FINANCIAL STABILITY REPORT

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DEC. 2020

The data underlying the charts presented in this Report can be found at the Banco de Portugal website, with some exceptions for private sources data (only in Portuguese).

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Content

CONTEXT DEC. 2020

Strong contraction in economic activity and uncertainty over the duration of the pandemic crisis

Low interest rates for a longer period

Enterprises | Households | General government | Banking system

PRE-PANDEMIC CRISIS ADJUSTMENT

- Saving (% of GDP)
  4.5 2008 ↗ **9.9** 2019
- Equity (% of assets)
  31 Jun. 2009 ↗ **39** Dec. 2019
- Financial debt (% of GDP)
  120 Dec. 2012 ↘ **86** Dec. 2019

- Financial debt (% of disposable income)
  128 Sep. 2009 ↘ **93** Dec. 2019

- Maastricht debt (% of GDP)
  135 Mar. 2014 ↘ **117** Dec. 2019
- Primary balance (% of GDP)
  -8.5 2010 ↗ **3.1** 2019

- Total capital ratio (%)
  9.4 Dec. 2008 ↗ **16.9** Dec. 2019
- Loan-to-deposit ratio (%)
  153 Dec. 2008 ↘ **87** Dec. 2019
- Non-performing loans ratio (%)
  17.9 Jun. 2016 ↘ **6.2** Dec. 2019

THE IMPACT OF THE PANDEMIC

- Work stoppage
- Decrease in revenue
- Mixed impact across sectors

- Increase in unemployment

- Deterioration in the budget balance
- New public policies

- Increase in credit impairments
- Reduction in profitability

THE AUTHORITIES' RESPONSE

- Ensure liquidity
- Preserve productive capacity

- Mitigate income loss
- Preserve jobs

- Coordinate European policies
- Maintain net lending capacity

- Accommodative monetary policy
- Create loss-absorbing capacity

VULNERABILITIES AND RISKS

- High indebtedness
- Deterioration in financing conditions
- Reduction in debt servicing capacity

- Devaluation of public debt exposures
- Reduction in value of real estate collateral
- Increase in credit deliquency
- Pressure on profitability
- Incomplete Banking Union
- Money laundering/Terrorist financing

- Inadequacy of monetary and fiscal stimuli to the various moments of the pandemic crisis
- Cyber risk associated with the digitalisation of the economy and the financial system

POLICY DECISIONS

- Capitalisation of enterprises to promote their resilience
- Banks should use capital to absorb losses and finance the economy
- Monitoring by banks of credit quality for timely recognition of losses
- Prevention of risks associated with digitalisation, cyber risk and money laundering and terrorist financing
- Temporary fiscal policy measures and resumption of the public sector fiscal consolidation process

MACROPRUDENTIAL POLICY

- Replenishment of the combined buffer requirement and the guidance on additional own funds not before 2022
- The institutions identified as O-SII and the calibration of their capital buffers remain unchanged
- The Banco de Portugal revised the analytical framework of the countercyclical capital buffer. The reserve amount remained at 0% of the total risk exposure amount in the 4th quarter of 2020
- The EBA published guidelines on the subsets of exposures in the application of a systemic risk buffer

Executive summary

The COVID-19 pandemic has continued to weigh on economic activity over recent months, and uncertainty prevails about its intensity and evolution. The multiple impacts of the pandemic crisis pose major challenges to financial stability, over several time horizons.

Until 2019, the Portuguese economy had undergone a period of adjustment and convergence with Europe, which was translated, *inter alia*, into a strong decrease in corporate and household indebtedness, to values close to the euro area average. The gradual improvement in the budget balance made it possible to reach a surplus in 2019, underpinned by a primary balance of 3.1% of GDP, thereby sustaining the downward trend of government debt as a percentage of GDP which began in 2017.

At the same time, the banking sector has made progress on several fronts over recent years:

- A structural liquidity adjustment, by means of a significant increase in the importance of customer deposits to the detriment of market instruments, reducing the system's vulnerability to changes in the perception of risk by international investors, and an increase in exposures to highly liquid assets, most notably public debt;
- A reduction in operational costs, stemming from restructuring programmes;
- An improvement in the quality of credit portfolios, related to a reduction in gross and net NPL ratios since June 2016;
- A gradual recovery in profitability, benefiting not only from the favourable economic and financial environment prior to the onset of the pandemic, but also from the reduction in operating costs and NPLs;
- A significant boost to capital ratios, with solvency, as measured by the total capital ratio, increasing by 7.4 percentage points (p.p.) since end-2008 to 16.9% at end-2019, and the ratio of equity to assets rising by 3.8 p.p. to 9.3%. Moreover, the definition of own funds has become more stringent.

The pandemic has constrained economic activity and has led to the closing of borders as well to restrictions to free movement. As a result, demand and supply have plummeted, with repercussions for the financial situation of economic agents.

The rigidity of firms' cost structures has led to increased, unexpected and temporary financing needs. The measures adopted by the authorities have mitigated the impact on household incomes and firms' liquidity. Governments have borne some of the costs, not only those associated with the health emergency and automatic stabilisers, but also those which, in the short term, would be incumbent upon firms and households. The main purpose has been to mitigate and dilute those costs over time. In the face of a shock assumed to be temporary, policy decisions have been geared towards preserving pre-existing structures and economic relations, particularly employment agreements which may contribute to a swifter post-pandemic economic recovery.

Monetary policy, prudential and supervisory measures have sought to mitigate the effects of the pandemic on the banking sector and to thereby safeguard credit supply, at a time when credit plays a key role in easing the impact of the pandemic. The response to the pandemic is therefore associated with increased indebtedness.

The impact of the pandemic on economic activity varies not only across sectors but also across countries, due to differences in the relative importance of the most affected sectors of activity.

The European initiatives aimed at responding to the crisis and supporting economic recovery have made it possible for various countries to establish similar conditions against a distinct pre-pandemic background in terms of public and private indebtedness. The effectiveness of these

support measures' execution will allow countries to calibrate measures to promote aligned paths to economic recovery that dissipate scenarios of economic and financial fragmentation.

The main vulnerabilities and risks to financial stability are:

- Sudden and substantial falls in the value of financial assets due to potential episodes of extreme volatility in the financial markets. In this recent period, in view of monetary and fiscal stimuli, appreciation of a number of financial assets has been observed while global economic activity has contracted, pointing to some potential for correction.
- Downward correction of residential property prices, despite resilience to the pandemic shock thus far, sustained by low interest rates. Less buoyancy of the commercial real estate market in Portugal, in the period prior to the pandemic, has restricted the build-up of vulnerabilities.
- The increase in firms' indebtedness is a vulnerability, despite the pre-pandemic adjustment, and may exert pressure on their solvency. The increase in liquidity and maturities backed by State-guaranteed credit, together with low interest rates, as well as the extension of credit moratoria mitigate default and insolvency risks.
- Household indebtedness is still a vulnerability. However, low interest rates, the extension of credit moratoria and the improvement in the risk profile of borrowers will further mitigate the materialisation of credit risk.
- High general government debt is a vulnerability in the medium term. However, financing conditions should remain favourable, reflecting developments in the pre-pandemic budget execution, the effects of monetary policy and the European Union's Recovery and Resilience Plan.
- In the banking system, most notable were the increase in the nexus between the banking system and public sector (by reinforcing exposures to public debt and State-guaranteed credit), the expectation of an increase in NPLs and low profitability prospects, conditioned by the very low interest rate environment, expectations of credit risk materialisation and the challenges posed by new financial intermediation activity players. State-guaranteed credit reduces credit risk.
- Significant exposure of the non-banking financial sector to less liquid assets and assets with lower credit quality, in response to lower profitability due to very low interest rates. The lower importance of insurance companies and, in particular, investment funds to the Portuguese financial system, compared to the euro area, limits the relevance of this risk. However, it may disrupt international financing conditions, including for Portuguese issuers that turn to these markets, in light of their importance in Europe.
- Difficulties in the implementation of a political agreement on the Recovery and Resilience Plan in Europe and possible mismatch between monetary and fiscal stimuli and the various periods of the pandemic crisis. These difficulties may negatively affect the economic activity's recovery profile. Up to November 2020, coordination among the different European authorities had contributed to economic recovery and prevented a potential divide when measures were rolled back.

The measures supporting the banking sector and the non-financial private sector should liaise with and complement each other, to mitigate the effects of the pandemic and preserve financial stability. These policies must ensure that the economic crisis does not turn into a financial crisis.

The banking sector assumes a pivotal role. Its role in funding the economy must be safeguarded, which requires that the regular business of banks be maintained. This goal warrants the swift, overarching action of national and international authorities. The situation of banks will depend on the effectiveness of the measures to support firms' and households' loss-absorbing capacity, in particular by limiting default in the loan portfolio.

The indefiniteness of the duration of the pandemic crisis implies uncertainty as to the magnitude of the impact on corporate activity. The implications on firms' solvency may have consequences for employment and banks. Therefore, it is increasingly important to consider firms' capitalisation instruments as additional mechanisms to foster their resilience. Thus far, there has been no

consensus under the ongoing European negotiations on the creation of an instrument to support firms' capitalisation.

Banks should take advantage of the flexibility granted by the authorities to use their capital buffers to absorb losses and finance viable households and firms. Institutions should continue to monitor borrowers' credit quality, thus avoiding late recognition of losses.

The pandemic has strengthened the importance of digitalisation in financial intermediation. Banks must address the risks associated with the digitalisation process, minimising cyber risk as well as risks associated with money laundering and terrorist financing. Finally, institutions should prepare themselves for the risks associated with the transition to a more sustainable economy, which will be scaled up in the medium term.

Due to the pandemic crisis, the public sector is faced with the choice between an increase in public debt or the withdrawal of support to the economy which may prove to be premature. The most indebted countries will be more vulnerable to changes in the market sentiment and the possibility of a reassessment of risk premia. This risk must be weighed against the risk of not acting towards stabilising the economy, which would have negative effects on potential growth. A balance would involve calibrating policy measures according to the different stages of the pandemic crisis.

Thus, it is important for fiscal policy measures to be temporary and for the public sector to resume its fiscal consolidation process. This will help reduce the likelihood of sovereign risk reassessments due to doubts as to the sustainability of public debt. In the short run, given the measures adopted by the ECB to mitigate the impact of the pandemic crisis, sovereign financing costs should remain low.

I Financial stability outlook

1 Vulnerabilities, risks and macroprudential policy

1.1 Main risks and vulnerabilities

The pandemic has dominated risks to financial stability

The unprecedented impact of the COVID-19 pandemic on the global economy and the financial markets has been the determining factor for risks to financial stability. The uncertainty surrounding the duration of the health crisis and the severity of its impact, mitigated by the plethora of policy measures adopted worldwide, has had an impact on the materialisation and size of these risks.

The fact that domestic and international authorities have acted in a swift and comprehensive way has been key. Monetary policy, fiscal and micro- and macroprudential regulatory and supervisory measures have mitigated the negative effects on the financial position of firms and households and on financial markets, helping maintain favourable financing conditions. The COVID-19 pandemic will continue to dominate the macrofinancial environment and the outlook for the economy and for financial stability.

The main vulnerabilities and risks to financial stability are the following:

- The return of extreme volatility in the financial markets would entail an increased risk in the absence of the monetary and fiscal stimulus adopted, which during the crisis has mitigated the probability of these financial shocks occurring.
- Difficulties implementing the political agreement on the Recovery Plan for Europe and the adequacy of monetary and fiscal stimulus to the various moments of the pandemic crisis may have an impact on the path of economic recovery. Until November 2020, coordination among the different European authorities contributed to economic recovery and avoided potential cliff effects when the measures were rolled back.
- Increased exposure to less liquid and lower credit quality assets in the portfolio of the non-banking financial sector, in order to offset the drop in profitability from low interest rates. The proportionally smaller weight of insurance corporations and investment funds in the Portuguese financial system, within the European context, mitigates the severity of this risk.
- The valuations of residential real estate assets have shown resilience against the pandemic shock, supported by low interest rates, but risks of a correction persist. A less buoyant commercial real estate market in Portugal in the period preceding the pandemic limited the build-up of vulnerabilities.
- High corporate indebtedness (98% of GDP in June 2020), and its increase during the pandemic shock (by 5.7 p.p.) is a vulnerability that may result in pressures on corporate solvency. The increase in liquidity and maturities resulting from the State-guaranteed loans, low interest rates and the extension of credit moratoria have mitigated default and insolvencies.
- Household debt persists as this sector's main vulnerability, accounting for 94.6% of disposable income in June 2020. Low interest rates, the extension of the credit moratoria and an improved risk profile of borrowers have mitigated the materialisation of credit risk.

- High general government debt (130.6% of GDP in September 2020) is a vulnerability over the medium term. However, financing conditions should remain favourable, reflecting the effects of monetary policy and the Recovery Plan for Europe.
- Particularly important in the banking system are:
  - low profitability prospects, affected by the very low interest rate environment, expectations of an increase in non-performing loans (NPLs) and the transformation of traditional intermediation activities;
  - rise in the nexus between the banking system and the public sector through increased exposure to public debt and the granting of State-guaranteed loans.

Nevertheless, this sector has proven more resilient than in previous crises. Part of the exposure to public debt is recorded at amortised cost, mitigating the impact of changes in market prices on banks' profitability and capital. The banking system has strengthened its capital ratios, which, together with the flexibility granted by micro- and macroprudential supervisory authorities, has increased its capacity to absorb potential losses and finance the economy.

1.2 The economic impact of the pandemic and implications for financial stability

Following the recovery in activity in the third quarter of 2020, the second wave of the pandemic affected the economy at the end of the year

After the quarter-on-quarter fall of 13.9% in GDP in the second quarter of 2020, economic activity recovered in the third quarter, with GDP growing by 13.3%. The improvement observed in the third quarter reflected the gradual reopening of the economy, with a recovery in domestic demand (a contribution of 10.7 p.p.), following a marked decline in the second quarter (a contribution of -10.9 p.p.). In tandem with the recovery in the euro area, the contribution of net external demand went from negative (-3 p.p.) to positive in this quarter (2.6 p.p.), mainly reflecting developments in goods exports.

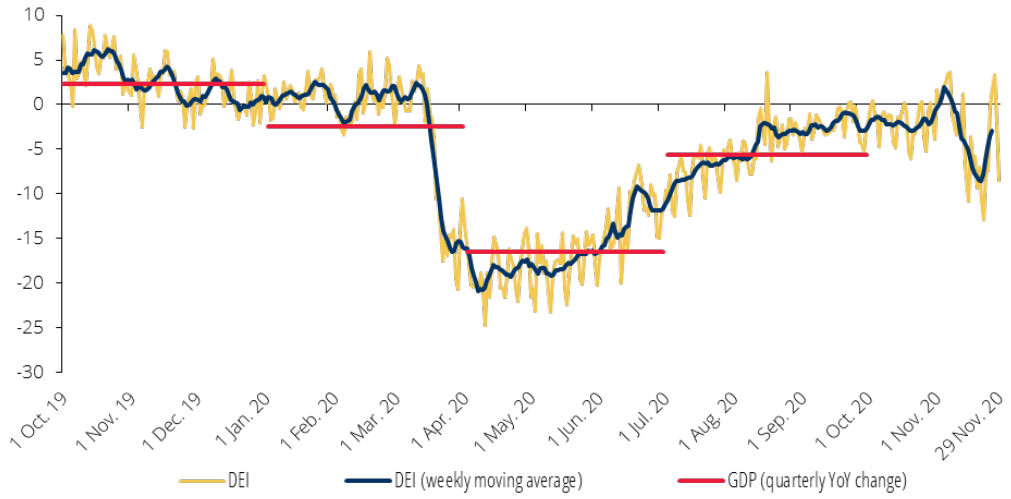
There continued to be a dichotomy between the services sector and the manufacturing sector in the third quarter of 2020. The services sector was more affected by the crisis than manufacturing, but also recovered rapidly during this period. The euro area was in a similar situation. In contrast, prospects for the construction sector point to a contraction in the euro area, while this sector has remained resilient in Portugal.

In the third quarter of 2020, the unemployment rate stood at 7.8%, increasing by 2.2 p.p. from the previous quarter. The largest falls in employment were observed in professions that rely less on remote working.

Developments in GDP up to the third quarter of 2020 exceeded the projections for the Portuguese economy released at the end of spring, signalling the resilience of economic agents and the effect of the countercyclical policies adopted. However, a subsequent worsening of the health crisis led to the adoption of new containment measures in Portugal (with a new state of emergency entering into force on 9 November), as was the case in most euro area countries.

This is visible in the evolution of the high-frequency indicator for economic activity in Portugal (Chart I.1.1). Despite the recovery observed from October to the start of November, developments in this indicator signal a reversal of this trajectory in the more recent period. Projections point to a quarter-on-quarter drop of 1.8% in GDP in the last quarter of 2020.

Chart I.1.1 • Daily Economic Indicator – Portugal | Year-on-Year percentage change



Source: Banco de Portugal. | Notes: DEI is normalised so that its quarterly value has the same mean and standard deviation of the GDP quarterly year-on-year (YoY) change over the last years. Last observation: 29 November 2020.

In 2020, GDP is expected to contract by 8.1% and to recover in the following years, growing by 3.9% in 2021, 4.5% in 2022 and 2.4% in 2023. In 2022, economic activity will return to levels observed before the pandemic crisis. In the moderate scenario, GDP is projected to drop by 8% in 2020, growing more markedly by 5.9% in 2021 and by 4.8% and 2% in 2022 and 2023 respectively. In the adverse scenario, GDP is expected to contract by 8.2% in 2020, growing by 1.3% in 2021, 3.1% in 2022 and 2.4% in 2023.

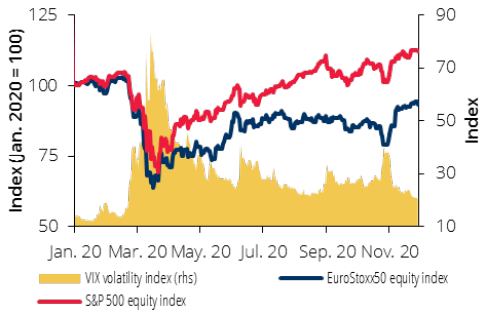
The negotiations on the United Kingdom's withdrawal from the European Union (EU) have continued during the pandemic and are an additional source of uncertainty, with an impact on the economy and the financial stability of the EU. As at the cut-off date of this issue, a no-deal Brexit at the end of the year was still on the table and uncertainty remained on how trade relations between the two regions would look in the future. On 10 December 2020, the European Commission published contingency measures on air and road transport and fisheries in case of no-deal. Projections assume that, from 2021 onwards, trade relations will be governed by the most favoured nation clause of the World Trade Organisation, implying increased barriers to trade between the two blocs, which would have a negative impact on external demand for Portuguese goods and services.

1.3 Monetary and fiscal stimulus

In the initial phase of the pandemic crisis, uncertainty surrounding its magnitude and economic impact was reflected in an abrupt devaluation of assets and an increase in risk premia in financial markets (Charts I.1.2 and I.1.3). These developments took place when there were already signs of

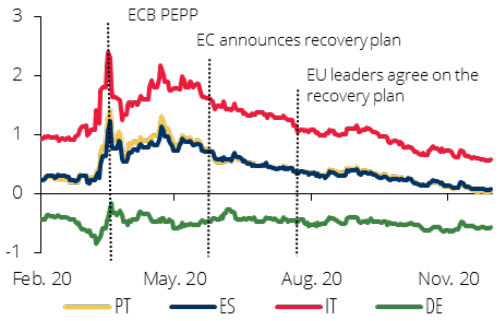
overvaluation in a number of segments in the market and were heightened by more intense demand for liquidity. This effect was particularly visible in riskier assets, namely shares and debt securities of lower credit quality.

Chart I.1.2 • Stock market indexes and volatility



Source: Refinitiv. | Notes: The chart shows the evolution of stock market indexes with the base value set at 100 at January 2020. Quotes are shown at the right hand side for the VIX volatility index. Closing market quotes. Last observation: 30 November 2020.

Chart I.1.3 • 10-year sovereign debt securities yield | Per cent



Source: Refinitiv. | Notes: Data series correspond to the closing quote of General Government debt yields with maturity of approximately 10 years. Last observation: 30 November 2020.

This period of high volatility was interrupted by the adoption of measures by monetary authorities, in particular non-standard measures. The main central banks reduced their key interest rates or kept them very low, strengthened the liquidity-providing operations and launched new asset purchase programmes. These measures had a significant impact on their balance sheets, which increased by €5 trillion to €20 trillion between March and November. This swift intervention ensured that financial institutions had sufficient liquidity and promoted the transmission of monetary policy.

In the euro area, particularly important among the measures adopted by the European Central Bank (ECB) is the pandemic emergency purchase programme, which helped return the sovereign debt risk premia to levels observed before the onset of the pandemic. In addition, the programme has also supported liquidity in the various financial market segments that were more affected in the euro area, such as money market funds. In cumulative terms, the ECB increased its targeted longer-term refinancing operations (TLTRO III) by €1,483 billion between June and September and had acquired €629 billion in bonds by October (the latter corresponding to 13.4% of the central bank's assets at the end of 2019).

More recently, the ECB announced it would extend and strengthen its monetary stimulus. From among the measures announced, the following are particularly relevant: strengthening of the ECB's pandemic emergency purchase programme (PEPP) by €500 billion to a total of €1,850 billion, as well as its extension until March 2022, helping maintain favourable financing conditions over a more extended period of time. In addition, the special interest rate period for TLTRO III operations was extended until June 2022, the refinancing limit was increased and three new operations were announced for the period between June and December 2021, ensuring that the incentives for lending during the health crisis are maintained. Finally, the central bank also announced four new pandemic emergency longer-term refinancing operations (PELTROs) for 2021, with rates below the Eurosystem's main refinancing rate and the extension of the Eurosystem repo facility for central banks until March 2022. Together, these measures aim to ensure and strengthen market liquidity.

Indeed, the monetary stimulus should be assessed on an ongoing basis and be appropriate for the various moments of the pandemic crisis, without contributing to a structural change in the risk

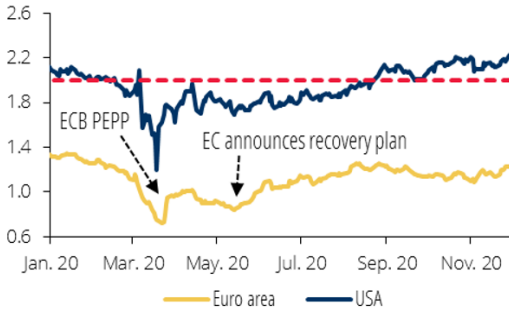
perception of international investors. Similarly, monetary stimulus measures should continue to be duly complemented by economic and fiscal policies.

The market anticipates a protracted period of very low interest rates

The high degree of monetary policy accommodation has been reflected in expectations of a prolonged environment of very low interest rates. The simultaneous adoption of extraordinary measures by central banks, against a background of more positive expectations of economic recovery in the third quarter, resulted in an appreciation of the euro against the major currencies from June onwards. The demand shock on global economic activity generated deflationary pressure on the prices of goods, which were already very low. These two effects contributed to the year-on-year decline in the euro area HICP, with underlying inflation (excluding unprocessed food and energy) dropping to a record low of 0.6%.

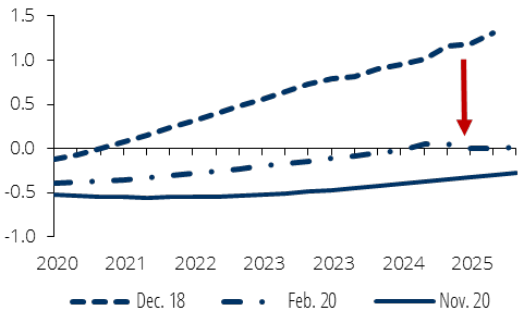
The recent increase in the number of infections in Europe has strengthened market expectations that it will be necessary to adapt the monetary and fiscal stimulus to the recovery profile (Chart I.1.4). The need to avoid cliff effects in the adoption and withdrawal of support measures has also contributed to market expectations that interest rates will remain negative at least until 2026 (Chart I.1.5). In spite of the positive effects on the economy, this environment may pose additional risks to the financial system, in particular if market agents increase their exposure to less liquid and lower credit quality assets to offset the drop in profitability resulting from low interest rates.

Chart I.1.4 • 5y5y inflation swaps – euro area and USA | Per cent



Source: Refinitiv. | Notes: Inflation expectations implicit in the 5-year, 5-year inflation swaps. Closing market quotes. Last observation: 30 November 2020.

Chart I.1.5 • Implied interest rate in the three-month EURIBOR futures contract | Per cent



Source: Refinitiv (Banco de Portugal calculations). | Notes: 30-day average value of the interest rate implicit in the three-month EURIBOR futures. Last observation: 30 November 2020.

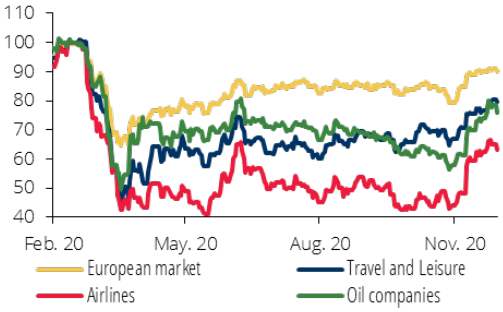
The accommodative monetary policy has reduced volatility and supported the increase in value of a number of assets

Prospects of an even more protracted period of low interest rates, asset purchase programmes by central banks and positive economic data for the third quarter have contributed to an ongoing increase in the value of stock markets. This upward trend in the United States following the shock

observed in March was initially boosted by technology companies, leading to a concentration of exposures in this sector. In the euro area, the main stock indices have also posted gains, although to figures still below pre-pandemic levels.

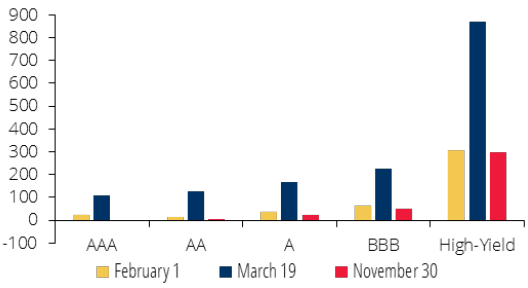
Expectations of a contraction in economic activity have been reflected in a differentiated valuation of risk premia in the sectors that are more vulnerable to the effects of the pandemic. Containment measures and restrictions on international mobility have had a significant impact on European airlines, oil producers and tourism. These sectors continued to record a decline in value of at least 20% from the beginning of the pandemic crisis (Chart I.1.6). Risk differentiation across sectors reflects the mixed impact of the pandemic crisis on business models and recovery expectations. The increase in risk appetite and concentration in sectors less affected by the crisis may therefore contribute to episodes of volatility in financial markets, if prospects of more positive results for these sectors do not materialise.

Chart I.1.6 • European stock indexes by activity sector | Index (17 Feb. 2020 = 100)



Source: Refinitiv. | Notes: The chart shows the evolution of stock market valuation of the main European corporations by activity sector, using the STOXX indexes for Travel & Leisure, Oil & Gas and Total Market Airlines. For European stock market developments the STOXX Europe 600 index is used. Last observation: 30 November 2020.

Chart I.1.7 • Average yield of euro area non-financial corporations debt securities in 2020 | *Basis points*



Source: Refinitiv. | Notes: Average *Yield* of iBoxx indexes from non-financial corporations, by credit rating. Last observation: 30 November 2020.

In the European debt securities market, there was a compression in risk premia following the monetary policy announcements. Additional funding needs related to the pandemic crisis were first reflected in an increase in the volume of debt securities issues and market financing costs for firms. An accommodative monetary policy allowed for a reduction in the risk premia of both securities with a better credit rating and securities that are below investment grade (Chart I.1.7). The decline in the latter to levels below those observed before the onset of the pandemic crisis reflected greater risk appetite, but also intensified search for yield. Increased exposure to this asset class, against a background of economic uncertainty, may introduce additional vulnerabilities in a number of sectors in the financial system, such as insurance corporations and pension funds, in particular given the heightened sensitivity of these securities to changes in the risk perception of investors.

Coordination between monetary and fiscal policies has contributed to the stabilisation of financing conditions

The agreement reached by the Eurogroup in its meeting of 8 April on three support instruments for firms, employment and sovereign debt, to an amount totalling €580 billion, helped reduce uncertainty among investors. These measures continued following the announcement of the "Next Generation EU" instrument by the European Commission in May and the subsequent boost given by the European Council in July. According to the European Commission announcement, the instrument will be allocated €750 billion (accounting for around 5% of the EU's GDP in 2019). The amount will be divided between loans (€360 billion) and grants (€390 billion) and is expected to be distributed among Member States from 2021 onwards. These funds will be financed by debt issued by the European Commission itself. This recovery and economic assistance programme and the strengthening of the EU's multiannual financial plan to €1,824 billion are particularly important, given the additional funding needed by Member States to address the economic impact of the pandemic crisis.

Consequently, the announcement of a concerted stimulus package had an immediate impact on international financial markets, resulting in a significant reduction in pressure on the debt service of each Member State. However, despite the recent agreement between the European Council and the European Parliament, the process of fund approval and distribution is not yet stabilised. In particular, there are still political tensions between Member States regarding the approval of the new EU own resources – which is essential for the European Commission to be able to issue common debt. Thus, the difficulties in implementing the European agreement on the recovery plan are the main risk factor to a speedy implementation of these instruments.

