EUROPEAN ECONOMY
BANKS, REGULATION, AND THE REAL SECTOR

BANKING AND COVID

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Banking and Covid

What is European Economy

European Economy – Banks, Regulation, and the Real Sector (www.european-economy.eu) is a journal to encourage an informed and fair debate among academics, institutional representatives, and bankers on the current banking regulation framework and its effects on banking activity and the real economy. It is resuming publication in 2021 thanks to the financial support of Fondazione Compagnia di San Paolo and Bank of Italy.

The journal aims at being an outlet for research and policy-based pieces, combining the perspective of academia, policy making and operations. Special attention will be devoted to the link between financial markets and the real economy and how this is affected by regulatory measures. Each issue concentrates on a current theme, giving an appraisal of policy and regulatory measures in Europe and worldwide. Analysis at the forefront of the academic and institutional debate will be presented in a language accessible also to readers outside the academic world, such as government officials, practitioners and policy-makers.

The 2021.1 issue of *European Economy – Banks, Regulation and the Real Sector* discusses the impact of the Covid-19 outbreak on the banking industry and the real economy. The papers assess the supportive role of banks to the recovery and the liquidity of non-financial institutions, the regulatory initiatives adopted to boost credit and support the real sector, the "exit strategy" from the pandemic crisis and emergency policies and contributes to the debate about the future of banks and of a well-developed Capital Market Union in Europe.

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From the Editorial Desk

Banking and COVID: Past, Present, and Future

by Giorgio Barba Navaretti[1], Giacomo Calzolari[2], Alberto Franco Pozzolo[3]

1. The function of banks in emergency

"This time banks are not the problem but part of the solution."[4] This is a statement with several implications and inherent meanings, that we explore in-depth in this issue of European Economy (EE).

First, the *absence* of wrongdoing. This is an economic crisis that started as an exogenous shock (the pandemic) and not because of financial mismanagement by banks and financial companies: the plaintiff is empty-handed this time. In the aftermath of the great financial crisis (GFC), the leitmotif was that banks' profits were private and their losses public, as many had to be bailed out by taxpayers. The subsequent reforms in regulation and supervision, the steep rise of capital requirements, and the restrictions on public bailouts were precisely based on the principle that also losses had to be private, borne mainly by shareholders and junior creditors with the ultimate aim to reduce moral hazard in lending and financial allocations. This time, not only the initial shock was exogenous to the banking sector, but it also happened at a time when the industry was acting in good health on safe grounds, as clearly emphasised by Campa and Quagliariello in this issue.

1. University of Milan.
2. European University Institute.
3. Roma Tre University.
4. Statement by the General Manager of BIS Agustín Carstens in his interview with Martin Wolf at Financial Times - The Global Boardroom 2nd Edition: Shaping the recovery, 13 November 2020 and also by Felix Hufeld, then the President of the Bafin, the German financial regulator, in June 2020.

Second, the *solution*. Banks were crucial in channeling funds to firms and families, indeed so in Europe. Loans to non-financial corporations and households rose substantially in most EU countries during the first half of 2020, as firms needed working capital to withstand a steep reduction in sales and started amassing liquidity as a safety measure, given the remarkable rise in uncertainty (as thoroughly reported by Falagiarda et al. in this issue). Moreover, banks granted moratoria and considerably extended the duration of outstanding exposures. Bank loans also increased in the US, even though firms relied more on the issuance of corporate bonds than their European counterparts. According to Darmouni and Siani in this issue, both investment-grade and high-yield markets reached historical heights after March 2020. Yet, small firms still relied on bank loans. No other economic or financial, or public institution would have been equally pervasive to reach the broad public of firms and households like banks while being thoroughly regulated and supervised to assure the correct implementation of a centrally coordinated nation-wide and EU-level action.

Third, being able to *afford* to be the solution. As argued, banks were sufficiently capitalised, liquid, and well managed at the outburst of the pandemic (at least a large number of them) to be able to expand their assets without an excessive depletion of prudential capital. Also, because of the restrictions in distributing dividends and because of the moratoria extended to loans, Tier 1 capital, liquidity ratios, and the share of non-performing loans all improved during the crisis (as all the tables and figures reported in the Number section clearly illustrate, and as also argued in the papers by Angeloni and Campa and Quagliariello in this issue).

Fourth, this was possible because banks are subject to strict *regulations*, in Europe under a common regulatory framework. This had a double advantage. First, the quality of banks' balance sheets and the extent of their ability to act were well known to the authorities. Second, regulatory authorities knew there were sufficient margins to release many of the prudential provisions of the pre-COVID-19 regulatory framework (e.g., capital buffers) and to introduce some ad hoc prudential measures, such as the restrictions in the distribution of dividends. And also, there was political consensus to do so. Consequently, it was possible to launch a public-private joint action between supervisory authorities, central banks, governments, and the banks themselves, which

were at the forefront as the final actors and the enablers of the support operations. Banks would not have been able to act on similar grounds and to a similar extent in a pre-2009 environment. A tighter prudential regulatory framework was essential in creating the preconditions for banks' "social" action. Also, this could not have happened in Europe if there had not been a Banking Union (although yet to be completed). Ring-fencing and uncoordinated supervisory procedures would have prevented a swift action under comparable conditions within the Union.

Fifth, being *part* of the solution. For well capitalised and healthy that they were, banks could have never been a solution without several levers of extensive public support: massive liquidity from central banks; extensive public guarantees on new loans; comprehensive regulatory responses, allowing banks to use their capital, liquidity, and countercyclical buffers; suspension of State Aid rules. In Europe, no such action could have been carried out in a pre-2009 environment and in the aftermath of the financial crisis. Governments could not have enacted expansionary measures of support and increased public debt without a massive program of purchase of government bonds by the ECB. At the time, there was no, and there would not have been political consensus for the ECB to carry out a quantitative easing (QE) program first and then the Pandemic Emergency Purchase Program (PEPP). Also, without a Banking Union, it would not have been possible to carry out a coordinated action throughout Europe and also construct sufficient political consensus to soften the prudential requirements set up after the GFC and the Sovereign Debt Crisis and use them countercyclically.

But the next critical challenge is to avoid the solution becoming a problem. For banks to act as responsible social actors during the pandemic, it was necessary, as argued, to considerably smooth the existing regulatory framework. Yet, such a framework was essentially designed to avoid moral hazard, when the banks were indeed the problem: i.e., to provide the right incentives to avoid irresponsible economic behaviour and potential episodes of insolvency. Future problems will be less likely if banks during the pandemic have acted as both economically and socially responsible actors. For example, if the standards applied to the allocation of loans backed by a state guarantee have been adequately stringent. Or if credit forbearance has been granted only to solvent borrowers. Hence at the moment we do not know if banks have

carried out economically responsible actions even in the absence of adequate regulatory incentives to do so.

Clearly, to avoid the solution becoming a problem, a crucial aspect is the timing of the steps to go back to normality, which needs to be phased with the evolution of the pandemic and the uncovering of its effects. The legacy of the crisis, the exit strategy, the long-term impact on the banking and financial sectors, and what we have learned from a regulatory perspective are the main issues discussed below.

2. The legacy of the crisis and the exit strategy: notes of caution

The aftermath of the pandemic.

The legacy that the pandemic crisis will leave on the banking sector cannot be underestimated. As argued above, the size and scope of policy interventions have been pervasive, including: (i) *monetary policy measures*, such as ECB's Targeted Long-Term Refinancing Operations III (TLTRO III) and Pandemic Emergency Purchase Programme (PEPP); (ii) *fiscal policy measures*, such as national public guarantee schemes; (iii) *prudential and supervisory measures*, releasing capital and liquidity buffers, easing the classification of loans and their risk provisioning, and allowing for moratoria on lending. While these measures have been crucial to contrast the effects of COVID-19, they will also have substantial short- and long-run consequences on the banking sector and the economy as a whole.

The moral hazard problems at the core of the debate after the GFC appear not to be an issue in the current situation. Schnabel (2020) explicitly said that "the pandemic has not raised concerns of moral hazard." Of course banks had no bearing in the economic crisis triggered by the pandemic and were instrumental in supporting households and firms. However, it is not clear whether credit allocation has been biased towards riskier creditors by lifting several prudential conditions. At the same time, cheap credit, moratoria on bank loans, and government guarantees are helping firms to survive, but at the cost of increasing their indebtedness. When support measures will finally be lifted, many borrowers will find themselves more indebted and in a direr condition than before the crisis.

Expansionary monetary policies and government guarantees make it very easy for banks to grant credit, as it is necessary to contrast the pandemic. But they also raise the risk that banks lend to zombie firms, which most likely will not be able to pay back their debts, and the survival of which causes significant distortions in the allocation of economic resources. This would hamper the reorganization of economic activities necessary for an effective process of creative destruction to unfold (Beck et al., 2021). Not all banks have the same incentives to lend to zombie firms, and the available evidence shows that the weaker and less capitalized banks are precisely those that are more likely to do so (Dursun-de Neef and Schandlbauer, 2020; Schivardi et al., 2021).

Like all crises, also the pandemic will have a cleansing effect. The acceleration of some trends that were already unfolding will cause a substantial reshaping of profitability across and within economic sectors. Strong firms will sail such rough waters and possibly strengthen their position, while weaker firms will be in trouble. Entrepreneurs should base their decisions on realistic assumptions about their business perspectives, avoiding leveraging on the availability of easy credit to bet for resurrection.

Public spending has increased substantially all over the world in the last year. According to the IMF, the ratio of government debt to GDP in advanced economies has soared by 16.3 percentage points between 2019 and 2020, to 120.1 per cent (by 12.9 per cent in the euro area, to 96.9 per cent). Contingent liabilities related to the guarantees offered on bank loans (see Figure 10, in the Numbers section) may cause a further increase in the coming years.

Expansionary fiscal policies were needed to contrast the effects of the pandemic, and they will undoubtedly be effective in the short run, given the large output gap and the depressed aggregate demand. But government policies need to have a sufficient long-term perspective and the recovery must be sustainable, protracted and sizeable enough for firms to pay back their debts without triggering government guarantees. Adding further concerns to this scenario, moratoria are more widespread in countries with a higher debt-to-GDP ratio (see Figure 17, in the Numbers Section). If government spending during the pandemics and the recovery programs in the aftermath had no impact in the longer term, the unfolding of a new doom-loop between banks and sovereigns might become a possible scenario in the coming years.

Closely related is the issue of NPLs. While their level is still low, they might rise substantially. As reported by Campa and Quagliariello in this issue, the volume of loans classified under IFRS 9 stage 2 – those that are still performing but for which there was a significant increase in credit risk – increased by 24% in 2020. As argued by Angeloni in this issue, banks should set aside adequate provisions to cover for credit risk and keep screening their clients even when government guarantees cover the loans they grant. This is even more so because of the link between NPLs, moratoria, capitalization and profitability: the country share of loans under moratoria which are classified as Stage 2 is higher than the average share of loans classified as Stage 2 (see Figure 12, in the Numbers section), the share of loans under moratoria is larger in countries with higher NPL ratios (Figure 16) and where banks have lower Tier 1 capital ratios (Figure 18) and profitability (Figure 19). Careful attention must thus be paid that banks do not postpone uncovering their losses.

To this aim, asset management companies can be an effective tool to make it easier to sell NPLs at a fair price, avoiding inflated losses because of thin markets or fire sales (which, in turn, could hamper the incentives to uncover them), as suggested by Campa and Quagliariello and Beck in this issue (building on the proposal made by Enria, 2017, in a previous issue of this journal).[5]

The pandemic crisis also leaves us with a less stringent regulatory framework than what was agreed after the GFC. While this was necessary, an exit strategy must be devised. As argued by Beck in this issue and Beck et al. (2021), the right balance must be found between acting too soon, thus causing a credit crunch during the recovery phase, and acting too late, thus increasing the risk of moral hazard. To help banks and firms make credible budget plans for the coming years, a "forward regulatory guidance" should be provided, setting a clear path ahead. Given current and future uncertainties, such guidance would be more credible and effective if it were state-contingent (i.e., based on economic conditions) rather than time-time contingent (i.e., based on fixed dates in the future).[6]

5. Although NPLs which will derive from the pandemic are not a legacy of past misbehaviours by bankers, as in the case of GFC, the proposal is nonetheless encountering some opposition at the European level, as argued by Angeloni in this issue. For a thorough analysis of AMCs, see also Brescia Morra et al. (2021), Lamos and Lamandini (2021) and Avgouleas et al. (2021).
6. Andrea Enria (2021) in a recent speech suggested a mixed strategy. He argued for the need to move ahead as planned for completing and implementing the Basel III framework on capital requirements, and at the same time grant other elements of flexibility, like for the Pillar 2 capital requirements.

