria for instruments for covering the Pillar 2 requirements (Pillar 2 relief) and full exemption from the Pillar 2 guidance,<sup>50</sup> the capital ratio would decline to 13.0%, which would allow for an extreme increase in the balance sheet total.<sup>51</sup> Such a reduction cannot realistically be expected, as it is necessary to retain adequate capital strength even in contingencies, in particular to provide for a realistic mechanism for resuming business as usual. Furthermore, the banks are afraid of the stigma that might accompany such a decline in capital. **At the same time the need for liquidity and new lending for servicing businesses and households is already covered at significantly smaller levels of relief in capital requirements.** Therefore it is not expected that the banks would use such a large reduction in the capital ratio from capital relief. In case the capital ratio falls to the level of the capital requirements from 2019 with an additional voluntary buffer of 1 percentage point, the new loan capacity equals **EUR 11.3 billion**, while the capital relief amounts to EUR 1.2 billion.

The **total (cumulative) effect of all measures** in the case of a reduction in the capital ratio to 15.0% would thus result in **EUR 18.4 billion** of new loan capacity (equivalent to 47% of the balance sheet total) or in released capital in the amount of EUR 1.9 billion.

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<sup>49</sup> The value represents the net income of 15 banks and savings banks (gross income minus impairments for 2019), where the credit risk effect is revised for each scenario separately. In the illustrated scenario (alleviation measures) the effect of the increase in credit risk is set to zero.

<sup>50</sup> The full package of measures introduced by the Single Supervisory Mechanism envisages the potential relaxation of the P2G requirements and the relaxation of eligibility criteria for covering the P2R requirements, while the capital conservation buffer (CCoB) remains binding (the only relaxation is imposed on the supervisors' measures in dealing with the non-compliance of the requirements). In contrast to the previous calculations of the non-performing exposures coverage (by the capital surplus for the purposes of estimating the credit capacity), the effects of relaxation of the CCoB is not decisive, as the banks would not use non-compliance with the CCoB for the purpose of releasing additional lending. Furthermore, it is also in national macroprudential supervisors' power to reduce the CCyB, which in the case of Slovenia is already set at zero.

<sup>51</sup> The new loan capacity derived from the full capital relief amounts to EUR 18.2 billion. Taking all measures into account (guarantees, restrictions on profit distributions, capital relief), the new capacity radically increases the balance sheet total, as the loan capacity amounts to EUR 26.1 billion.

## 5 APPENDICES

### APPENDIX 1: Measures put in place that have a direct impact on the banking system

The measures put in place to date (by 30 April 2020) that have a direct impact on the banking system include the following:

1. National Assembly:
  - Emergency Deferral of Borrowers' Liabilities Act (ZIUOPOK); Act Determining Emergency Measures to Contain the Covid-19 Epidemic and Mitigate its Consequences for Citizens and the Economy (ZIUZEOP); Moratorium on borrowers' liabilities (Article 65, guarantee);
  - Act on Additional Liquidity to the Economy to Mitigate the Effects of the Covid-19 Epidemic (ZDLGPE).
2. Banka Slovenije:
  - Regulation on the deferral and termination of reporting requirements for banks, savings banks, branches of Member State banks, payment institutions, electronic money institutions, currency exchange operators and other obliged entities;
  - Regulation on the macroprudential restriction on profit distribution by banks;
  - Regulation setting selling prices of collector coins.
3. ECB:
  - additional net asset purchases (additional envelope of EUR 120 billion approved within the framework of the APP) and introduction of the temporary pandemic emergency purchase programme (PEPP) with an envelope of EUR 750 billion;
  - introduction of additional bridging longer-term refinancing operations (LTROs) at favourable interest rates, and additional pandemic emergency longer-term refinancing operations (PELTROs), which will not be contingent on bank lending activity;
  - easing of conditions for targeted longer-term refinancing operations (TLTRO III), such as a cut in the interest rate, a higher borrowing allowance, and the removal of the 10% limit for the amount of funds that can be borrowed in each operation;
  - a comprehensive set of collateral easing measures, which will increase the collateral available to banks to allow them to obtain more funding from the Eurosystem;
  - a temporary reduction in the LCR to below 100%, which is explicitly permitted in contingencies by the CRR;
  - the role as a lender of last resort to solvent banks: offering banks liquidity over longer horizons at the (negative) rate of the deposit facility, without any conditions attached;
  - the temporary operation of banks below the level of capital defined by the Pillar 2 guidance (P2G), the countercyclical capital buffer (CCyB) and the liquidity coverage ratio (LCR). The ECB feels that these temporary measures will be strengthened by the appropriate release of the CCyB by national macroprudential authorities;
  - banks will also be able to partly use capital instruments not classed as common equity Tier 1 capital, such as additional Tier 1 instruments and Tier 2 instruments to meet the Pillar 2 requirements;
  - the guidance with regard to the treatment of IFRS 9 during the Covid-19 pandemic.
4. EBA:
  - Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis.