As for the financing model for these programmes, international financial markets have signalled ample demand and capacity to allot these debt instruments. The high credit quality of the European Commission has been reflected in high demand for the issuance of bonds to finance the temporary Support to mitigate Unemployment Risks in an Emergency (SURE); by the end of November, the EU had issued €39.5 billion worth of bonds (0.3% of the EU's GDP in 2019 at market prices). The speed and efficiency with which these measures will be implemented is a determining factor in maximising the economic impact of this package. In this respect, a number of countries have already submitted a preliminary version of their plans to use the grants provided by the recovery fund to the European Commission. For Portugal, expected amounts total €13.9 billion for the period 2021-26, representing around 7% of GDP in 2019 at market prices.

At national level, fiscal measures to support firms, in particular their liquidity, have been adopted since March. From among these measures, particularly important were employment and firm liquidity support measures, in the form of deferrals of taxes and social contributions, moratoria and State-guaranteed and subsidised loans and credit lines for exports. These measures have allowed firms to preserve their productive capacity. The measures aimed at households have supported income either directly for those who have lost their jobs or through credit moratoria.

1.4 Economic sectors and the coordination of policy measures

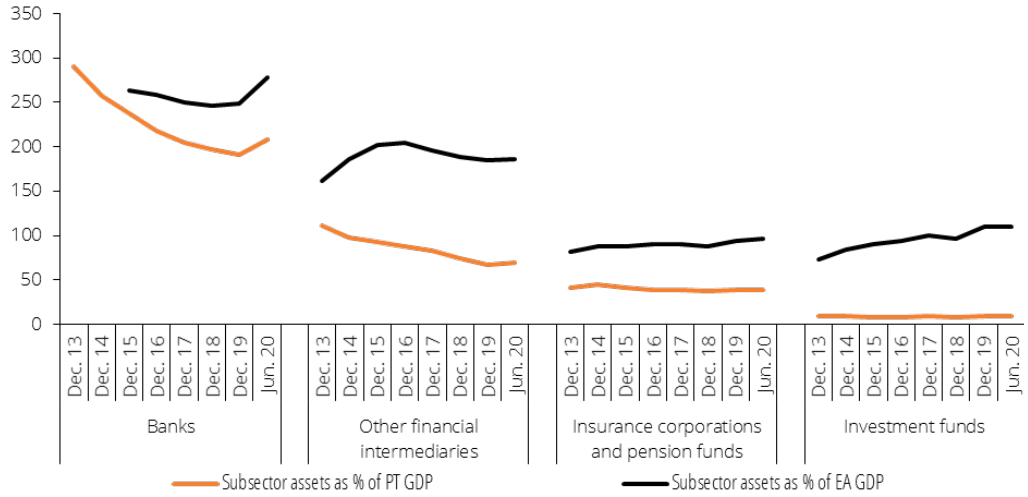
1.4.1 The non-banking financial sector

The non-banking financial sector has taken on a major role in the euro area with total assets of approximately 392% of GDP, as of June 2020. According to the ECB's *Financial Stability Review*, the debt securities market in Europe has increased significantly over the past ten years, accounting for approximately 20% of credit granted to firms in early 2020 (a 10 p.p. increase). In the wake of the pandemic crisis, uncertainty in the financial markets was reflected in a temporary reduction in the issuance of these instruments between March and April. However, this activity resumed in the

second quarter of 2020, with a high share of these assets being purchased by the insurance sector, pension funds and investment funds.

Between December 2013 and June 2020, non-banking financial sector total assets in the euro area increased by 76 p.p. to 392% of GDP. Conversely, total assets in this sector in Portugal decreased by 44 p.p. to 117% of GDP (Chart I.1.8). There was also a reduction in direct interlinkages between the sub-sectors of the financial system. In comparison with the European context, the reduced size of the non-banking sector in Portugal is mainly reflected in a higher concentration and dependence of non-financial corporations on funding by the banking sector.

Chart I.1.8 • Relative size of the financial system subsectors and direct interlinkages - Portugal and euro area | As a percentage of GDP

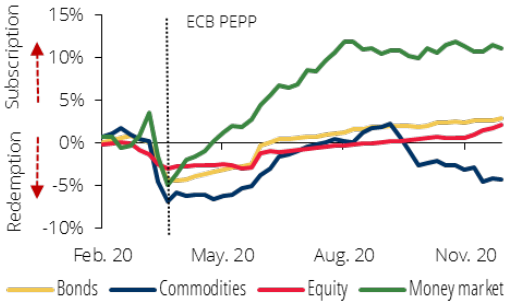


Sources: Banco de Portugal and European Central Bank (Quarterly Sector Accounts). | Note: Total non-consolidated assets of each sector were considered.

Over the past few last years, the low interest rate environment has put pressure on profitability generation in the financial intermediation activity. As a result, investment strategies have been modified to preserve the match between return on assets and the payments underlying their obligations. In a context of particular stability in financial markets, this pressure was reflected in more intense search-for-yield behaviours, such as increases in exposure to credit and foreign exchange risk and in average maturities, and a reduction in the proportion of liquid assets in the portfolios of other financial intermediaries.

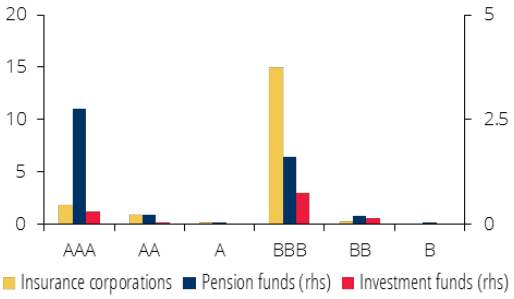
The more intense demand for liquidity in March put additional pressure on certain segments of the financial market in the euro area, in particular money market funds, namely low-volatility net asset value (LVNAV) funds. In view of sharp corrections in the market value of their collateral and the increase in redemption requests, these funds were pressured to sell part of their portfolios so as to ensure immediate liquidity to their participants. The lack of liquidity support mechanisms in this sector, together with the similarity in investment strategies, contributed to procyclical behaviours, with most agents simultaneously selling higher credit quality assets. This trend reversed only when the ECB announced PEPP (Chart I.1.9). Despite the improvement in market sentiment, this sector remains particularly vulnerable to further episodes of financial market volatility. In Portugal, this risk is not as high as in other European countries, given the low weight of investment funds in the Portuguese financial system (9.4% of GDP, compared with 110% of GDP in the euro area in June 2020).

Chart I.1.9 • Euro area investment funds' accumulated flows | As a percentage of liquid assets



Source: Refinitiv (Banco de Portugal calculations). | Notes: Data corresponds to investment funds domiciled in the euro area. Flows are computed relative to each investment fund's net assets. Last observation: 30 November 2020.

Chart I.1.10 • Public debt portfolio composition by financial sector – June 2020 | EUR Billion



Source: Refinitiv (Banco de Portugal calculations). | Note: Investment funds do not include money market funds.

Low interest rates pose additional risks to the insurance sector

The prospect of an extended period of exceptionally low interest rates introduces additional risks for insurance corporations. This context is important for life insurance undertakings, given the need to ensure the remuneration of their liabilities, but also for non-life business, which has experienced an increase in insurance liabilities as a result of the effects of the pandemic. The protracted exceptionally low interest rate environment puts pressure on the discount rates for long-term liabilities in the insurance sector and reduces bond yields. Investment options in this sector are limited and the portfolio reinvestment risk increases.

The contraction in economic activity may also have a negative impact on the profitability and solvency of the insurance sector, by reducing production and increasing redemptions by the economic agents most impacted by the crisis. These factors may put pressure on the insurance sector to invest in financial assets with higher yields but lower credit quality and liquidity.

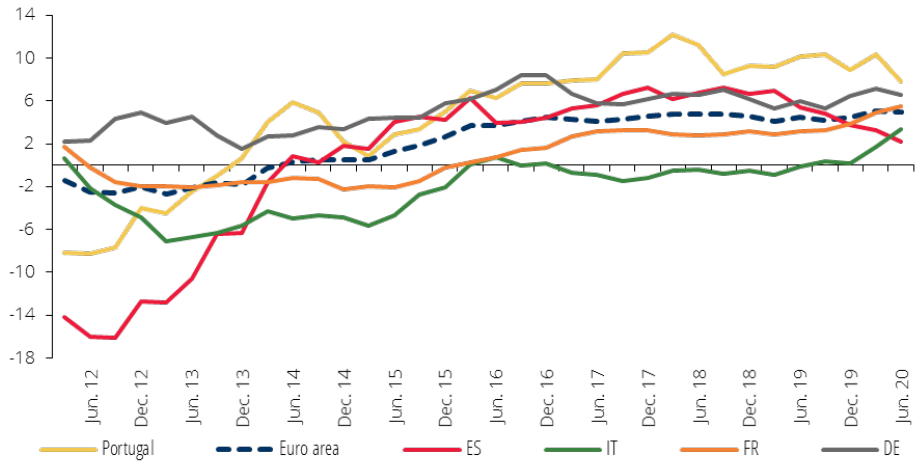
In recent years, there was an increase in the concentration of the securities portfolio in lower credit-rated assets, with a high share in the investment category grade threshold, as at June 2020 (Chart I.1.10). This trend may leave this sector particularly vulnerable to potential risk premia revaluations in financial markets, which, if materialised, may significantly impact the assets and profitability of this sector. The combination of the latter effect, with the increase in liabilities associated with the compression of interest rates, could materialise in a double negative effect on the balance sheet of insurers and pension funds (double-hit scenario).

1.4.2 Residential and commercial real estate market

Residential real estate prices have shown resilience, but risks of a downward correction persist

Residential real estate prices continued to rise after the pandemic shock, albeit at a slightly slower pace. In the second quarter of 2020, the housing price index grew by 7.8% year on year, compared to 8.9% in the fourth quarter of 2019. Also, in the euro area, house prices grew by 5% in the second quarter of 2020 (Chart I.1.11). The number and amount of transactions decreased in the second quarter of 2020, with -21.6% and -15.2% drops, respectively.

Chart I.1.11 • Year on year change in the house price index | Per cent

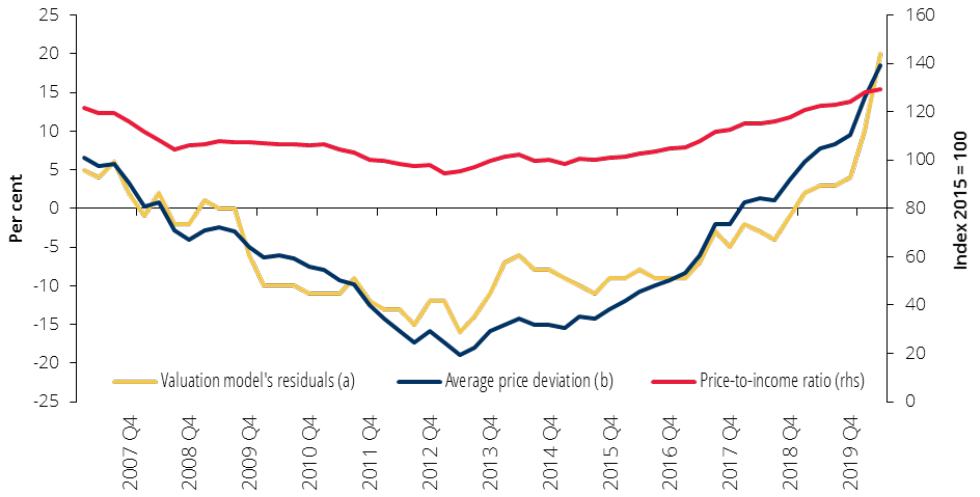


Source: Eurostat. | Note: Last observation: June 2020.

The resilience of residential real estate prices is not at odds with the ECB's accommodative policy. Very low interest rates are a major factor, which also favours the demand for housing loans. According to the October 2020 *Bank Lending Survey*, the general level of interest rates in the third quarter of 2020 contributed to an increase in demand for housing loans. Lower pressure to sell residential real estate assets is likely to also be associated with credit moratoria which, by mitigating liquidity difficulties and defaults, reduce the flow of new houses into the market or fire sales. Very low interest rates and ample liquidity in the market favour search-for-yield flows, particularly by real estate market funds, increasing the value of these assets.

In times of crisis, there is still a risk of price correction in this market, not only in Portugal but also in other euro area countries, and in particular in countries showing signs of overvaluation in residential real estate assets (Chart I.1.12). In Portugal, estimates of overvaluation of residential real estate assets should be interpreted with caution, as the variables considered in the estimation do not take into account all demand drivers for residential real estate, in particular, external demand and demand for real estate for tourism activities, which may have contributed to a rise in prices in this market in the run-up to the pandemic crisis. However, since these two drivers are particularly exposed to the uncertainty about the duration of the pandemic crisis, this risk is relevant for economic agents with residential real estate assets. Moreover, potential corrections may affect these agents differently as a result of a very pronounced segmentation in this market, either by type of housing or property location.

Chart I.1.12 • Valuation measures of house prices in Portugal | Per cent and Index 2015 = 100



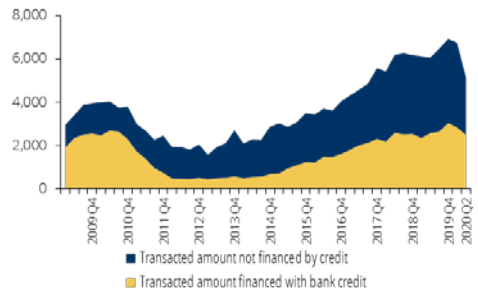
Sources: ECB - SDW and OECD. | Notes: Positive values signal the existence of overvaluation in residential real estate assets. (a) The residuals from the valuation model result from the estimation of a model of house prices based on their economic fundamentals. (b) The average price deviation is a synthetic measure based on four valuation metrics considering indicators both related to housing demand and to asset pricing methods. The price-to-income ratio corresponds to the nominal house price index divided by the nominal disposable income per head.

Turning to the rental market, there was an increase in the average rent value, but with a slowdown compared to end-2019, from 3.4% to 2.2% in the third quarter of 2020. In the euro area, where growth was more contained in 2019, the slowdown was less pronounced, from 1.5% to 1.2% over the same period.

An incomplete upturn in tourism could weaken profitability in this market, leading to an increase in supply for residents and consequent further rent cuts in some regions. Expectations of very low interest rates could help mitigate these dynamics. Despite the limited relevance of the rental market in Portugal, the reduction in rent growth may translate into a slowdown in house prices due to the arbitrage effect between the housing market and the rental market.

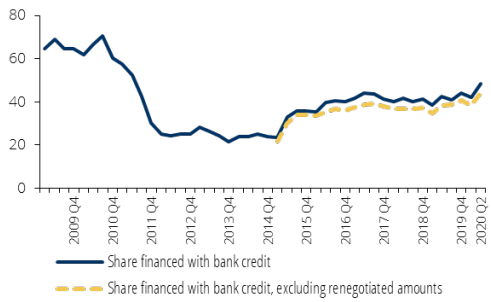
A possible decline in residential property prices will impact negatively on the portfolio of financial institutions in two ways: a reduction in the value of properties in the portfolio and a reduction in the value of collateral mainly associated with home loans. However, the percentage of residential real estate transactions financed by loans is lower than in the period preceding the sovereign debt crisis, i.e. 48% in June 2020 and 66% in 2009 (Charts I.1.13 and I.1.14).

Chart I.1.13 • Dwelling transactions versus new loans for house purchase | EUR millions



Sources: Banco de Portugal and Statistics Portugal. | Note: Last observation 2020 Q2.

Chart I.1.14 • Dwelling transactions versus new loans for house purchase | Per cent



Sources: Banco de Portugal and Statistics Portugal. | Note: Last observation 2020 Q2.

Risk reduction in housing loans associated with measures taken in recent years

Banco de Portugal's Macroprudential Recommendation of July 2018 helped to reduce the risk profile of borrowers in housing loans. The percentage of new housing agreements with loan-to-value (LTV) ratios averaging more than 90% declined from 22% in June 2018 to 1% in September 2020, thereby reducing the potential impact of mortgage collateral devaluation on banks' balance sheets. As at September 2020, around 90% of the housing loans portfolio had an LTV of less than 80%. In new loans for house purchase until September 2020, the risk profile was again lower than the risk profile of the credit stock in 2019, with a higher proportion of new loans for borrowers with higher educational qualifications and more stable professional situations. The weight of higher age brackets also continued to be greater, as has been the case since 2010.

The risks of commercial real estate devaluations are lower in Portugal than in the euro area

In Portugal, the risks of a sharp fall in commercial real estate prices are lower than those of residential property. The growth in the prices of these assets was significantly lower than in residential real estate in the period before the pandemic crisis: between 2013 and 2019, commercial real estate prices grew by 14% compared to 43% in residential real estate. The more subdued growth in Portugal also contrasts with the growth in the euro area over the same period, where there are signs of overvaluation of these assets, according to the ECB's November 2020 issue of the *Financial Stability Review*. In addition, the amount associated with exposures (direct and indirect) on the balance sheet of financial institutions is lower than that associated with residential real estate exposures.

However, the pandemic has imposed restrictions on the economic activity which have hampered some segments of this market. The commercial real estate market seems to have experienced a more significant change in profitability expectations than the residential real estate market. This could be related to cuts or postponement of investment in new real estate projects, changes in the characteristics of office space demand and changes in demand for retail spaces.

1.4.3 Non-financial corporations

Credit under moratoria and new government-backed loans were significant

The simplified layoff regime, the temporary suspension of debt service payments and the prohibition of the revocation of credit line agreements resulting from having applied to a moratorium, the deferral of certain tax and social security obligations, and State-guaranteed loans have mitigated firms' cash flow problems.

At the end of September 2020, 32% of the loans granted by the banking sector to firms were under moratoria, which corresponded to €24.4 billion (Box 2). The share of loans to NFCs under moratoria in June was higher in Portugal than in the EU aggregate, i.e. approximately 30% compared to 9.0%.

In turn, around 40% of new loans taken out by NFCs between March and September 2020 were associated with State-guaranteed loans. With regard to June, the weight of these new operations in the total stock of loans to firms and households granted by banks in Portugal was one of the highest among the group of European Union countries (2.1% compared to 0.5%). Bank loan demand by firms was mainly driven by financial needs related to inventories and working capital, according to the July and October 2020 Banco de Portugal's *Bank Lending Survey*.

These State-guaranteed loans made it possible for firms to obtain liquidity on more favourable interest rate and loan maturity conditions (Box 2). Interest rates on new State-guaranteed loans were, on average, lower than those on loans without this support: 1.3% for State-guaranteed loans against 2.4% for loans with no government-backing. State-guaranteed loans also allowed for grace periods of up to 18 months for new loans. The highly significant weight of new State-guaranteed loans taken out with maximum maturity (6 years), which accounted for approximately one-third of all new loans to firms over this period, allowed for a protracted loan repayment profile, which is key to the resilience of firms, in particular for SMEs and firms from the sectors of activity most affected by the pandemic.

Corporate indebtedness increased in tandem with their liquidity

The corporate indebtedness ratio increased by 5.7 p.p. between December 2019 and June 2020 to 98.0% of GDP (Table I.1.1). An increase in NFC total debt (2.4 p.p. contribution) and a cut in nominal GDP (3.3 p.p.) contributed to this change. The increase in corporate debt was due to a combined effect of respite on loan repayments and new borrowing and was more pronounced in the manufacturing and mining and quarrying sectors (annual rate of change of 6.2% in June), trade and accommodation and food service activities (annual rate of change of 7.4% in June) and construction and real estate activities (annual rate of change of 6.8% in June).

SMEs contributed most to this debt increase: annual rate of change of 7.9% compared with -5.9% for large enterprises in June 2020. This pattern is the opposite of that experienced by SMEs and large enterprises during the sovereign debt crisis period: in December 2011, the SMEs' annual rate of change was -1.7% and that of large enterprises 8.0%.

The increase in the NFC indebtedness ratio halted the downward trend seen since 2013, making it possible for debt to converge towards the euro area debt ratio, although remaining at higher levels: 92% compared with 87% in December 2019. The increase in NFC total debt has also resulted in a rise in the ratio of debt to equity in June 2020, which was 45.3%. This increase is still small compared to 54.2%, on average, observed during the sovereign debt crisis.

Table I.1.1 • NFCs total debt | As a percentage of GDP

	Dec. 13	Dec. 16	Dec. 17	Dec. 18	Dec. 19	Jun. 20
Gross debt						
Portugal	122	103	100	95	92	98
Euro area	88	90	88	88	87	
1st Quartile	76	68	64	61	58	
3rd Quartile	126	138	131	128	123	
Debt net of deposits						
Portugal	103	83	78	73	69	72
Euro area	69	68	65	65	64	

Source: Eurostat (Banco de Portugal calculations). | Notes: Non-financial corporations' total debt includes loans, debt securities and trade credits and advances. The quartiles refer to the total debt ratio figures considering the19 countries of the Euro area.

The increase in corporate indebtedness occurred simultaneously with an increase in corporate liquidity. The ratio of debt net of deposits increased by 2.7 p.p. in the first half of 2020, compared with December 2019, to 72%, with contributions of 2.4 p.p. of debt, -2.1 p.p. of currency and deposits and 2.4 p.p. as a result of a drop in nominal GDP.

The increase in corporate liquidity seems to be associated with new borrowing not immediately used in corporate expenditure. In the aftermath of the sovereign debt crisis, the increase in liquidity was broadly based across firms and was higher in microenterprises and small-sized enterprises, in the accommodation and food service activities sector, in construction and in enterprises with lower debt ratios.

Based on a survey conducted among seven of the largest banks in the Portuguese financial system, the conclusion is that among firms with credit under moratoria, the weight of 20% of deposits on SME loans subject to moratoria is higher than for large enterprises. Although higher liquidity in SMEs, compared to large enterprises, may be associated with structural shortcomings in borrowing, the fact that these enterprises hold liquidity with institutions with loans subject to moratoria may serve to mitigate the materialisation of credit risk.

The pandemic shock puts pressure on firms' solvency

The duration and scale of the pandemic crisis constrains the recovery of firms' cash flows. Based on a central economic scenario, the increase in debt among firms in vulnerability projected for 2020 would be largely corrected by 2022 (Special issue 1 - The vulnerability of non-financial corporations' debt in the pandemic crisis). By contrast, in a severe scenario, the increase in debt among firms in vulnerability is more persistent over time. None of the projected scenarios suggests a situation of corporate vulnerability as acute as that seen in 2011-2013.

Using additional indicators of financial resilience, firms projected to be vulnerable in 2020 have lower median values of liquidity and capitalisation than non-vulnerable firms. However, if only firms with bank exposures are considered, the median liquidity and capitalisation ratios are higher than for total vulnerable firms in 2020.

The health crisis led to a 1.1 p.p. reduction in corporate profitability in June 2020, compared with December 2019, to 6.7%, with particular emphasis on declines in manufacturing, mining and quarrying (1.8 p.p.), wholesale and retail trade (0.9 p.p.), transportation and storage (1.7 p.p.) and other services (1.1 p.p.) (Table I.1.2). The capitalisation of firms stabilised in June 2020, although not across all sectors. (Table I.1.3). These developments followed a protracted period of

improvement and have led to an increase in most economic and financial indicators of non-financial corporations in Portugal, in particular SMEs.

Although the undefined duration of the pandemic crisis causes uncertainty about the extent of the negative impact on the business activity, scenarios of limited firms' solvency may have negative consequences on employment and firms' credit counterparts. Capitalisation instruments for firms are likely to be key to promoting their resilience. Measures at European level, including European Investment Bank initiatives, are relevant mechanisms in this respect.

Table I.1.2 • NFCs' profitability | As a percentage of total assets

	Dec. 16	Dec. 17	Dec. 18	Dec. 19	Mar. 20	Jun. 20
Total NFCs	7.0	7.9	7.9	7.8	7.6	6.7
Industries	8.7	10.9	10.2	9.6	9.0	7.8
Construction	3.7	4.0	5.2	5.3	5.2	5.2
Wholesale and retail trade	7.1	7.8	7.2	7.7	7.1	6.8
Electricity, gas and water	9.1	8.2	7.4	7.8	7.9	8.0
Transportation and storage	11.1	11.8	11.8	12.1	12.0	10.4
Other services	6.6	7.5	7.7	7.6	7.6	6.5

Source: Banco de Portugal. | Notes: Information available from Statistics on NFCs from the Central Balance Sheet Database. Profitability measured as the ratio of EBITDA (earning before interest, taxes, depreciation and amortisation) to total assets, reporting the average figure for the year ending in the referred quarter.

Table I.1.3 • NFCs' capitalisation | As a percentage of total assets

	Dec. 16	Dec. 17	Dec. 18	Dec. 19	Mar. 20	Jun. 20
Total NFCs	34.9	35.9	37.6	38.9	39.0	38.9
Industries	39.5	40.5	42.0	42.9	43.2	42.9
Construction	26.0	27.7	29.5	30.0	30.1	29.9
Wholesale and retail trade	34.3	35.3	35.6	37.3	37.5	37.5
Electricity, gas and water	26.3	25.5	32.4	34.8	34.2	34.3
Transportation and storage	18.8	20.8	21.3	22.9	22.3	22.0
Other services	32.9	33.8	36.1	37.5	37.5	38.0

Source: Banco de Portugal. | Notes: Information available from Statistics on NFCs from the Central Balance Sheet Database. Capitalisation is measured as the ratio of equity to total assets, reporting the figure for the referred quarter.

Business support policies should be adjusted to the business cycle

The rollback of support measures must be properly managed to avoid abrupt negative effects on firms and financial institutions (cliff effects) with negative consequences for the credit quality of banking system exposures.

The extraordinary measures to support firms must strike a balance between reallocating resources that limit the maintenance of zombie firms and the destruction of productive activities whose profitability will resume over a longer horizon, by ensuring their suitability for each phase of the pandemic crisis.

1.4.4 Households

Credit moratoria have reduced households' liquidity problems

Simplified layoff programmes and the strengthening of automatic stabilisers together with various direct support measures for the consumption of essential goods have helped to maintain the income and social stabilisation of the households most affected by the decline in economic activity. In turn, the moratoria programmes have limited short-term defaults. In September 2020, 17% of the stock of loans to households was under moratoria, one of the highest ratios in the European Union (6.2% in June). The percentage of loans under moratoria is similar for both housing loans and personal credit (approximately 19%) and lower for car loans (6%).

The financial situation of households was already more favourable at the onset of the pandemic crisis, compared to the sovereign debt crisis. In conjunction with a sharp reduction in household indebtedness, some financial indicators, in particular the debt-service-to-income ratio, which fell from 20% in 2010 to 14% in 2017, and the debt-to-income ratio, which fell from 224% to 133% over the same period. The two indicators narrowed across all income quartiles.

In the period prior to the pandemic crisis, household wage income increased between 2013 and 2019 by more than €13 billion per year, according to data from social security earnings statements. This notwithstanding, the saving rate showed muted developments in the pre-pandemic period.

Despite positive developments, credit moratoria are relevant for the immediate financial sustainability of households due to the persistence of still high indebtedness and low savings flows in the run-up to the pandemic crisis. The percentage of population in Portugal reporting an inability to face unexpected financial expenses has been dropping and is approaching the value observed in the euro area: 33% in Portugal, compared to 30% in the euro area. Moreover, to cope with an emergency, according to the OECD's Global Findex, the proportion of households in Portugal that identified work income as the main income source in 2017 was higher than the euro area average (25% compared with 15% respectively).

According to a survey made to seven of the largest banking institutions, less than half of the households that took up housing loan moratoria experienced a fall in their income at the time that they applied for them (Box 3). For 25% of these borrowers, this drop in income exceeded 20% of the income obtained in the period before the pandemic. Among the households that signed for housing loan moratoria, 10% were unemployed, inactive, or retired persons. These results show that a significant proportion of the households that applied for credit moratoria did so for precautionary reasons. Although the take-up of moratoria was mainly aimed at supporting the financial situation of households, the conditions of access covered borrowers with no income loss, such as pre-pandemic unemployment, preventive or sickness isolation, or providing assistance to family members.

Household deposits increased with the sharp rise in savings and moratoria

Household disposable income stabilised in the first half of 2020, from the first half of 2019 (0.2% growth in 2020, against 3.7% in 2019). The household saving rate, in turn, amounted to 12.3% of disposable income in the first half of 2020 (4.8% in the first half of 2019). The increase in the saving rate was driven by reduced consumption associated with mobility restrictions that limited part of

households' normal spending and by the high uncertainty about the duration of the pandemic crisis that boosted savings for precautionary reasons.

The increase in savings combined with the moratoria seems to have contributed to the increase in households' liquidity, reflected in a 4.0 p.p. increase in their cash and deposits position to 137.0% of disposable income in June 2020, compared with June 2019. However, the aggregate developments in disposable income, savings and consumption may mask differences in the impact of the pandemic on individual households' income. This is particularly relevant given the heterogeneity of the impact of the pandemic crisis on employment across different sectors and income brackets.

Household indebtedness is a vulnerability, but low interest rates make debt servicing easier

The increase in the households' indebtedness ratio halted the decline started in the wake of the sovereign debt crisis. Households' total debt amounted to 94.6% of disposable income in June 2020, up by 0.2 p.p. from December 2019 (Table I.1.4). This increase was driven by new loans, particularly housing loans, lower repayment flows and an interruption in the upward trend of disposable income.