Long-run implications

All the measures described above aim at tackling the short-run legacies of the pandemic crisis, setting the road for a stronger recovery and a sounder financial sector. But long-run legacies of the crisis will also unavoidably affect governments, banks, and firms alike.

Many governments will need to find a way of reabsorbing their massive debts, especially when central banks will phase out the QE. Firm over-indebtedness, especially with banks, will also be a major problem in the medium-run, since it will harm their investment ability. Even more so in the highly productive but riskier activities necessary to reach sustained economic growth.

During the pandemic, some firms have found easier access to the bond market than in the past, as shown by Darmouni and Siani, in this issue (partly thanks to the effects of central bank purchases). Also, in Europe, the number of firms issuing bonds has increased and their average size has declined (Darmouni and Papoutsi, 2020). Bond financing may become a problem if firms cannot roll-over their debt when the next crisis comes.

For firms to have more extensive access to arm-length financing, a larger number of investors should be willing to change their preferences towards higher risk-return strategies. This would be a crucial step to foster the reallocation of activities needed to recover from the COVID-19 pandemic and face future challenges, such as environmental problems. While all obstacles should be removed to facilitate firms' access to equity markets, including SMEs, a renewed cultural approach to financial investments is also needed. Policies helping firms to switch from government guaranteed bank debt to equity financing, for example along the lines of the proposal made by Boot et al. (2020), would help in this direction. Set within the Capital Market Union framework, their effectiveness would be further enhanced (see Barba Navaretti et al., 2019).

Banks could also play a more active role in helping firms to access the financial markets directly. Margins on traditional banking activities are shrinking due to the current low-interest environment and increased competition from non-bank financial intermediaries, such as in the payment business.[7] A large amount of liquidity available in the financial markets may

7. As suggested by the results of Bolt et al., in this issue, competition in the payment business is likely to increase in the coming years, due to the acceleration in the diffusion of digital payments during the pandemic and the likely introduction of central bank digital currencies.

give way to fintechs to increase lending, for example, through peer-to-peer platforms. Since investment banking has higher margins than traditional lending, underwriting services should be seen by banks as a profit opportunity, rather than as an activity that reduces their loan portfolios' size.

Also, the evolution of the entire financial intermediation sector, with new players such as fintechs and bigtechs, will undoubtedly push pressure on banks' profitability. Fintechs had apparently a temporary step-back during the pandemic. This is partly related to the fact that many of these new players like peer to peer landing platforms had no access to relief measures and funding sources and that the public preferred to fly to safety in hardship (see Davies in this issue).

Possibly this has been a temporary accident, as fintechs were not ready yet and diffused enough in Europe to act pervasively during the crisis. But they may come back soon, given the earlier observed speed in the expansion of their business. Also, not all activities faced a set-back. Bolt et al. in this issue have shown that within a few months in lockdown individual payments' habits have changed and probably permanently at a speed that usually would have taken several years.

The low profitability of traditional banks cannot last forever, with very low, if not still declining, book-to-value records for European banks.[8] The articles in this issue of European Economy have discussed how banks can regain profitability (see Davies). Overall, there are not so many options available. A combination of traditional approaches, such as cost containment, national and cross-border M&As, and more transformative changes are the likely outcomes.

Excess capacity is still a characteristic of some, although not all, domestic banking sectors in Europe. In some countries, the concentration in the banking sector is already high (notably Spain), and there are narrow margins for other M&As. In others, there are options, notably in Germany and Austria, and also in France and Italy.[9] But in this period of uncertainty with an unclear picture on the extent of future NPLs, the value of banks' assets is uncertain and difficult to assess.

8. Market capitalization of Apple in 2018 was roughly half the combined European listed banks' capitalization. In 2020, the situation is reversed with Apple now valuing more than the double of the entire European banking sector.
9. See https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200608_ssi_table~3054d55051.en.pdf

Also cross-country M&As could help to boost banks' efficiency, and they would be an interesting way forward also in light of the hopeful completion of the Capital Markets Union. But, as highlighted by Davies in this issue, also, in this case, the uncertainty in the value of assets, the yet uncompleted Banking Union (a still missing European Deposit Insurance Scheme) and some potential political opposition, higher than usual in these COVID times, may hamper this pattern in the short/medium term.

Another source of efficiency can come from the adoption of digital technologies, especially for customer engagement applications and the use of artificial intelligence and Big data that can help in credit allocation and asset management modelling. Adopting transformative digital technologies not only opens different sources of profitability but also a re-organization of the banking activities, with a rebalancing of revenues towards non interest based sources (fees and commissions), a useful shift in a negative interest rates environment.

Financial intermediaries would be more of a matching entity, that gains when a transaction takes place. Bigtechs have a similar business model where in many cases profits come from flat-rate subscription fees and the ability to retain customers. The current banking business model is very far from all this, but it could be now the right moment to move more in this direction. Yet, the pace of adoption rate of these technologies by traditional banks is not of the speediest. In this respect, as argued in an earlier issue of this journal on fintechs, banks may rely on third parties such as cloud computing for data storage and analysis rather than developing these technologies.

For regulation and supervision, this will be a process to monitor closely. If regained profitability may stabilize the banking sector, a new business model may come with different risks. It has been shown, for example, that relying more on fees enhances the operating risk of banks.[10] Also, as regulators have already noted, outsourcing crucial banks' activities to third parties implies new risks.

10. See DeYoung and Roland (2001) and more recently Köhler (2014).

3. What have we learnt? Rules as an anticyclical tool and the need for more European integration

Drawing conclusions on the effects of the pandemic on banking and financial markets at this stage is too early. However, the papers in this issue of European Economy help us identify some early observations about what we have learned.

The COVID is an unfortunate and prolonged stress test for the European banking sector and the regulations approved after the GFC, although the presence of unprecedented market interventions confound the test. We have learnt that rules have to be implemented with sufficient flexibility. They can work as powerful anticyclical measures. Using the available margins for releasing capital, liquidity requirements and State-aid rules has been essential to shelter as much as possible companies and households from the worst consequences of the pandemic.

As argued in the papers by Campa and Quagliariello, by Davies, and by Falagiarda et al., adequate capitalization levels were effective in fostering banks' resilience. However, different banks in different countries will sail through the crisis in very different conditions. How they will exit it will depend not only on the quality of their loan portfolios and on their level of capitalization, but also on how their domestic countries have been hit by the pandemic: the severity of the lockdowns, the sectors of exposure, the effectiveness of the support measures, the state of the public finances etc.

In this framework, it will be difficult not to consider that the process of recapitalization initiated after the GFC was still incomplete. Rescuing banks in a post-COVID-19 banking crisis, if needed, will be just an act of realism: as it turned out to be necessary after the GFC, it would be even more so when the cause of the banking crisis is an exogenous shock like the pandemic.

In light of this, one could try to understand what would have been the COVID-19 crisis had it taken place before the Banking Union, and also what are the challenges ahead for the architecture of European banking supervision and regulation.

A first issue concerns the Single Resolution Mechanism. This was meant to reduce the risk of bail-out and the vicious cycle between banks and sovereigns. However, the bail-in of 8% of a bank's balance sheet (contained in Banking

Recovery and Resolution Directive, to access the Single Resolution Fund) has never been applied, de facto. Several reasons can explain why this Mechanism has not been used so far (see among other Dewatripoint et al. Vox 2021).[11]

What will happen now, in the aftermath of the COVID-19 crisis? In principle, hard hit and undercapitalized banks in need of recovery would face the 8% bail-in rule. However, given the current post-COVID-19 conditions, governments would likely invoke the financial stability exemption to rescue their banks. Especially if the pandemic evolves into a systemic rather than an idiosyncratic crisis involving more than a small number of banks, as argued by Beck in this issue. Paradoxically, this could lead to a claim of the irrelevance of the Single Resolution Mechanism – aside from the ex-ante disciplining effect on banks of the threat of its application. This would be an ill-judgement, given the extreme and exceptional conditions we are sailing through, yet it would certainly call for some deep rethinking on how to use public funds in rescuing banks in troubles within a common European framework.

A different perspective emerges if we instead consider jointly the Single Supervisory Mechanism and the Single Rulebook. If these two critical elements of the Banking Union had not been available, then probably the current situation, and the future, would be definitely darker. As we have seen, the increased capital requirements are now paying off. We can claim that, at least so far, even in the case of undercapitalized banks, they allowed for buying time for the public hands to support the economies, without having to worry too much for the banking sector, as far as the lockdowns will not continue in 2022. Also, the banking Union offered a framework for coordinating actions for granting the necessary flexibility in prudential requirements across the Union.

From the COVID-19 crisis we have also learned that it is not true that the only missing piece in the Banking Union is the European Deposit Insurance Scheme. There is still a lot to do in terms of coordination. As mentioned by Campa and Quagliariello, payment moratoria and public guarantee schemes were launched from governments in a not sufficiently coordinated manner and significantly differed in terms of deadlines, coverage, and conditionality, notwithstanding the efforts of the ECB. This lack of coordination will impact the post-COVID-19 life of banks in Europe.

11. https://voxeu.org/article/urgent-reform-eu-resolution-framework-needed

We also lack a functioning European AMC to deal with NPLs, as mentioned by Angeloni. The current European plans will most likely not materialize in time, and, retrospectively, we missed an occasion in the last phase of the GFC to introduce this tool. Had it been available now, this tense period when NPLs haven't realized yet, but everybody predicts they will, would have been less haunted by uncertainty.

And we further lack a convincing framework for cross-border banks. This is not a detail. As we argued above, these banks could be a solution for the current situation as a driver of the efficiency of the European banking sector. However, cross-border mergers are unlikely, given the current conditions. Political pressure might oppose such mergers for fear of losing control of national banking systems. Also, the highly uncertain environment in case of resolution of a pan-European bank is a formidable impediment for a cross-border merger. As in the past, the difficulty here is to a conflicting interest of home and host jurisdictions. The Single Supervisory System has made cross-border European banks more likely, but it has not yet lifted several still existing impediments.

As we have argued many times in this journal, a further and stronger integration of European banking and capital markets is a crucial way to improve the banking sector in Europe and certainly for a rapid recovery from the dreads of the pandemic.

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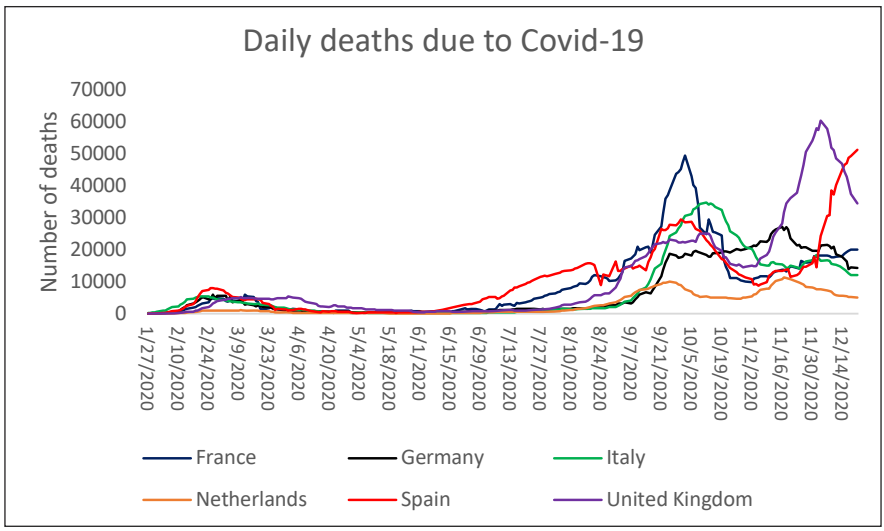
Numbers

by José Manuel Mansilla-Fernández[12]

Incidence of the Covid-19 in Europe

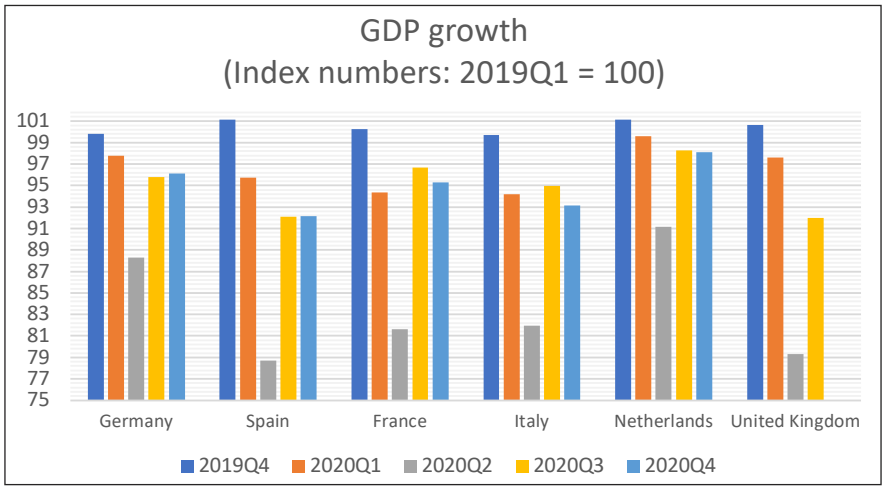
Figure 1: The Covid-19 pandemic exploded in Europe in March 2020; a second wave started in Fall, with more heterogeneous effects across countries. Lockdowns and social distancing measures had a strong negative impact on the economy.