## APPENDIX 2: International comparison

Figure P2.1: Ratio of impairment and provisioning costs to total assets across EU28, 2018

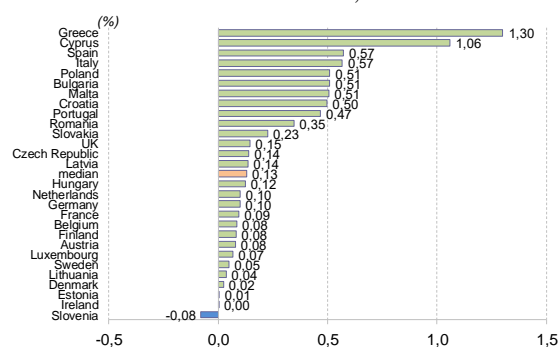
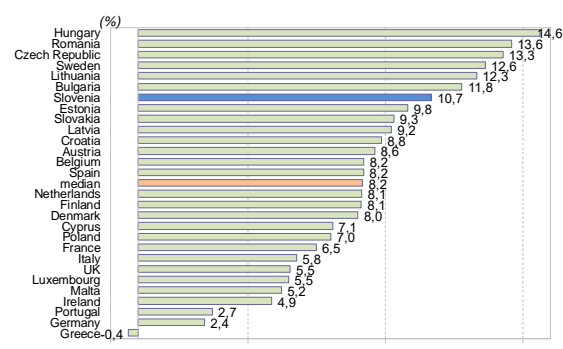


Figure P2.2: ROE across EU28, 2018

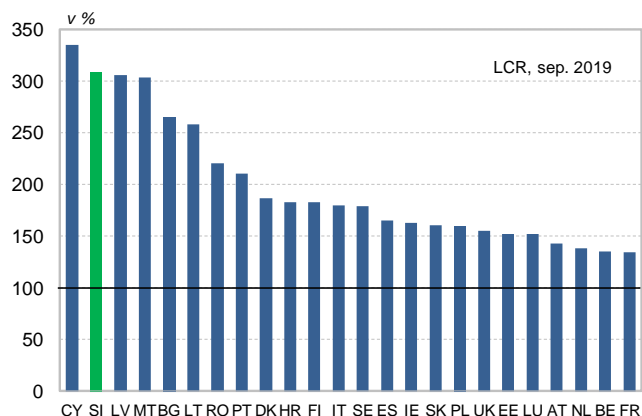


Note 1: The Slovenian banking system was an exception among the EU28 in recording a net release of impairments and provisions in 2018, while its ROE was also above-average. ROE in the Slovenian banking system stood at 10.7% in 2018 (according to the ECB's consolidated banking data), and exceeded the EU28 median of 8.2%, and also the euro area average (5.7%) and the EU28 average (5.9%).

Note 2: Negative values represent the net release of impairments and provisions (left figure). ROE after tax, consolidated banking data (right figure).

Sources: ECB, SDW (CBD); the data for 2019 is expected to be available in the second half of June 2020

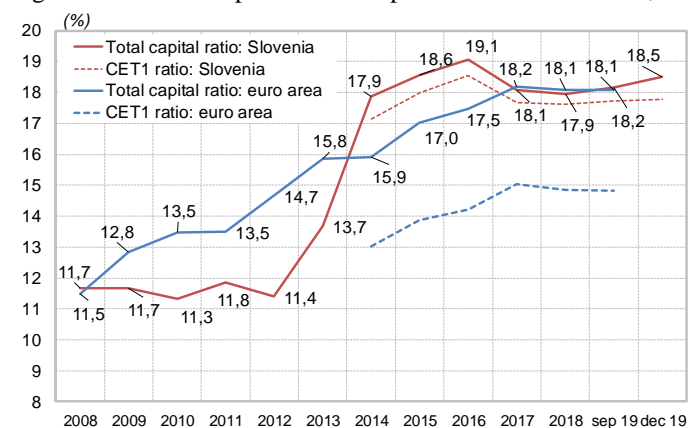
Figure P2.3: Comparison of liquidity coverage ratio on a consolidated basis across EU Member States, last available figure (September 2019)



Note: The black line denotes the minimum regulatory requirements (an LCR of 100%).