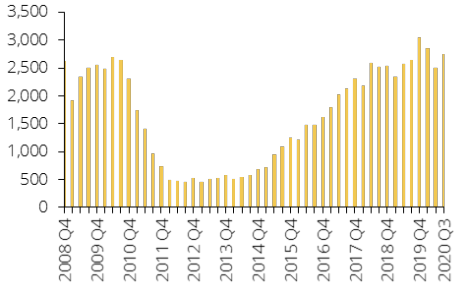
Table I.1.4 • Households total debt | As a percentage of disposable income

	Dec. 13	Dec. 16	Dec. 17	Dec. 18	Dec. 19	Jun. 20
Portugal	122	105	102	98	94	95
Euro area	98	95	95	95	95	
1st Quartile	66	67	70	69	68	
3rd Quartile	123	112	113	117	106	

Source: Eurostat (Banco de Portugal calculations). | Notes: Households' total debt includes loans, debt securities and trade credits and advances. The quartiles refer to the total debt ratio figures considering the19 countries of the Euro area.

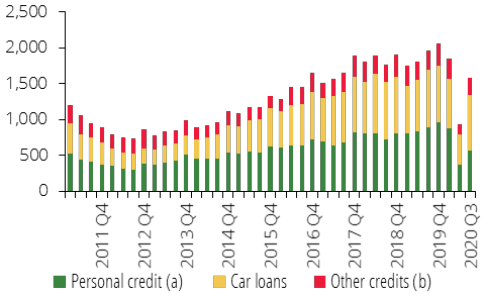
The decrease in new loans to households in the second quarter of 2020 was more marked in consumer loans than in housing loans (Charts I.1.15 and I.1.16). The decrease in housing loans has not significantly changed the amounts of new loans granted during the period of the pandemic crisis compared to that seen between 2017 and 2019. By contrast, the fall in consumer loans led to a reduction in new loans back to the total amount seen in 2014. The dichotomy between developments in housing loans and consumer loans is likely to be associated with the effects of containment measures on consumption.

Chart I.1.15 • New loans for house purchase | EUR millions



Source: Banco de Portugal. | Note: New loans for house purchase from monetary financial institutions.

Chart I.1.16 • New consumer loans | EUR millions



Source: Banco de Portugal. | Notes: Data on new consumer loans refers to Instruction of Banco de Portugal No 14/2013. (a) Includes new consumer loans for home improvements. (b) Includes credit cards, credit lines, bank credit accounts and overdraft facilities with a repayment term of more than one month.

The credit moratoria resulted in a reduction in housing loan and consumer loan repayments in the second and third quarters of 2020 (Table I.1.5). With regard to new loans, the reduction associated with the pandemic crisis resulted from the lower number of borrowers who entered the credit market. The third quarter of 2020 saw a pick-up in new operations in both types of credit, and in particular in housing loans, with greater contributions from the entry of new borrowers.

Table I.1.5 • Households' credit flows | EUR million

	Loans for house purchase				Consumer credit			
	Dec. 19	Mar. 19	Jun. 20	Sep. 20	Dec. 19	Mar. 19	Jun. 20	Sep. 20
Net flow	484	242	478	650	505	326	-195	246
Borrower who entered the credit market	1.737	1.574	1.271	1525	699	616	314	495
Only held consumer credit	514	454	360	403	487	434	229	338
Only held credit for house purchase	636	566	548	597	376	334	180	304
Held credit for house purchase and consumer credit	292	249	279	298	440	394	212	318
Repayments	2.696	2.602	1.980	2173	1.498	1.452	1.129	1.208

Source: Banco de Portugal. | Notes: Net flow corresponds to the difference between the new credit agreements and negative flows to repayments. New credit agreements are broken down into operations in which the borrower entered the credit market and in operations in which the borrower: (i) only held credit for house purchase; (ii) only held consumer credit; or (iii) held credit for house purchase and consumer credit at the time the new credit was taken out.

Mixed conditions among households create uncertainty about the magnitude of potential post-moratoria defaults

The rise in unemployment will continue to hamper households' income. The forecast unemployment rate of 7.2% in 2020 is 0.7 p.p. higher than in 2019. Given the rise in unemployment, household indebtedness is a vulnerability, although low interest rates mitigate credit risk materialisation. The improvement in the risk profile of borrowers, to which the Macroprudential Recommendation adopted by the Banco de Portugal in July 2018 contributed, also mitigates the increase in household defaults (section 1.5). Although the main source of risk for financial institutions is potential losses associated with credit already granted, financial institutions should continue to adjust their credit policies to the high uncertainty environment.

The extension of the public moratorium until September 2021 (Decree-Law No 10-J/2020) will contribute to the adequacy of the income profile of households to their debt service. Financial institutions should identify early limitations on borrowers' ability to pay and avoid late recognition of losses. This proactive behaviour is important, given the weight of credit moratoria on banks' exposures and the longer implementation period of moratoria in Portugal than in most euro area countries, even though not all households that joined the moratorium experienced a fall in income at the time of their application.

1.4.5 General government

The protracted pandemic crisis warrants attention to public debt sustainability

In the third quarter of 2020, the public debt ratio in Portugal stood at 130.6% of GDP, up by 13.4 p.p. from December 2019, with contributions from debt (8.0 p.p.) and (a reduction in) GDP (5.4 p.p.). If the general government net debt of deposits is considered, an increase of 7.9 p.p. to 118.3% of GDP can be observed. In 2020, debt ratios were expected to increase significantly, although the adjustment process is expected to resume in the following year, reflecting the projected recovery in GDP (Table I.1.6).

Table I.1.6 • Public debt ratio | As a percentage of GDP

	2019	2020 (p)	2021 (p)	2022 (p)
Portugal	118	137	130	124
France	98	119	119	120
Germany	60	73	72	69
Italy	135	162	158	157
Spain	96	123	121	120
Euro area	84	101	100	98

Source: International Monetary Fund. | Notes: *World Economic Outlook* October 2020. (p) – projected. Public debt gross amounts are considered.

Despite increased financing needs, interest rates remained at historic lows, reflecting measures taken by the ECB and European authorities to mitigate the impact of the pandemic crisis. This effect is particularly striking in the euro area debt securities market where, after initial turmoil, yields dropped to levels close to those seen prior to the pandemic (Chart I.1.3). In short-term issues, the average interest rate on Treasury bill issues decreased from -0.3% in the first half of 2020 to -0.5% in second half (to date). In the case of long-term issues, the average interest rate on ten-year Treasury bond issues reached 0.8% in the first half of 2020, by contrast to the average interest rate on issues from July onwards, which stood at 0.3%. Treasury bonds were issued mainly at the longer end of the yield curve (between six and ten years), thereby mitigating refinancing risks.

The favourable financing conditions were reflected, in the first half of 2020, in an ongoing downward trend in general government interest expenditure that started in 2015, with a reduction of 8.6% from the same period of the previous year. Furthermore, in 2020 the impact of the stimulus package in Portugal (2.7% of GDP) was below estimates for the euro area average (4% of GDP), thus resulting in a lower deterioration in the fiscal balance. However, high public indebtedness represents a vulnerability in the medium term. And the latent risk is reflected in a greater dispersion between the implicit probability of default (credit spreads) and the forward-looking assessment by rating agencies. However, with the purpose of preserving monetary policy transmission, the ECB's actions are likely to continue to have a positive impact on financing conditions in euro area countries, limiting fragmentation risks. The announcement of the Recovery and Resilience Facility had a similar effect.

1.4.6 Banking sector

Increased exposure of the banking system to the public sector

The increase in banks' exposure to government debt securities, combined with the increase in State-guaranteed credit, has strengthened the nexus between the sovereign and the banking system.

The first half of 2020 saw a strengthening of the concentration of the public debt portfolio, not only in the domestic sovereign, but also in Spain. Banks' balance sheets remain exposed to the possibility of a reassessment of risk premia on these securities. However, the ECB's monetary policy, the operationalisation of the European Stability Mechanism's Pandemic Crisis Support and the announcement of the European Recovery and Resilience Facility have stabilised the sovereign debt market in the euro area.

The relevant weight of government debt securities recorded at amortised cost also contributes to the mitigation of this risk for the banking sector and more recently, the CRR "quick fix" included the approval of the prudential filter associated with changes measured at fair value through other comprehensive income.

Although State-guaranteed credit was largely granted to firms in sectors more sensitive to the pandemic, firms with better credit quality before the pandemic had more access than riskier firms (Box 2). In the event of default, the State reimburses the institution for the guaranteed portion, between 80% and 90% of the loan amount. Contingent liabilities for the State associated with these credit lines stand at around 2.7% of 2019 GDP in October 2020. However, this is an upper limit in a scenario where all guarantees would be activated. Subsequently, the government announced, as part of further support for the economy and employment, the provision of State-guaranteed credit lines amounting to EUR 2,150 million (corresponding to 1.0% of GDP).

An increase in NPLs is expected

In the first half of 2020, the gross NPL ratio (as a percentage of total loans) continued to fall, although at the slowest pace since June 2016. The reduction in the ratio reflected, with similar contributions, the decrease in NPLs and the increase in performing loans (2.2. Asset quality).

The pandemic crisis has undermined the conditions for maintaining the process of NPL reduction because of the difficulty of continuing the sale and recovery of existing NPLs. Developments in NPL contributions, net of cures and sales, in the first half of 2020 may already flag some reversal of the trend previously observed. The health crisis is expected to materialise in a further deterioration of the asset quality of the banking sector.

In the first half of 2020, the prospects for a deterioration in the economic situation translated into an increase in credit impairment losses, more than doubling the cost of risk compared to the same period of the previous year. However, these developments occurred mainly in institutions with better relative asset quality, profitability and capital positions. These institutions maintained, however, a lower cost of credit risk than the remaining institutions.

Banks should continue to assess and monitor borrowers' credit quality, classifying loans accordingly and ensuring that there is no late recognition of associated losses. In light of the pandemic crisis, it is advisable to implement initiatives to reduce NPLs in banks' balance sheets to preserve the capacity to fund the economy.

The very low interest rate environment puts pressure on banks' profitability

The persistent very low interest rate environment poses additional challenges to the profitability of the banking sector and to the business model suitability, which focuses on traditional financial intermediation functions, in particular lending. The contribution of net interest income to return on assets is smaller than that observed between 2000 and 2008, although it has remained resilient in recent years. Prospects for future economic developments restrain net interest income recovery, in particular the potential for new business (volume effect). Banks have been looking for other sources of income, such as fees and commissions, and by adjusting their cost structure. However, these sources have a time-bound potential and may be constrained by the increasing competition of FinTechs.

However, the profitability of the banking sector has also benefited both from a low interest rate environment, as it has increased the borrowers' debt servicing capacity, and, therefore, from lower credit defaults. Nonetheless, the need for additional impairment in the wake of the pandemic crisis has interrupted these recent developments.

The banking system remains resilient

The Portuguese banking system has strengthened its capital ratios (total capital and CET 1) since the financial crisis period, showing a more favourable solvency position at end-2019. In the first half of 2020, the total capital ratio stood at 17.2%, an increase of 0.3 p.p. vis-à-vis 2019 and 7.9 p.p. since the end of 2008.

The sector has a greater capacity to accommodate losses resulting from credit risk materialisation (2.6. Capital). Based on the Banco de Portugal's projections (baseline scenario) published in the December 2020 issue of the *Economic Bulletin*, the resilience of the Portuguese banking system and its capacity to meet credit demand are projected to be maintained. Even in the event of an extension of the pandemic crisis (severe scenario), the banking system remains resilient. This result does not take into account potential additional support measures.

Banks also have the possibility of using capital buffers to absorb losses and continue to fund the economy, as a result of the flexibility granted by micro- and macroprudential regulatory and supervisory authorities. However, these authorities should give banks enough time to restore these buffers where there is evidence of a sustained pick-up in the economy, normalisation of financial conditions, and also taking into account the particular circumstances of each bank.

Banks should safeguard against the risks inherent in the banking activity digitalisation process

The pandemic has reinforced the importance of digitalisation in financial intermediation. Recent social distancing measures, by favouring the use of digital channels, have encouraged a change in consumer preferences in their relationship with the financial system. The emergence of generations of more technologically literate bank customers will tend to speed up this phenomenon, leading to structural changes in the banks' business model. Banks should proceed with the technological adequacy processes, even if they put pressure on short-term profitability.

With a more intensive use of digital means, financial institutions should take the necessary steps to ensure smooth business continuity, in particular as regards technological security, by minimising cyber-risk and the risk of money laundering and terrorist financing.

Technological innovation in the financial system has also led to the emergence of new operators which, albeit with limited expression, are starting to engage in activities traditionally carried out by banks, such as payment systems and lending, by exploiting the existing synergies and relative advantages in obtaining information on borrowers (Box 4).

The transition to a sustainable and digital economy requires a European regulatory response

In recent months, important legislative progress has been achieved on promoting the dual transition to a sustainable and digital economy. In particular, initiatives associated with the redirection of private capital flows towards more sustainable investments, in line with the objectives set out in the Paris Agreement, include: (i) the publication of Regulation (EU) 2020/852, which establishes classification criteria for the environmental sustainability of economic activities (Taxonomy Regulation), and (ii) the public consultation on the creation of a European standard for the issuance of 'green' bonds (EU Green Bond Standard), on which the European Commission is expected to decide during the third quarter of 2021. In the economic Recovery Plan in view of the crisis caused by the COVID-19 pandemic, investment in more sustainable activities is one of the core priorities of the European recovery strategy. As mentioned above, the proposal sets down the establishment of a European recovery fund, and its share in budget allocation under the Recovery and Resilience Facility (€672.5 billion) and the Just Transition Fund (€10 billion) will support Member States in making investments and implementing reforms that are essential for a sustainable recovery, taking into account, *inter alia*, national energy and climate plans.

The incompleteness of the Banking Union exposes the financial system to increased risks

More than a decade after the onset of the 2007/08 financial crunch, the Banking Union remains incomplete, particularly as regards the European Deposit Insurance Scheme (EDIS) and the correction of weaknesses detected in the meantime in crisis management and in the balance between home and host Member States (best known as 'home-host balance').

Following the work of the Eurogroup's High Level Working Group, the crisis management framework and the home-host balance, as they impact on the design of the Banking Union, have been discussed at European level. Topics such as the regulatory treatment of sovereign exposures, the introduction of a safe asset and risk reduction measures in the banking system have also been tackled. Despite the breakthroughs that have taken place, the possibility of a late adoption of solutions still remains.

With regard to the EDIS, only a framework that provides for full risk sharing in the new steady state, by distancing itself from the model in which losses are absorbed at national level, will ensure that depositors' confidence no longer depends on the bank's geographical location. This will promote financial stability by ensuring depositor protection through a more effective European deposit guarantee scheme.

In crisis management, the current resolution system is insufficient for small and medium-sized banks and/or those whose business model is based on deposits (and therefore have increased restrictions on compliance with the minimum requirement for own funds and eligible liabilities under the bank resolution framework, MREL). These institutions should deserve special protection in order to boost financial stability. The revision of the framework for banking crisis management and deposit insurance should address these limitations and clarify the application of the public interest assessment and the use of the Single Resolution Fund.

Also as regards the Banking Union, the discussion on the consolidation of the banking sector has gained momentum given the low profitability of institutions. Synergies associated with cross-border consolidation processes may not address underlying vulnerabilities to overcapacity in the banking sector and generate "too-big-to-fail" or "too-complex-to-resolve" institutions. On the other hand, these processes could pose risks to financial stability in an incomplete Banking Union where supervisory and resolution decisions are made at European level, while national authorities remain responsible for maintaining national financial stability. These processes should be carefully monitored to minimise these risks. Any action taken should not lose sight of the goal to achieve a complete Banking Union with a third pillar underpinning the mutualisation of losses.

On 30 November 2020, the Eurogroup agreed: (i) on the reform of the European Stability Mechanism (ESM), with the signature of the revised Treaty scheduled for January 2021, and (ii) on the possibility of an early introduction, i.e. in early 2022, of a common "backstop" for the Single Resolution Fund. This possibility had already been envisaged since 2018, and its adoption was conditional upon a reduction, considered sufficient, of risks in the banking sector. The progress achieved was significant. However, according to the Eurogroup, some vulnerabilities still persist, and their correction could be temporarily put on hold by challenges inherent in the COVID-19 pandemic crisis. These vulnerabilities should be addressed jointly by banks, Member States, and the European Union, in line with measures agreed and outlined in the Eurogroup statement.

New money laundering risks arising from vulnerabilities generated by the pandemic crisis

As part of recent efforts at European Union level, the European Commission published an Action Plan in May 2020 proposing a comprehensive strategy on anti-money laundering and terrorist financing (on public consultation). Following that publication, the European Banking Authority has disclosed its views, including on setting a European standard.

At national level, the national assessment of the risks of money laundering and terrorist financing has been updated. Following this, the Banco de Portugal is developing specific initiatives aimed at mitigating vulnerabilities identified, with particular emphasis on measures aimed at complex corporate structures, already reported to the sector.

At regulatory level, Law No 58/2020 of 31 August, which transposes Directive (EU) 2018/843 (5AMLD), entered into force, along with Instruction of the Banco de Portugal No 25/2020 of 24 September, which approves the establishment of a report on the activity carried out in Portuguese territory by financial entities with their head office in another Member State of the European Union operating in Portugal under the freedom to provide services.

The Banco de Portugal, as in recent years, has continued to strengthen its supervisory work on anti-money laundering and terrorist financing. In addition to its on-site supervision work, the Banco de Portugal continued to assess internal control systems related to the prevention of financial crime in the context of off-site monitoring of supervised institutions.

In the context of the pandemic, the Banco de Portugal has alerted financial institutions of the need to pursue the implementation of efficient systems and controls to ensure that the financial system is not used for money laundering and terrorist financing.

The Banco de Portugal also warned about the increase in certain types of crime in the context of the COVID-19 pandemic, namely fraud and cybercrime, as well as misappropriation or abuse of government funds, international financial assistance or emergency funds. It pinpointed new threats and vulnerabilities posing risks emerging from money laundering and terrorist financing and reiterated the encouragement of the use of electronic and digital payments and digital onboarding.

1.5 Macroprudential policy

Similarly to other institutions in Portugal and abroad, the Banco de Portugal adopted measures to safeguard financial stability and liquidity among households and firms and loss-absorption capacity, in order to mitigate the effects of the crisis caused by the COVID-19 pandemic. This objective benefited from the quantitative and qualitative strengthening of the credit institutions' capital requirements, which followed the financial crisis of 2008 and made them more resilient to shocks.

In line with the ECB's decision in regard to significant credit institutions, the Banco de Portugal allows less significant institutions, subject to its direct supervision, to restore the combined buffer requirement (CBR) and the Pillar 2 Guidance (P2G) by at least end-2022. Furthermore, it does not require the Liquidity Coverage Ratio (LCR) to be replenished before at least end-2021.

By being allowed to operate temporarily below these requirements, the institutions are encouraged to release additional resources that may be used to finance households and firms and/or to absorb unforeseeable losses. Continuing to finance viable firms may help reduce future losses and as a result have a positive impact on capital ratios.

The Banco de Portugal extended the scope and time limit of the recommendations for less significant credit institutions and investment firms subject to its supervision regarding the

limitation of: (i) dividend distribution, (ii) entry into irrevocable dividend distribution commitments, or (iii) ordinary share buy-backs. The recommendation's time limit now runs until 1 January 2021. Over the same period, it is recommended that these entities adopt more restrictive measures in awarding and paying variable remuneration.

The time limit extension is intended to limit the distribution of resources that affects capital, as institutions should conserve their capital to retain capacity to support the economy and absorb potential losses. These measures follow the European authorities' recommendations.

The European Insurance and Occupational Pensions Authority (EIOPA) and the Portuguese Insurance and Pension Funds Supervisory Authority (Autoridade de Supervisão de Seguros e Fundos de Pensões – ASF) also recommended the suspension of dividend distribution, share buy-backs or variable remuneration payment until at least 1 January 2021.

Changes to the public moratorium regime entered into force on 27 July 2020. The deadline for signing up to this regime was extended to 30 September 2020 and the eligibility conditions were also changed.

The changes made the conditions governing bank customers' tax and social security obligations more flexible. In addition, the moratorium on payment of the capital component of bank credit was extended to September 2021, except for firms operating in particularly affected sectors, whose conditions were made more favourable.

The simplified 'layoff' regime, which had been in force since March 2020, was replaced by the incentivised progressive resumption of activity, which lays down that only firms with a fall in turnover above 75% can reduce the hours worked in full and that the remuneration earned by the workers must be close to their salary level.

In regard to State-guaranteed loans, credit lines were created with a value of EUR 6.961 billion (until 30 September 2020).

Banco de Portugal revised the analytical framework of the countercyclical capital buffer

The Banco de Portugal revised the analytical framework underlying the application of the countercyclical capital buffer, adding macroeconomic and financial indicators that signal cyclical systemic risk materialisation periods in a coincident manner.[1]

The Banco de Portugal decided that the countercyclical capital buffer rate applying to domestic exposures, effective during the fourth quarter of 2020, should remain at 0% of the total risk exposure amount.

The updated list of third countries to which the Portuguese banking system is exposed for the purposes of recognising and defining the countercyclical capital buffer, effective until the second quarter of 2021, includes the Federative Republic of Brazil, the Republic of Mozambique and the Macao Special Administrative Region of the People's Republic of China. Compared with the previous year, the list of relevant third countries now includes the Federative Republic of Brazil but no longer includes the Republic of Angola.

[1] For further details https://www.bportugal.pt/sites/default/files/ccb_portugal_en.pdf.

Banco de Portugal identified the O-SIIs and calibrated their capital buffers

In the second half of 2020, the Banco de Portugal identified the Other Systemically Important Institutions (O-SIIs) and calibrated their capital buffers.

The following were identified as O-SIIs, in order of systemic importance: Banco Comercial Português (BCP); Caixa Geral de Depósitos (CGD); LSF Nani Investments S.à.r.l. (LSF Nani); Santander Totta, SGPS (BST), SA; Banco Português de Investimento (BPI) and Caixa Económica Montepio Geral (CEMG). The list of institutions designated as O-SIIs in 2020 coincides with that published in 2019. However, there was a change to the order of systemic importance. BCP is now the banking group with the greatest systemic importance in Portugal, replacing CGD, but the change has no impact on the buffer to be held by each institution (Table I.1.7).

Table I.1.7 • O-SII capital buffer between 2020 and 2023

	Implementation date of the O-SII capital buffer			
O-SII	1 January 2020	1 January 2021	1 January 2022	1 January 2023
Banco Comercial Português	0.563%	0.563%	0.75%	1.00%
Caixa Geral de Depósitos	0.750%	0.750%	1.00%	1.00%
Santander Totta – SGPS	0.375%	0.375%	0.50%	0.50%
LSF Nani Investments	0.375%	0.375%	0.50%	0.50%
Banco BPI	0.375%	0.375%	0.50%	0.50%
Caixa Económica Montepio Geral	0.188%	0.188%	0.25%	0.25%

The macroprudential authority of Sweden (Finansinspektionen) determined a one-year extension of the macroprudential measure involving the imposition to institutions using the Internal Ratings-Based Approach of a specific floor of 25% on the exposure-weighted average of the risk weights applied to the portfolio of retail exposures to obligors residing in Sweden secured by immovable property. The Banco de Portugal had already decided in 2019 to reciprocate this macroprudential measure, and is extending this until 31 December 2021.

Banco de Portugal did not extend the duration of the temporary exceptions to the limits on granting new consumer credit

Regarding the macroprudential recommendation on new credit agreements relating to residential immovable property and consumer credit, a significant convergence towards the defined limits continues to be observed. The percentage of credit relating to residential immovable property granted to borrowers with a higher risk profile fell from 35% in July 2018 to 3% in September 2020. The recommendation thus led to a lower percentage of credit granted to borrowers with a greater

debt-service-to-income (DSTI) ratio and a greater loan-to-value (LTV) ratio, which has stabilised since end-2019.

At the end of March 2020, the Banco de Portugal decided to temporarily exempt personal credit with maturities of up to two years, agreed between 1 April and 30 September 2020, and identified as intended to mitigate temporary liquidity shortages faced by households, from complying with the DSTI ratio limit and from observing the recommendation of regular principal and interest payments.

However, based on a sample of institutions representing the new credit operations to households, the Banco de Portugal concluded that no new personal loans covered by the above-mentioned temporary exceptions were granted up to July 2020. Therefore, the Banco de Portugal did not extend the duration of these temporary exceptions, which ended on 1 October 2020.

EBA published Guidelines on the subsets of exposures in the application of a systemic risk buffer

The introduction of the fifth Capital Requirements Directive clarified that the systemic risk buffer (SyRB) aims to prevent and mitigate the macroprudential or systemic risks that are not covered by other macroprudential instruments. Greater flexibility was also introduced into the application of the SyRB, with the removal of the specific reference to the SyRB being applied to prevent and mitigate long-term non-cyclical systemic or macroprudential risks. The SyRB's rate may be applicable to all exposures or a subset of exposures, thereby allowing sectoral application to all the institutions or to one or more subsets of these institutions.

The EBA Guidelines of 2 October 2020, applicable from 29 December 2020, establish a common framework for institutions operating in the European Union, allowing the definition of the subsets of exposures in the application of the SyRB to be harmonised. This will allow a common, yet sufficiently flexible, approach to be implemented, as well as facilitate reciprocity of SyRB measures between Member States.

Under the Guidelines, a subset of sectoral exposures must be defined, combining one element or one sub-element of each of the dimensions, according to Table I.1.8.

Table I.1.8 • Dimensions and correlated sub-dimensions for the application of the SyRB

Dimensions for the application of the SyRB	Correlated sub-dimensions
Type of debtor or counterparty sector	Economic activity (only applicable to legal persons
Type of exposure	Risk profile, evaluated taking into account a certain number of indicators, such as LTV and DSTI ratio (in the case of households), total debt/EBITDA ratio[(a)] – in the case of legal persons and default indicators
Type of collateral	Geographical area where the collateral is located

Note: (a) Acronym for earnings before interest, taxes, depreciation and amortization.

When appropriate, duly justified and proportional, these dimensions may be complemented with one element or one sub-element of each of the correlated sub-dimensions.

The Portuguese banks increased their distance from the maximum distributable amount, continuing to grant credit

Micro- and macroprudential policies have worked together to promote the use of previously-established capital buffers, mitigating the risk of a sharp fall in the flow of credit to the economy and increasing the institutions' loss-absorption capacity. Flexibility over capital requirements compliance is analysed in the box entitled "The banking system as economic stabiliser of the pandemic shock: a simulation of micro- and macroprudential policies". This measure avoided substantially the contraction lending to firms in the first quarters, mitigating the shock's effect on investment.

From the first to the second quarter of 2020, the banks increased their distance from the Maximum Distributable Amount (MDA) (Chart I.1.17). This resulted from the decline in the average risk weights (Chart I.1.18), reflecting the increased exposure to asset classes with low (or even zero) risk weights, such as deposits held with the ECB, exposures to general government, State-guaranteed loans and the CRR quick fix, which was introduced at the end of June and permits a more favourable prudential treatment of exposures to small and medium-sized enterprises.

Chart I.1.17 • Quarterly change of the distance from the MDA | In percentage points

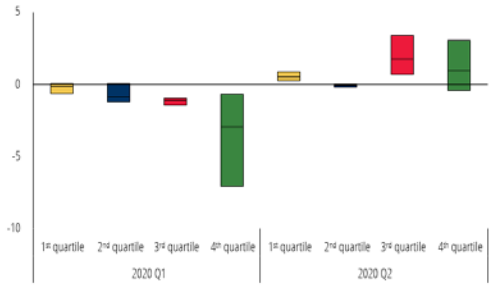
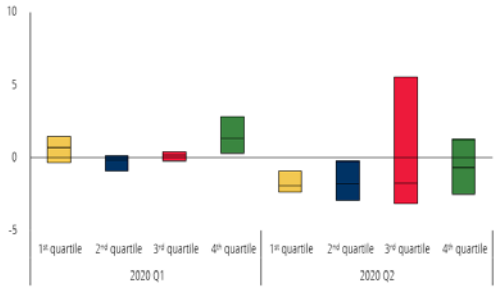


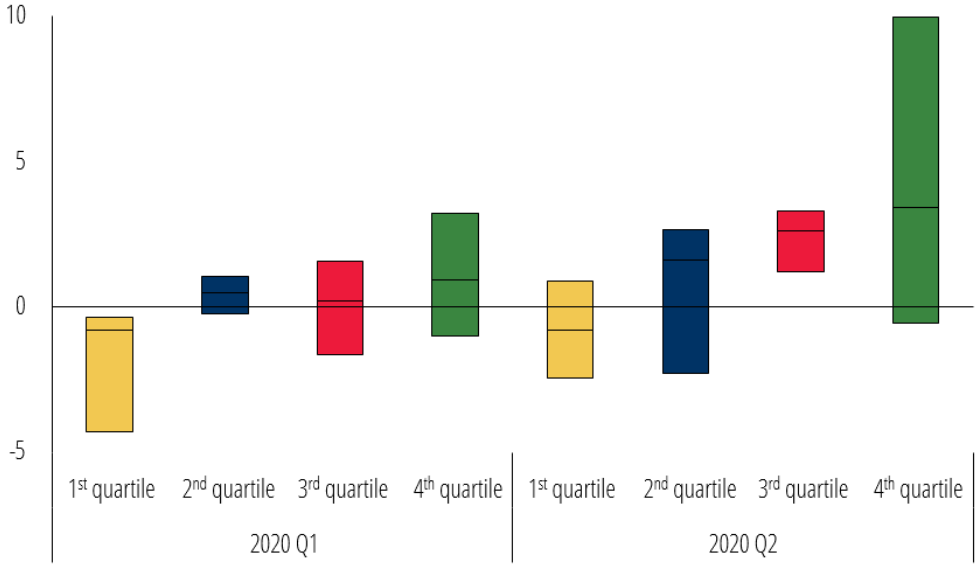
Chart I.1.18 • Quarterly change of the average risk weights | In percentage points



Source: Banco de Portugal. | Notes: The quartiles are in accordance with the position of the institution in the distribution of the distances from the MDA (difference between the capital ratio and the global own funds requirement) in Q1 2020. The graphs represent the interquartile range for the quarterly absolute change of the distance from the MDA (in percentage points), in the Chart I.1.17, and the quarterly absolute change of the average risk weights (in percentage points), in the Chart I.1.18. For more information about the maximum distributable amount, see the Special Issue "Interaction between regulatory minimum requirements and capital buffers" of the June 2020 *Financial Stability Report* of Banco de Portugal.