Source: Own elaboration based on data from Refinitiv Eikon. Data are presented as a 5-day moving average to smooth variations in recording daily deaths.

12. Public University of Navarre and Institute for Advanced Research in Business and Economics (INARBE).

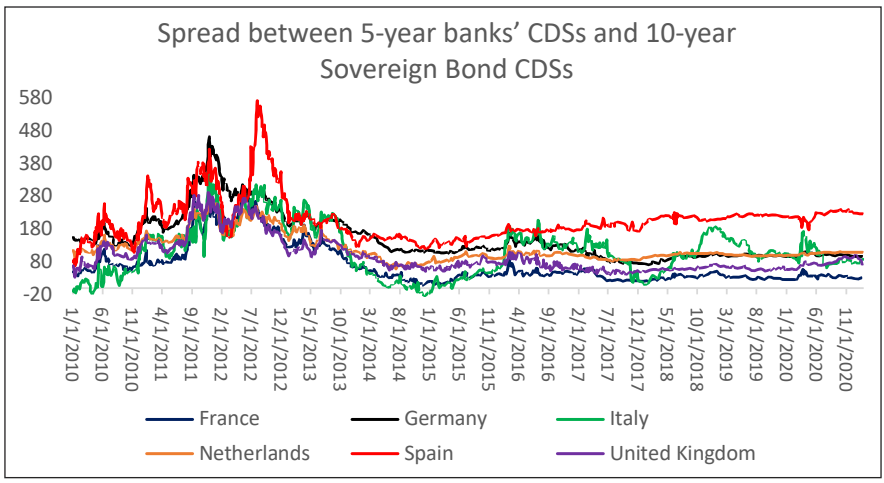
Figure 2: The Great lockdown in Europe (2020Q1 and 2002Q2) diminished production substantially, although economic recovery began in the second half of the year (2020Q3 and 2020Q4).



Source: Own elaboration based on data retrieved from Eurostat. The chart displays chain linked volumes seasonally and calendar adjusted.

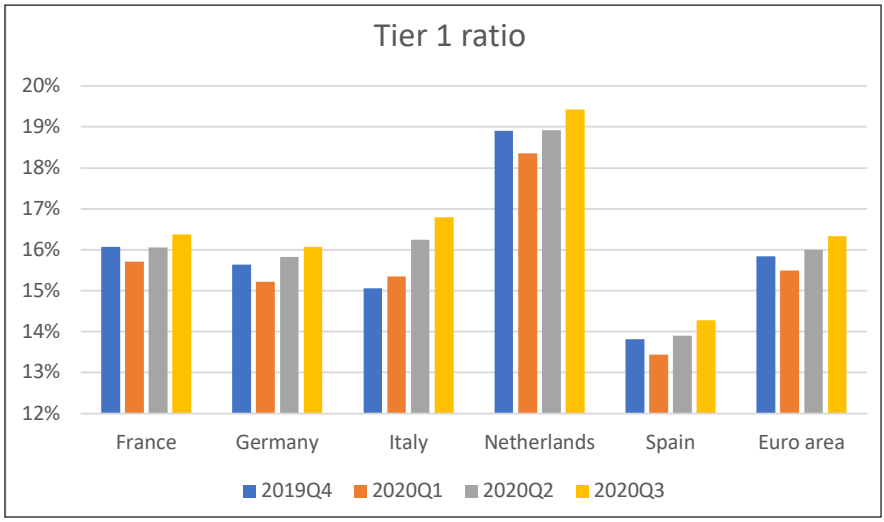
The impact of the Covid-19 crisis on the banking sector

Figure 3: Investors perceived banks as comparatively safer institutions during the Covid-19 crisis than during the sovereign debt crisis. The European Central Bank's pandemic programmes supported more favourable financing conditions.



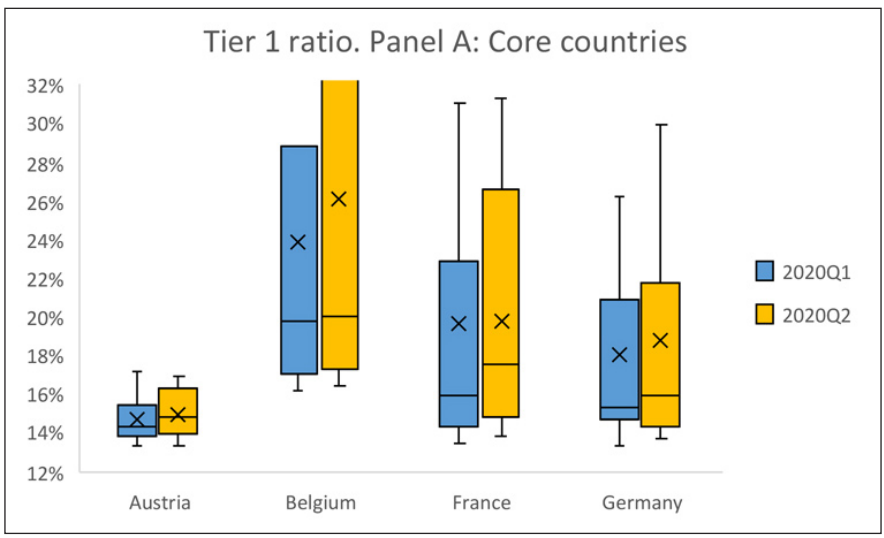
Source: Own elaboration based on data from Refinitiv Eikon. The lines represent the daily difference between 5-year Banks' CDS and 10-year Sovereign Bonds CDS.

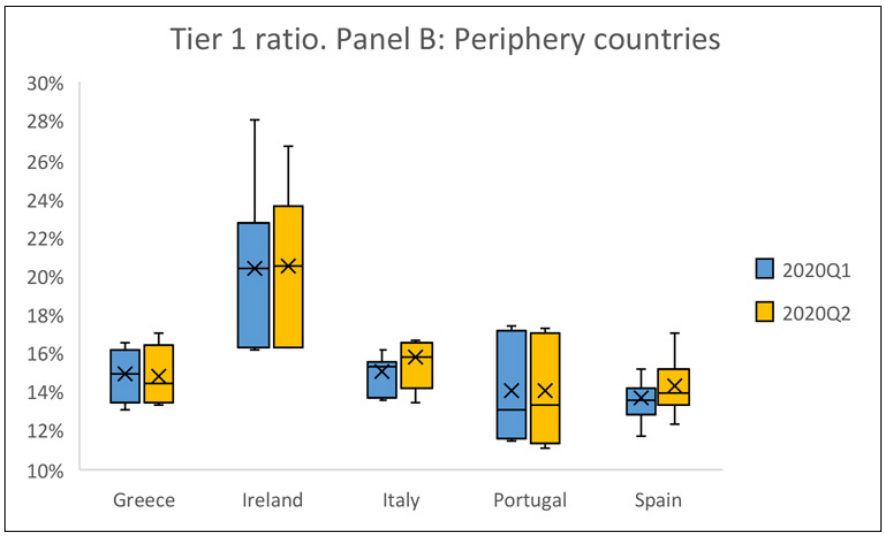
Figure 4. European banks slightly improved their capitalization during the Covid-19 crisis.



Source: Own elaboration based on ECB data. The Tier 1 capital ratio is defined as the proportion of tier 1 capital – equity capital and disclosed reserves – to total risk-weighted assets.

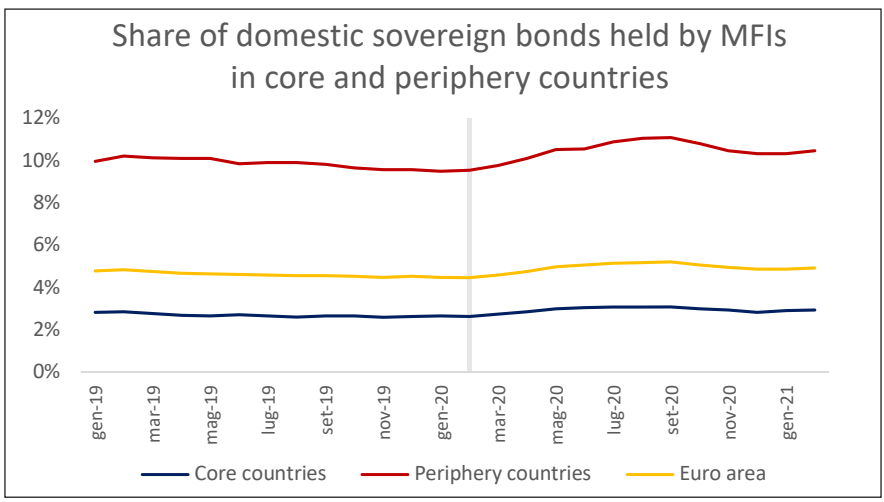
Figure 5. The dispersion of Tier 1 capital across banks increased during the Covid-19 crisis, and more in some countries than in others.





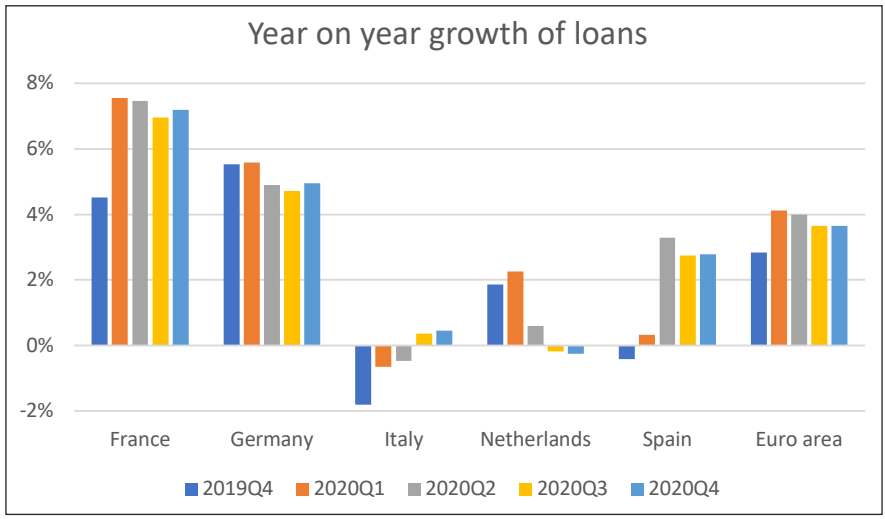
Source: Own elaboration based on the EBA database. The Tier 1 capital ratio is defined as the proportion of tier 1 capital – equity capital and disclosed reserves – to total risk-weighted assets. The whiskers represent the maximum and the minimum of the distribution. The box is divided into two parts by the median. The upper (lower) box represents the 25 percent of the sample greater (lower) than the median up to the third quartile and down to the first quartile). The mean of the distribution is represented by ×.

Figure 6. Banks slightly increased the share of domestic sovereign bonds held in their balance sheets, the more so in periphery countries.



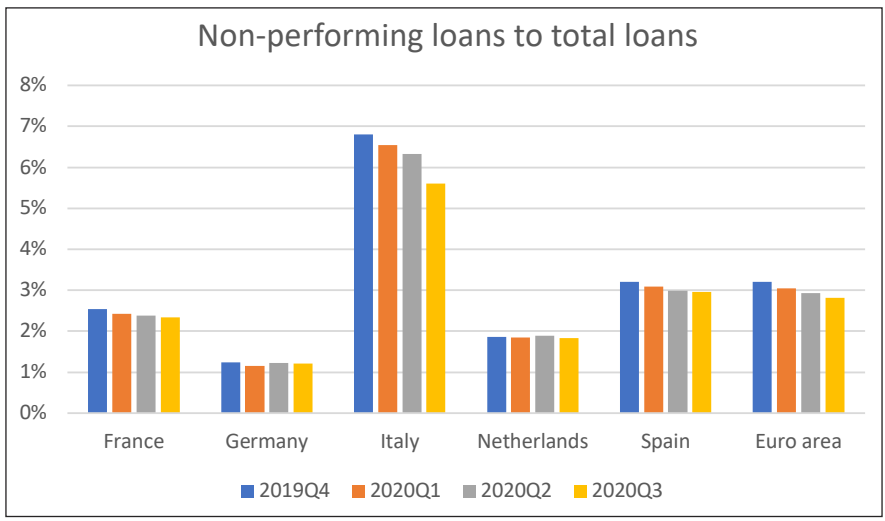
Source: ECB. Ratio of the holdings of domestic sovereign debt and total assets by MFIs in each country. Core countries are Austria, Belgium, Finland, France, Germany, and the Netherlands; periphery countries are Greece, Ireland, Italy, Portugal, and Spain (see the Numbers note in the European Economy 2016.1 issue).