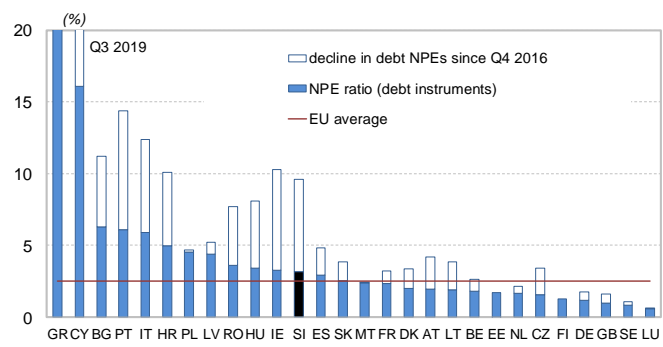
Source: ECB (SDW)

Figure P2.4: Total capital ratio compared with the euro area, consolidated basis



Source: ECB (SDW)

Figure P2.5: NPE ratios for debt instruments across EU Member States



Source: ECB (SDW)

### APPENDIX 3: Simulation of the impact of the outbreak of Covid-19 on bank liquidity

**Scenarios:** Alongside the macroeconomic scenarios in question, this simulation also assumes that the prices of securities (bonds and shares) held by banks as liquid assets are not affected by subsequent pressures, other than those already evident by the end of March 2020. The following assumptions cover the relevant transmission channels, namely loans and deposits by the non-banking sector, via which the crisis is transmitted to bank liquidity. First, as a result of the decline in value-added, non-financial corporations will not be able to repay their loans in full, and therefore will most likely make use of the moratorium measure. Second, if the decline in value-added is greater than the amount of loan payments deferred under the moratorium, non-financial corporations will reduce their assets held in bank deposits. Third, the decline in household income<sup>52</sup> is reflected (in line with the assumption) in a decline in bank deposits and in loan moratoria or default.

**Transmission via loans to non-financial corporations:** The projected cash inflow from lending to non-financial corporations in 2020 (based on balance sheet data as at 31 December 2019) is EUR 2,981 million. Taking account of the decline in value-added envisaged under each scenario, it is assumed that 27% and 49% of these liabilities will be deferred until after December 2020 under the first and second scenarios, respectively. The deferred repayment of loans to non-financial corporations will thus amount to EUR 805 million under the first scenario and EUR 1,461 million under the second scenario. It is estimated that the decline in cashflow caused by the increase in non-performing loans in the non-financial corporations segment (absent a moratorium measure) would be EUR 119 million under the first scenario and EUR 194 million under the second scenario.

**Transmission via deposits by non-financial corporations:** Under the macroeconomic scenarios in question, the projected decline in value-added amounts to EUR 2,400 million under the first scenario and EUR 6,400 million under the second scenario. It is assumed that, in order to cope with their liquidity needs, non-financial corporations will withdraw from their deposits the difference between the decline in value-added and the non-repaid (because of non-performing status) or deferred amount of loans. However, the sole outflows from the banking system will be the funds used to pay for imported goods.<sup>53</sup> This means that in the absence of a loan moratorium, deposits by non-financial corporations are projected to decline by EUR 655 million under the first scenario and EUR 1,803 million under the second scenario. With a loan moratorium, deposits by non-financial corporations would decline by EUR 458 million under the first scenario and EUR 1,417 million under the second scenario.

**Transmission via household loans and deposits:** The projected cash inflow from lending to households in 2020 (based on balance sheet data as of 31 December 2019) is EUR 1,242 million. It is estimated that the decline in cashflow caused by the increase in non-performing loans in the households segment (absent a moratorium measure) would be EUR 25 million under the first scenario and EUR 41 million under the second scenario. With a loan moratorium, it is assumed that the amount of household loan repayments deferred would correspond to the decline in household income.