The institutions most distant from the MDA contributed more strongly to the growth in credit to the private non-financial sector during the second quarter. In accordance with Chart I.1.19, the banks least distant from the MDA reduced its lending to the private non-financial sector, unlike the banks most distant from the MDA (3rd and 4th quartiles).

Chart I.1.19 • Quarterly growth rate of lending to the private non-financial sector | Per cent



Source: Banco de Portugal. | Notes: The quartiles are in accordance with the position of the institution in the distribution of the distances from the MDA (difference between the capital ratio and the global own funds requirement) in Q1 2020. The graph represents the interquartile range for the quarterly growth rate of lending to the private non-financial sector (in percentage).

The banks might not use the capital buffers to grant credit, for reasons of strategy, capital needs to cover future losses or market discipline. Despite market discipline being essential to financial stability and for helping avoid excessive leverage in the banking sector, it tends to increase during periods of financial stress, creating deleveraging pressures. This behaviour may be due to the higher financing costs faced by the institutions, or to the restriction on the availability of financing when capital ratios decrease or because of a perceived greater default risk.

When information about partial or total use of the CBR becomes public, possible market stigma can work as a deterrent, mainly when the decrease in the capital ratios is linked to growth in lending, which is seen as excessive risk-taking. Another important factor is the reaction of the credit rating agencies, which use the distance from the MDA in their rating metrics.

Compliance with other regulatory requirements, such as the leverage ratio and the Minimum Requirements for Own Funds and Eligible Liabilities (MREL), could also restrict usage of a specific capital buffer requirement.

Uncertainty over future losses could also lead institutions to keep their capital ratio at significantly higher levels than those that would trigger possible non-compliance with the CBR. Finally, uncertainty over when the authorities will revert to requesting compliance with that requirement may also discourage the use of the capital buffers.

Some of these factors can be mitigated through clear and convincing communication by the micro- and macroprudential authorities, encouraging the use of the buffers where needed.

Should the macroprudential authorities call for reestablishment of the requirements over too short a time frame, in particular when the institutions' capacity to generate reserves internally is low or inadequate, it could restrict the credit supply at a time when the economy is recovering, delaying the recovery. The capital buffers should be restored at a pace ensuring that excessive risks should not be taken and excessive deleveraging strategies should not be used, ensuring that institutions maintain a sustainable profitability path.

The other public support measures will also be gradually removed, including the credit moratoria and the State-guaranteed loans system. If the moratoria should end before the borrowers' financial situation is addressed, it could result in an increase in arrears, potentially affecting the financial system's intermediation capacity and resilience. Therefore, the financial institutions that applied the credit moratoria should maintain the regular assessment of their borrowers' creditworthiness, ensuring that any deterioration is offset by an appropriate increase in expected risk provisions.

These considerations indicate that the pandemic experience could, in the medium term, lead to the revision of the macroprudential buffer framework and assessment of the buffers' relative weight for structural and cyclical systemic risk purposes.

2 Banking system

In the first half of 2020, the Portuguese banking system's profitability decreased to close to zero, remaining in line with the euro area average. The increase in credit impairment losses and the reduction in income from financial operations largely contributed to these developments.

This occurred in a very adverse macroeconomic environment, characterised by a very marked decline in economic activity in the second quarter and with different impacts across sectors. As a result of the authorities' timely action, it was possible to mitigate these impacts, preserving the financing of firms under favourable financing conditions.

Between March and September 2020, new loans to firms increased by 15% year on year. About 38% of the new loans granted were secured by a State guarantee. The increased use of State-guaranteed loans was observed in firms with lower pre-pandemic risk. In June 2020 the sectors most affected by the pandemic accounted for 4% of the system's assets and 20% of loans to firms. State-guaranteed loans have increased the downward trend in the interest rate observed up to May. However, as of June, the interest rate on firms increased, reflecting the smaller volume of new State-guaranteed loans and tighter credit standards for loans.

The stock of loans for house purchase gradually increased over the first half of the year. This was the result of growth in new lending operations, compared to the same half-year period a year earlier, and the reduction in repayments, reflecting the effects of the moratorium. Annual growth rates decreased in the consumer credit segment, reflecting the sharp decline in new lending operations.

The gross and net NPL ratios continued to decline, albeit at a slower rate, reflecting greater difficulties in decreasing non-performing loans. There are already some signs that point to an increased credit risk materialisation. There was a slight increase in restructured loans, past-due performing loans, non-performing loans, loans to households for consumption and other purposes, with the latter being accompanied by an increase in impairment coverage. Similarly, impairment coverage increased in both credit components (performing and non-performing).

The funding obtained by the Portuguese banking system from the Eurosystem reached 7.7% of assets in June, increasing 3.2 p.p. from December 2019. The relevance of the targeted long-term refinancing operations III (TLTRO III), substantially used by banks in June 2020, is noteworthy. Together with the system's high structural liquidity, these developments have led to an increase in the liquidity coverage ratio to 256.6%. Reserves in central banks (58%) and government debt securities (15%) increased. The temporary prudential filter, established under the regulatory framework changes, neutralises the impact of sovereign debt market volatility on regulatory capital.

The average risk weight decreased, resulting in improved capital ratios. The increase in exposures to sovereign debt securities, cash balances at central banks, State-guaranteed loans and the impact of measures at the CRR level (quick fix) contributed to this result. There was also a positive capital contribution from retained earnings.

The progress made by the Portuguese banking system over the last decade has proved critical against a background as challenging as the current one. In accordance with the Banco de Portugal's projections (baseline scenario) published in the December 2020 issue of the *Economic Bulletin*, the resilience of the Portuguese banking system is preserved, ensuring its capacity to meet credit demand. Even in the event of an extension of the pandemic crisis (severe scenario), the banking system remains resilient. These results do not take into account additional support measures in case of a higher probability of this scenario materialising.

The measures taken by the ECB and the Banco de Portugal have played a crucial role in promoting bank performance in financing the economy and their ability to absorb potential losses. Banks

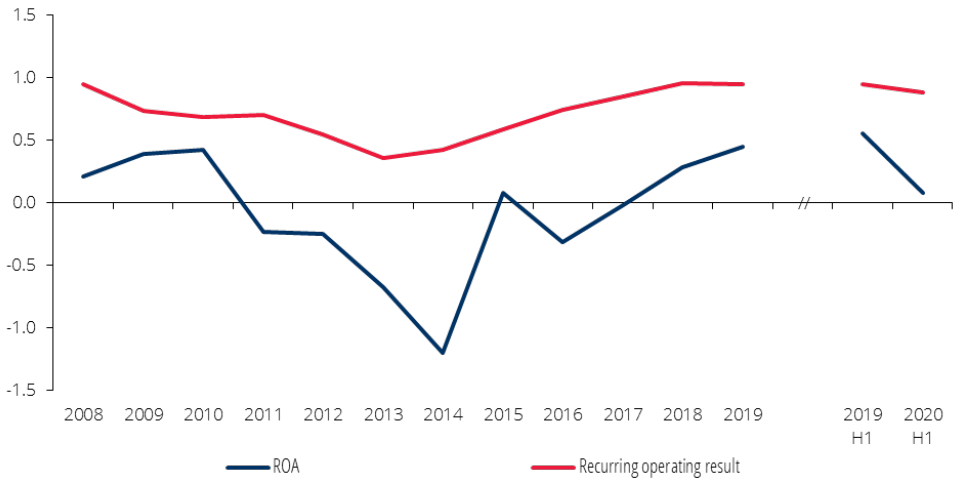
should continue to take advantage of the flexibility granted to use their capital buffers to absorb losses and finance the economy. In parallel, they should invest in a proper risk control of their activity and in improving the production process.

2.1 Profitability

The banking system's profitability has decreased due to credit impairments

In the first half of 2020, the Portuguese banking system's profitability reflected the economic impact of the pandemic. Return on assets (ROA) decreased by 0.48 p.p., to 0.08% in annualised terms (Chart I.2.1), but dispersion between institutions increased. The institutions with a negative ROA accounted for 18% of the banking system's assets, compared to 12% in the same period of the previous year.

Chart I.2.1 • ROA and Recurring operating result | Per cent



Source: Banco de Portugal. | Notes: The return on assets (ROA) is calculated as the net result as a percentage of average assets. Recurring operating result corresponds to net interest income plus net fees and commissions less operational costs.

The deterioration in profitability resulted mainly from the increase in net provisions and impairments, which contributed -0.32 p.p. to changes in ROA (Table I.2.1). Recurring operating income, which includes the most stable components of income (net interest income and net fees), decreased by 0.07 p.p. of average assets to 0.88%. Changes in income from financial operations had a negative impact of 0.16 p.p. Conversely, reduction in operational costs mitigated these effects.

The contribution by net provisions and impairments was four times lower for institutions that showed an ROA below the median (0.89%) at the end of 2019, compared to the remainder (Table I.2.1). For the most profitable institutions, the contribution by changes in net interest income to changes in ROA was -0.12 p.p., in contrast to a marginally positive contribution to the institutions with a ROA below than the median. In contrast, for the least profitable institutions the contribution by income from financial operations was more negative (-0.33 p.p.).

Table I.2.1 • ROA – Level and contribution to its variation | As a percentage and percentage points of average assets

	Banking system	ROA below median	ROA equal or above median
ROA 2019 H1	0.56	-0.01	1.12
Net interest income	-0.05	0.01	-0.12
Net fees and commissions	-0.04	-0.04	-0.04
Income from financial operations	-0.16	-0.33	0.00
Other operating income	0.02	-0.02	0.06
Operating costs	0.05	0.01	0.08
Net provisions and impairments	-0.32	-0.12	-0.52
Other effets on profit or loss [(a)]	0.04	0.03	0.06
Average assets	-0.01	0.01	-0.01
ROA 2020 H1	0.08	-0.47	0.63

Source: Banco de Portugal. | Notes: The return on assets (ROA) is calculated as the net result as a percentage of average assets. (a) Includes other elements of profit or loss, namely the share of the profit or loss of investments in subsidiaries, joint ventures and associates accounted for using the equity method and profit or loss from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations.

The different profitability determinants between the two groups of institutions reflect, among other factors, the distinct adjustment stages in which the institutions were at the beginning of the pandemic crisis, particularly as regards non-performing asset reduction and the adjustment of operational cost structures.

The loan loss charge increased to 0.93% in the first half of 2020, more than doubling compared to the same period one year earlier, well below the figures achieved during the sovereign debt crisis (1.5% to 2%). Institutions that had net NPL ratios below the median at the end of 2019 posted a higher increase in loan loss charge and they were, in general, the institutions with higher return on assets and capital ratios and lower loan loss charge (Table I.2.2). The loan loss charge stood at 0.93% in the first half of 2020.

Table I.2.2 • Loan loss charge by net NPL ratio

		Net NPL ratio	
	Banking system	Below median	Equal or above median
Loan loss charge (Jun. 20)	0.93%	0.60%	1.78%
Change (Jun. 19 - Jun. 20)	0.52 p.p.	0.84 p.p.	0.15 p.p.
Memorandum:			
CET 1 ratio (Dez. 19)	14.6%	16.4%	12.5%
ROA (Dez. 19)	0.08%	0.94%	-0.12%

Source: Banco de Portugal. | Notes: The loan loss charge ratio corresponds to the flow of credit impairment as a percentage of total average gross credit to customers. The net NPL ratio corresponds to the ratio between the value of NPLs net of impairments and the total gross value of the loans. The CET 1 ratio corresponds to the ratio between Common Equity Tier 1 and risk-weighted assets.

Income from financial operations made a -0.16 p.p. contribution to changes in ROA, standing at -0.05% of average assets in the first half of 2020. These developments mainly reflect the reassessment of exposures to restructuring funds by some institutions, which resulted in an increase in the negative results in capital-based instruments. Income from operations with debt securities also decreased to 0.11% of average assets (0.22% in the same period of the previous year).

Net interest income and fees have reduced the return on assets by 0.09 p.p.

In the first half of 2020, the net interest income decreased by 3.4% year on year, negatively contributing with 0.05 p.p. to changes in ROA. (Table I.2.3). The decrease in net interest income is the result of a reduction in interest income higher than the reduction in interest expenses, which is explained by the price effect of the yield differential. Interest income decreased more significantly in loans granted to households and NFCs and in sovereign debt securities. The volume effect (changes in interest-bearing assets or liabilities) was positive, albeit low. Cash balances in central banks increased by 89%, contributing with 0.01 p.p. to the decrease in net interest income as a percentage of average assets.

Net fees decreased by 5.6% year on year, contributing with -0.04 p.p. to changes in ROA. These developments reflect the lower volume of transactions and the reduction in financial intermediation in some segments.

Table I.2.3 • Net interest income – Contributions to changes in ROA | In percentage points of average assets

	Price effect	Volume effect	Change in ROA
Net interest income	-0.06	0.01	-0.05
Interest income[a]	-0.19	0.01	-0.18
Debt securities	-0.06	0.01	-0.05
Customer loans	-0.07	-0.01	-0.08
Other assets[b]	-0.06	0.01	-0.05
Interest expense[a]	0.14	-0.01	0.13
Customer deposits	0.06	-0.01	0.06
Debt securities issued	0.00	0.00	0.01
Other liabilities[c]	0.07	0.00	0.07

Source: Banco de Portugal. | Notes: (a) does not include interest from derivatives used for hedge accounting. (b) Includes interest from trading derivatives, loans to central banks, loans to credit institutions, and other assets. (c) Includes interest from deposits from central banks, deposits from credit institutions, trading derivatives and other liabilities.

The cost-to-core-income ratio rose by 0.5 p.p., to 60.6%

Operational costs decreased 3.3% year on year due to reductions in staff costs by 5.0% and other administrative expenses by 3.3%. The total operating income posted a sharper decrease (9.6%). Thus, the cost-to-income ratio rose by 4.0 p.p. year on year, to 61.2%. Despite the cost structure adjustment observed up to 2019, the cost-to-income ratio is about 7 p.p. above that observed in the period prior to the international financial crisis. The cost-to-core-income ratio, which is

corrected of the most volatile income components, such as income from financial operations and other operating results, increased by 0.5 p.p., to 60.6%.

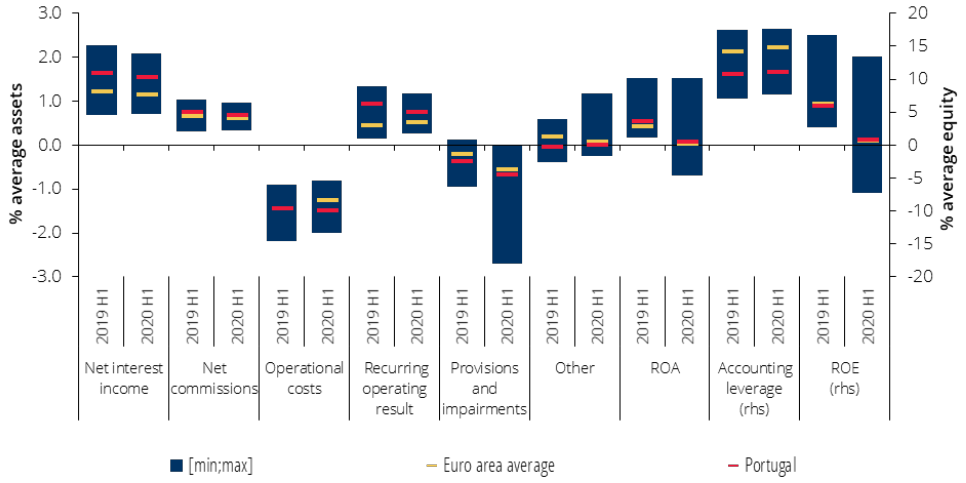
The Portuguese banking system's profitability continued to be in line with that of the euro area

In the euro area, the average ROA decreased from 0.4 p.p. to 0.04%, about half of the value recorded in the Portuguese banking system (0.08%) (Chart I.2.2). The deterioration in profitability was widespread across Member States, with some systems posting a negative ROA.

The Portuguese banking system continues to present provisions and impairments, as a percentage of average assets, higher than the European average, reflecting one of the highest NPL ratios in the euro area (Section 2.2). However, in the first half of 2020, the increase in the flow of impairments was less significant in Portugal.

In the euro area, the recurring operating result increased by 19.5% year on year and decreased 5.2% in the Portuguese banking system. These different dynamics mainly derive from a more significant reduction in operational costs in the euro area. The less marked reduction in net interest income and the stabilisation of net commissions in the euro area have also contributed to distinct developments. Nevertheless, the recurring operating result as a percentage of average assets and the ROA are still higher in Portugal.

Chart I.2.2 • ROA, ROE and leverage – international comparison | Per cent



Sources: Banco de Portugal and European Central Bank (*Consolidated Banking Data*). | Notes: net interest income, net fees and commissions, operating costs, recurring operating result, provisions and impairments, and other represent contributions for the change in return on assets (ROA). The ROA is calculated as the net result as a percentage of average assets. The return on equity (ROE) is calculated as the net result as a percentage of average equity. Leverage corresponds to the ratio between equity and total assets. Annualised figures.

2.2 Asset quality

Gross and net of impairments NPL ratios continued to decrease

In the first half of 2020, the gross NPL ratio (as a percentage of total loans) increased by 0.6 p.p., to 5.5%. Institutions with a higher gross NPL ratio showed a higher reduction than the remainder. Gross NPL ratios of NFCs and households for housing decreased by 1.2 and 0.2 p.p., respectively, to 11.1% and 2.2% (Table I.2.4). However, the NPL ratio of households for loans for consumption and other purposes increased by 0.4 p.p., as a result of a 3.7% increase in NPL. Note that the portfolio of loans for consumption and other purposes weighs less in the balance sheet of the system than the rest, accounting for 7.6% of assets in June 2020.

In June 2020, the net impairment NPL ratio stood at 2.6%, -0.4 p.p. from December 2019. The reduction in the gross NPL ratio and the increase in impairment coverage contributed with 0.3 p.p. and 0.1 p.p. respectively to the decrease in the ratio. This reduction is broadly based across the NFC and household segments. Although the gross NPL ratio has increased in the household segment for consumption and other purposes, the increase in impairment coverage more than offset the NPL increase.

Table I.2.4 • Gross and net of impairments NPL ratios | Per cent

	Jun. 16	Dec. 17	Dec. 18	Dec. 19	Jun. 20
Gross NPL ratio[a]					
Total[b]	17.9	13.3	9.4	6.2	5.5
Percentile 5[c]	7.2	6.2	3.3	2.4	2.2
Percentile 95[c]	36.1	27.9	22.6	11.8	11.3
Non-financial corporations	30.3	25.2	18.5	12.3	11.1
Households	9.2	7.1	5.1	3.7	3.6
Housing	7.2	5.7	3.8	2.4	2.2
Consumption and other purpose	19.0	13.1	10.5	8.2	8.6
Net of impairments NPL ratio[d]					
Total[b]	10.2	6.7	4.5	3.0	2.6
Percentile 5[c]	2.7	2.7	1.4	1.1	1.3
Percentile 95[c]	19.7	12.4	9.6	6.0	4.8
Non-financial corporations	16.3	11.6	8.0	5.4	4.8
Households	5.8	4.5	3.0	2.1	1.9
Housing	5.5	4.4	2.7	1.8	1.5
Consumption and other purpose	7.6	4.9	4.2	3.4	3.3

Source: Banco de Portugal. | Notes: The historical maximum of NPL occurred in June 2016. (a) Corresponds to the ratio between the value of non-performing loans (NPL) and the total gross loans. (b) Includes loans and cash balances in central banks and credit institutions, and loans to general government, other financial corporations, non-financial corporations and households. (c) Percentiles were obtained through the asset-weighted distribution of gross and net of impairment NPL ratios. (d) Corresponds to the ratio of the non-productive loans (NPL) net of impairment to the total gross loans.

The reduction in the gross NPL ratio was due, in similar magnitudes, to the NPL decrease and the increase in performing loans. NPL sales and write-offs contributed with 0.2 and 0.1 p.p. respectively to the reduction of the ratio (Table I.2.5).

The NPL sales occurred before the effects of the pandemic in Portugal had begun to be recorded. Institutions will have to adapt to more demanding NPL sales market conditions, reflecting the effect of the pandemic crisis on the value of assets and recovery processes.

In the first half of the year, growth in performing loans was 6.1%, with a 4 p.p. contribution by the increase in cash balances at central banks. This increase cannot be dissociated from the increase in funding from the Eurosystem at the end of the half-year period (Section 2.5). In addition, the portfolio of performing loans to NFCs increased by 5%, contributing with 1.6 p.p. to the total (Section 2.4).

The contribution of the new NPLs net of cures to developments in the gross NPL ratio was approximately zero. This contrasts with significant past contributions by this component (via the cures). The current economic situation has reduced the ability of the non-financial private sector to serve the debt, making it difficult to cancel NPLs through cures.

Table I.2.5 • Gross NPL ratio – contributions to the evolution | In percentage points

	2016 H2	2017 H1	2017 H2	2018 H1	2018 H2	2019 H1	2019 H2	2020 H1
Write-offs	-0.8	-0.4	-0.8	-0.6	-0.5	-0.4	-1.0	-0.1
NPL sales	-0.2	-0.2	-0.7	-0.3	-1.0	-0.1	-0.9	-0.2
New NPL, net of cures	-0.2	-0.7	-0.2	-0.5	-0.6	-0.3	-0.2	0.0
Other denominator effects	0.5	-0.6	-0.4	-0.1	-0.1	-0.3	0.0	-0.3
Total	-0.8	-1.8	-2.1	-1.6	-2.3	-1.1	-2.1	-0.6

Source: Banco de Portugal. | Notes: NPLs according to the EBA definition. NPL sales include securitisations. The 'New NPLs, net of cures' item reflects all the NPL inflows and outflows for reasons other than write-offs, sales and securitisations, namely new NPLs net of cures, amortisations and foreclosures. Other denominator effects reflect changes in the stock of loans that are not related with the NPL stock (e.g. net flow of performing loans).

In the first half of 2020, there was no significant deterioration in the system's portfolio quality. For example, the structure of the portfolio of loans per impairment stage[2] remained stable. In June 2020, loans in stages 1, 2 and 3 accounted for 85.1%, 8.8% and 6.1% of the total respectively. This benefits from the policy measures taken by national and European authorities, which mitigated the liquidity shock in NFCs and households. Other measures, such as the ECB/SSM-issued guidance to avoid excessive procyclicality of IFRS9 implementation, were probably also important to maintaining the observed stability. In this guidance, the ECB/SSM recommended, among other aspects, the use of a long-term macroeconomic scenario.

Among the measures adopted to respond to the pandemic crisis are the moratorium on interest or principal and interest payments and State-guaranteed credit lines. In September 2020, 32% of loans to NFCs and 17% of loans to households were covered by a moratorium (Boxes 2 and 3). The State guarantee covered about 15% of loans to NFCs (of which about one-third of loans were granted before the pandemic began). In September 2020, considering only loans with a moratorium for the seven major banking groups, the share classified as stage 2 was higher than the total portfolio, both for NFCs (+8.0 p.p.) and for households (+4.9 p.p.).

[2] Stage 1 includes all loans where no significant increase in credit risk has occurred yet. Stage 2 comprises loans where a significant increase in credit risk has been observed. Stage 3 includes loans where the counterparty is already found to be in default. For more detail on the classification of assets by impairment stage refer to: Special issue 2 "IFRS 9 – Main changes and impacts anticipated for the banking system and financial stability", *Financial Stability Report*, June 2017.

Performing loans past due between 30 to 90 days and impairment coverage have increased

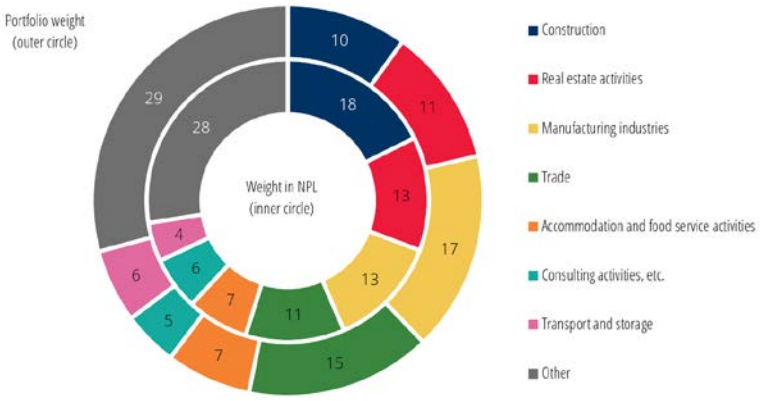
Despite the total reduction in NPLs, forborne loans increased by 2.1% in the first half of 2020, by 1% for NFCs and by 5% for households. The increase in forborne loans was due to growth in the component of performing forborne loans, mainly due to changes in terms and conditions. However, non-performing forborne loans have decreased.

Performing loans past due between 30 to 90 days also increased by 44% (an increase of EUR 514 million). This growth occurred both in loans to NFCs and households.

Impairment coverage of loans to NFCs and households increased in the performing and non-performing components. This reflects the increase in performing loans more than 30 days past due (part of which, at least, may have passed from stage 1 to stage 2) and earlier credit risk materialisation in future periods.

The pandemic had an asymmetrical impact by sector and by firms' liquidity and capital conditions before the pandemic. In June 2020, the sectors with the most affected firms showed lower NPL ratios and a lower share in total NPLs of NFCs than in the NFC portfolio (Chart I.2.3). In contrast, the construction sector has the greatest share in NPLs of NFCs (18%), which is higher than its relative size in the portfolio (10%). This reflects the impacts of the sovereign debt crisis on the sector; however, in the current pandemic crisis, construction is one of the least affected sectors in Portugal.

Chart I.2.3 • Loans to NFC by branch of activity– June 2020 | Per cent



Source: Banco de Portugal. | Notes: NPLs according to the EBA definition. The activity branches follows the one-digit classification. The activity sector "Trade" corresponds to the aggregate of the sectors "wholesale and retail trade; repair of vehicles" and" accommodation and food service activities".

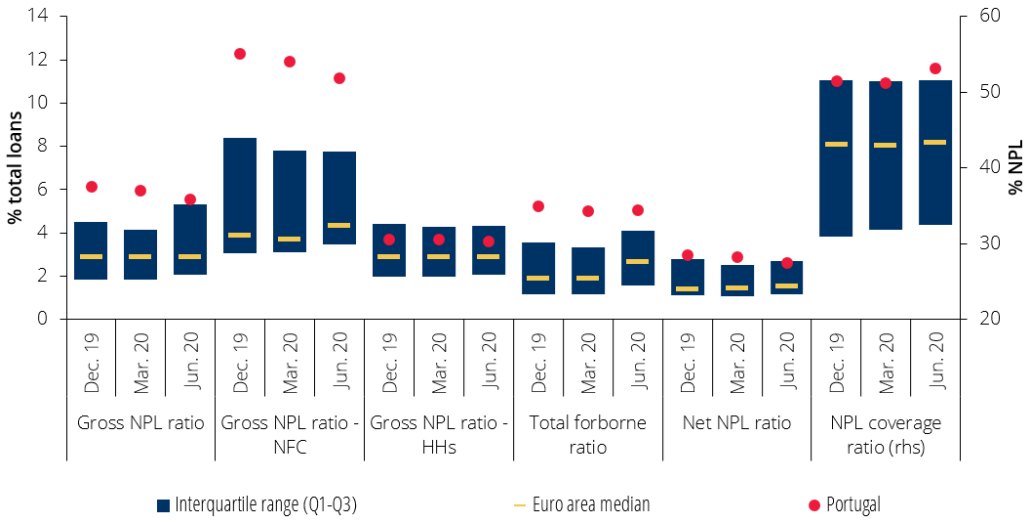
In the first half of 2020, there was a general reduction in gross NPL ratios across the different branches of activity. In addition, the impairment coverage of NPLs of the above-mentioned branches has increased considerably.

Based on the projections of the Banco de Portugal (baseline scenario) published in the December 2020 issue of the *Economic Bulletin*, NFC default probability is expected to increase in 2020, especially for the accommodation and food services sector, with a gradual reduction in 2021 and 2022. The latter year is expected to show a higher level, by about one fifth, compared to 2019.