Figure 7: Bank lending increased on average in the Euro zone, but at different rates across countries.



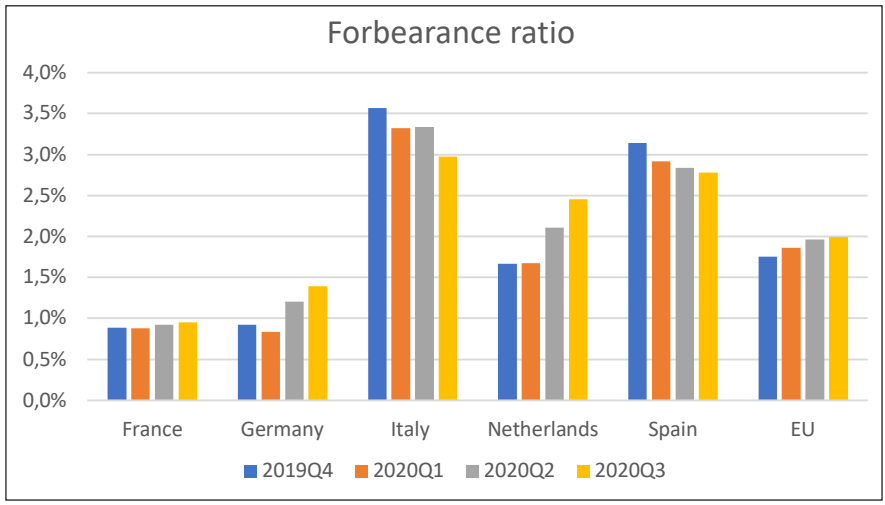
Source: Own elaboration based on ECB data. Figures are year-on-year percentage changes of the stock of banks loans.

Figure 8. The ratio of non-performing loans (NPLs) to total loans reduced slightly during the pandemic.



Source: Own elaboration based on ECB data. This ratio is calculated as the volume of impaired loans to total loans by country.

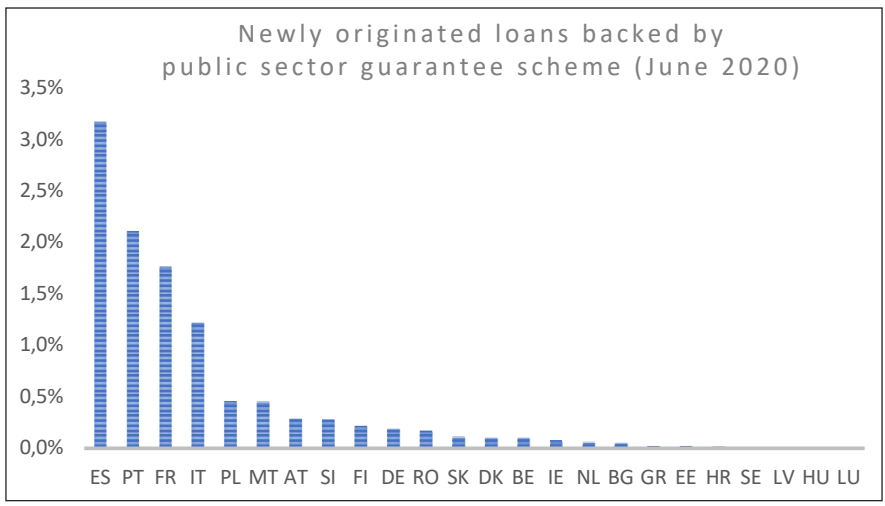
Figure 9. The share of loans under forbearance, and its evolution during the pandemic, are heterogeneous across European countries.



Source: EBA Risk Dashboard. The forbearance ratio is calculated as exposures with forbearance measures to total gross loans and advances. Forbearance denotes a situation where a lending contract or other bilateral credit relationship has become problematic (in the sense of unexpectedly deviating from contractual cash flows due to the actions of one counterparty) leading to lender granting concessions or modifications that it would otherwise not consider.

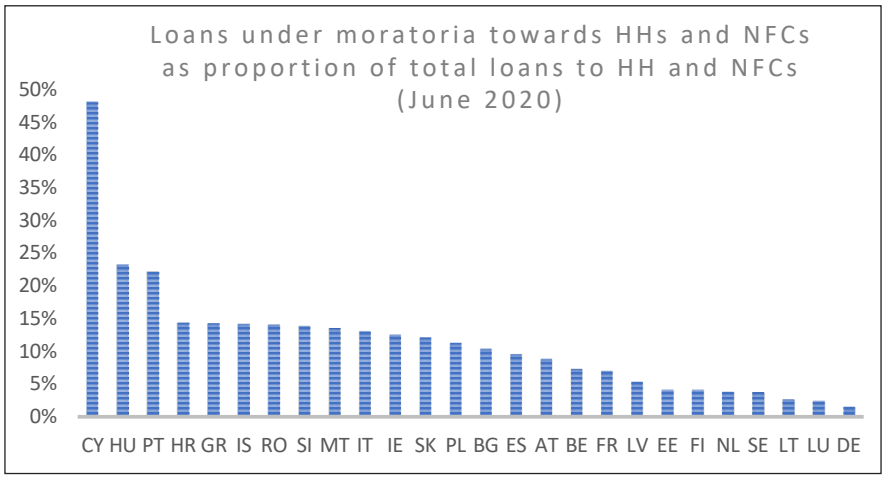
Moratoria and Public Credit Guarantee Schemes (PGS)

Figure 10. In some European countries, contingent liabilities related to the government guarantees offered on bank loans are a relevant share of new loans.



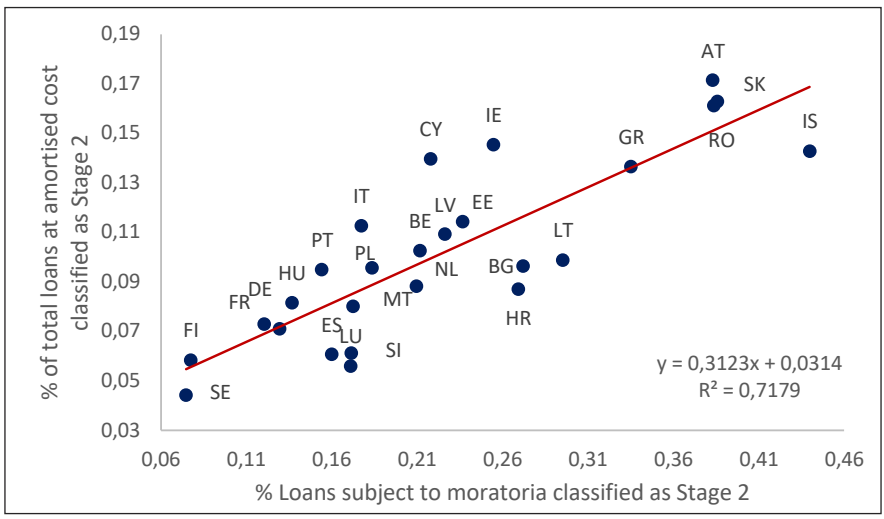
Source: EBA supervisory reporting.

Figure 11. Loans under moratoria is comparatively higher in the so-called periphery countries than in core countries.



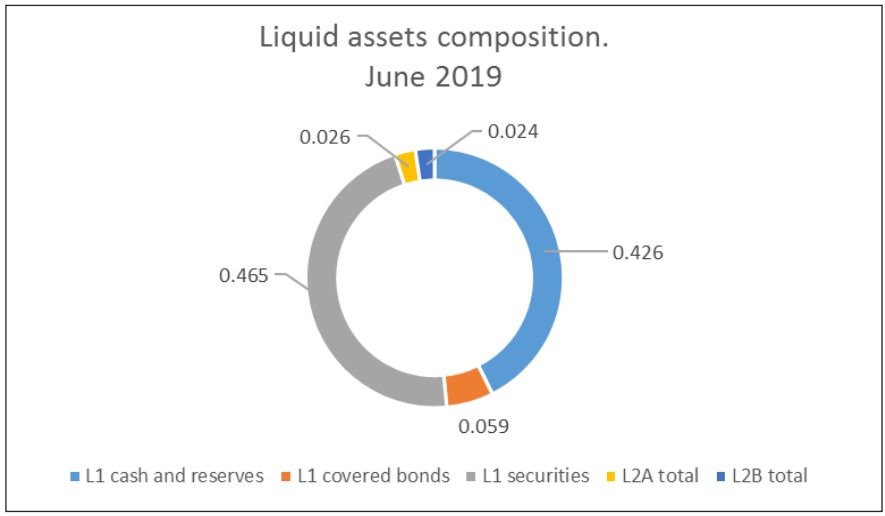
Source: EBA supervisory reporting.

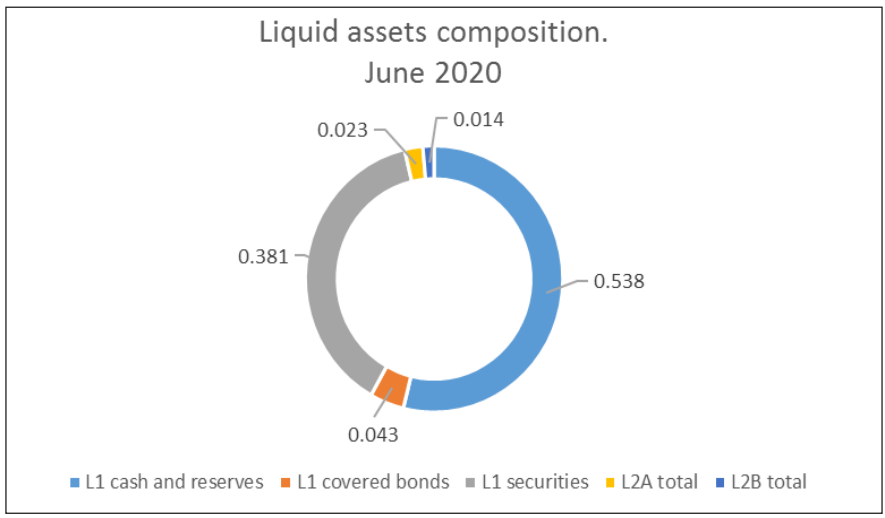
Figure 12. The share of loans under moratoria which are classified as Stage 2 is heterogeneous across European countries, and it is higher than the average share of loans classified as Stage 2 in the country.



Source: EBA supervisory reporting; data refer to 2020Q2. According to the International Financial Reporting Standard (IFRS) 9, a loan should be classified as stage 2 when its credit risk has increase significantly, and the payment past due by 30 days (underperforming). Countries included in the sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Cyprus (CY), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

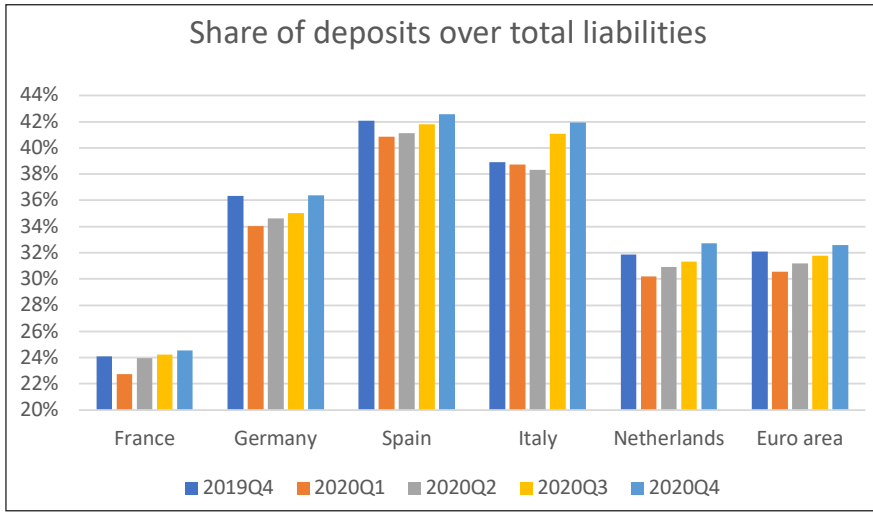
Figure 13. European banks increased their holdings of cash and central bank reserves, partly as a result of central bank funding.