Under the macroeconomic scenarios in question, the decline in total annual wage payments (with regard to the projected decline in employment in 2020) is estimated at EUR 350 million under the first scenario and EUR 900 million under the second scenario. However, in order to take into account social security schemes, it is assumed that the decline in household income would amount to just 30% of the above sum, i.e. EUR 105 million under the first scenario and EUR 270 million under the second scenario. Moreover, it is assumed that 50% of the aforementioned sums will be withdrawn from household deposits, while the remaining 50% will translate into deferred loans if a loan moratorium measure is adopted. If a loan moratorium measure is not adopted, the difference between the projected decline in household income and the amount of non-repaid households' loan liabilities (because of non-performing status) will be withdrawn from household deposits. In addition, out of the funds withdrawn from deposits, only the part spent on imported consumer goods and services will actually leave the banking system.<sup>54</sup> The estimated decline in bank cashflows from all of the cases discussed above is illustrated in the following table.

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<sup>52</sup> The decline in household income can be estimated by assuming a fixed average wage from 2019, taking account of the estimated fall in employment.

<sup>53</sup> Imported goods account for approximately 28.7% of production factors.

<sup>54</sup> Imported consumer goods and services account for approximately 21.8% of total consumer goods and services.

Table P4.1: Simulation of decline in banks' net cashflows in 2020 under various transmission channels

		Loans to NFCs: <sup>(*)</sup> deferred loans or non-performing loans, EUR million	Withdrawals from deposits by NFCs, EUR million	Household loans: <sup>(*)</sup> deferred loans or non- performing loans, EUR million	Withdrawals from household deposits, EUR million
Milder scenario	No moratorium	119	655	25	27.5
	With moratorium	805	458	52.5	11.5
More severe scenario	No moratorium	194	1,803	41	50
	With moratorium	1,461	1,417	135	29.4

\* The assessment is that some loans will become non-performing if no loan moratorium measure is adopted.

Source: Banka Slovenije estimates

## APPENDIX 4: PD model for non-financial corporations

This simplified analysis includes estimates for the exposure-weighted probability of default (PD) for the segment of Slovenian non-financial corporations. Given the great uncertainty in the contingency situation, the 75<sup>th</sup> percentile distribution of estimates from the BACE (Bayesian averaging of classical estimates) time series model is used. With regard to testing of the Covid-19 shock, given the unavailability of all of the variables used in the PD model, the parameters used are from the adverse scenario of the bottom-up stress tests (EBA STs<sup>55</sup>), while the main GDP growth variable is also modified on the basis of three scenarios:

- scenario 1: GDP decline of 6%;
- scenario 2: GDP decline of 16%;
- scenario 3: GDP decline of 16% with use of a more conservative 90<sup>th</sup> percentile distribution of the forecast.

It should be noted that the scenarios do not include the effects of the emergency laws or moratoria.

**Scenario 1:** Under this scenario, the default rate (PD) would increase from its current level of close to 1% to around 4% in 2020, and just over 6% in 2021. The forecasts using the 90<sup>th</sup> percentile of the distribution of the forecast are similar to those using the 75<sup>th</sup> percentile.

**Scenario 2:** The default rate (PD) would increase from its current level of close to 1% to around 7% in 2020, and 9% in 2021. Under this scenario, the most adverse, estimates of PD using the 90<sup>th</sup> percentile from the distribution of the forecast are also calculated, given the greater uncertainty and the increased correlation and non-linearity in stressed periods.

**Scenario 3:** When the 90<sup>th</sup> percentile is used, the estimates of PD would increase to approximately 8% in 2020 and 11% in 2021.

The analysis is based on historical data. The potential Covid-19 recession could have completely different transmission channels, severity and dynamics, since it is quite different in terms of origin. The previous recession was a double-dip (W shape), and therefore the default rate increased for several years. A possible recession could affect completely different economic sectors than were affected in the great financial crisis, and therefore PD could increase for completely different non-financial corporations than it did during the previous economic crisis. The structure of the economy is quite different today, the banks' capital adequacy is higher, and the new IFRS 9 accounting standard is effective, which fundamentally changes the dynamics of the creation of impairments.

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<sup>55</sup> <https://eba.europa.eu/eba-launches-2020-eu-wide-stress-test-exercise>

## **APPENDIX 5: Simulation of the increase in the NPE ratio while using the capital surplus in the banking system**

As estimate was made of the NPE ratio that the banking system could withstand if it used all of the capital surplus to cover the increase in NPEs. The capital surplus amounted to approximately EUR 2.1 billion in December 2019, calculated as the difference between existing regulatory capital and the amount of capital required for the banking system to maintain a total capital ratio at the level of the SREP requirement, while using the CCyB and the P2G. This surplus also includes last year's profit after tax in the amount of EUR 0.5 billion. The capital surplus will be available to the banks in the following months to cover losses from various sources, and changes to the risk-weighted exposure amount. The analysis assumes that the capital surplus is available exclusively for covering the increase in NPEs, excluding other effects from non-credit risks and impairment costs, which under IFRS 9 could be material.