Under the severe scenario, developments similar to those under the baseline scenario are expected in 2020, but with a slower reduction in default probabilities in 2021 and 2022.

The progress observed in asset quality in Portugal is mirrored across Europe. In the second quarter of 2020, the downward path of the gross NPL ratio continued for the countries with the highest ratios. The Portuguese banking system continues to compare unfavourably to the euro area median in terms of gross NPLs (Portugal: 5.5% and EA: 2.9%) (Chart I.2.4). However, in June 2020, in terms of the NPL ratio net of impairments, the Portuguese banking sector was only 1 p.p. above the euro area median (1.5 p.p. in December 2019).

Chart I.2.4 • Loan quality - International comparison



Source: European Central Bank (Consolidated Banking Data). | Notes: NPLs according to the EBA definition. Due to lack of data, Germany was not considered in the values of the net NPL ratio and the NPL coverage.

The Portuguese banking system faces several challenges in the short and medium term. The deterioration of the economic situation and uncertainty about the magnitude and duration of the pandemic are likely to contribute to a deterioration in asset quality in the coming quarters. Thus, institutions should continue to monitor borrowers' credit quality, avoiding late recognition of losses.

2.3 Concentration of exposures

The sectors most affected accounted for 4% of assets and 20% of loans to NFCs

Loans granted in domestic activity to the most affected sectors (with a decline in turnover of more than 40%) accounted for 4% of assets and about 20% of loans to NFCs in June 2020 (Chart I.2.5). Between March and June 2020, these loans increased by 8.1% (€1.2 billion), reflecting the measures adopted to meet liquidity needs, with emphasis on State-guaranteed credit lines (Section 2.4). These measures allowed for an increase in the supply of credit to NFCs, with an increase in credit to be accompanied by a reduction in interest rates.

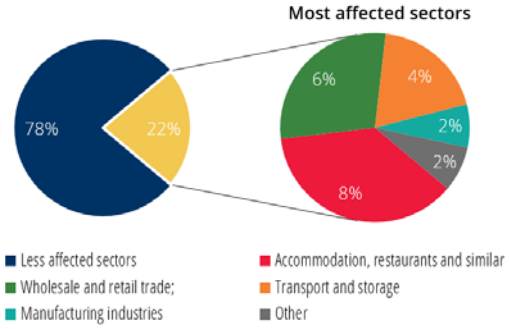
The increase in loans to the most affected sectors was mainly for firms in the wholesale and retail trade (€758 million; 14%) and in accommodation, food services and the like (€331 million; 8%).

The share of exposure to the real estate market continued its downward path

In the first half of 2020, the downward path of the banking sector's share of the exposure to the real estate market continued, accounting for 35.6% of assets (-2.1 p.p. from December 2019 and -3.0 p.p. from December 2015). The reduction was essentially due to the expansion in assets through "assets other than real estate assets or collateralised by real estate". In absolute terms, total exposure was €147 billion in June (-0.2% from the end of 2019 and -6.5% from the end of 2015), of which €106 billion corresponded to indirect exposure to the real estate market through loans to households collateralised by real estate.

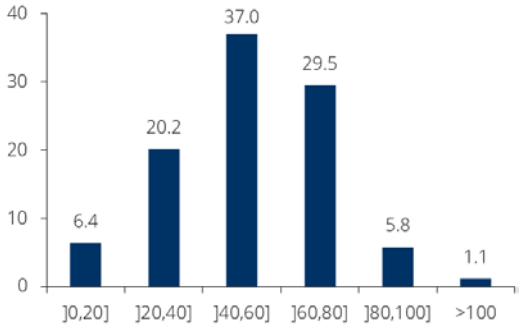
In September 2020, 90% of the portfolio amount of loans to households for house purchase had a loan-to-value (LTV) of 80% or less, with the median value standing at 53% (Chart I.2.6). The lower the loan value is compared to the value of the associated real estate (loan-to-value), the greater the banking system's ability to accommodate a fall in prices.

Chart I.2.5 • Gross loans to NFC – June 2020 and domestic activity | As a percentage of the portfolio



Source: Banco de Portugal. | Note: The most affected sectors (CAE-Rev 3 double-digit) are those that recorded a turnover drop of more than 40% in the 2nd quarter of 2020 (compared to the situation expected in a scenario without a pandemic, based on the results of the Fast and Exceptional Enterprise Survey - COVID-19) and where, simultaneously, at least 1/3 of the companies in the sector do not expect a return to normal activity levels by the end of 2020.

Chart I.2.6 • Current LTV of housing loans stock in September 2020 | As a percentage of the portfolio



Source: Banco de Portugal. | Notes: Indicator based on granular data at loan level (Central Credit Register). Whenever the date of the last valuation of the property is prior to 2020Q2, its current value is estimated on the basis of the Statistics Portugal Housing Price Index.

Exposure to sovereign debt securities from Portugal and Spain has increased

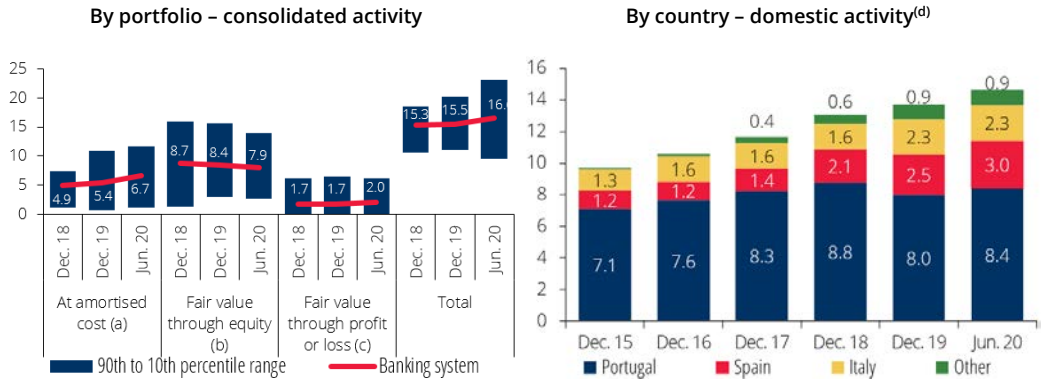
In June 2020, exposure to sovereign debt securities accounted for 16.6% of the banking system's assets, 1 p.p. more than in December 2019 (Chart I.2.7, left panel). This was due to a 13% increase in exposure in the first half of the year, reflecting abundant liquidity in the banking sector (Section 2.5).

The financial consequences of this exposure depend, *inter alia*, on the method of government debt security portfolio management, which implies different impacts of market yield changes. Financial assets recorded at amortised cost do not show changes in balance sheet value from price changes in financial markets. This only happens when the asset is sold.

In the first half of 2020, the share of sovereign debt securities valued at amortised cost increased to 40%, accounting for 6.7% of assets (Chart I.2.7, left panel). Conversely, the share of securities with an impact on capital decreased by 0.4 p.p., to 7.9% of assets. This reduction only reflects the increase in assets, since the value of the securities in this portfolio remained stable.

The increase in exposure to sovereign debt securities occurred in the domestic activity of the banking system. Portfolio asset growth reflected an increase in debt securities, particularly for Portugal (+0.4 p.p. of assets) and Spain (+0.5 p.p. of assets) (Chart I.2.7, right panel). A sensitivity analysis shows that a possible 100 b.p. rise in the government yield curve in Portugal, Spain and Italy would have a negative impact of around 74 b.p. on the common equity tier 1 (CET 1) prudential ratio of the main Portuguese banks. However, considering the impact of individual shocks, CET 1 ratios of these institutions would remain above regulatory minimums.

Chart I.2.7 • Sovereign debt securities | As a percentage of assets



Source: Banco de Portugal. | Notes: (a) Includes debt securities recorded in assets held to maturity and other accounts receivable (IAS39), as well as amortized cost (IFRS9); (b) Includes debt securities held for trading (IAS39), as well as debt securities at fair value through Other Comprehensive Income (IFRS9); (c) Includes debt securities recorded as held for trading and at fair value through profit or loss (IAS39/IFRS9), as well as non-trading assets at fair value through results (IFRS9); (d) The series refers to the reporting on an individual basis of the other monetary financial institutions resident in Portugal. Exposure by country is expressed as a percentage of OMFI total assets.

Direct interlinkages between banks and the financial system have decreased

The materiality of exposure to the sovereign is shared by other subsectors of the financial system. Thus, in the face of an increase in yields, the impact on banking system solvency could be amplified, reflecting the existence of interlinkages in the financial system. These may have a relevant role in transferring and amplifying shocks.

As in the past year, a reduction in direct interlinkages between banks and the financial system was also observed in the first half of 2020 (Table I.2.6). The share of assets held by banks (deposits, debt securities, loans, shares and other investment funds' holdings and listed shares), whose counterparty is the financial sector, decreased by 0.5 p.p. to 16.6%. This decrease reflected the reduction in debt securities and loans to Other Financial Intermediaries and, to a lesser extent, loans to Investment Funds. These developments were mitigated by the increase in banks' debt securities in their assets. The increase in cash balances at central banks, government debt securities and loans to NFCs also contributed to the reduction in the share of exposure to the financial sector.

Table I.2.6 • Interlinkages between banks and financial system | As percentage of assets

	Dec. 13	Dec. 14	Dec. 15	Dec. 16	Dec. 17	Dec. 18	Dec. 19	Dec. 20
Banks	13.4	9.6	10.3	10.8	9.9	10.7	11.0	11.1
Other financial intermediaries	6.9	6.9	6.6	6.5	5.9	6.0	4.4	3.9
Insurance corporations and pension funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment funds	2.1	2.3	2.3	2.2	2.1	2.0	1.7	1.6

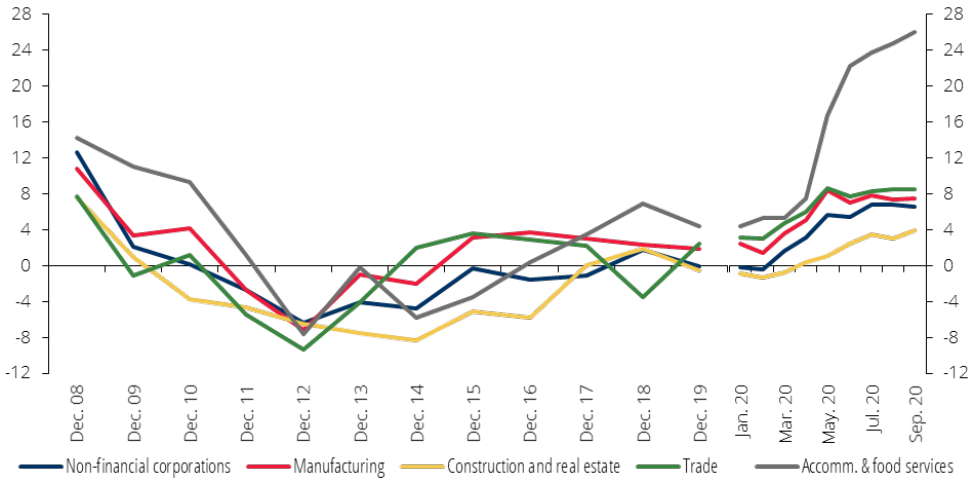
Source: Banco de Portugal. | Notes: The following financial assets were considered in the calculation of exposure: deposits, debt securities, loans, shares and other units in investment funds and listed shares. Total non-consolidated assets of banks was also considered.

2.4 Credit standards

State-guaranteed credit lines stimulated the banking system's financing of NFCs, despite the tightness of credit standards

State-guaranteed credit lines, operated through the banking system, have mitigated the shock in liquidity associated with the pandemic and ensured lower interest rates and longer maturities (Box 2). The NFCs from the most affected sectors were the main beneficiaries of these credit lines, thus showing higher growth in credit (Chart I.2.8).

Chart I.2.8 • Bank credit granted to NFCs – Annual rate of change | Per cent



Source: Banco de Portugal. | Notes: Annual rates of change were calculated on the basis of an index constructed using adjusted transactions, i.e. changes in end-of-period outstanding amounts adjusted for reclassifications, write-offs, price and exchange rate revaluations and, where relevant, for the effect of securitisation and sales. Bank credit to NFC includes debt securities held by banks. Manufacturing includes "Manufacturing" and "Mining and quarrying". Trade corresponds to "Wholesale and retail trade; repair of motor vehicles and motorcycles"; Accomm. & food services corresponds to "Accommodation and food service activities". Credit granted by monetary financial institutions resident in Portugal to residents in the euro area. Activity on an individual basis.

Between March and September 2020, new loans to NFCs increased by 15% year on year and by 82% considering only the second quarter. Between March and September, about 39% of the new loans to NFCs were State-guaranteed loans (Chart I.2.7), with this share being 59% for the most affected sectors of activity (Box 2).

State-guaranteed loans have increased the downward trend in the interest rate on new loans to NFCs, which reached a minimum of 1.6% in May 2020. Despite the legal restriction to the maximum spread of State-guaranteed credit lines, the low interest rate is consistent with the lower risk incurred by the institutions. Although the probability of default has increased due to deterioration in economic activity, loss given default is lower due to the guarantee.

As of June, the interest rate on new loans to NFCs increased to about 2.0% on average in the third quarter (Table I.2.7). This reflects the smaller volume of new State-guaranteed loans and tighter credit standards, as reported by banks in the October issue of the *Bank Lending Survey* (BLS). Nevertheless, according to the banks' responses, the tightening in credit standards is lower than that observed during the last international financial crisis and the sovereign debt crisis.

Table I.2.7 • New loans to NFC net of repayments and interest rate | Million euros and per cent

	Jan. 20	Feb. 20	Mar. 20	Apr. 20	May 20	Jun. 20	Jul. 20	Aug. 20	Sep. 20
Net use of credit lines[(a)]	24	185	375	89	-495	-88	196	145	97
Repayments (old contracts)	-2,532	-2,555	-2,374	-1,356	-1,450	-1,930	-1,803	-1,354	-1,038
New contracts (with public guarantee)	69	73	156	346	2,579	1,219	607	205	527
New contracts (without public guarantee)	1,756	1,937	,2274	1,335	1,393	1,730	1,389	1,070	1,597
New loans net of repayments	-683	-359	431	413	2,027	930	388	67	1,184
Memorandum items:									
Interest rate	2.3%	2.1%	2.1%	2.1%	1.6%	1.7%	2.0%	1.9%	2.0%

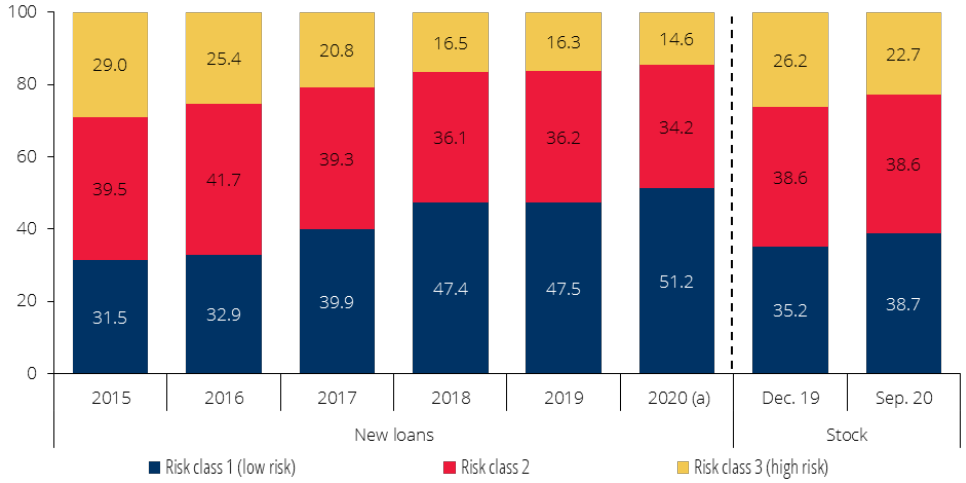
Source: Banco de Portugal. | Notes: (a) The use of a credit line is assumed whenever, in the same contract, approximately symmetrical variations (+/- 25%) of the amounts of actual and potential credit are recorded. The use of the credit line means that the decrease in the potential credit coincided approximately with the increase in effective credit, while the liquidation of the credit line translated in the opposite direction. Domestic activity.

Firms with lower pre-pandemic risk benefited relatively more from State-guaranteed loans than all others. Between March and September, 46% of new loans to lower-risk NFCs were State-guaranteed loans, compared to 30% for the remainder (Box 2).

In the first nine months of 2020, new bank loans to NFCs belonging to lower-risk classes increased by 22% year on year. New loans to intermediate risk and higher risk classes increased by 10% and 12% respectively. Thus, lower-risk classes increased their share in new loans by 4 p.p., to 51% (Chart I.2.9). By comparison, in September 2020, the share of loans to lower-risk NFCs in banks' balance sheets accounted for 39% (more 4 p.p. than in December 2019). However, the current macroeconomic situation may lead to an increase in credit risk in the corporate loan portfolio.

In 2020, among the seven main banking groups, the differentiation of new loan spreads to NFCs according to the credit risk associated decreased. The risk premium for class 2 vis-à-vis class 1 is estimated to have decreased by 13 b.p., to 0.5 p.p., and the premium for class 3 vis-à-vis class 1 is estimated to have decreased by 16 b.p. to 1.2 p.p. This is partly due to the fact that reduction in spreads of State-guaranteed loans is more significant for higher-risk companies.

Chart I.2.9 • Bank loans by risk class | Per cent



Source: Banco de Portugal. | Notes: (a) New loans between January and September 2020. The attribution of risk information to each enterprise follows the methodology of Antunes, A. et al. (2016), "Firm default probabilities revisited", *Economic Studies*, Banco de Portugal. New operations regarding enterprises are used, with the risk information available, to calculate the shares of each risk class and the total new operations series. Lower risk class (risk class 1) corresponds to the enterprises with a probability of default (PD) in one year of 1% or less; risk class 2 corresponds to enterprises with a PD in one year of above 1% and below or equal to 5% and the higher risk class (risk class 3) corresponds to the enterprises with a PD in one year of above 5%. Domestic activity.

According to a survey conducted of the seven main banking groups, prospects on the firm's situation, the activity sector and the economy in general, have become more relevant in assessing the risk of new loans in recent months. The greater consideration of these factors is consistent with the expectations, reported in the BLS, of tighter credit standards for loans to firms in the fourth quarter. However, operationalising new lines of State-guaranteed loans, up to €6 billion, as announced in the State Budget for 2021, will contribute to the continued low-cost financing of NFCs.

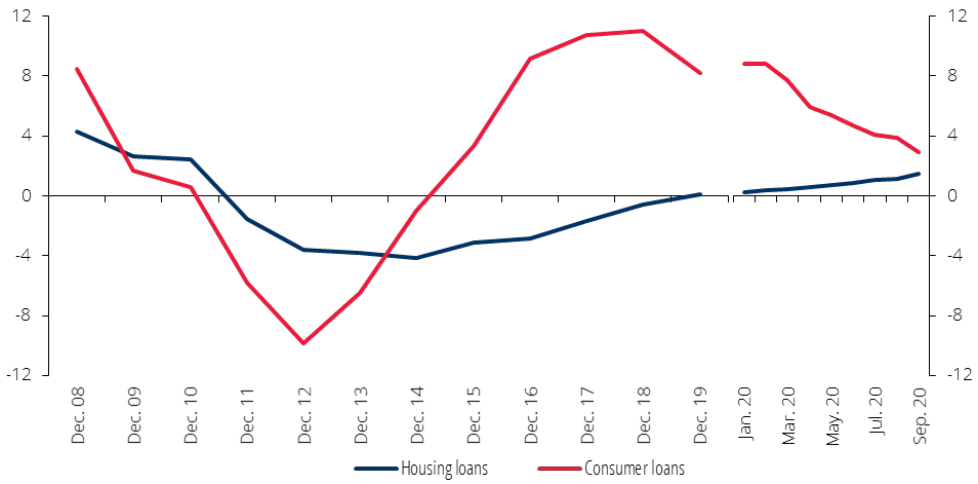
Loans for house purchase have accelerated, but consumer credit has slowed down

The stock of loans to households for house purchase has increased since December 2019, after several years of decline (Chart I.2.10). In the first nine months of the year, new loans for house purchase increased by 6.9% year on year (Chart I.2.11, left panel). In the same period, repayments decreased by 14.8%. The reduction in repayments is partly due to credit moratoria. In the first nine months of the year, the interest rate on new deposits for this segment decreased by 6 b.p., to 1.0%. However, the weighted quarterly average of the annual percentage rate of charge (APRC), which includes charges other than interest, increased by 20 b.p. in the same period, reaching 2.2% (Chart I.2.11, left panel).

For the consumer credit segment, the annual rate of change has been decreasing since the beginning of the year (Chart I.2.10). The decline observed in new lending operations reached 22% year on year (Chart I.2.11, right panel). Consumer credit repayments decreased by 4%, which may be associated with the moratorium on interest and principal. The quarterly average interest rate on new consumer loans remained stable until September, at around 6.6% (Chart I.2.11, right

panel). The APRC also did not change significantly, remaining at around 9.0%, about 3 p.p. higher than the euro area average.

Chart I.2.10 • Bank loans granted to households – Annual rate of change | Per cent

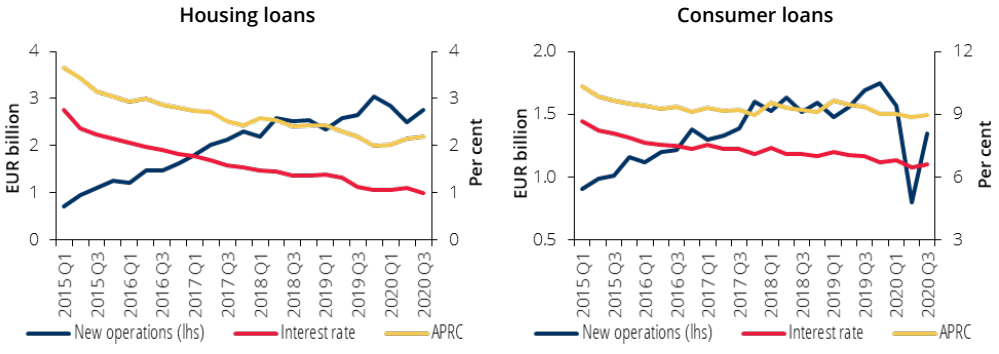


Source: Banco de Portugal. | Notes: Annual rates of change were calculated on the basis of an index constructed using adjusted transactions, i.e. changes in end-of-period outstanding amounts adjusted for reclassifications, write-offs, price and exchange rate revaluations and, where relevant, for the effect of securitisation and sales. Activity on an individual basis.

In the first nine months of 2020, there was greater competition between institutions with regard to loans for house purchase and car loans compared to personal loans. In these segments, more than 70% of total early repayments are associated with a new lending operation in an institution other than that of the repaid loan.

According to the BLS results, credit standards for loans to households have tightened throughout the year, especially for the consumption and other purposes segment. For the fourth quarter, banks anticipate a slight easing in credit standards for loans to households.

Chart I.2.11 • New bank loans granted to households and interest rate



Source: Banco de Portugal. | Notes: Consumer loans do not include credit cards. Interest rate quarterly average weighted by the amounts of new loans. Interest rates on new loans granted by monetary financial institutions resident in Portugal (excluding the central bank) to residents in the euro area. The series refer to the reporting on an individual basis of the other monetary financial institutions resident in Portugal.

2.5 Liquidity and funding

Monetary policy has preserved banks' lending capacity

According to the BLS, participation in the TLTRO-III has considerably contributed to reducing current financing difficulties and/or avoiding future financing difficulties for two of the five main banks in the Portuguese banking system. However, of this total of banks only one participated in the September 2020 operation and four indicate that they do not intend to participate in future operations.

The funding obtained from central banks reached 7.7% of assets in June, increasing 3.2 p.p. from December 2019 (Chart I.2.12). This movement cut across both the Portuguese and European banking systems. As observed after the international financial crisis, the share of this source of funding tends to increase in times of greater adversity. In the euro area, the share of funding from central banks reached 4.7% of assets in June 2020, the highest figure in the last decade.

In the second quarter of 2020, firms' financing needs increased, corresponding to growth in loans to customers of 1.5% compared to December 2019. Nonetheless, the ratio of loans to customers net of impairment to customer deposits, the loan-to-deposit ratio, decreased by 2.4 p.p., to 84.6%, reflecting an increase in deposits by NFCs and households (4.4%). The reason for caution in the face of rising uncertainty may be contributing to the increase in deposits (Section 1.1).

The low loan-to-deposit ratio currently observed, below the average of euro area banking systems, is representative of a position of high structural liquidity across the banking system. At the same time, the financing structure reflects greater use of funding sources that are less sensitive to changes in risk perception, such as customer deposits, accounting for 67.5% of assets. In contrast, liabilities represented by securities account for 3.6% of assets.

The lower share of market funding in the Portuguese banking sector is expected to continue in the near future. The requirements for market issuance of instruments eligible for compliance with MREL requirements have been postponed. Intermediate targets have been set from January 2022 onwards, with a transition period ending in January 2024. Nevertheless, if the timing for normalising the loans granted by central and market banks is not the same, this may pose future challenges to sector financing.

The adopted measures make it possible to maintain favourable financing conditions and ample liquidity

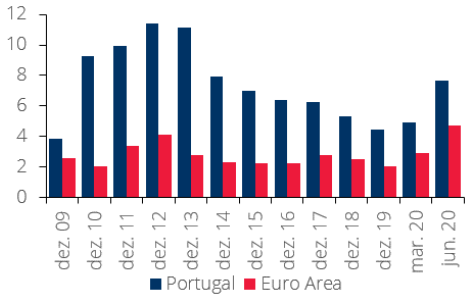
The liquidity coverage ratio (LCR) stood at 256.6%, increasing by 38.2 p.p. from December 2019. This LCR increase was broadly based across the whole Portuguese banking system. These developments were based on positive changes in the liquidity buffer (24.2%), while net liquidity outflows grew by 5.7%. What contributed the most to the changes in the liquidity buffer was assets of very high liquidity and credit quality, reflecting the increase in unencumbered government debt securities (15%) and reserves in central banks (58.4%), which together account for 96% of these assets (Chart I.2.13).

The share of total assets and collateral received that is used as collateral for obtaining liquidity, the asset encumbrance ratio, increased by 3.1 p.p., to 18.1%, from December 2019. Developments in the ratio reflect the increase in encumbered assets and collateral received and reused to obtain liquidity (28.1%), compared to the increase in assets and collateral available for encumbrance (6.3%). Among the unencumbered assets and collateral available for encumbrance, the eligible fraction for monetary policy operations remained virtually unchanged, standing at 26% in June.

The smaller weight of market funding allowed for a decrease in the encumbered assets derived from this type of funding, posting a 16.4 p.p. reduction compared to December 2019. This translates into greater protection of institutions against potential value changes in reused collateral.

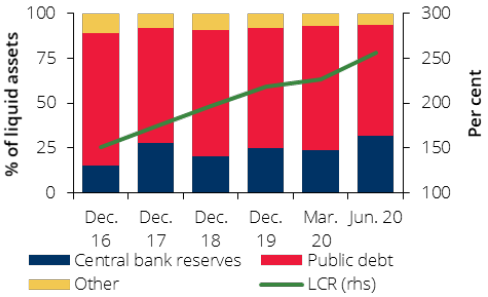
The ECB has adopted temporary flexibility measures for requirements imposed on collateral used by banks in funding from central banks. Especially the decision to "freeze" ratings, i.e. the continued eligibility of marketable assets and issuers meeting the minimum requirements on 7 April 2020, provided that they remain above the level of credit quality 5 (CQS 5) on the Eurosystem's harmonised rating scale. This flexibility should allow banks to maintain sufficient collateral to participate in liquidity providing operations and thus preserve their lending capacity to the economy.

Chart I.2.12 • Central bank funding | Per cent



Sources: Banco de Portugal and European Central Bank (*Balance Sheet Items*).

Chart I.2.13 • Liquid assets and liquidity coverage ratio (LCR)



Source: Banco de Portugal. Note: The liquidity coverage ratio corresponds to the ratio of available liquid assets and net cash outflows calculated under a 30-day stress scenario.

2.6 Capital

Reduction of risk-weighted assets and stabilisation of total own funds

In June 2020, the ratio of total own funds to risk-weighted assets, the total capital ratio, of the Portuguese banking system reached 17.2%, 0.3 p.p. above that observed at the end of 2019. In the same period, the CET 1 ratio rose from 14.3% to 14.6% (Chart I.2.14).

Compared to the end of 2019, the CET 1 ratio increased by 0.3 p.p. mainly due to the decrease in risk-weighted assets, through a 3.7 p.p. reduction in the ratio of risk-weighted assets to total assets, an average risk weight. This decrease was observed in almost all euro area countries, to a greater or lesser degree, with Portugal maintaining a higher average weight (about 50%). To a lesser extent, the increase in CET 1 capital also positively contributed to this evolution and has largely resulted in retained earnings. The reclassification of an institution in the second quarter, from subsidiary to branch, also contributed to the increase in capital ratios. These developments were partly offset by the increase in assets.