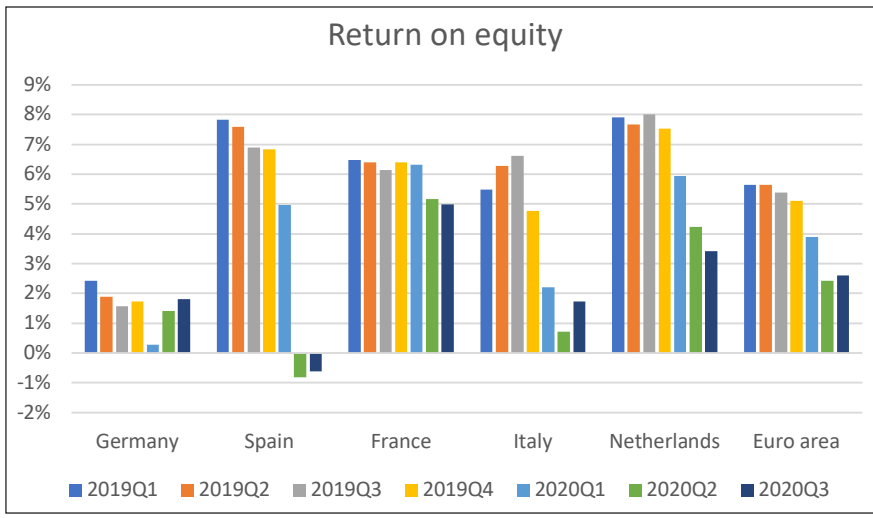
Source: EBA supervisory reporting.

Figure 14: Bank deposits increased in all European countries.



Source: Own elaboration based on ECB data.

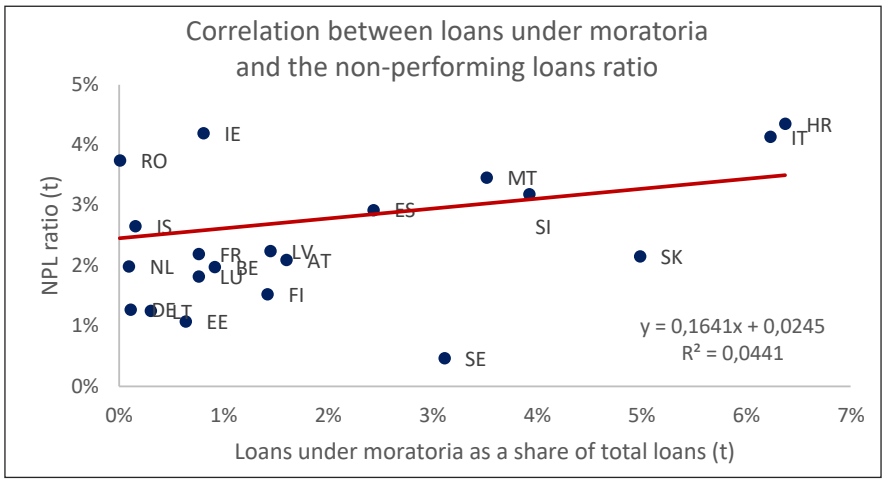
Figure 15. Bank profitability generally decreased in all major European countries during the Covid-19 pandemic crisis.



Source: Own elaboration based on ECB data. The return on equity ratio is calculates as the annualized operating profits before taxes over total equity and represents banks' profitability. Data are adjusted for seasonality.

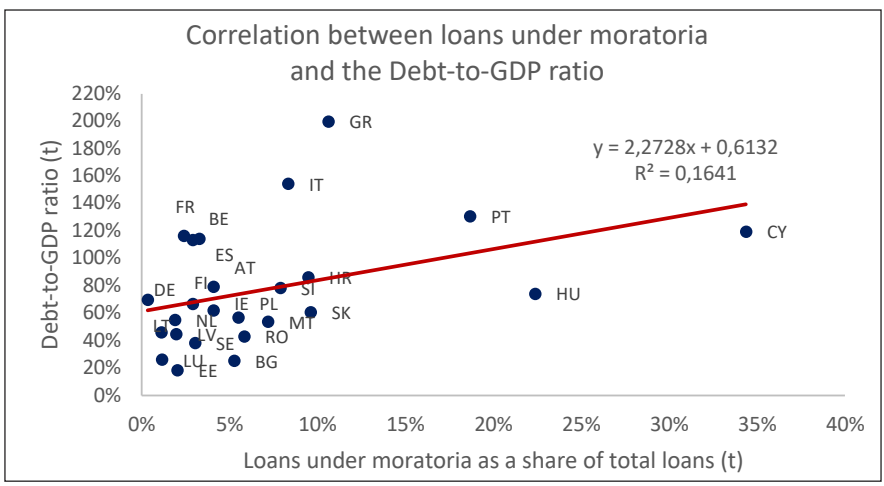
Stylised facts on moratoria and public guarantee schemes (PGS)

Figure 16. NPL ratios are larger for countries with higher level of loans subject to moratoria.



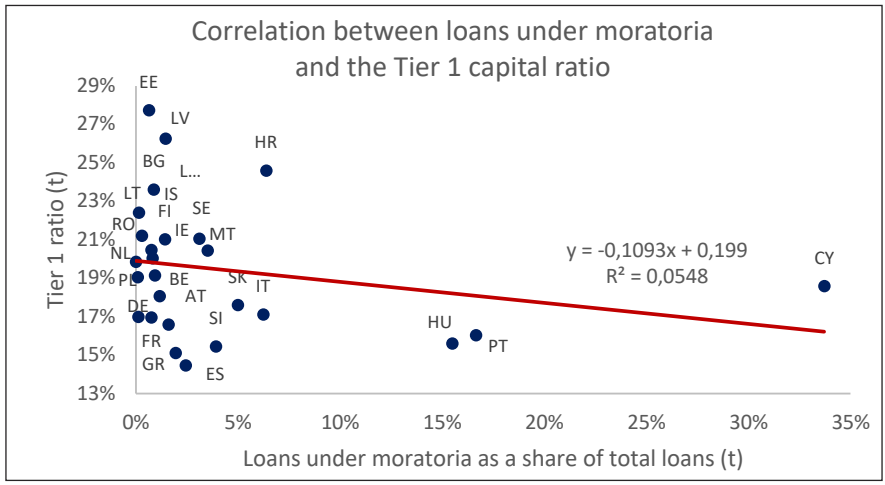
Source: Own elaboration based on the EBA database; data refer to 2020Q4. NPL ratio is calculated as the value of amount of non-performing loans to that of total loans. Countries included in the sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Croatia (HR), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

Figure 17. Debt-to-GDP ratios are higher in countries with a larger share of loans subject to moratoria.



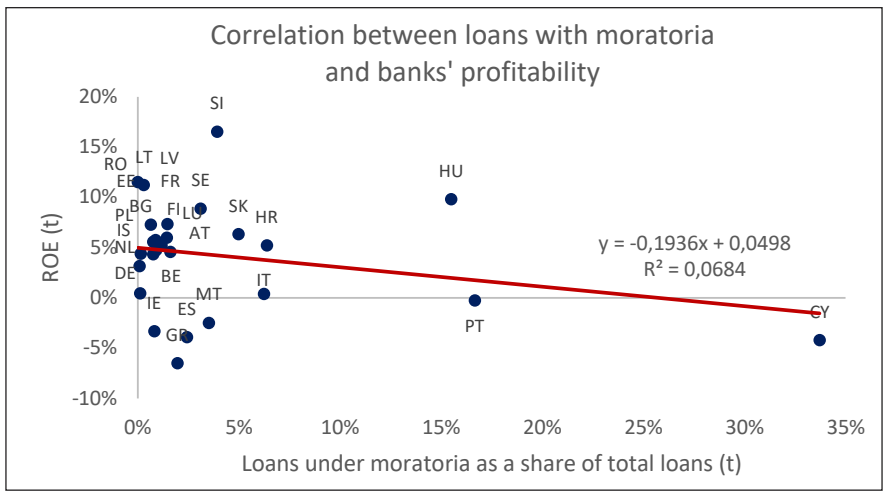
Source: Own elaboration based on the EBA database; data refer to 2020Q4. Countries included in the sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Cyprus (CY), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

Figure 18. The Tier 1 capital ratio is found to be lower in countries with higher level of loans subject to moratoria.



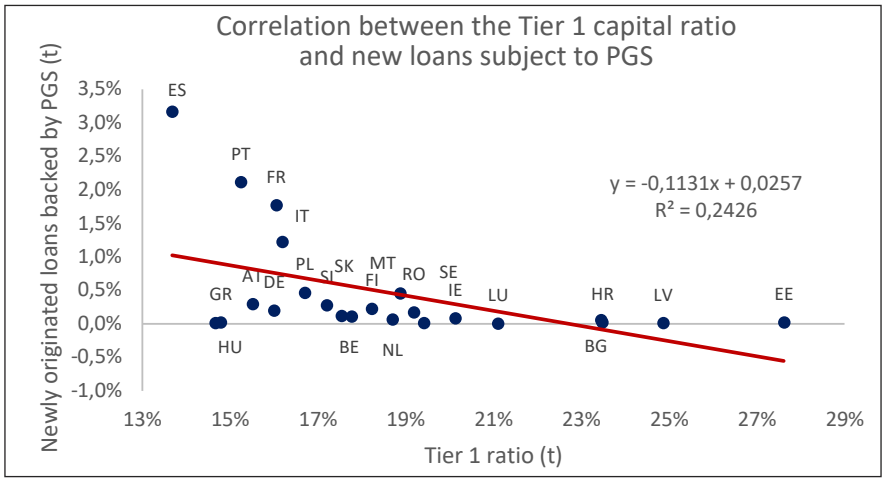
Source: Own elaboration based on the EBA database; data refer to 2020Q4. Countries included in the sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Cyprus (CY), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

Figure 19. Higher loans with moratoria ratios are associated with lower returns on equity (ROE).



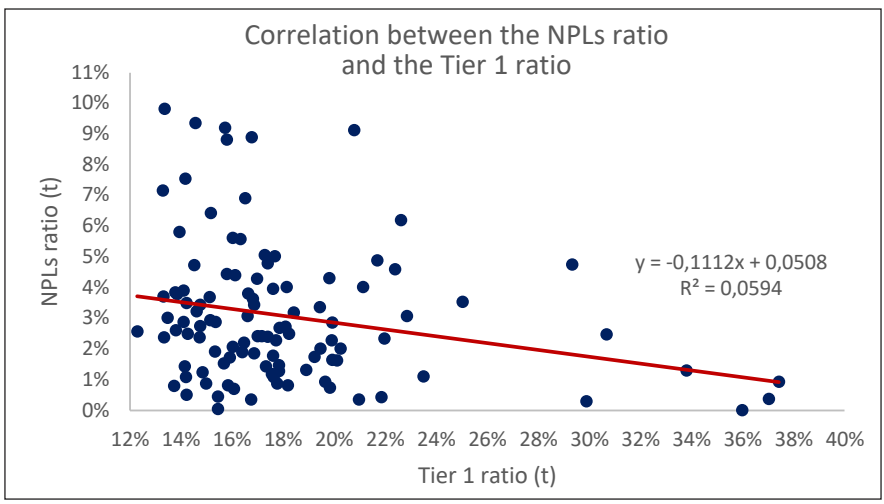
Source: Own elaboration based on the EBA database; data refer to 2020Q4. ROE is the return on equity ratio, which is calculated as operating profits over equity. Countries included in the sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Cyprus (CY), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

Figure 20. The higher the Tier 1 ratio, the lower new loans under public guarantee schemes (PGS).



Source: Own elaboration based on the EBA database; data refer to 2020Q2. The vertical axis represents newly originated loans under PGS. The Tier 1 capital ratio is defined as the proportion of tier 1 capital -equity capital and disclosed reserves- to total risk-weighted assets. Countries included in the whole sample are: Austria (AT), Belgium (BG), Bulgaria (BG), Cyprus (CY), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), The Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), and Slovakia (SK).

Figure 21. The higher the Tier 1 ratio, the lower the non-performing loans (NPLs) ratio.



Source: Own elaboration based on the EBA 2020 EU-wide transparency exercise data, which refer to 2020Q2. The horizontal axis represents the Tier 1 capital ratio, which is defined as the proportion of tier 1 capital -equity capital and disclosed reserves- to total risk-weighted assets. The vertical axis shows the non-performing loans (NPLs) ratio, which is calculated as impaired loans over total loans. The slope of the regression is statistically significant (p-value < 0.011). The sample includes individual observations of banks from Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, and the United Kingdom.