The simulation of NPEs is based on the data and results of last year's internal simulations, which took account of initial data from 31 December 2018. In interpreting the results it should be borne in mind that the portfolio in which the simulations were made relates solely to exposures measured at amortised cost. Deposits at central banks are also excluded, while off-balance-sheet exposures are multiplied by conversion factors. The exposure amount included in the calculation of impairments in this simulation initially stood at approximately EUR 31.5 billion as at 31 December 2018, while classified claims amounted to approximately EUR 37.5 billion and total exposure amounted to approximately EUR 43.0 billion. According to the exposure definition used in publications, the NPE ratio almost halved from 4.0% as at 31 December 2018 to 2.2% as at 31 December 2019. According to the portfolio definition in this analysis, the NPE ratio stood at 4.4% as at 31 December 2018. Given the aforementioned differences, in the analysis the conversion of the NPE ratio from the definition used in the analysis as at 31 December 2018 to the definition of exposure as at 31 December 2019 used certain assumptions and simplifications.<sup>56</sup>

Given the constraints and simplifications described in this appendix, the results of the analysis cannot be interpreted as forecasts or precise effects. A comprehensive analysis that takes account of impairment costs would demand highly complex analysis, which could not be carried out when this analysis was conducted, given the unavailability of macroeconomic scenarios for more than one year and because of time constraints. The analysis can nevertheless be of considerable assistance in understanding credit risk transmission channels, and as sensitivity analysis.

The analysis therefore assumed that no increase in impairments is derived from exposures to performing customers, and estimated how much the NPE ratio could increase if the banks allocated all capital surplus and profits exclusively to the transition from performing to non-performing exposures. This estimate is therefore a sort of reverse stress test, and not a forecast based on the envisaged scenarios. It is estimated that the banking system could absorb an NPE ratio of 13% to 18% at the level of the total portfolio (14% to 19% of the portfolio of classified claims). The estimate is given in a range, depending on how conservative the estimate of the parameter of loss given default (LGD) is.<sup>57</sup>

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<sup>56</sup> The assumption is that the total inflow of new defaulters occurs solely in the analysed portfolio, while in the remainder of the portfolio (the low-default portfolio or LDP), the optimistic assumption is that there will be no new defaulters. Although the LDP cannot be expected to see an increase in defaulters and impairments such as in the analysed portfolio, a portfolio deterioration can nevertheless be expected in the other segments. It is then assumed that the same inflow of new defaulters as seen under the analysis based on last year's data and sensitivities would also occur in the portfolio structure and on the basis of the data as at 31 December 2019.

<sup>57</sup> The estimate of LGD is made very challenging by data unavailability. The estimate of LGD is made on the basis of the Banka Slovenije guidelines for the calculation of default rate and loss rate. Owing to data unavailability, the unavailability of the adverse scenario for collateral revaluations, and the great uncertainty, a conservative estimate of LGD is also given on the basis of weighting between the estimate made on the basis of the guidelines and the coverage ratios of non-performing exposures. For non-performing exposures LGD can be estimated from ratio of coverage of non-performing exposures by impairments. These coverage ratios are generally quite high, as LGD rises with time since default, and due to partial repayments, which raise LGD on the remainder of outstanding exposure.

Table P5.1: Simulation of NPEs under which the banking system uses all capital surpluses and profit without taking account of other effects

Portfolio definition	LGD_cons		LGD	
	Classified claims	Total exposure	Classified claims	Total exposure
NPE ratio	14%	13%	19%	18%

Notes: The LGD parameter is estimated on the basis of the Banka Slovenije guidelines for the calculation of default rate and loss rate. The more conservative LGD estimate is obtained by weighting the previous LGD with the more conservative estimate of LGD on the basis of coverage ratios for non-performing exposures, where a higher weight is assigned to the more conservative estimate. The estimates are derived from data for 31 December 2018. The estimates are based solely on the increase in NPEs that can be withstood using the capital surplus, and do not take account of the effects of other risks, or impairment costs, which can have a material impact, particular in the initial years.