Chart I.2.14 • CET 1 ratio – level and contribution to change | Per cent and percentage points

Source: Banco de Portugal. | Notes: The 'Universe' component quantifies the impact of the change in the universe of institutions observed in the 2nd quarter, due to the reclassification of an institution from a subsidiary to a branch. CET 1 ratio: ratio between Common Equity Tier 1 and risk-weighted assets.

Table I.2.8 • Credit risk – Contribution to change of original and risk weighted exposures in the first semester of 2020 | Billion euros

	Original exposure	Risk weighted exposure
Central gov. or central banks	18.3	-0.5
Corporates	2.8	-0.6
Retail	2.8	0.3
Exposures in default	-0.8	-0.6
Other	-4.7	-2.1
Universe	-4.8	-2.2

Source: Banco de Portugal. | Notes: The exposures aggregate the portfolios associated with the Standard Approach and the IRB Approach; The 'Universe' component quantifies the impact of the change in the universe of institutions observed in the 2nd quarter, due to the reclassification of an institution from a subsidiary to a branch.

The shift in assets has contributed to the decrease in risk-weighted assets

Between December 2019 and June 2020, the analysis of risk-weighted exposures associated with credit risk, accounting for 87% of total exposures (June 2020), showed a significant increase in original exposures to asset classes with low (or even zero) weights, as in the case of general government or central banks (Section 2.5) (Table I.2.8). Similarly, there was increased exposure to the corporate and retail segments associated with State-guaranteed credit lines and, consequently, with lower risk weights. These developments, together with some shifts in these portfolios and the aforementioned reclassification of an institution, have led to a decrease in risk-weighted assets, boosting capital ratios.

In June 2020, the prudential leverage ratio, measured as the ratio of Tier 1 capital to total exposure, stood at 7.6%, decreasing by 0.4 p.p. compared to December 2019. This decrease reflected a greater increase in the total exposure of the banking system in light of the increase in Tier 1 capital. In average terms, this decrease was higher for institutions with a higher ratio at the end of 2019, thus reducing heterogeneity in the banking system. Recently, the SSM exercised regulatory discretion by allowing banks to exclude central bank exposures from the calculation of the leverage ratio until June 2021. This decision will probably not have a material impact on the Portuguese banking system's institutions, considering the minimum requirement of 3%, which will become mandatory as of June 2021.

In accordance with the Banco de Portugal's projections (baseline scenario) published in the December 2020 issue of the *Economic Bulletin*, the maintenance of the Portuguese banking system's resilience and its capacity to meet the economy's credit demand is projected. Even in the event of an extension of the pandemic crisis (severe scenario), the banking system remains resilient. These results do not take into account additional support measures that could be adopted to avoid a deleveraging of banks that would jeopardise the financing of the economy.

These developments signal the importance of the measures taken by the ECB and the Banco de Portugal to promote bank performance in financing the economy and their ability to absorb potential losses.

Box 1 • The banking system as economic stabiliser of the pandemic shock: a simulation of micro- and macroprudential policies

The capacity of the banking system to finance the economy has been a factor stabilising rather than amplifying the negative economic effects of the COVID-19 pandemic.

This box simulates the effects on credit, investment and output of using the flexibility measure of banks' Pillar 2 Guidance and combined buffer requirement. Two scenarios are considered in this exercise: one where the measure is not available; and another where the measure is available and credit institutions make use of its flexibility. A comparison of results makes it possible to assess the effectiveness of the measure in promoting the financial intermediation function of the banking system and in stabilising the economy.

The model used in this exercise is a dynamic general equilibrium model based on Clerc et al. (2015)[3] and calibrated for the Portuguese economy. The model incorporates the main micro- and macroprudential fundamentals that drive the need to adopt policies regulating banks' capital ratios, namely the possibility of economic agents going bankrupt. However, one limitation of this model is that it cannot assess the impact of monetary and governmental policy measures.

In order to simulate a supply constraint with the size and dynamics observed during the pandemic, we have chosen a shock that adversely affects output. This shock attempts to replicate the partial or total closure of firms and business establishments and losses in efficiency. Despite being a supply-side shock, it has a considerable effect on demand due to its impact on income.

The banks' response to the flexibility measure is simulated through a rule on the response of the capital ratio to deviations in total credit (loans to households and firms) from the steady-state level. This rule seems to better reproduce the aims of the flexibility measure, namely to ensure that banks continue to finance the economy. The response coefficient used presents a situation where banks make full use of the flexibility provided by the measure throughout the projection period.

Simulation exercise results

In the first scenario, where the measure is assumed not to be available, the results obtained from the shock applied in the model simulate output dynamics characterised by a sharp fall in the second quarter of 2020 and a gradual recovery towards steady-state values after 12 quarters. The shock transmission mechanism initially leads to a decline in spending and production, which brings down the relative price between housing and physical capital. In the labour market, working hours and wages decline. The default of firms and households increases, which results in an increase in bank interest rates and a decrease in credit. The increase in banks' default induces a higher cost of deposits, which in turn is passed through to households and firms via increased spreads in credit operations. Current projections for the Portuguese economy assume that spreads in corporate loans remain favourable overall due to the monetary policy measures adopted by the ECB, which this model cannot take into account. These effects are felt in the economy in the following periods, as they have a negative impact on investment, thereby amplifying the impact of the initial shock. The recovery process is slow, in particular for credit and investment.

In the second scenario, banks make use of the flexibility, reducing the capital ratio in response to deviations of total credit from its initial pre-shock value (Chart B1.1). This response dampens the fall in credit to households and firms (Chart B1.2). This is more pronounced in corporate loans, as this segment has higher risk weights. This credit smoothing effect is mainly reflected in investment, particularly in investment in physical capital by firms whose decline is mitigated in the first quarters.

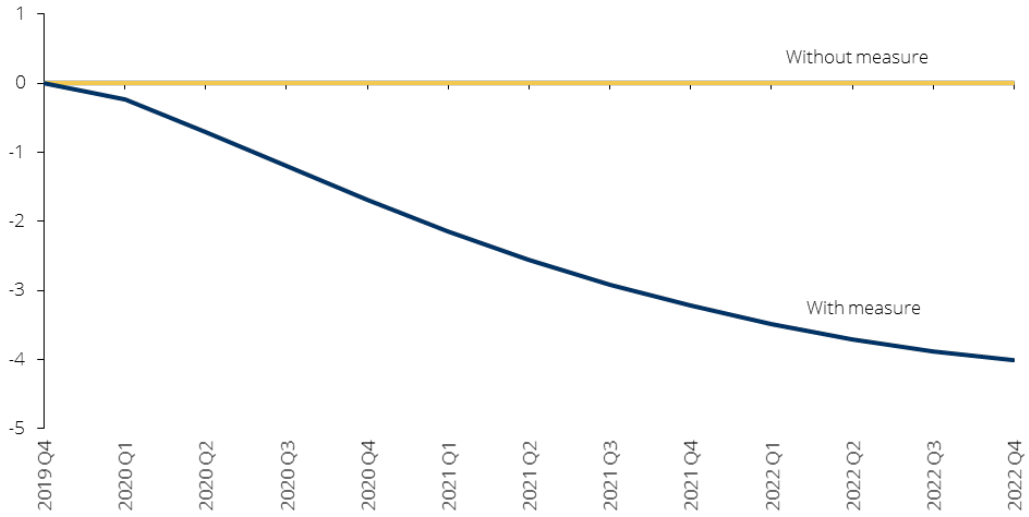
[3] Clerc, L., Derviz, A., Mendicino, C., Moyen, S., Nikolov, K., Stracca, L., Suarez, J., Vardoulakis, A. P. (2015). "Capital Regulation in a Macroeconomic Model with Three Layers of Default," *International Journal of Central Banking*, Volume 11(3), pp. 9-63.

The improvement in the capacity to finance the economy dampens the fall in output over the entire horizon, although to a lesser extent than in investment.

Although the effects on output of a decline in capital ratios are relatively subdued, given that the shock is exogenous to the banking system, these results are in line with the aim of the capital requirements. The definition of capital requirements and buffers, together with the possibility of using part of them in a situation of stress in the financial system, prevents the materialisation of risks from spreading into the economy, as they provide the banking system with greater capacity to absorb losses. However, the effectiveness in containing the amplification effects related to disruptions that arise first in the economy and are then passed through to the banking system is lower. It is therefore necessary to implement support measures that complement each other and allow the economy to recover from the current pandemic crisis.

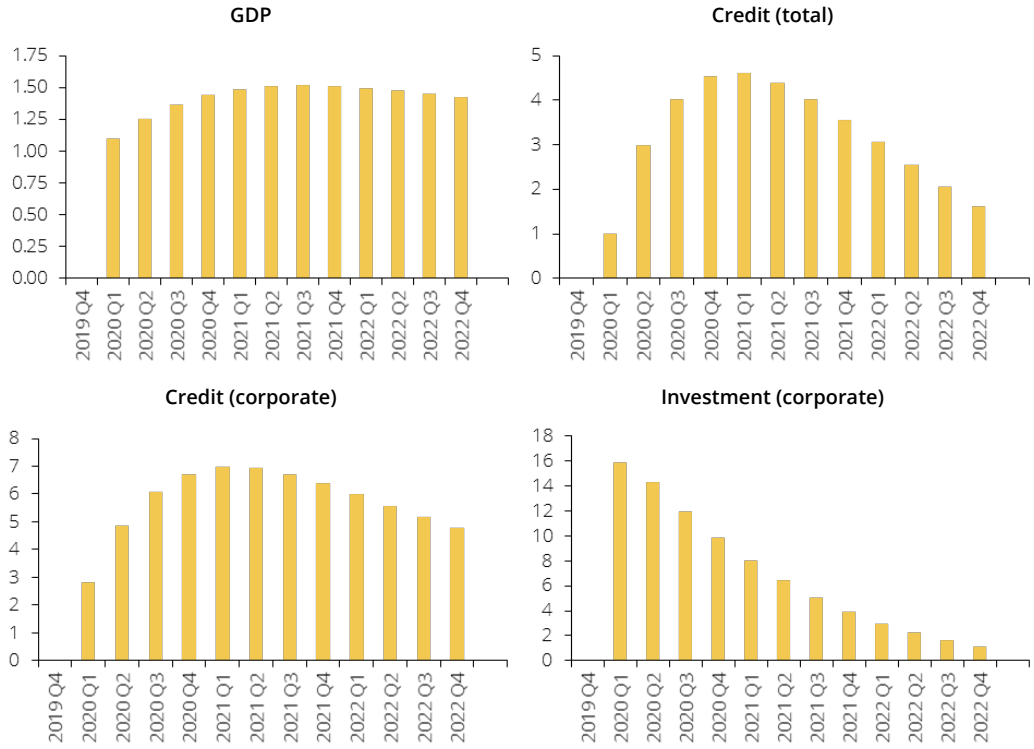
The measure making compliance with a number of capital requirements more flexible is effective in promoting the financing of the economy. By making use of this flexibility, banks mitigate the transmission effect of the shock to credit granted both to firms and households. This measure is particularly beneficial for corporate loans, resulting in more favourable dynamics for corporate investment.

Chart B1.1 • Impulse response functions of the capital ratio to a shock simulating a GDP contraction (scenarios with and without a flexibility measure) | Percentage points



Source: Banco de Portugal.

Chart B1.2 • Impact of the measure to a shock simulating a contraction in GDP
| Percentage points



Source: Banco de Portugal.

References

Clerc, L., Derviz, A., Mendicino, C., Moyen, S., Nikolov, K., Stracca, L., Suarez, J., and Vardoulakis, P. (2015). "Capital Regulation in a Macroeconomic Model with Three Layers of Default." *International Journal of Central Banking*, Volume 11(3), pp. 9-63.

Box 2 • Use of moratoria and State-guaranteed loans by non-financial corporations: a credit risk perspective

The importance of support measures for corporate funding

The COVID-19 pandemic has led to a significant fall in economic activity. The abrupt reduction in turnover and the difficulties faced by enterprises in adjusting their fixed cost structure accordingly have led to an increase in their liquidity needs, with an impact on credit demand. In light of a lower risk tolerance by the financial system, which has tightened credit standards, the support measures to enterprises and, in particular, the simplified layoff, followed by measures to support a gradual resumption of activity, credit moratoria and State-guaranteed loans have been crucial in mitigating the impact of the pandemic on the liquidity and solvency of enterprises.

State-guaranteed loans have expanded credit supply, thus contributing to a year-on-year increase of gross flows of new bank loans to enterprises by around 15% between March and September 2020 (from €18.7 billion in 2019 to €21.5 billion in 2020), benefiting from lower interest rates and longer maturities.

According to information from the Central Credit Register (CCR), from March to September 2020, around 40% of new loan amounts granted to non-financial corporations (NFCs) were covered by State guarantees (for loans with an original maturity of over one year, this share reached approximately 50%).

In aggregate terms, around 59% of new loan amounts granted to sectors more affected by the pandemic were guaranteed by the State, focusing in particular on enterprises in accommodation and food services; trade; transportation and storage; arts, entertainment and recreation services and, to a lesser extent, manufacturing (Chart B2.1).

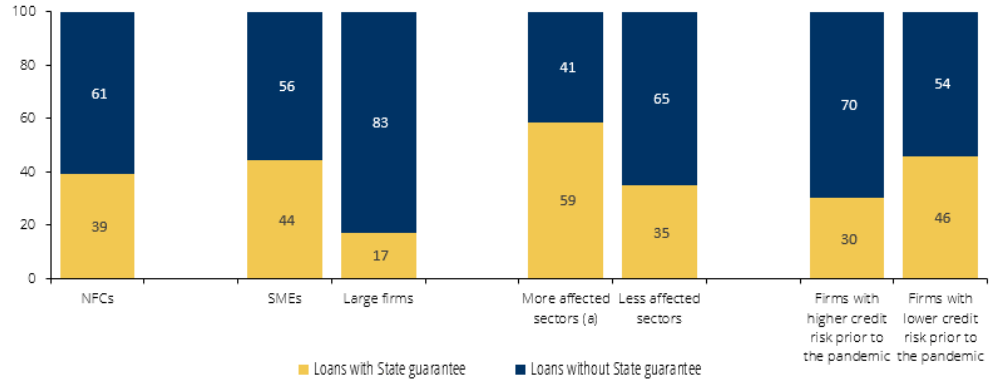
State-guaranteed loans were designed to meet the liquidity needs of smaller enterprises, which, as a rule, are more dependent on bank lending. Indeed, small and medium-sized enterprises (SMEs) made more use of State-guaranteed loans, 44% of total new loans, than large enterprises, with only 17%.

Credit standards on guaranteed loans had allowed access only to enterprises without any credit events with banks or the Mutual Guarantee Scheme at the agreement date. In addition, a share of enterprises belonging to more affected sectors had good credit quality before the onset of the pandemic. Therefore, enterprises that had a lower credit risk, assessed on the basis of the In-house Credit Assessment System (ICAS) of the Banco de Portugal, made relatively more use of State-guaranteed credit lines (46% of new loans) than riskier enterprises (30%).

The conditions of State-guaranteed loans, more favourable than those prevailing in the market, have helped increase the average maturity and decrease the funding cost of enterprises, thus reducing their refinancing risk. The average interest rate on State-guaranteed loans granted between March and September stood at 1.2%, compared to 2.4% for loans without a State guarantee. The maturity was also considerably longer, quite often reaching six years (Chart B2.2). A number of loans also included grace periods, of up to 18 months.

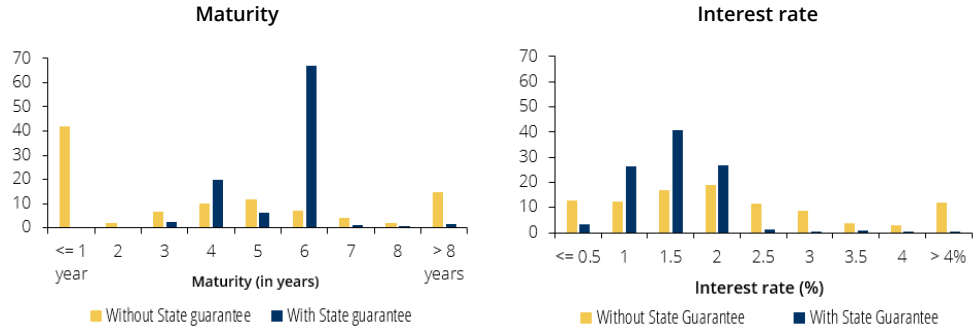
The liquidity needs of enterprises have also been mitigated by the public moratorium that has allowed them to defer principal and/or interest payments, provided certain conditions are met. At the end of September 2020, 32% of the loan stock to NFCs were under moratorium and approximately 15% of loans were backed by a State guarantee, around one-third of which had guarantees that had been granted before the onset of the pandemic. According to information from the seven largest banking groups operating in Portugal, approximately 20% of SMEs' loans under moratorium were covered by bank deposits in the same institution (15% for large enterprises).

Chart B2.1 • New loans by size, sector and risk class | Share of the amount of new loans granted between March and September 2020



Source: Banco de Portugal. | Notes: All loans granted during the period are taken into account, including undrawn loans (potential credit). (a) The following are included in this category: sectors of activity (two-digit NACE-Rev.2) with a decline in turnover of more than 40% in the 2nd quarter of 2020 (compared to what would have been expected in a pandemic-free scenario) and where simultaneously at least one-third of enterprises in the sector do not anticipate a return to normal levels of activity before the end of 2020, based on the results of the Fast and Exceptional Enterprise Survey – COVID-19. It mainly includes enterprises in accommodation and food services; trade; transportation and storage; arts, entertainment and recreation services and, to a lesser extent, manufacturing. (b) Included in this category are enterprises with a pre-pandemic credit risk below the median for total enterprises, as measured by the probability of default. Credit risk is based on credit ratings available in the ICAS.

Chart B2.2 • Distribution of maturities and interest rates (annualised agreed rates) on new bank loans between March and September 2020 | Per cent



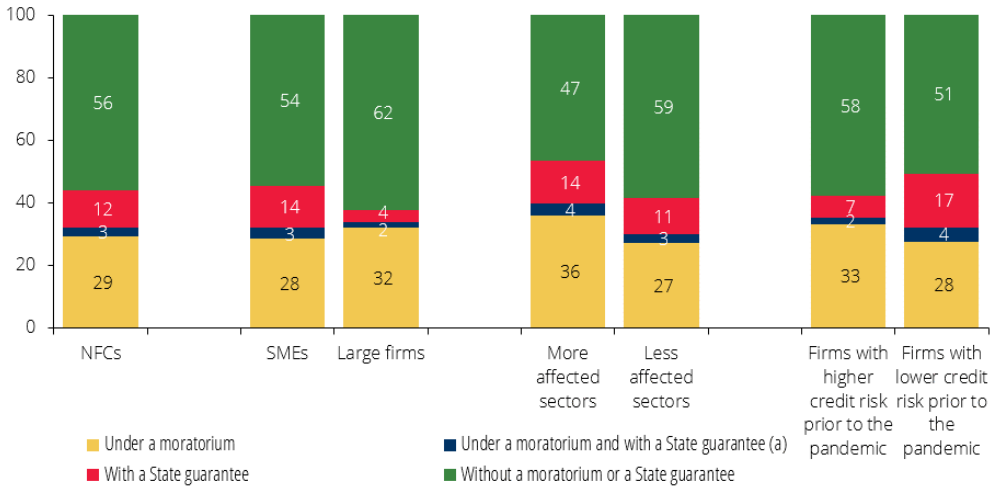
Source: Banco de Portugal. | Note: Each class contains the loan amount with a maturity or interest rate below or equal to that class and above that of the previous class. For instance, maturity class 6 includes all loans with a maturity below or equal to 6 years and above 5 years.

SMEs, the sectors more affected by the pandemic crisis and enterprises with a lower credit risk prior to the pandemic made more use of the support measures in relative terms. To a large extent, this result reflects greater use of State-guaranteed loans, as use of the credit moratorium was relatively homogeneous across the classes under analysis, likely reflecting the eligibility criteria (Chart B2.3).

The credit moratorium has helped reduce the liquidity needs of enterprises. Estimates indicate that, until the end of the moratorium (September 2021), instalments due and not paid may reach around 15% of enterprises' loan stock (approximately €11 billion, one-third of which pertaining to instalments due by September 2020). SMEs and the sectors more affected by the crisis are expected to benefit relatively more from this temporary debt service relief, which includes total amounts due for loans that would have matured during the moratorium period.

From March to September 2020, around 40% of the amount of new loans had as counterparty a borrower that had applied for the moratorium. For some enterprises, the temporary debt service relief resulting from having applied for a moratorium was complemented by new loans, including State-guaranteed loans, to finance their current activity.

Chart B2.3 • Use of support measures by size, sector and risk class | Share of the loan stock in September 2020



Source: Banco de Portugal. | Notes: See notes to Chart B2.1 for more information on the sectors more affected by the pandemic and the risk of enterprises prior to the pandemic shock. (a) Loans under moratorium and backed by a State guarantee were granted before the onset of the pandemic.

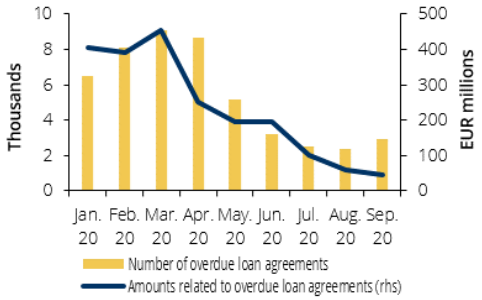
Support measures and default

In 2020 default on bank loans to NFCs continued to follow the downward trend of recent years, despite an increase in latent credit risk. These developments are to a large extent related to the entry into force of the credit moratorium. Since March, the number and amount of new loans overdue have dropped sharply (Chart B2.4).

Taking as reference information from the seven largest banking groups operating in Portugal, it is possible to observe that the share of loans classified as Stage 2 of impairment – i.e. with a considerable increase in credit risk since origination – is higher in loans under moratorium (22%), compared to the total portfolio (13.7%), increasing slightly between June and September (Chart B2.5). These results show a certain degree of caution on the part of banks when assessing debtors' credit risk in the current environment and reflect increased risk perception regarding the credit portfolio under the moratorium. In turn, the share of credit under moratorium classified as NPL remained unchanged.

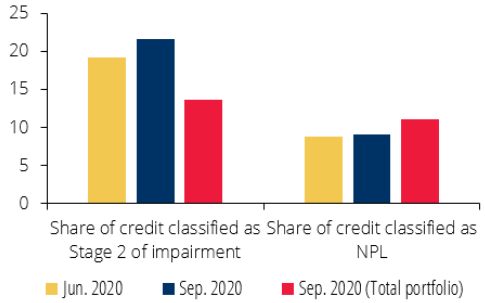
The moratorium and State-guaranteed credit lines have been crucial in mitigating the effects of the pandemic on liquidity and on enterprises' credit risk, and particularly important in the sectors of activity more affected by the crisis and, in particular, for SMEs. Nevertheless, when the credit moratoria expire, there may be a sharp increase in default, the magnitude of which will depend on the duration of the pandemic and the other measures in force at the time.

Chart B2.4 • Number and amount of new overdue loan agreements



Source: Banco de Portugal.

Chart B2.5 • Loans under moratorium classified as Stage 2 of impairment and NPL | Per cent



Source: Banco de Portugal. | Note: Information on the seven largest banking groups operating in Portugal. Consolidated data. For more details on the classification of loans according to the IFRS 9 impairment model, see Special Issue "IFRS 9 – Main changes and impacts anticipated for the banking system and financial stability", *Financial Stability Report*, June 2017.

Box 3 • Households' use of credit moratoria[1]

Households have access to credit moratoria that have been set out in specific legislation (public moratoria) or by credit institutions (private moratoria). In September 2020, 17% of total loans granted to households were subject to moratoria, particularly housing loans (Chart B3.1). Take-up of moratoria was substantial in April and May 2020, but residual between June and September, despite extensions to the subscription deadline. Looking at loans to households by purpose, 19% of the stock of personal loans, 19% of the stock of housing loans and 6% of the stock of car loans were subject to moratoria (Chart B3.2).

Of all debtors with moratoria, 51% used them in housing loans only, 20% only in personal loans and 22% used them both in housing and consumer loans (personal/car/credit card: Chart B3.3).

Chart B3.1 • Amount of loans subject to moratoria | As a percentage of loans to households by the financial sector and contributions

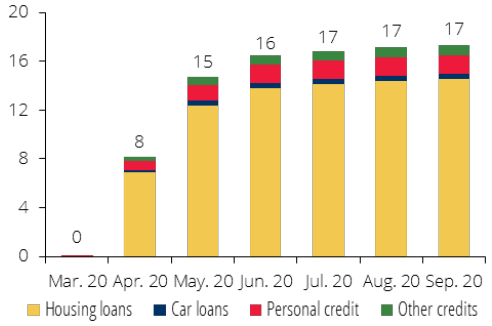
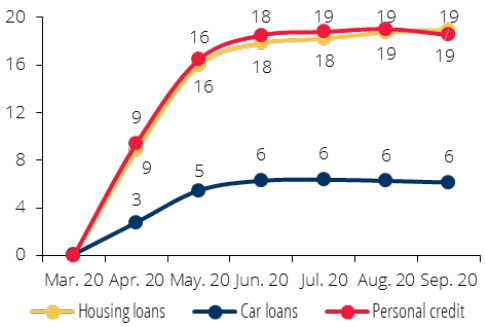


Chart B3.2 • Amount of loans subject to moratoria | As a percentage of loans granted by the financial sector for each purpose



Source: Banco de Portugal. | Notes: Information from the Central Credit Register. The total comprises housing loans, car loans, personal loans, credit cards, credit lines and overdrafts and loans for other purposes.

The characteristics of loans subject to moratoria are similar to those which are not under moratoria

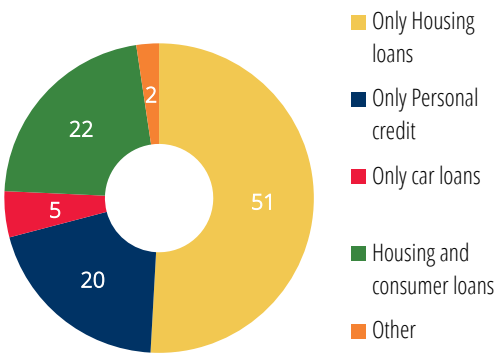
The housing loan portfolio under moratoria is slightly more recent than the portfolio not subject to moratoria. Approximately 26% of loans under moratoria have been granted since 2015 (77% since 2005), compared to 21% (and 66% since 2005) for loans not subject to moratoria (Chart B3.4).

Reflecting the lower seniority of housing loans under moratoria, these loans have slightly higher residual maturities and higher current loan-to-value (LTV). On average, housing loans under moratoria have a current LTV of 57%, compared to 50% for loans not subject to moratoria. However, the difference of the average LTV at origin is only 1 p.p. Also, the average spread on loans under moratoria is only approximately 0.1 percentage points higher (Table B3.1).

[1] Most indicators presented in this box were calculated on the basis of information from the Central Credit Register on resident households. Data represents approximately 95% of total loans from individuals under moratoria, excluding a residual component related to non-resident borrowers.

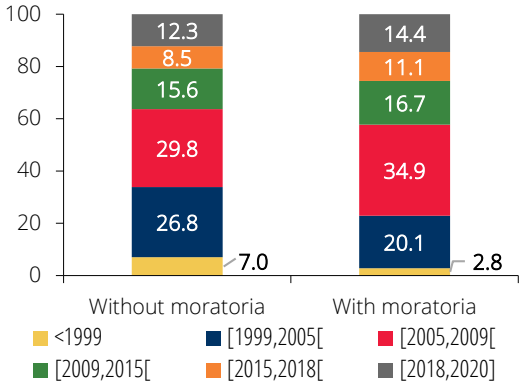
Personal loans and car loans under moratoria have slightly higher average residual maturities (of around 1 year) than loans not subject to moratoria. In turn, the interest rate on loans under moratoria is similar to loans not subject to moratoria, for both personal and car loans.

Chart B3.3 • Debtors with loans under moratoria, by purpose | Per cent



Source: Banco de Portugal. | Notes: Information from the Central Credit Register on households with at least one loan subject to moratoria as at September 2020. The category 'Other' covers the other possible combinations of debtors that have used moratoria.

Chart B3.4 • Credit agreements for house purchase, by year of loan initiation | Per cent



Source: Banco de Portugal. | Note: Information from the Central Credit Register.

Table B3.1 • Characteristics of credit agreements for households, subject or not to moratoria | Per cent and years

		Housing loans		Personal loans		Car loans	
		Not subject to moratoria	Subject to moratoria	Not subject to moratoria	Subject to moratoria	Not subject to moratoria	Subject to moratoria
Spread (HL) or nominal annual rate (%)	Median	1.0	1.2	7.5	7.5	6.7	7.0
	Mean	1.2	1.3	6.7	6.6	6.5	6.7
Original maturity (years)	Median	36	38	7	9	8	10
	Mean	35	37	8	10	8	9
Residual maturity (years)	Median	27	29	5	7	6	7
	Mean	26	28	6	7	6	7
Current LTV (%)	Median	51	58				
	Mean	50	57				
LTV at origination (%)	Median	77	78				
	Mean	73	74				

Source: Banco de Portugal. | Notes: Information from the Central Credit Register on the stock of credit to households as at September 2020. Figures weighted by outstanding amount and adjusted for outliers. Whenever the date of the last valuation of the property is prior to 2020Q2, its current value is estimated based on the Statistics Portugal Housing Price Index.