Institutions

by José Manuel Mansilla-Fernández

Basel Committee's response to the Covid-19 crisis

The outbreak of the ongoing Covid-19 pandemic has tragically familiarized us with enormous costs in lives since the beginning of 2020. At the time of writing this article, Europe sees the third wave of infections. Recent research forecasts that the lockdowns in many European countries and containment measures could be fuelling an economic depression that might impact the real and the financial sectors (Angelini et al., 2020; Atkenson, 2020; Bodenstein et al., 2020). Consequently, the authorities have developed responses to support economic activity, preserve financial stability, and ensure transparency (Borio and Restoy, 2020).[13]

The Basel Committee regularly revises the implications of the Basel III standards for banks. Although the last published results do not reflect the impact of the Covid-19 pandemic on banks, recent estimates predict that banks have made positive progress in meeting capital and liquidity requirements in the last five years. Indeed, the volume of **CET1 capital** held by the largest banks doubled since 2011, whereas pool high liquid assets and inflows increased to near 12% since 2012 (EBA, 2020c). Consequently, banks entered the Covid-19 crisis in a relatively good position compared to the 2008 Great Financial crisis (BIS, 2020c, Enria, 2021). Notably, the Committee is evaluating the Basel III reforms that have been implemented to date. In September 2020,

13. Appendix A summarizes the government measures aimed at supporting the real sector in the foremost European economies, whereas Appendix B focusses on bank-specific measures.

the Committee approved an updated work plan to evaluate the post-crisis reforms, incorporating lessons learned from the Covid-19 crisis. This analysis is to evaluate: (i) the effectiveness of the post-crisis reforms; (ii) the interactions between Basel III and other reforms; and (iii) the existence of gaps in the regulatory framework.

Notably, the outbreak of the Covid-19 crisis induced capital and liquidity measures to support banks' lending and liquidity to the real sector. Most of these focus on the flexibility embedded in the Basel Framework while other measures remain temporary in nature. The revised Basel III standards were to take effect on the 1st January 2022.[14] Nevertheless, in March 2020, the Group of Governors and Heads of Supervision (GHOS) launched a swathe of actions to provide additional capacity for banks and supervisors to respond to the immediate financial stability concerns. These actions comprise: (i) the deferral of the **Basel III standards** to 1st January 2023 so as not to disrupt the business cycle even more. The accompanying transition agreements for the output floor have been postponed to 1st January 2028; (ii) The revised **market risk framework** to the 1st January 2023; and (iii) The **revised Pillar 3** disclosure to 1st January 2023 (Svoronos and Vrbaski, 2020). However, the deadline might be extended until 2028 since, nowadays, there is not a common legislative proposal from the European Commission, and the legislatives processes might take on between two and a half and four and a half years. In this regard, Enria (2021) advocates that further delays might stoke uncertainty and postpone necessary adjustments in the banking sector.

Importantly, unlike previous reforms, the current package is not aimed at fitting all the banks equally. The impact of reform would depend on banks' business models, size and reliance on their internal models. As a structural reform, delaying or watering down Basel III standards in Europe might create asymmetries among banks and put at risk reliance on internal models (Enria 2021). In particular, European regulators should avoid unclear criteria for

14. The regulatory instrument best suited to supporting the supply of credit during a downturn is the Basel III countercyclical capital buffer, which was designed to induce banks to accumulate capital during growth times so that they can draw it out in crisis times. The countercyclical capital buffer is calibrated as a function of risk-weighted assets, within a range of 0-0.25% according to the economy's phase within the financial cycle and helps to mitigate procyclicality of banks' behaviour (Restoy, 2020). Furthermore, Basel III introduced the capital conservation buffer, which is intended to be drawn in bad times to allow banks to maintain their intermediation function.

capital standards or double-accounting of model risk at the bank level because it might introduce confusion and uncertainty for market participants.

Importantly, many jurisdictions announced that banks' **liquidity coverage ratio** (LCR) may fall below 100% and that banks may take additional time to restore their LCR. This measure is oriented to provide banks flexibility to meet their liquidity needs and support their business activities. Additionally, the publication of Pillar 3 reports was deferred to extend deadlines provided to banks to file their financial statements (BIS, 2020a,b; FSB, 2020).

Enhancing the flexibility of the IFRS-9 accounting standards

Accounting standards are aimed at providing for an accurate representation of the banks' accounting situation. Simultaneously, prudential regulation is devoted to ensuring financial stability. Both objectives might not be consistently achievable. Indeed, accounting standards relying heavily on market valuations might induce excessive procyclicality in the financial system (Borio, 2019; FSF, 2009) and reinforce liquidity-price spirals (Borio, 2020a,b). In this context, the Covid-19 outbreak intensified the debate about the repercussions of prudential regulation indicators, which rely on accounting valuations and may encourage banks to behave procyclically. However, prudential authorities can partly offset procyclicality through backstops or filters (Borio, 2019; Restoy and Zamil, 2017). Arguably, backstops might be able to transparently reconcile prudential regulation and accounting (Restoy, 2010).

The two principal accounting codes, the International **Financial Reporting Standards (IFRS 9)** and the **US Generally Accounting Principles (US GAAP)**, have recently adopted a more forward-looking approach focused on expected losses due to loan loss provisioning. Both codes entered into force in January 2018 and December 2019, respectively. However, these new schemes cannot perform their functions in *unexpected* shocks such as the Covid-19 pandemic since, by definition, provisions are *expected* losses. The regulatory authorities responded by including at least one of the following initiatives. First, banks will be allowed to suspend the application of the new standards momentarily. Second, improving the current arrangements to sterilize the impact on regulatory capital and, lastly, issuing practical implementation guidance to

avoid excessively rigid interpretations could foster provisions (Borio and Restoy, 2020).

The Basel Committee highlights the importance of the **expected credit loss (ECL) accounting frameworks** as a forward-looking measure of credit losses. Furthermore, the Committee has consulted international accounting and auditing standard-setting boards, audit firms, and market regulators regarding the impact of Covid-19 on such frameworks. The Committee concluded that ECL frameworks are not designed to be applied mechanistically. Banks are expected to use the flexibility inherent to accounting frameworks to mitigate the impact of the Covid-19 crisis (BIS, 2020a). In the European context, banks will have to use their judgment when determining if ECLs are required. In this regard, banks are not expected to apply the ECLs approach automatically in an exceptional situation such as the Covid-19 crisis (EC, 2020a).

Public Guaranteed Schemes

Public guaranteed schemes (PGS hereafter) transfer, totally or partially, the risk of default from the lender to the State. They are commonly implemented in countries where market failures prevent firms from accessing bank credit. This measure has been essential to small and medium enterprises (SMEs) since the Covid-19 outbreak until the time being.[15] In jurisdictions where PGSs were in place before the Covid-19 crisis, countries had to make legal changes to adapt these schemes to the specific needs related to the pandemic, e.g., Spain. However, most jurisdictions decreed primary laws so as to amend the current PGS framework or to create new schemes, and to authorise fiscal backstops for the scheme. Countries with secondary legislation (e.g., the Netherlands) authorized a fiscal backstop in primary legislation. Significantly, these legal avenues depend on the country's characteristics, and legal frameworks should be aligned with public financial management (Emre et al., 2020).

15. Approximately 40 countries launched this programme which was aimed at providing liquidity to SMEs. The total volume of lending under PGS varies across countries (see the Numbers section).

Outstandingly, moratoria and PGS share two common points. First, they are decided by governments or lawmakers, not by regulatory authorities. Second, both are complementary tools but can have very different effects in terms of **borrowers' incentives**. Although the moratoria are intended to support borrowers' short-term repayments, they can undermine credit discipline. Therefore, PGS is meant to ease capital pressures by reducing risk-weighted assets. They should also protect banks against credit risk and incentivize further lending or loan restructuring. In other words, government guarantees can be a valuable tool in the face of a sizeable exogenous shock but might also give rise to **moral hazard**. They might impact recovery if scarce resources end up in firms that might not be ultimately viable or do not need support. Shielding banks from bearing the risk of their lending could lead to granting credit to over-indebted borrowers (Borio and Restoy, 2020).

Restrictions on dividend payments and share buybacks

The restrictions on dividend payments in Europe were imposed by Recommendation ECB/2020/19 of 27 March 2020, which recommended that significant credit institutions avoid distributing dividends or share repurchases to remunerate shareholders during the Covid-19 economic crisis. Subsequently, Recommendation 2020/7 of 27 May 2020 of the European Systemic Risk Board (ESRB) extended such restriction on dividend payments to the whole financial system. Recommendation ECB/2020/19 was subsequently repealed and extended to 1 January 2021 by Recommendation ECB/2020/35 of 27 July 2020. Then, on 15 December 2020, due to persisting uncertainty regarding the evolution of the pandemic, the ECB considered banks needed to extend restrictions on dividend payments or repurchasing shares, at least for amounts up to 15% of their accumulated profits in 2019 and 2020, or more than 20 basis points of their Common Equity Tier 1 ratio. Reflecting this, Recommendation ECB/2020/62 repealed the previous Recommendation and extended the restrictions on dividend payments to 30 September 2021 (Martinez-Miera and Vegas, 2021).

Restrictions on dividend distributions preserve capital that can be used to absorb losses and support lending, but it might impair investors' confidence,

increasing banks' cost of capital and making equity access more costly (Kongsamut et al., 2021). Preserving capital across the whole banking sector is aligned with previous measures undertaken to stabilize the economy. Furthermore, bank supervisors have fully exercised flexibility by encouraging banks to restructure loan repayments, easing regulatory regimes, and allowing banks to draw down their buffers (Awad et al., 2021). Importantly, any **bailout** after being allowed to pay dividends would be controversial, although they might be necessary in specific cases.

Contingency plans and bank resolution in the context of the Covid-19 crisis

As the pandemic's impact across social and industry sectors has been intense, one should expect that some loans might not be repaid and NPLs increase in the most impacted cohorts, even in a recovery scenario. Consequently, banks exposed to weak borrowers might cast some doubts about their viability even under the most optimistic scenarios. If problems in the financial sector persist, creditors and investors may no longer distinguish between viable and unviable financial institutions, thus undermining confidence in the whole sector and triggering liquidity problems.

Past crises teach us that financial systems might be more resilient with a well-developed safety net and good planning. Regulatory authorities should be aware that actions oriented to strengthen **safety nets** -e.g., central banks, financial supervisory and regulatory agencies, resolution authority, deposit insurers, and Ministry of Finance- must have clear mandates and enough operational independence to be able to operate and execute their task under pressure.

Notably, **bank resolution** might be assumed undesirable and unpracticable during a health crisis. Indeed, regulatory authorities are encouraged to enhance their resolution plans for contingencies, which should be aimed at responding to potential systemic crises and in anticipation of a return to normalcy. Given the unprecedented nature of the Covid-19 outbreak, accelerating too rapid recognition of banks' losses might constrain their ability to absorb the shock. As in the previous crisis, assessing the viability of individual banks is a crucial

task, but it can only be credible when the lasting and the scope of the pandemic were clarified. Bank resolution and restructuring options can be identified once the size and distribution of losses have been quantified. Furthermore, capital needs might differ significantly across banks depending on business models and risk appetites and incentives to hide problems and losses, which might deleteriously reduce profitability and capital.

Legislative proposals in Europe: the moratoria and the classification of NPLs

European Banking Association (EBA) Guidelines on legislative and non-legislative loan repayment **moratoria** were published on 2nd April 2020 to ensure that banks would grant payment holidays to customers to avoid the automatic classification of exposures under the definition of forbearance or defaulted under distressed restructuring. After the second Covid-19, the EBA decided to reactivate the Guidelines on the 2nd of December to guarantee that loans, which have not been benefited from the moratoria, can now do it. However, the EBA has introduced the following two limitations to ensure that the support provided by the moratoria is limited to bridging liquidity shortages triggered by containment measures without operational restraints on the continuous supply of credit. First, only loans that are suspended, postponed or reduced under general payment moratoria not more than 9 months in total, including previously granted payment holidays, can benefit from applying the Guidelines. Second, banks are requested to document to their supervisors how they will assess that the exposures to general payment moratoria do not become NPLs. This requirement will allow supervisors to take appropriate actions if necessary (EBA, 2020a,b).