Source: Banka Slovenije estimates

The upper estimate of the withstandable increase in NPEs only applies if impairment costs for performing exposures are not taken into account. Under IFRS 9 the projected deterioration in the economy will be reflected in an increase in impairments for performing exposures, and in transitions from performing to non-performing exposures. In the event of a sudden significant downgrading of the economic forecasts, the recalibration of the credit risk parameters could lead to a sudden significant increase in impairments and provisions for credit risk. These impairments and provisions will be based on: (a) re-estimation of the credit parameters to include the latest macroeconomic forecasts, and (b) the transfer of financial assets from stage 1, for which 12-month expected credit losses are created, to stage 2, for which lifetime expected credit losses are created. Due to the use of IFRS 9 methodology, performing exposures are strongly impaired in the event of a sudden downgrading of the macroeconomic forecasts (frontloading).

Because impairment costs for performing exposures in the first years could sharply reduce the available capital surplus for the increase in NPEs, and thus the banks' capacity to absorb NPEs. It should be noted that the above figures would be significantly worse over the short term in particular, for example in the first year or the second year. The largest increase in allowances for performing exposures under IFRS 9 is expected in the first years, as a result of the sudden and significant deterioration in macroeconomic forecasts. The size of the requisite impairment costs is highly dependent on the severity and dynamics in the evolution of macroeconomic parameters. Additional material adverse effects could therefore come from other non-credit risks and from impairment costs for performing exposures, which are not taken into account in this analysis. In light of the above, the capacity to absorb NPEs could be significantly lower in the first years in particular, when impairment costs for performing exposures are expected to be highest.

It should be noted once again that the calculations are made at the level of the banking system. Individual banks with lower capital adequacy and higher-risk portfolios will not be able to withstand increases in NPEs of this type.

## **APPENDIX 6: Additional assumptions for the calculation of impairment and provisioning costs**

The following limitations relating to the simplified calculation of impairment and provisioning costs in Section 2.2 were not defined in the aforementioned section, or can be defined in greater detail here:

*1. The first channel of uncertainty in the estimates derives from the historical series and the use of last year's simulations*, which most likely do not reflect the potential escalation of the current situation. The situation with regard to the impact of the coronavirus is still highly uncertain. The dynamics and severity of the realised effects could be significantly different to those applying to the scenario used. The current historical series based on which specific forecasts are drawn up contain information about the great financial crisis, whose origins were completely different. A potential recession could hit completely different economic sectors, and therefore the transmission channels will be different. The structure of the economy is quite different today, the banks' capital adequacy is higher, and the new IFRS 9 accounting standard is effective, which fundamentally changes the dynamics of the creation of impairments.

*2. The second channel of uncertainty is data availability*. The simplifications in last year's simulations were required for the estimation of LGD parameters for all segments, the PD parameter for the households segment, and the credit risk parameters under IFRS 9, which is effective as of 1 January 2018. Accordingly there is no data available for a longer time horizon. The estimate of LGD is based on the Banka Slovenije guidelines for the calculation of default rate and loss rate. The banks' own estimates may be more or less conservative.

*3. The third area of uncertainty derives from the complexity and flexibility of IFRS 9*. Major uncertainty comes from the way in which the scenarios and their application to the weighting of ECLs have been defined, and from transitions of exposures from stage 1 to stage 2, where banks are allowed a considerable degree of flexibility and heterogeneity.

*4. The analysis does not take account of the effects of the emergency laws, the EBA guidelines or the ECB guidance*, under which the adverse impact would be smaller. There is a great risk that these measures will only have a strong impact in the first year, followed by them easing off in the second year.

*5. The estimate is derived from the adjustments of last year's internal estimates of impairment costs for the portfolio measured at amortised cost to the new macroeconomic scenarios*. The portfolio measured at fair value through other comprehensive income, which would also accrue impairment costs, is not covered by this analysis. The majority of impairment costs typically come from the portfolio measured at amortised cost.

*6. Because of time constraints, the adjustments in this analysis are very simply based on a comparison of estimates of PD for non-financial corporations from Appendix 4 (taking account of the scenarios) and estimates of PD used in last year's analysis on the basis of the test scenarios on that occasion*. A linear shift in impairment costs incurred on performing exposures and from transitions from performing to non-performing exposures was made on the basis of the comparison. The transitions from stage 1 to stage 2 are thus only partly taken into account, relative to the results and assumptions of last year's simulations. It should be noted that in harsher economic circumstances the non-linearity could be even greater, and transitions from stage 1 to stage 2 more intensive. There is therefore a risk that the realisation of impairment costs will be even more unfavourable.