In September 2020, approximately 9% of debtors with housing and/or consumer loans had credit under moratoria. Debtors that took up moratoria in at least one credit agreement are typically more indebted, and have a greater number of credit agreements and bank relationships in place.

Debtors that took up moratoria have, on average, five credit agreements and three banking relationships in place (three credit agreements and two bank relationships for debtors that did not take up moratoria).

Moratoria granted to debtors not experiencing a drop in income

Household access to moratoria (public or private) is possible under certain conditions previously set out in the regulation. The loss of income of borrowers/households (e.g. layoff or unemployment) is one of those conditions, which are not necessarily cumulative.

According to a survey of seven major banking institutions operating in Portugal, about half of the debtors that took up moratoria worked in the sectors most affected by the pandemic. This is slightly above the figure for total indebted households (45%), according to the 2017 Portuguese Household Finance and Consumption Survey (HFCS).

Approximately 10% of debtors under moratoria are unemployed, inactive or retired, below that seen for indebted households in the HFCS. This difference is likely to arise from the smaller proportion of pensioners that have made less use of moratoria, as they did not experience a drop in income.

Over half of the debtors with loans under moratoria are part of households which do not seem to have experienced a drop in income compared to its pre-pandemic level. This indicates that a substantial number of debtors have made use of moratoria for precautionary purposes, although this may also have been the main reason for households experiencing a drop in income. The ability to access moratoria for households that are unemployed, on preventive or sickness isolation, or providing assistance to family members, among other eligible criteria, have contributed to this result. However, of all debtors experiencing a drop in income, more than half experienced a drop of over 20%. There are no noteworthy differences in the employment profile and in income changes between debtors subject to moratoria in housing loans and debtors subject to moratoria in consumer loans. However, in the case of consumer loans under moratoria, the share of debtors experiencing a drop in income is 1 p.p. higher.

Loans under moratoria seem to have increased risk

The NPL ratio is similar for the total loan portfolio and the portfolio under moratoria, which, in the latter case, mainly comprises loans classified as "unlikely to pay" (Table B3.2). It should be noted that one of the criteria to access moratoria is the absence of default, for a period of more than 90 days. However, loans may be classified as NPLs even when they are not yet past due, or are past due by less than 90 days, and the EBA guidelines on loan moratoria on loan payments indicate the need for institutions to continue to evaluate the intrinsic risk of exposures under moratoria and to rank them properly. The share of loans to households in "Stage 2" loans (i.e. loans with a significant increase in credit risk since recognition) is higher in the loan portfolio under moratoria than in the total loan portfolio. As such, from a banking perspective, the portfolio under moratoria has increased risk compared to the performing loan portfolio which is not under moratoria.

Around 29% of credit subject to moratoria is held by borrowers that have recently defaulted – interpreted, in this specific context, as borrowers having more than 30 days past due in one or more of the loans they hold – in at least one month between January 2019 and September 2020, of which 5% only defaulted during the pandemic months. These figures compare with 17% and 2%, respectively, for credit not subject to moratoria. Looking at loan purpose, and compared to

credit not subject to moratoria, the share of the amount of credit held by borrowers that have recently defaulted is higher for credit under moratoria, both for personal loans and housing loans (Table B3.3).

Table B3.2 • Credit risk in loans to households | Per cent

	Stage 2 credit	Credit classified as NPLs	of which: Unlikely to pay
Portfolio under moratoria	12.1	2.5	2.1
Total portfolio	7.2	3.1	1.2

Source: Banco de Portugal. | Notes: Information on the 7 largest banking groups operating in Portugal. It refers to September 2020. Figures for the portfolio under moratoria remained virtually unchanged. Consolidated data.

Table B3.3 • Stock of loans to households, by default profile of the borrower | Per cent

	Housing loans		Personal loans		Total	
	Not subject to moratoria	Subject to moratoria	Not subject to moratoria	Subject to moratoria	Not subject to moratoria	Subject to moratoria
Default between January 2019 and September 2020	14	27	27	34	17	29
Of which: Default only from March 2020 onwards (post-pandemic)	2	4	4	7	2	5

Source: Banco de Portugal. | Notes: Information from the Central Credit Register on households with debt as at September 2020. Borrowers are considered to have recently defaulted if they have credit past due in at least one month between January 2019 and September 2020 (past due credit for more than 30 days) in one or more of the loans they hold.

Use of credit moratoria helped alleviate households' debt servicing costs. It is estimated that between March and September 2020, instalments due amounted to approximately €800 million. By September 2021, taking into account the different deadlines for the public moratorium and the private moratoria and the hypothesis that borrowers will not voluntarily exit from moratoria, this amount could reach €2 billion, with around 4% of this corresponding to unpaid interest.

Box 4 • Brief review of literature on FinTech credit: main benefits and risks from a financial stability perspective

In the current pandemic context, FinTech credit may take on a greater role, reflecting an increased recourse to digital channels and liquidity needs of the non-financial private sector.

The term 'FinTech' may refer to entities that develop and provide financial services based on innovative technologies or to the technologies used by those entities, banks or other institutions within the financial system. For the purposes of this box, FinTech credit, understood as lending facilitated by an electronic platform, includes credit granted by BigTechs and excludes credit directly granted by digital financial institutions through their platforms. In most research, debt securities are not included.

There is great cross-country heterogeneity in the FinTech credit market. In Portugal, as in most euro area countries, this credit still plays a minor role compared to bank credit (Table 1). This may be associated with differences in the regulatory approach to lending and credit intermediation activities, as well as crowdfunding, as in Portugal these activities are supervised by the Banco de Portugal and the Portuguese Securities Market Commission. However, FinTech credit has a significant growth potential, especially in some segments of the economy with typically less access to bank loans, such as small and medium-sized enterprises (SMEs). Therefore, it is important to understand the specific features and potential impacts on the credit market structure and the financing of the economy.

Table B4.1 • Volume of FinTech credit[(a)] | As a percentage of the stock of total credit

	China	USA	United Kingdom	APAC[(c)]	Euro area[(c)]	o.w. Portugal
2015	0.5	0.2	0.1	0.1	0.0	0.00
2019[(b)]	2.1	0.4	0.2	0.2	0.1	0.01

Source: Cornell et al. (2020). | Notes: (a) Database built on several sources of information and a number of working hypotheses (see Cornell et al., 2020) . (b) For 2019, the stock used as a denominator refers to December 2018. (c) Asia-Pacific countries (APAC), excluding China; "euro area" does not includes information on Cyprus, Greece and Malta.

This box provides a description of FinTech credit characteristics and the particular situation of credit granted by large enterprises with established technological platforms (the so-called BigTechs), focusing on the benefits and risks to financial stability.

Relationship with incumbent financial institutions

The most common FinTech credit model is based on a direct credit relationship between non-financial debtors and investors facilitated by the electronic platform (usually called peer-to-peer (P2P) or crowdfunding). However, platforms can also grant credit on their own behalf (obtaining funding through the issuance of bonds, capital instruments or loans) or act as credit intermediary between their customers and a partner credit institution.

Incumbent financial institutions may intervene directly as originators of credit granted through the platform or indirectly by investing/participating in the platform. As such, FinTech credit could result in financial disintermediation or in changes to financial intermediation channels and participants.

BIS (2018a) looks into five scenarios for the banking sector under different interface arrangements with the customer and the entity providing the service and bearing the risk. More specifically: (i) "better bank", in which incumbents digitise themselves, benefiting from new technologies, and maintain their core banking services and the direct customer relationship; (ii) "new bank", in which incumbents are replaced by new built-for-digital and technology-driven banks, supported by digital

platforms; (iii) "distributed bank", in which financial services become increasingly modularised and may be individually provided by different institutions – incumbents, FinTechs and BigTechs – that operate as partners and share the customer relationship; (iv) "relegated bank", in which the customer relationship is owned by FinTechs and BigTechs through their platforms, and offer a variety of financial services provided by incumbents; and (v) "disintermediated bank", in which incumbents become irrelevant and customers interact directly with financial service providers, and the risk of these operations is assumed by the customer. More likely, there will be a combination of these scenarios, with different degrees of materialisation conditional on factors internal and external to the institutions involved.

Banks may change their behaviour in response to competition from FinTech credit. On the one hand, they may be encouraged to adopt more efficient lending practices and build on the benefits of the new technologies. On the other, they may be induced to take on increased credit risk or to reduce a number of essential services, such as the financing of the economy, in response to the loss of profitability. FSB-CGFS (2017) also presents a discussion of the various ways in which the banking sector can respond to FinTech disruption.

Pricing and financial intermediation cost

The financial intermediation cost of platforms may be lower than that of traditional banks. Platform lending is a digital, automated process, which makes it possible for FinTechs to operate at lower transactions costs and more efficiently than traditional banks. The latter have a heavier fixed cost structure due to the network of counters and pre-existing information systems. For instance, Philippon (2019) shows that the cost of financial intermediation in the US credit market has dropped over the past ten years due to the digitalisation process, thereby breaking with the rigidity observed over the past century. Bazot (2017) reached similar results for European countries. Similarly, Fuster et al. (2018) estimate that the FinTech lending process in the US mortgage market is faster than for traditional lenders. Moreover, the platforms outside the scope of prudential regulation also have lower regulatory costs (FSB-CGFS (2017)).

There is no consensus that the potential gain associated with lower intermediation costs is reflected in the relationship with customers in the form of lower interest rates and/or with investors through higher yields. Results differ according to the sample used: the study on the US consumer credit market presented by Jagtiani and Lemieux (2017) finds that FinTech credit exhibits lower interest rates than bank credit; Roure et al. (2016) conclude that interest rates charged by platforms and banks in the German market are similar; the estimates presented by Buchak et al. (2018) for the US mortgage market indicate that FinTech institutions offer slightly higher interest rates than banks, particularly in the lower credit risk segment; Fuster et al. (2018) analyse the same market, although on the basis of a sample of lower-income debtors, and estimate that FinTech institutions offer a marginally lower interest rate.

Balyuk and Davydenko (2019) explore the relationship in terms of investors' returns and estimate that they are relatively higher during an early stage, when the platform is being built/launched, but tend to decline later on.

Financial inclusion

Among the potential benefits of FinTech credit is the availability of alternative sources of financing to the economy, which can contribute to a lower concentration in traditional bank funding sources and a greater resilience of the economy against possible idiosyncratic problems in the banking sector.

At the same time, several authors argue that platforms may increase credit supply to segments with traditionally lower access to financial services, such as micro and small enterprises or the small consumer loans segment (Claessens et al., 2018, FSB-CGFS, 2017, Jagtiani and Lemieux, 2017, Roure et al., 2016, and Philippon, 2019). Some studies conclude that algorithms supporting

lending decisions used by platforms are less biased towards the main bank customer segments than that implied in the lending decisions of traditional banks. The model estimated by Philippon (2019), for the US market, points to greater inclusion associated with the use of credit risk assessment algorithms based on big data, particularly when they include alternative sources of information (such as the digital footprint of the borrower). This evidence is also documented for other markets/segments, e.g. Bartlett et al., 2019, Frost et al., 2019, and Jagtiani and Lemieux, 2017. By contrast, the model used by Fuster et al. (2018) for the US mortgage credit does not find evidence of FinTech credit benefiting marginal borrowers, with limited access to finance, compared to traditional intermediation.

It is unclear whether FinTech credit is only channelled to marginal segments typically associated with higher credit risk and/or more difficult to assess by traditional methods and sources of information. Some authors have found evidence that in a number of segments where borrowers already benefit from bank credit, FinTech credit is used as a way to finance higher consumer spending (e.g. results estimated by Maggio and Yao (2018) for uncollateralised personal loans, and Buchak et al. (2018) for mortgage credit, both as regards the US).

Credit standards, including credit risk assessment

The financial risk in the activity of platforms may be larger than in traditional banks due to increased risk appetite, to the use of risk assessment processes not tested in the course of a full business cycle and to greater exposure to cyber-risk. This view is supported by some studies which have found evidence that financial inclusion fostered by lending facilitated by platforms leads the latter to have a customer base with higher credit risk than that of banks. See, for instance, Buchak et al. (2018) and Roure et al. (2016) for the US and German credit markets respectively. The aforementioned situation, in which borrowers use FinTech credit as a way to boost their immediate consumption, may also result in higher credit risk. According to the results obtained by Maggio and Yao (2018), these debtors are more leveraged and present higher credit risk and probability of default six to twelve months after obtaining FinTech credit.

This increase in the number of agents with access to credit may be associated with an easing in credit standards. According to the FSB-CGFS (2017), demand and supply factors explain this situation, e.g. a very overarching bank credit market may 'push' platforms to fringe segments or there may be incentives for the platform to focus on these segments.

There is no consensus on this view. Some authors maintain that the use of rating models based on artificial intelligence and less traditional sources of information and the scrutiny of platforms by investors leads the former to gradually enhance their loan assessment capacity, maintain stringent credit standards and exhibit lower default rates than traditional credit (see Balyuk and Davydenko, 2019, and Jagtiani and Lemieux, 2017, for consumer credit platforms in the USA or Fuster et al., 2018, for the US mortgage credit market). However, most of these studies do not take into account time spans long enough to cover different stages of the business cycle.

In any case, FinTech credit granted by unsupervised entities may dampened preventive policies, including those based on quantitative limits to bank debt (borrower-based measures).

BigTech

BigTechs are large technological enterprises with an extensive network of customers, whose main business is related to the provision of non-financial services, and which use their own platforms to facilitate their business (FSB, 2019). The activity and characteristics of these entities raise specific issues that should be addressed by the authorities. However, in terms of lending, they carry broadly similar benefits and risks to those seen earlier, with the following caveats:

- To BigTechs, the supply of financial products and services is a way of diversifying revenues, getting access to new sources of information on customers (e.g. consumption habits and

financial situation) and, maybe more often, complementing and strengthening their business activity, thereby enhancing consumer experience and loyalty and expanding their customer base (see Frost et al. (2019), FSB (2019) and Vives (2019) on the drivers and development of these enterprises across the various economies. FSB (2019) presents a simplified table with the financial activities of a selected set of BigTechs).

- Potential impacts are sizeable, given that these enterprises have: (i) a widely known brand and financial resources that enable them to rapidly gain scale across different business areas, and (ii) a large customer base and, consequently, a large volume of granular data, which, when exploited, may generate an interactive cycle between financial and non-financial activities. Several authors have documented that access to information obtained through trading platforms (e.g. information on transactions and customer assessments) fuels and enhances the advantages and risks associated with the provision of financial services, such as in credit risk assessment. In turn, new information on customers obtained through the provision of financial services contributes to the supply of non-financial products and services, which is the core business of BigTechs. Frost et al. (2019), FSB (2019) and Vives (2019) present a more detailed discussion of this process. As such, BigTechs have a scale that grants them the potential to have a systemic and disruptive impact on the structure and functioning of the financial sector (see Dietz et al., 2017, FSB, 2019, Vives et al., 2019, and Frost et al., 2019).
- The platforms managed by BigTechs bundle a variety of financial and non-financial products and services. The associated network and scale effects may contribute positively to lending by these entities, by reducing intermediation costs and discouraging customer defaults, due to fears over a negative scoring or of being excluded from the platform. FSB (2019) and Frost et al. (2018) explore the network effect benefits for BigTechs. Moreover, the study by Tongia and Wilson (2018) presents network effects from the customers' point of view and their behaviour.

Factors such as the level of development of the country, of the banking sector and the regulatory stringency can influence the growth of credit granted by BigTechs (Frost et al., 2019, and Cornelli et al., 2020). These factors help understand the differences between countries, and the low significance of credit granted by BigTechs in a number of them (Table 2), as well as the aforementioned different scenarios in terms of the relationship with the banking sector.

Table B4.2 • Volume of credit granted by BigTechs(a) | As a percentage of the volume of FinTech credit

	China	USA	United Kingdom	APAC[(b)]	Euro area[(b)]	o.w. Portugal
2015	8.6	1.4	1.6	92.9	0.0	0.00
2019	82.3	10.5	1.0	77.8	4.1	0.00

Source: Cornell et al. (2020). | Notes: (a) Database built on several sources of information and a number of working hypotheses (see Cornell et al., 2020). (b) Asia-Pacific countries (APAC), excluding China; "euro area" does not include information on Cyprus, Greece and Malta.

Final remarks

The COVID-19 pandemic has encouraged and accelerated technological transformation in the financial system, has fostered digital over face-to-face contact and has created new opportunities for financial services provided through digital channels, which makes understanding and mitigating the associated risks more relevant. Some preliminary studies suggest that FinTech credit may mitigate the economic impact of the pandemic due to the increased financial inclusion, particularly in SMEs (Sahay et al., 2020).

The risks and benefits associated with FinTech credit warrant monitoring by authorities and the continuation of the ongoing work at national and European level, acknowledging the benefits of the coordination between the various authorities responsible for this matter – financial supervisory and regulatory authorities, as well as competition and data protection authorities. At present, given that there is no common European framework, FinTech credit regulation vary across jurisdictions, and the responsibility for its supervision does not typically fall on a financial supervisory authority (BIS, 2020, and European Parliament, 2020).

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II Special issues

The vulnerability of non-financial corporations' debt in the pandemic crisis

Growth-at-risk: the interaction between financial conditions and the economy in the pandemic

The vulnerability of non-financial corporations' debt in the pandemic crisis

1 Introduction

The shock resulting from the COVID-19 pandemic abruptly ended three consecutive years from 2017 to 2019 of Portugal's economic convergence towards the euro area. The crisis changed the economic outlook for non-financial corporations (NFCs), leading to fears for their financial resilience given that the length of the pandemic crisis is unclear.

The firms' financial resilience may be assessed through financial indicators, such as "firm in financial vulnerability" and "excess debt". These indicators are estimated for 2020-22 in two scenarios based on the correlation between the firms' financial variables and the macroeconomic aggregates.

The central scenario sees a significant increase in 2020 in debt of firms in financial vulnerability and in excess debt, reaching 31% and 21% respectively of total Portuguese firms' financial debt. There is a decrease in the years following, reaching levels in 2022 near but above those of 2019 (22% and 18% respectively). In the severe scenario, the debt of firms in vulnerability and excess debt are estimated to stay at higher levels in 2022, at 26% and 20% respectively of total financial debt.

Despite the increases estimated for the two indicators, the results in both scenarios show that the debt of firms in financial vulnerability should remain below that observed at the time of the sovereign debt crisis, reflecting the more favourable starting point. Vulnerability was lower partly due to the increase in the firms' operating income and the lower interest expenses as a result of the decrease in Portuguese firms' indebtedness and the ECB's accommodative stance that have been observed since the sovereign debt crisis.

2 Indicators of financial debt vulnerability

The assessment of the firms' financial vulnerability was based on the interest coverage ratio (ICR) which relates each firm's operating income to its interest expenses:

$$Interest\ coverage\ ratio\ (ICR) = \frac{Interest\ expenses}{EBITDA} \quad (1)$$

A firm is defined as being in vulnerability if the interest coverage ratio is above 0.5 or if EBITDA is negative. The threshold of 0.5 means a 20% probability of default on credit obligations over a five-year time horizon (IMF, 2013).

Excess financial debt relates the firm's debt to an estimate for the threshold of debt that the firm can bear. This threshold is given by:

$$\overline{Financial\ debt}_{it} = \text{ICR} * \frac{1}{Implicit\ interest\ rate_{it}} * \overline{EBITDA}_{it} \quad (2)$$

The financial debt threshold is an increasing function of the firm's average EBITDA ($\overline{EBITDA}$), decreasing with the implicit interest rate. The threshold for the interest coverage ratio assumed in this equation is 0.5 and the firm's implicit interest rate is assumed to reflect its credit risk.

A weighted average of EBITDA over the last three years was used to mitigate the effect of EBITDA's volatility on the firms' indebtedness threshold. The weighting gives greater importance to the more recent periods:

$$\overline{EBITDA}_{it} = 0.2 * EBITDA_{i(t-2)} + 0.3 * EBITDA_{i(t-1)} + 0.5 * EBITDA_{it} \quad (3)$$

When EBITDA information was unavailable for the three years, a weighted average was calculated using EBITDA of zero for the years without information. This weighting penalises firms with no information and new firms, which are often deemed to carry greater risk. Accordingly, excess debt is given by:

$$Excess\ debt_{it} = \begin{cases} \max\{0; Financial\ debt_{it} - \overline{Financial\ debt}_{it}\}, \text{if } \overline{EBITDA} \geq 0 \\ Financial\ debt_{it}, if\ \overline{EBITDA} < 0 \end{cases} \quad (4)$$

Note that if the firm's EBITDA is negative, all its debt is considered excess debt.

3 Projection of the firms' financial variables with macroeconomic variables

Firms' vulnerability and excess debt is estimated by using the correlation between private NFCs' financial variables between 2007 and 2018, based on information from the Simplified Corporate Information (*Informação Empresarial Simplificada* – IES) database, and macroeconomic aggregates. The availability of regular projections for macroeconomic variables over a three-year horizon allows for the estimation of the change in financial statement items. In particular, variations in EBITDA, interest expenses and financial debt were estimated.

$$\widehat{EBITDA}_{it} = EBITDA_{i(t-1)} + \Delta\ \widehat{EBITDA}_{st} \quad (5)$$

$$\widehat{Interest\ expenses}_{it} = Interest\ expenses_{i(t-1)} + \Delta\ \widehat{Interest\ expenses}_{st} \quad (6)$$

$$\widehat{Financial\ debt}_{it} = Financial\ debt_{i(t-1)} + \Delta\ \widehat{Financial\ debt}_{st} \quad (7)$$

Estimation of the nominal variations for each item used 44 groups of firms *(s)*, which resulted from dividing the firms into 11 activity sectors across 4 firm size categories (Table 1).

Table 1 • Activity sectors and firm size

Activity sectors		Firm size
A	Agriculture, Forestry and Fishing	Micro firms
B+D+E	Mining and quarrying, Electricity, Gas and Water	Small firms
C	Manufacturing	Medium-sized firms
F 41 + L	Construction and Real estate activities	Large firms
F 42+F43	Other construction	
G	Trade	
H	Transportation and storage	
I	Accommodation and food service activities	
J	Information and communication	
M+N	Professional, scientific, technical and administrative activities	
Other sectors	Other services	

Notes: The activity sectors were built based on the Portuguese Classification of Economic Activities (CAE) - 3rd Revision. The Construction and Real estate activities sector comprises divisions 41 and 68 and the Other construction sector comprises divisions 42 and 43. This decomposition of the Construction sector segments between construction and real estate activities and engineering activities and is designed to distinguish between the two sectors' different behaviours: the maximum for the overdue loans ratio was around 33% in divisions 41 and 68, in contrast to around 21% in divisions 42 and 43. Also the behaviour between the two sets of divisions was unsynchronised during the sovereign debt crisis, having stabilised sooner in divisions 42 and 43. However, since this only affects the estimation process, the final results may be considered in aggregate form. The firm size definition takes Recommendation of the European Commission 2003/361/EC as reference. NFCs with activities of head offices were excluded.

The nominal variations of the three variables were estimated for the 44 firm groups based on macroeconomic aggregates and the firms' characteristics from 2007 to 2018. Table 2 presents the macroeconomic variables used to estimate each item. Applying this structure shows that not all the 44 firm groups have statistically significant results. In order to bypass this limitation, a decision tree was designed that involved choosing similar specifications to those in Table 2, but excluding the variables without statistical significance (for example, removing the variable that relates GVA to exporting activity or the firm's activity time). Where none of the explanatory variables were significant, an additional set of equations was used, with a similar formulation to that presented in Table 2 but grouping the firms by size only. The regressions by size were applied to around a third of the firms, mainly to the large firms, which account for a third of total assets and EBITDA and approximately 15% of the number of Portuguese firms. This was the result of the relatively low number of firms allocated to combinations by activity sector and large firms.

Table 2 • Changes estimated and explanatory variables considered

Changes	Formulation / Explanatory variables		
$\Delta\ EBITDA_{ist}$	$\Delta\ GVA_{ist} - \Delta\ Compensation\ of\ employees_{ist}$		
$\Delta\ GVA_{ist}$	yoy_GVA_t	$yoy\_GVA_t \times D_{\{Incumbent\ firm=1\}t}$	$yoy\_GVA_t \times D_{\{Exp.activity=1\}t}$
$\Delta\ Compensation\ of\ employees_{ist}$	$yoy\_Com\_Emp_t$	$yoy\_Com\_Emp_t \times D_{\{Incumbent\ firm=1\}t}$	$yoy\_Com\_Emp_t \times D_{\{Exp.activity=1\}t}$
$\Delta\ Interest\ expenses_{ist}$	$yoy\_fin\_debt_t$	$\Delta\_new\_loans\_rate_t$	$D_{\{Vuln.Ind.=1\}t-1} \times \Delta\_new\_loans\_rate_t$
$\Delta\ Financial\ Debt_{ist}$	$yoy\_fin\_debt_t$	$\Delta\_new\_loans\_rate_t$	$D_{\{Vuln.Ind.=1\}t-1}$

Notes: The estimations are for the period 2007-18 and estimation of each item by firm group was based on all the firms allocated to that group. $\Delta\ EBITDA_{ist}$ corresponds to the absolute variation of EBITDA of a firm i in group s in year t, $\Delta\ GVA_{ist}$ corresponds to the absolute variation of the gross value added of a firm i in group s in year t and $\Delta\ Compensation\ of\ employees_{ist}$ corresponds to the absolute variation of compensation of employees of a firm i in group s in year t. yoy_GVA_t corresponds to the year-on-year rate of change in gross value added for the economy as a whole in year t according to Statistics Portugal's national accounts, $yoy\_Com\_Emp_t$ corresponds to the year-on-year rate of change in compensation of employees for the economy as a whole in year t according to Statistics Portugal's national accounts, $D_{\{Incumbent\ firm=1\}t}$ is a dummy variable that has the value of one if a firm is more than five years old and zero otherwise, and $D_{\{Exp.activity=1\}t}$ is a dummy variable that has the value of one when a firm carries out exporting activity in year t and zero otherwise. $\Delta\ Interest\ Expenses_{ist}$ corresponds to the absolute change in interest expenses of a firm i in group s in year t, $yoy\_fin\_debt_t$ corresponds to the year-on-year rate of change in consolidated financial debt of the firms according to Statistics Portugal's national accounts, $\Delta\_new\_loans\_rate_t$ corresponds to the annual absolute change in the weighted interest rate on new loans granted by monetary financial institutions according to the monetary and financial statistics of the Banco de Portugal and $D_{\{Vuln.Ind.=1\}t}$ is a dummy variable that has the value of one if a firm was in vulnerability one year prior. $\Delta\ Financial\ Debt_{ist}$ corresponds to the annual change in financial debt of a firm i in group s in year t. The values projected for $\Delta\ EBITDA_{ist}$, $\Delta\ Interest\ expenses_{ist}$ and $\Delta\ Financial\ Debt_{ist}$ correspond to the values $\Delta\ EBITDA_{st}$, $\Delta\ Interest\ expenses_{st}$ and $\Delta\ Financial\ Debt_{st}$ in equations 5, 6 and 7, as they will be similar for all the firms belonging to a given group.

The equations presented allow changes to balance sheet items to be estimated by firm group, with these nominal variations similar for all the firms within that group. Based on the starting point for the item one year prior and its change, it is possible to analyse the implications of different macroeconomic scenarios across all the firms.

4 Definition of the projection's macroeconomic scenarios

Two scenarios were analysed: a central scenario and a severe scenario. These two scenarios are based on the projections of the December 2020 issue of the *Economic Bulletin* and start from very similar negative impacts in 2020. However, the recovery profile in 2021 and 2022 is different, with a faster recovery in the central scenario (Table 3).

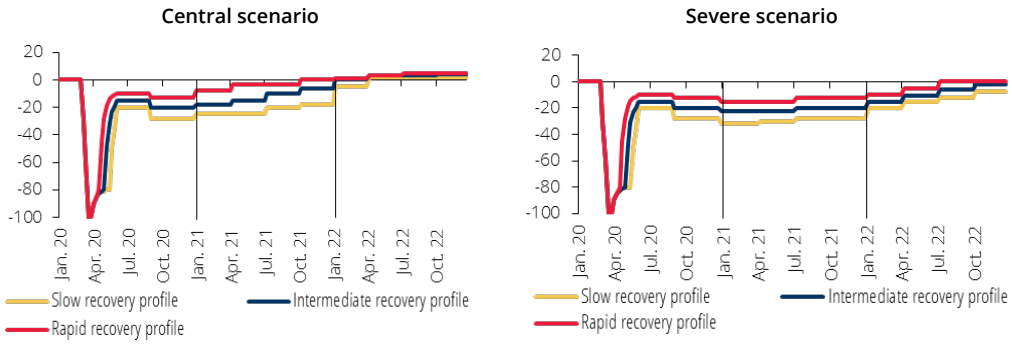
Table 3 • Annual rate of change in GDP over the projection horizon 2020-22 | Per cent

GDP projections	2019[(a)]	2020	2021	2022
Central scenario	2.2	-8.1	3.9	4.5
Severe scenario	2.2	-8.2	1.3	3.1

Source: Banco de Portugal. | Notes: The GDP projections relate to the scenarios published in the December 2020 issue of the *Economic Bulletin* of the Banco de Portugal over the 2020-22 horizon. (a) The firm-level data for 2019 were not yet available at the time this special issue was written, requiring the balance sheet and income statement items for firms to be estimated for this year also.