The legacy of the past financial crisis has been a high stock of NPLs in Member States banks. However, it should be emphasized that important progresses have been made to reduce their weight in banks' balance sheets and improve their operational efficiency. Indeed, government guarantees and payment moratoria are key measures to support borrowers' who might be significantly affected by the pandemic. From the regulatory point of view, the definition of default and loan forbearance under the Capital Requirement

Regulation (Regulation (EU) No 575/2013) may stand in the way of widespread use of these measures. The Communication (COM/2020/112 final) clarifies that the prudential regulation rules on the classification of NPLs can accommodate in line with the ECB's rules (EC, 2020a).

Importantly, **exit strategies** should be cognizant of other non-regulatory support measures to avoid compound cliff effects. Then, coordination between national and supranational authorities will be vital. Importantly exit strategies should be multifaced and adapted to country-specific characteristics to address solvency issues and distinguishing among impaired assets. There is no one-fits-all strategy to bank restructuring or NPLs resolution, and domestic regulators are encouraged to diagnose detailly before recommending systemic solutions such as public management companies, which are not suitable for heterogenous credits. Furthermore, exit strategies should include intertemporal trade-offs between increasing credit provision in the short term and maintaining long-term resilience given the associated risks (Kongsamut, 2021).

The ECB's monetary policy decisions

The scale and the nature of the Covid-19 crisis called for an extraordinary monetary policy response. The European Central Bank introduced a wide-ranging package of measures that acted through two dimensions: (i) asset purchases and (ii) liquidity operations. Regarding asset purchases, an extra 120 billion euros was added to the ongoing **Asset Purchase Programme (APP)** on the 12th March 2020. Subsequently, the third **Targeted Longer-Term Refinancing Operations (TLTRO III)** programme became one of the main liquidity provisions (Borgioli et al., 2020). Borrowing rates can be as low as 50 basic points below the average interest rates on the deposit facility between 21st June 2020 and 23rd June 2021, and as low as the average rate on the deposit facility during the rest of the life of the respective TLTRO III. Accurately, the Decision ECB/2020/25 and Decision (EU) 2020/614 modify the lending performance threshold, a new lending assessment period and changes in the interest rate to be applied to TLTRO III; whereas the Decision ECB/2020/13 modifies the borrowing allowance and the bid limits per operation to be applied to TLTRO III and allows an earlier repayment option

after one year of settlement starting in September 2021 (Altavilla et al., 2020).

The Pandemic Emergency Purchase Programme (PEPP) was launched on 18th March 2020 and is conceived as a temporary asset purchase programme of private and public sector securities. The cornerstone of this programme is that the national central banks will flexibly conduct purchases of public debt. The Government Council will offer four additional **pandemic emergency longer-term refinancing operations (PELTROs)** in 2021, which will continue to provide an effective liquidity backstop.

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APPENDIX A.
Summary of government measures oriented to support the real sector.

FRANCE

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
Law No. 2020-289 and ministerial order of implementation dated 23 March 2020: The State-guaranteed loan is a one-year treasury loan and will have a grace period over this period. It could support corporate bank financing to the tune of EUR 300 billion.	**Ordinance n. 2020**-306 dated 25 March 2020 on the extension of time limits and adaptation of procedures during the Emergency Period (as defined below) has been taken and supplemented by **ordinance n. 2020**-427 dated 15 April 2020.	**Bpifrance** and the government finance 50% of the consulting costs concerning the WCR cash module.	Support from the State and the Bank of France (credit mediation) to negotiate with his bank a rescheduling of bank loans. The Credit Mediation Department may accept companies in amicable procedure, in safeguard or receivership, and exceptionally in compulsory liquidation.	**Amended Finance Bill for 2020, Law #2020-473, 25 April 2020:** State-granted loans when they have not benefited from State-guaranteed loans. Banks will have to write reasons for refusing loans lower than EUR 50 thousand to companies.

GERMANY

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
The **KfW (Kreditanstalt für Wiederaufbau)** offers a fast track loan for the companies with more than 10 employees. This loan is 100% secured by the German Federal Government guarantee.	The obligation to file for insolvency is suspended retroactively from 1 March 2020 until 30 September 2020 for companies which are suffering economic difficulties or have become illiquid because of the pandemic.	Joint protective shield amounting to EUR 30 billion from the Federal Government and credit insurers to secure supplier credits of German companies. Substantial participation of credit insurers, who bear losses of up to EUR 500 million.	Introduction of a shopping line coverage whereby the credit lines of foreign customers from various exporters are combined into credit tranches with a uniform repayment profile and counted towards the Hermes-covered credit line.	The German Federal Government has adopted a package of measures to help companies cope with the coronavirus crisis. The role of the state-owned development bank **KfW** in this crisis is to facilitate the short-term supply of liquidity to companies.

ITALY

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
Central Guarantee Fund ("Fondo centrale di garanzia"): Less than 72 months loans of amounts equal to those set forth by the **decree no. 23/2020** may be guaranteed by the Central Fund up to 90% (in case of direct guarantee) or up to 100% (in case of reinsurance), subject to the approval of the European Commission. The Central Fund and Confidi guarantee also 100% of loans (with a limit of 25% of the total turnover of the beneficiaries) granted to companies with less than EUR 3.2 million of total turnover.	The **Italian Banking Association** has announced an agreement with various professional associations to set up a large-scale moratorium on debt repayment, including mortgages and repayments of small loans and revolving lines of credit. It will concern loans taken out by companies until 31 January 2020.	The **National Promotional Institute** and the development finance institution have increased the funding limit for the banking system, from EUR 1 million to EUR 3 million.	**SACE S.p.A.** issues guarantees for loans granted to companies of any size (EUR 200 billion of which EUR 30 billion for SMEs). SACE guarantees between 90% and 70% of the granted loans' amount; the guarantees' amount depends on the number of companies' employees in Italy and on the relative annual turnover (with at least 5000 employees and until EUR 1.5 billion, between EUR 1.5 billion and EUR 5 billion or greater than EUR 5 billion annual turnover).	The **National Promotional Institute** and the development finance institution have increased the funding limit for the banking system, from EUR 1 million to EUR 3 million.

THE NETHERLANDS

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
Enlargement of the **Corporate Financing Guarantee Scheme (Garantie Ondernemersfinanciering; GO-C)** for SMEs and larger firms. The amount for which the government stands as guarantor has been increased up to EUR 150 million.	Small firms are offered a six-month delay in repayments of micro loans through **Qredits**, with interest rates lowered down to 2%.	**Borgstelling MKB-kredieten (BMKB(-C))**: The credit guarantee has been increased up to 90% of 75% of a line of credit and the percentage for the premium due is lowered from 3.9% to 2% for a maximum period of 8 quarters and 3% for a period of 9 to 16 quarters. The BMKB(-C) guarantee ceiling is EUR 1.5 billion.	The **Growth Facility Scheme**, which makes it easier for SMEs to raise capital, will be extended by one year, to 1 July 2021.	SMEs with relatively small financial needs are, under conditions, eligible for a bridging loan of up to € 50,000 under the Small Credits for **Corona Guarantee Scheme (Klein Krediet Corona garantieregeling; KKC)** with the State as guarantor for 95% of loan. The term of the loan is at most 5 years against an interest rate of max. 4%, with a one-time premium of 2%. This measure has a guarantee ceiling of EUR 713 million.

SPAIN

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
Royal Decree-8 2020: Approval of a EUR 100,000 million line of state-backed guarantees credit line whereby the State shall cover the financing extended by financial institutions to companies and self-employed persons.	**Royal Decree-8 2020:** Moratoria is applied to mortgage-backed loan agreements when the debtor is in a situation of economic vulnerability, as well as the guarantors of the main debtor. Notaries' fees for intervention in contracts formalising the temporary suspension (moratorium) of contractual obligations under any of the non-mortgage-backed loans or credits referred to in **Royal Decree-Law 11/2020.**	**Royal Decree-Law 8/2020:** Approval of a credit line whereby the State shall cover the financing extended by financial institutions to companies and self-employed persons. The Ministry of Foreign Affairs and Digital Transformation will grant up to EUR 100,000 million in guarantees for funding provided by credit institutions (Art. 29).	**Royal Decree-Law 15/2020:** The counter-guarantee granted by Compañía Española de Reafianzamiento Sociedad Anónima (CERSA) has been consolidated to increase the guarantee capacity of Reciprocal Guarantee Company. Provisions made to cover promissory notes included on the Spanish Brokers' Association (AIAF) Fixed Income Market and the Alternative Fixed income Market (MARF).	Raising of the net indebtedness limit of the **Spanish official credit institute (ICO)** to increase credit facilities aimed at financing SMEs and the self-employed. The **General State Budget Law** allows ICO to raise EUR 10,000 million to provide additional liquidity to the above-mentioned agents.

UNITED KINGDOM

State-Guaranteed Loans	Moratorium	Liquidity Shortage	Credit Mediation /Lines	Public Credit
The **Coronavirus Business Interruption Loan Scheme (CBILS)** - for business with turnover lower than GBP 45 million- UK businesses with annual turnover of no more than GBP 45m can borrow up to GBP 5m interest-free for 12 months under a **British Business Bank (BBB)** scheme where the Government provides the lender with a guarantee for 80% of each loan (subject to a per-lender cap on claims) and covers the cost of the first 12 months of interest. For large businesses, the CBILS involves a government guarantee of 80% to enable banks to make loans of up to GBP 25 million (CBILS was capped at GBP 5 million) to businesses with an annual turnover of between GBP 45 million and GBP 250 million. Firms with a turnover of more than GBP 250 million can borrow up to GBP 50 million from lenders. The government guarantees 80% of the finance to the lender.	Regulations will provide for application to: a) Charitable Incorporated Organisations. b) Co-operative and community benefit societies c) Limited liability partnerships Where entities currently benefit from a special administration regime (for example providers of social housing, gas and electricity supply companies and financial institutions) regulations can be made to modify application of or disapply the moratorium for those entities.	**Bounce Back loan scheme for small businesses:** On 27 April, the government announced a fast-track finance scheme for small businesses, allowing firms to apply for Bounce Back loans worth up to 25% of turnover, with a maximum payment of GBP 50,000, and access the cash within days. The government will provide lenders with a 100% guarantee for the loan and pay any fees and interest for the first 12 months. No repayments will be due during the first 12 months. After that the interest rate will be set at 2.5% a year.	The **COVID-19 Corporate Finance Facility (CCFF)** has been created to provide funding to large businesses through the purchase of short-term corporate debt in the form of commercial paper. The CCFF launched on 23 March 2020 and Bank of England data released on 2 April 2020 showed that GBP 1.9 billion of commercial paper has been purchased under this facility already and according to a HM Treasury release on 3 April 2020 a further GBP 1.6 billion has been committed.	**Future Fund for high-growth companies:** The Future Fund was initially endowed with GBP 500 million loan scheme aimed at ensuring that high-growth companies in the UK receive the investment they need to continue during the crisis. The government confirmed that given the high number of applications it would be expanding its financial commitment to the fund. Delivered in partnership with the **British Business Bank.**

Source: Own elaboration from KPMG's website (https://home.kpmg/xx/en/home/insights/2020/04/government-response-global-landscape.html).

APPENDIX B.
Regulatory measures appliable to banks as of April 2021.

COUNTRY	REGULATORY MEASURES
France	Reducing the countercyclical capital buffer to 0% (an increase from 0,25% to 0,5% was to become in April 2020).
Germany	Releasing the countercyclical capital buffer for banks from 0,25% to 0%. Further EUR 100 billion to refinance expanded to refinance expanded short-term liquidity provision to companies through the public development bank (KfW) in partnership with commercial banks.
Italy	The Bank of Italy announced a series of measured to help banks and non-bank intermediaries, in line with those undertaken by the ECB and the EBA. Including the possibility to operate below selected capital and liquidity requirements, as well as rescheduling on-site inspections. Promoting the use of credit claims as collateral to incentivize lending to SMEs.
The Netherlands	The De Nederlandsche Bank (DNB) reduced systemic buffer requirements for the three largest banks. The DNB is also taking measures to provide less regulatory relief to less significant banking institutions. Banks directly supervised by the DNB are allowed to exclude specific central banks exposures when calculating leverage ratios. Introducing a floor for mortgage loan risk weighting is postponed. Dutch banks agreed to grant SMEs a six-month postponement of their loan repayment. On the 6th October 2020, the authorities adopted a law to facility debt restructuring for companies facing financial difficulties. This law is intended to avoid bankruptcies.
Spain	The Bank of Spain will allow the banks under its supervision to adapt the settings of transition periods and the intermediate minimum required own funds and eligible liabilities (MREL) targets. Banks will be allowed to apply expert judgement for the credit-risk classification of forborne exposures.
United Kingdom	The Prudential Regulatory Authority (PRA) set out expectations that banks suspended dividends and buybacks until end-2020, cancel 2019 dividends and pay no cash bonuses to senior staff. The PRA indicated all Pillar 2A requirements will be set as nominal amount despite a percentage of Risk Weighted Assets (RWA). The PRA will allow companies to offset the increase in RWA due to the application of a higher value-at-risk (VaR) multiplier through a reduction in risks-not-in-VaR (NVAR) capital requirements. The Financial Conduct Authority (FCA) introduced a package of targeted temporary measures to support customers affected by coronavirus, including payment freeze on loans and credit cards for up to three months.