Different profiles were considered by activity sector for the developments of firms' GVA over the projection horizon. Three recovery profiles were defined from the impacts estimated in the Special issue: "The economic impact of the pandemic crisis", from the May 2020 issue of the *Economic Bulletin* of the Banco de Portugal (Chart 1). A recovery profile was attributed to each activity sector, according to the initial intensity of the pandemic shock. These profiles were created in such a way that they follow a similar average evolution to GDP in each year of the projection period, after weighting according to the GVA weighting for each activity sector from 2010 to 2017. This approach is an adaptation of the methodology presented above to changes in each activity sector, as the original explanatory variable was aggregate GVA. This extrapolation is a limitation of the exercise, which is deemed relevant given the heterogeneous nature of the pandemic shock.

Chart 1 • Different recovery profiles in the central and severe scenarios | As a proportion of the shock



Source: Banco de Portugal. | Notes: A (weekly) recovery profile was created for each activity sector specified in the May 2020 issue of the *Economic Bulletin* which looked at the impact of the shock in April 2020. A rapid recovery profile was defined for activity sectors with a GVA decrease of 20% or less, an intermediate recovery profile for activity sectors with a GVA decrease of over 20% and less than 40%, and a slow recovery profile for activity sectors with a GVA decrease above 40%.

Slower (faster) recovery profiles were allocated to firms with more (less) intense initial shocks. For example, the accommodation and food services sector, whose decline was estimated at around 70%, was awarded a slow recovery profile. This simplification does not consider possible adaptations/changes to the firms' activity structure.

In turn, the two scenarios consider changes to employees' compensation, firms' financial debt and interest rates on new loans in aggregate terms which are consistent with the GDP projection over the 2020-22 horizon.

5 Financial vulnerability and excess debt: 2020-22

In 2020, a 49% increase in the debt of firms in financial vulnerability and a 31% increase in excess debt as a consequence of the pandemic crisis were estimated, both in the central and the severe scenarios (Chart 2). Neither of the scenarios reach levels like those observed during the sovereign debt crisis (2011-13).

In the central scenario, the total debt of firms in financial vulnerability increases in 2020 (to 31% of total financial debt), falling in the two subsequent years. Excess debt grows in 2020 (to 21% of total financial debt), followed by a gradual decline up to 2022, when it accounts for 18% of financial debt (only 1 p.p. above the estimate for 2019).

In the severe scenario, the total financial debt of firms in vulnerability increases in a similar way to that of the central scenario. Debt defined as excess also follows a similar profile, except that the

increase persists into 2021, reaching 22% of total financial debt. The declines estimated for 2022 would not be sufficient to reverse the initial shock.

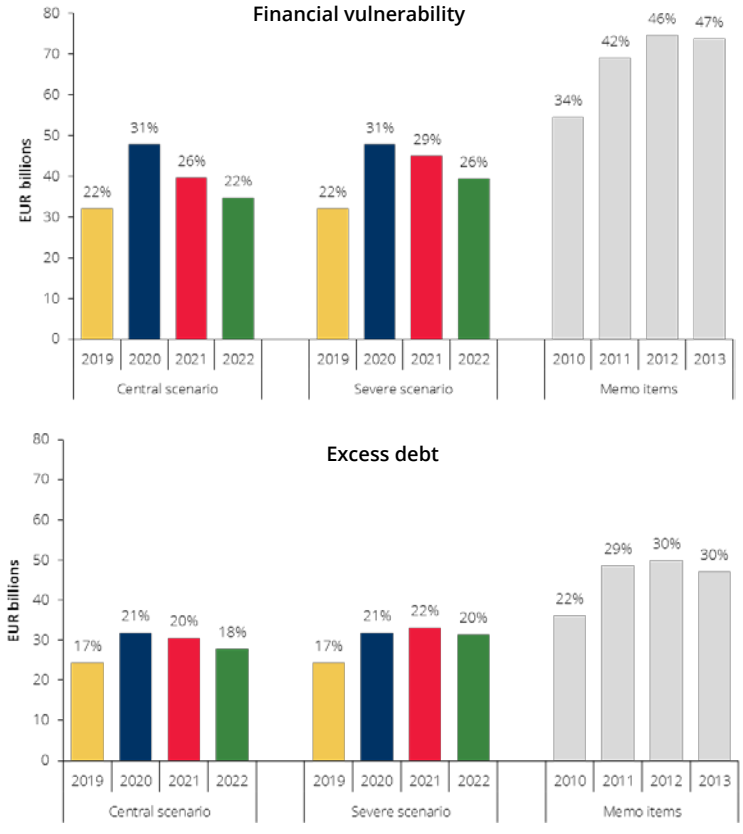
In both scenarios, the debt levels reached are below those observed during the sovereign debt crisis (2011-13). Importantly, the contribution to the growth of debt defined as in excess of firms with negative EBITDA is estimated to be double the contribution of positive-EBITDA firms that are above the vulnerability threshold.

The decomposition of debt defined as excess by firm size over the 2020-22 horizon reproduces the debt structure observed over the period preceding the economic impact of the pandemic, with the increase in debt defined as excess affecting all the size classes.

The evolution of debt defined as excess by activity sector varies also. In the central scenario, there is an increase in excess debt between 2019 and 2020 in the manufacturing (5 p.p. increase), trade (5 p.p.), accommodation and food services (9 p.p.) and professional, scientific and technical activities (11 p.p.) sectors.

In the severe scenario, the activity sector with the highest relative increase in excess debt is accommodation and food services (13 p.p. between 2019 and 2021), reaching a maximum of 40% in 2021. The manufacturing (6 p.p.), trade (6 p.p.) and professional, scientific and technical activities (10 p.p.) sectors also recorded a sharp increase.

Chart 2 • Evolution of the debt of firms in financial vulnerability and of excess debt in the two projection scenarios | EUR billions and percentage of total financial debt



Source: Banco de Portugal. | Notes: The numbers above each bar are the amounts of the debt of firms in vulnerability and excess debt expressed as a percentage of total financial debt, by year. The firm-level data for 2019 were not yet available at the time this special issue was written, requiring the balance sheet and income statement items for firms to be estimated for this year also. The projections do not assume any entries into the credit market. Where a firm has no debt, either because it did not have it in 2018 or through a projected full paying down of its debt, that firm is assumed not to reenter the credit market.

6 Distribution of vulnerable and non-vulnerable firms' debt by liquidity and capitalisation ratios' quartiles

Firms with higher liquidity (ratio of cash and cash equivalents to current liabilities) have more resources available to limit the impact of negative shocks in the short term. In turn, more capitalised firms (ratio of equity to assets) have, ceteris paribus, greater leeway for avoiding insolvency.

Most of the debt of vulnerable firms is among firms in the lower liquidity and capitalisation quartiles; in 2020, around 50% of total debt (which includes bank loans, corporate bonds and loans granted by firms of the same group) is in the bottom two quartiles of both ratios, 14% of which is in the lowest quartile. Around half of non-vulnerable firms' debt is in firms in the middle capitalisation and liquidity quartiles. This pattern can also be observed in the different activity sectors. The difference between the vulnerable and non-vulnerable firms is also clear in the median of the liquidity and capitalisation ratios, which in 2018 were 0.32 and 0.28 in the case of the former, and 0.43 and 0.36 in the case of the latter.

The conclusions are the same when analysing the distribution of bank loan stock in September 2020. The findings seem to suggest that the creditworthiness of the firms with bank loans, assessed purely on the basis of the liquidity and capitalisation ratios, is superior to the creditworthiness of the firms that do not use this source of financing.

For firms defined as vulnerable, their difficulty in creating income to service debt and their low liquidity and capitalisation mean that their default risk is higher.

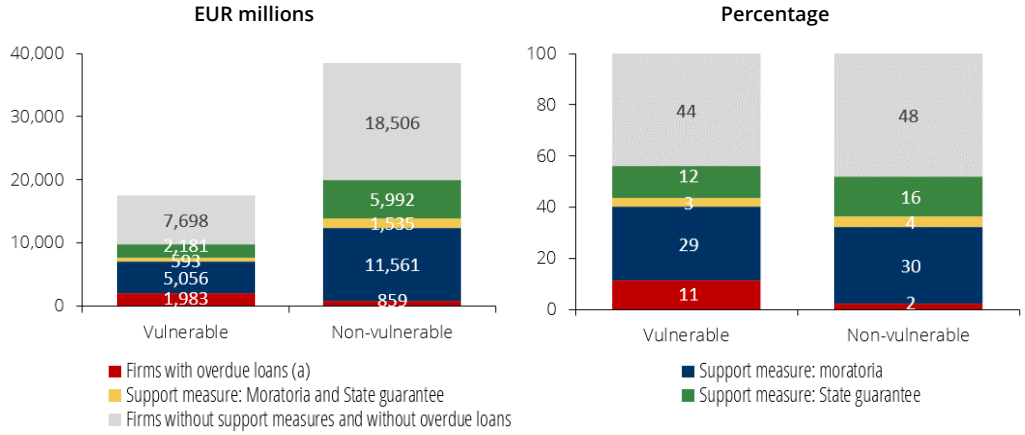
7 Financial vulnerability and measures supporting firms in the crisis

The severity of the risks during the pandemic warranted measures supporting firms' liquidity, aiming to ensure regular compliance with their credit obligations and an environment of normality in the financial system's financing of the economy. Important examples of these measures are the State-guaranteed credit lines and moratoria on loans (see Box 2).

In September 2020, according to the Central Credit Register (CCR), around 11% of the bank loan stock of vulnerable firms was in firms with overdue loans (Chart 3). This figure for the group of firms defined as non-vulnerable was 2%.

Based on the central scenario projection for 2020, the amount lent to firms that use the support measures is higher among non-vulnerable firms, as would be expected given the criteria established for access to these measures. Nevertheless, in relative terms, use of the support measures is very similar between the two groups.

Chart 3 • Bank loan stock in September 2020 | As a function of firms' vulnerability, use of support measures and creditworthiness



Source: Banco de Portugal. | Notes: It was not possible to establish the vulnerability status of certain firms, generally because they did not have balance sheet information available (new firms or those that have ceased activity) or due to reporting zero interest. Firms without vulnerability status accounted for 25% of the bank loan stock in September 2020. (a) For these charts, a firm has overdue loans if at least 2.5% of its loan stock is overdue. All the loans of firms with overdue loans are attributed to the category "Firms with overdue loans", irrespective of whether they used support measures.

8 Conclusion

In a central scenario, the amount of vulnerable firms' debt and excess debt is estimated to increase (by 49% and 31% respectively), as a consequence of the pandemic shock. In this scenario, an increase is projected in vulnerability and excess debt for 2020 and a decrease for 2021 and 2022. In a severe scenario, financial debt deemed excess would increase in 2021, but by less than that observed in 2020, and would only fall in 2022.

Despite the increases projected, the level of financial debt held by firms in vulnerability and its proportion of total financial debt would remain below the maximums observed in the sovereign debt crisis. The greater resilience found among the firms results from an increase in the firms' income and the reduction of interest paid in the period following the crisis, driven by accommodative monetary policy and the fall in firms' indebtedness.

Looking at medians, the firms in vulnerability have worse liquidity and capitalisation ratios than the non-vulnerable firms. Lastly, the results show that the amount lent to firms that resort to the moratoria on loans and/or State-guaranteed credit is higher among non-vulnerable firms. Nevertheless, in relative terms, the results show that use of the support measures is very similar between these two groups of firms.

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Growth-at-risk: the interaction between financial conditions and the economy in the pandemic

1 Introduction

In contrast with the previous international financial crisis, the economic crisis following the COVID-19 pandemic results from a shock that is exogenous to the financial sector and not directly related to the accumulation of macroeconomic and financial imbalances. Given the pandemic's magnitude and the uncertainty it brought, extraordinary measures were adopted to mitigate the risk of contagion between the financial sector and the non-financial sector. Some of these measures relate to monetary policy, some to supervision, such as flexibility over compliance with certain capital and liquidity requirements, and others were adopted by the State such as public credit moratoria and credit lines with public guarantees. These measures are intended to ensure not only that the economy has adequate financing, but also that the financial system does not have an amplifying effect on the economic cycle, as observed during the previous crisis.

The analysis of the interaction between the financial conditions prevailing in the pandemic crisis and economic activity in the future is important as it sheds light on the efficacy of the measures implemented. A methodology for determining Growth-at-Risk (GaR) is used for this purpose, which is based on the estimation of the historic relationship between the financial conditions and economic activity in subsequent periods. In reality, the economic performance observed up to the end of the third quarter, showing a faster recovery than expected, may reflect the role played by these measures.

2 Methodology

The GaR methodology estimates the conditional distribution of a variable of interest through a quantile regression defined in terms of projections (Koenker and Bassett, 1978; Jordà, 2005).

Regressions of this type differ from usual linear regressions. As they consist in quantile regressions, they characterise the different percentiles of the distribution of the variable of interest, instead of its mean. Also, while the explanatory or control variables are considered in the current period, the variable of interest is reflected in the intended forecast horizon, allowing projections to be obtained directly based on current information. The process consists of estimating the marginal impact of each explanatory or control variable for each forecast horizon and percentile. Then, based on the values observed for the explanatory and control variables, the conditional distribution percentiles of the variable of interest are projected for the respective time horizons (Adrian, Boyarchenko and Giannone, 2019).

The variable of interest in the empirical model used is the change in economic activity, measured by the year-on-year rate of change in gross domestic product (YoY_GDP). The Systemic Risk Indicator (SRI), the Country-Level Indicator of Financial Stress (CLIFS) and the Economic Climate Indicator (ECI) were used as explanatory variables.

The SRI is a leading composite indicator of accumulated cyclical systemic risk. Given the lag between the first signs of accumulated vulnerabilities and their potential materialisation, the conditional distribution of the year-on-year rate of change of GDP is expected to be significantly more affected over the medium and long term by changes in the SRI.

The CLIFS tracks the evolution of financial markets and is composed of variables that reflect economic and financial developments over the shorter term. It is therefore expected to be more important in explaining the behaviour of the conditional distribution of the year-on-year rate of change of GDP over the short term, reflecting the effects of the conditions in place in the financial markets at each moment.

The ECI reflects firms' expectations, adding information to the model about the current and future economic situation.

Finally, the lagged year-on-year rate of change of GDP was included as a control variable.

To estimate the variables' marginal effects, the sample uses data from the first quarter of 1991 to the fourth quarter of 2019. For the purposes of projecting the impact of the pandemic, data relating to the second quarter of 2020 were also used.

GaR is the value of a given percentile of the conditional distribution, with low percentiles generally being chosen, due to their association with extreme economic crisis events, which the literature shows to be linked to periods preceded by stress or financial crisis events. GaR may therefore be interpreted as an indicator of potential decline in economic activity, as it deteriorates when there is an increased probability of a very low year-on-year rate of change of GDP being observed.

The analysis focuses on the behaviour of the 10th percentile of the conditional distribution of the year-on-year rate of change of GDP.

3 The marginal effects in the distribution of economic growth

The estimates suggest that the variables linked to financial conditions have a different effect on the different percentiles of the conditional distribution of the year-on-year rate of change of GDP projected at one year (Chart 1). Adverse developments in financial conditions, approximated by an increase in the SRI and/or the CLIFS, have a greater impact on the distribution's lower percentiles, normally associated with negative year-on-year rates of change.

The SRI has a negative and statistically significant estimated marginal impact across all the percentiles of the distribution, but not in a uniform way. An increase in cyclical systemic risk from the financial system involves a leftward shift of the conditional distribution of the year-on-year rate of change of GDP. Given that the marginal impacts have a greater magnitude in the lower percentiles, the distribution has a "heavier" left tail. Consequently, extreme results may arise more frequently and the uncertainty linked to the projections increases also.

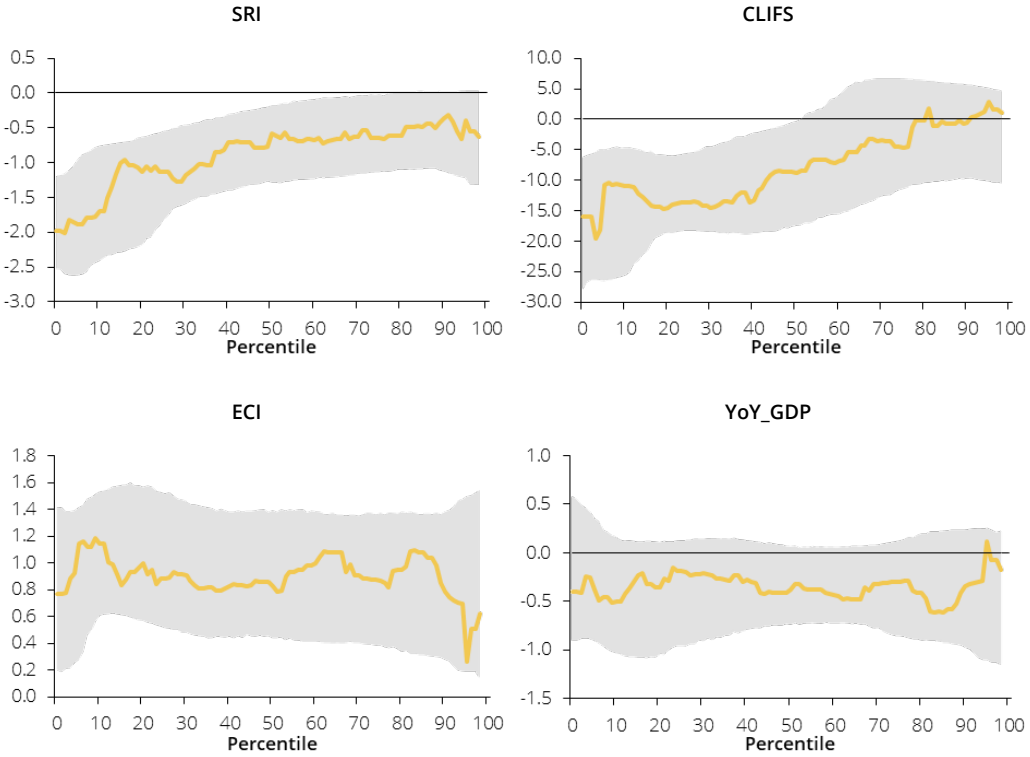
This contrasts with the estimated negative effect of the CLIFS which is only statistically significant for the percentiles left of the median of the conditional distribution of the year-on-year rate of change of GDP. Consequently, in a decline of financial conditions captured by the CLIFS, there is no distribution shift as seen in the previous case, but instead a "heavier" left tail. This effect is even stronger because the estimated impact of the CLIFS is more negative in the lower percentiles.

In sum, negative developments in financial conditions are linked to more adverse projections for economic activity and greater uncertainty. Declining financial conditions potentially amplify the negative effects of an economic crisis.

In contrast with the financial indicators, an improvement in economic agents' expectations (ECI) is estimated to have marginal effects on the conditional distribution of the year-on-year rate of change of GDP that are positive, statistically significant and relatively more uniform, and associated with a shift of the whole distribution uniformly rightward, improving the outlook for economic activity.

Lastly the lagged year-on-year rate of change of GDP has no statistically significant effect on the conditional distribution projected at one year.

Chart 1 • Estimated marginal effect of the explanatory and control variables on the percentiles of the conditional distribution of the year-on-year rate of change of GDP projected at one year | Percentage points



Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations). | Note: The shaded areas stand for the 95% confidence intervals obtained by bootstrapping, using the xy-pair method (Davino, Furno and Vistocco et al., 2013).

4 Growth-at-Risk

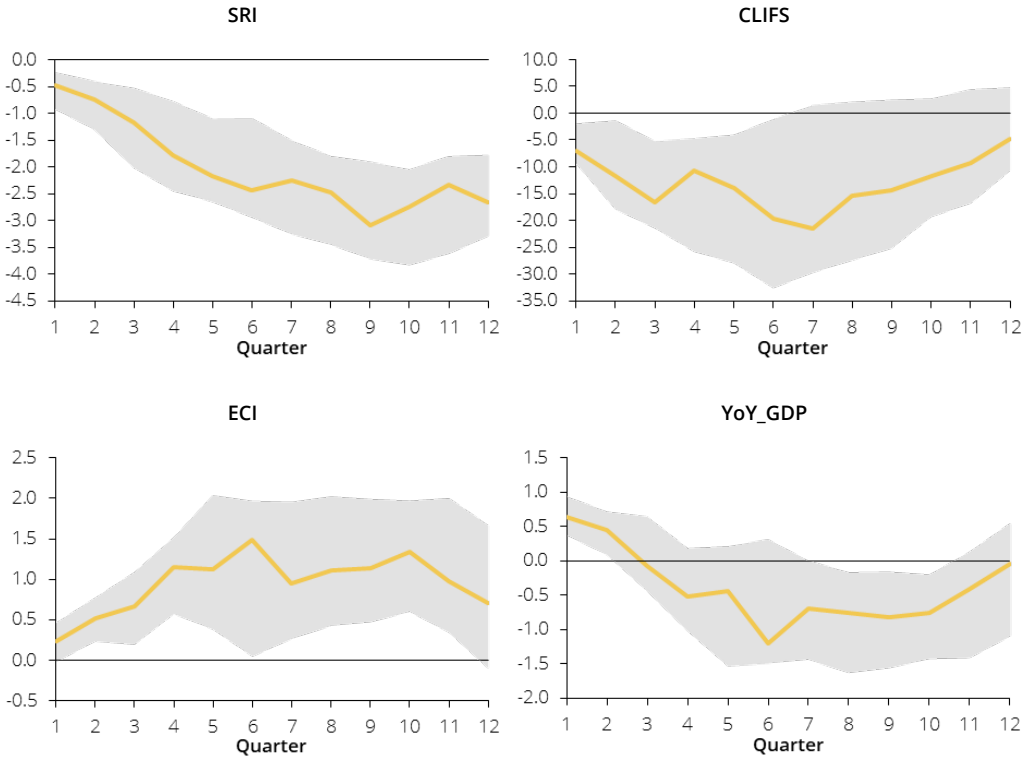
The estimated marginal impact of cyclical systemic risk (SRI) on GaR is always negative and statistically significant, intensifying as the forecast horizons increase up to nine quarters (Chart 2). This means that an increase in cyclical systemic risk is linked to a growing increase in the risk of economic activity declining in subsequent periods. This finding also indicates the signalling properties of the SRI, given the more negative and significant estimated impacts over longer horizons.

In regard to the financial stress indicator (CLIFS), although its marginal impact is negative, it is not statistically significant in determining GaR at forecast horizons longer than six quarters.

The ECI's estimated marginal effects on GaR are always positive and statistically significant. This shows that an improvement in firms' expectations contributes to an improvement in GaR, indicating procyclicality between economic sentiment and developments in economic activity.

Lastly, the lagged year-on-year rate of change of GDP has a positive and statistically significant marginal effect on GaR only at a horizon of two quarters.

Chart 2 • Estimated marginal effect of the explanatory and control variables on GaR from the conditional distribution of the year-on-year rate of change of GDP projected at different forecast horizons | Percentage points



Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations). | Note: The shaded areas stand for the 95% confidence intervals obtained by bootstrapping, using the xy-pair method (Davino, Furno and Vistocco et al., 2013).

5 Distribution of economic growth before and after the pandemic outbreak

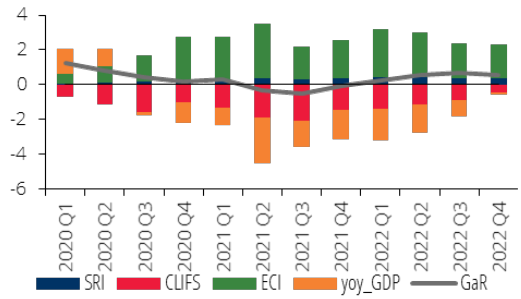
Projections for different horizons for GaR may be made based on the marginal effects estimates presented above. Given the significant change in economic and financial conditions caused by the pandemic, it is interesting to compare the estimates for GaR based on two different data sets. The first uses data available up to the fourth quarter of 2019, aiming to reflect the data from before the start of the pandemic in the projections. The second considers the data available in the second quarter of 2020, which coincides with the first effects of the pandemic in Portugal.

Before the start of the COVID-19 pandemic, the Portuguese economy had a positive growth outlook, although there were signs that the global economy was slowing down somewhat. The

results obtained for GaR based on the data up to the fourth quarter of 2019 seem to reflect this (Chart 3). GaR's developments are projected to be relatively stable and contained. At the end of 2019, the estimated probability of a negative year-on-year rate of change of GDP over a two-year time horizon was low.

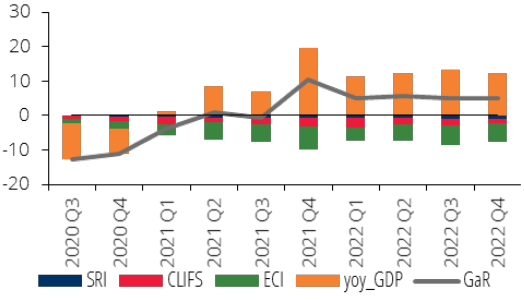
At the end of the first quarter of 2020, the economic and financial situation changed drastically. The short-term projections show negative but improving values for GaR over the forecast horizon (Chart 4). These results are consistent with the evidence of a gradual recovery in economic conditions. Between the second quarter of 2021 and the end of 2022, the projections for GaR are positive, in line with the projections available for economic activity. Besides this, the variables reflecting the financial system make a relatively small contribution to developments in GaR. On the one hand, this is a result of the nature of this crisis, which is exogenous to the financial system, and on the other hand, it results from the rapid implementation of policies supporting favourable conditions in the international financial markets.

Chart 3 • Explanatory and control variables' contributions to GaR, projected using available data up to 2019Q4 | Per cent and percentage points



Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations).

Chart 4 • Explanatory and control variables' contributions to GaR, projected using available data up to 2020Q2 | Per cent and percentage points

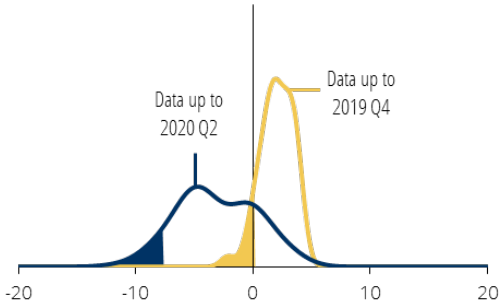


Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations).

The conditional distribution of the year-on-year rate of change of GDP projected for the first quarter of 2021 shifted leftward and flattened somewhat between the end of 2019 and the second quarter of 2020 due to the pandemic (Chart 5). The distribution before the crisis was fairly concentrated, reflecting low uncertainty and the low probability of a negative year-on-year rate of change of GDP. After the exogenous shock caused by the pandemic, the conditional distribution of the year-on-year rate of change of GDP reflects a greater probability of negative projections for the year-on-year rate of change of GDP and greater uncertainty.

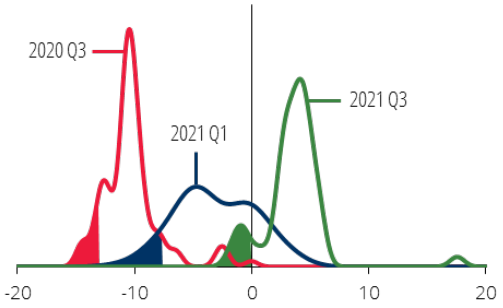
Based on the data available up to the second quarter of 2020, the conditional distribution of the year-on-year rate of change of GDP for the first quarter of 2021 shows a recovery compared to the conditional distribution of the year-on-year rate of change of GDP for the third quarter of 2020 (Chart 6). As expected, the latter distribution is fairly concentrated in negative year-on-year rates of change of GDP, meaning that the probability of a positive rate being observed was quite low. However, the chart shows a relatively fast rightward shift in the distribution. The projected distribution for the third quarter of 2021 shows a concentration of the probability mass in positive values for the year-on-year rate of change.

Chart 5 • Conditional distribution of the year-on-year rate of change of GDP projected for 2021 Q1 | Per cent



Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations). | Notes: Shaded areas correspond to the respective distribution's GaR. Results obtained using the projected percentiles and the application of a Gaussian kernel with optimised bandwidth (Bowman and Azzalini, 1997).

Chart 6 • Projected developments for the conditional distribution of the year-on-year rate of change of GDP based on data available up to 2020 Q2 | Per cent



Sources: European Central Bank, Banco de Portugal and Statistics Portugal (Banco de Portugal calculations). | Notes: Shaded areas correspond to the respective distribution's GaR. Results obtained using the projected percentiles and the application of a Gaussian kernel with optimised bandwidth (Bowman and Azzalini, 1997).

6 Conclusions

The analysis of the interaction between financial conditions and future economic activity shows that:

- The probability of scenarios that are more adverse for the economy (negative year-on-year rates of change of GDP) increases with negative developments in financial conditions.
- The medium- and long-term projections for economic activity are affected by the evolution of cyclical systemic risk in the financial system, while the conditions of the financial markets only have a significant impact in the short term.
- When there is a decline in financial conditions, there is also a lower concentration of the distribution around the projections for the median of economic activity.

The projections for economic activity in the pandemic show a decline versus those obtained with previous information. There is also an increase in uncertainty associated with future projections and financial conditions are seen to play a minor role in their behaviour. Although economic activity has been seen to fall, the model considered foresees a recovery during 2021.

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