Source: Own elaboration from the IMF Policy Tracker (URL: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#G).

A Bird Eye (Re)view of Key Readings

by José Manuel Mansilla-Fernández

This section of the journal indicates some and briefly commented references that a non-expert reader may want to cover to obtain a first informed and broad view of the theme discussed in the current issue. These references are meant to provide an extensive, though not exhaustive, insight into the main issues of the debate. More detailed and specific references are available in each article published in the current issue.

On the economic impact of epidemics and pandemics

The current Covid-19 pandemic has vividly shown that public health issues can significantly impact the financial system due to its enormous **economic costs**. Notably, related **containment** and **social distancing measures** are likely to shatter the productive sector, households' behaviour, and financial institutions' performance through various transmission channels (Angelini et al., 2020).

Before the Covid-19 outbreak, we may find previous research warning us to anticipate the economic costs of possible future epidemics and pandemics. Accurately, Bloom et al. (2018) discuss the economic concerns that are now at the forefront after the Covid-19 outbreak, specifically increasing costs to the health system, medical treatment of infected patients and outbreak control, loss to employee productivity, or the impact on tourism, social distancing measures which may well disrupt economic activity, and impact on foreign direct investment. Interestingly, Fan et al. (2018) estimate that pandemic risks cost

approximately 0.6% of global income per year. Nevertheless, the cost of the Covid-19 crisis exceeded this threshold at the time of writing this note (Goodell, 2020).[16]

The current literature endeavoring to forecast the Covid-19 dynamics is built on Kermack and McKendrick's (1927) seminal work. In particular, Eichenbaum et al. (2020) investigate the equilibrium interactions between economic decisions and epidemics based on Dynamic Stochastic General Equilibrium (DSGE) models. Interestingly, Eichenbaum et al. find that, although reducing consumption and work mitigates the severity of the epidemic, the magnitude of the recession might be accentuated. In other words, the competitive equilibrium is not socially Pareto efficient as the infected group do not completely internalize the effects of their decisions about consumption and work. Their benchmark model predicts that the optimal containment policy tightens the severity of the recession but saving roughly half a million lives. Similarly, Chronopoulos et al. (2020) analyses consumer spending response to the onset and spread of the virus[17] and the subsequent lockdown imposed in Great Britain (England, Scotland, and Wales). They find that consumers remained relatively stable during the initial phases of the Covid-19 crisis. Then, discretionary spending declined as consumers anticipated the lockdown and continued to do so after being announced. Lastly, a temporary decline in consumer spending was registered in Great Britain after the 'stay alert' announcement.

Importantly, it should be noted that previous authors who demonstrate that contagious disease outbreaks were contained to a lesser level than their potentiality (Bloom and Canning, 2004; Lewis, 2004; Madhav et al., 2017; Tam et al., 2016, Yach et al., 2006). Accurately, Thomas (2018) describes that the lethal outbreak of the respiratory disease Nipah in India created a significant global health issue.[18] Interestingly, the World Health Organization (2020) report warned that the world was insufficiently prepared to take on the Covid-19

16. Goodell (2020) describes the repercussions of past pandemics such as the impact of the HIV/AIDS outbreak or the cost of future pandemics. Likewise, Haacker (2004) shows that the capacity of governments to cope with the HIV/AIDS epidemic eroded as the mortality and morbidity increases. Similarly, Santaelulàlia-Llopis (2007) find that HIV/AIDS prevalence delays the transition from agricultural to industrial regimes by about 105 years and reduce per capita consumption by 12% at the peak of the epidemic. Hansen and Prescott (2002) develop a population model that relates the age distribution of the population and to preceding fertility. Lastly, Yach et al. (2006) discusses the impact of obesity and diabetes on economic growth.
17. The SARS-CoV-2 virus is the agent that causes the coronavirus disease, namely COVID-19.
18. The World Health Organization lists contagion diseases outbreaks from 1996, including Middle East Respiratory Syndrome coronavirus (MERS), Zika, Ebola virus disease, Severe Acute Respiratory Syndrome (SARS), Rift Valley fever, among others (see URL: https://www.who.int/csr/don/archive/year/en/).

pandemic, particularly global collective actions, coordination and engagement with global systems, and financing.

On the impact of Covid-19 on the banking sector

The foremost financial literature shows that deteriorations in public health conditions might induce aggregate risks, thus subsequently impacting financial development and the banking sector's stability. Undoubtedly, banks are vulnerable to aggregate risk, which might increase the likelihood of accumulating non-performing loans, and bank runs. In this regard, Lagoarde-Segot and Leoni (2013) carry out a theoretical model that shows that the banking industry of a developing country is relatively more likely to fail as the prevalence of large epidemics increases. Indeed, most of microfinance institutions and banks' lending to the poor will be pressured by the aggregate risk (Binswanger and Rosenzweig, 1986; Skoufias, 2003). Particularly, Leoni (2013) finds that the spread of HIV in developing countries is associated with large deposit withdrawals attributed to patients' need to pay for individual treatments.

Nowadays, economists are concerned about the impact of the Covid-19 crisis on financing points out firms' need for liquidity and the capacity of banks to meet liquidity demand. In the first weeks of March 2020, non-financial businesses drew funds from banks' credit lines, anticipating possible disruptions to cash flow and taking on deteriorations in funding conditions. Consequently, commercial and industrial (C&I hereafter) credit exploded on banks' balance sheets. Indeed, the three first weeks of March 2020 were an unprecedented stress test on banks' capacity to supply liquidity. Li et al. (2020) show that both bank and market characteristics explain the growth mentioned above of lending. Interestingly, large banks experienced relatively greater drawdowns than smaller ones. Besides, drawdowns came mainly from larger firms, which typically borrow from large banks (see Prior, 2020; Prior et al., 2020). Consequently, the largest banks granted C&I credit relatively faster than other banks.

One might raise the question of whether banks' ability to meet the unforeseen increase in liquidity demand depends on their **pre-shock financial conditions**. Earlier research suggests that combining deposits and off-balance

sheet credit commitments creates diversification synergies that might allow banks to hold less cash (Kashyap et al., 2002). Gatev and Strahan (2006) find that synergies are beneficial during periods of market stress because deposits flow into banks while borrowers' liquidity demands peak.[19]

Remarkably, previous studies analysing liquidity distress following the 2008 Financial Crisis converge on certain similarities with the Covid-19 crisis, which draws a stimulating theoretical framework for future research. In this regard, Cornett et al. (2011) study a related show that banks adjust to shocks to liquidity demands by reding new credit origination, and changes in credit supply depend on banks' access to financial resources. Accurately, banks more reliant on core deposits, holding more liquid assets, and better capitalized are more prone to increase lending –and reduce less their credit supply-. Consistently, Ippolito et al. (2016) find that banks relatively more exposed to wholesale funds experienced more significant credit-line drawdowns during the European sovereign debt crisis. In addition, Li et al. (2020) find that, during the Covid-19 crisis, aggregate deposits inflows were enough to fund the increase in liquidity demand, explaining why the size of banks' pre-crisis deposit base was independent of lending across banks. Interestingly, their results suggest that liquidity movements from off balance-sheet onto bank balance sheets will automatically increase risk-weighting assets, thus moving closer the regulatory minimum capital ratios. Furthermore, increases in loan loss provisions due to expansionary credit and risks going forward, are bound to reduce capital ratios.

Consequently, shortage of capital might constrain credit supply unless banks **reduce capital distributions** -i.e. **dividends**- and/or **raise new equity**. In this regard, Blank et al. (2020) conduct simulations for the future path of bank capital following the Covid-19 crisis. Their results suggest that significant declines in capital ratios could severely limit future credit supply.

Significantly, literature is growing towards the effects of debt and liquidity on non-financial firms following the Covid-19 outbreak. In this regard, O'Hara and Zhou (2020) find that the bond-market liquidity collapsed in early March but recovered after the Federal Reserve announced its intention to intervene.

19. Although Ivashina and Scharfstein (2010) find consistent results, Acharya and Mora (2015) highlight that banks pay higher rates to attract deposits.

Fahlenbrach et al. (2020) show that a firm with more financial flexibility performs comparatively better. De Vito and Gómez (2020) find that firms would deplete their cash holdings in an interval of two years, consistent with non-financial firms relying upon bank liquidity. Importantly, Acharya and Steffen (2020a,b) document that the access to bank credit lines during the Covid-19 crisis was helpful for non-financial firms, based on stock return analysis. Acharya and Steffen (2020a,b) investigate the role of access to liquidity financing from the borrower (demand-side) perspective, whereas Li et al. (2020) do it from the bank (supply-side) view.

On the impact of the Covid-19 on financial markets

Little is known about how financial markets react following epidemics outbreaks, setting aside pandemics.[20] The spillover associated with other previous natural disasters provides valuable insight into the impact of the Covid-19 on the financial markets. Previous authors examining the impact of terrorist events on financial markets might provide a parallel view since they create a widespread impact on the public mood. In particular, the analysis of the 'spillover effects' of terrorist events suggests abroad-based or 'systematic' contribution to overall risk (Karolyi, 2006). Although this evidence is limited, he has conducted few tests which assess volatility or beta risks with asset-pricing models. Previous authors show that the September 11 events affected shifts in market betas (Choudhry, 2005) and increase correlation among global markets (Chesney et al., 2011; Corbet et al., 2018; Hon et al., 2004; Nikkinen and Vähämaa, 2010).

As discussed above, the Covid-19 crisis has been found to deleteriously impact domestic demands. Thus, financial markets neglect to price the potentiality of tail-risk events that would not be survivable anyway. Consequently, a long-term impact on firm financing and the costs of capital is expected. Firms located in relatively more disaster-prone areas are shown to be less levered (Elnahas et al., 2018). In line with the trade-off theory of capital

20. So far, investors are found to respond to other natural disasters such as volcanos, earthquakes, or terrorist acts (Bosch et al., 1998). Nevertheless, the Covid-19 outbreak has impacted heterogeneously across industries and affected extremely domestic demands worldwide (Goodell, 2020).

structure, firms being impacted in disastrous areas increased their costs of capital and tightened financial flexibility (Huang et al., 2018).

Recent empirical papers investigate the stock market reactions to the pandemic, finding a strong response of equity prices to news about the virus and increases in market volatility (Acharya et al., 2020; Alfaro et al. 2020; Baker et al. 2020; Caballero and Simsek, 2020). Some studies compare how different types of stocks react to the pandemic. Ding et al. (2020) show that firms more exposed to the global supply chain fared worse, whereas Ramelli and Wagner (2020) find that exposure to international trade is related to poor stock performance.

On the impact of Covid-19 on FinTech companies

The pandemic contributed to developing alternative forms of financial intermediation. The Financial Technologies (FinTech hereafter) has increased in different credit and other financial services by both unregulated non-banking firms and regulated banks (Erel and Liebersohn, 2020).[21] Stulz (2019) discusses two well-acknowledged FinTech companies, LendingClub and Kabbage, making traditional small-business lending through a bank subsidiary or a funding bank. Remarkably, FinTech companies have been found to compete aggressively on the funding side of financial institutions' balance sheets (Abrams, 2019).

A thought-provoking research question that can be raised is whether FinTech companies responded differently to the Covid-19 crisis than traditional banks. Furthermore, FinTech is experiencing a growing path within the financial sector, which might induce changes in the supply of financial services due to this expansion. Erel and Liebersohn (2020) study the response of FinTech to financial services demand created after the implementation of

21. Scarce access to traditional bank credit is one of the main reasons for borrowers to approach FinTech loans (Butler et al., 2016; Cole et al., 2019; Galema, 2020). Interestingly, FinTech companies can serve the 'unbanked' and fill the gap in lending, when it has been contracted due to regulatory reasons during and after a financial crisis. FinTech companies offer relatively faster processing through an advanced technology (Fuster et al., 2019). They also offer relatively lower interest rates and bank fees, and unsecured debt, thus increasing consumers' wellbeing (Carlin et al., 2020). On the other hand, although FinTech companies can substitute transactional-based lending, they might be unable to compensate the loss of soft-information lending from in-market banks (Balyuk et al., 2020).

the **Paycheck Protection Programme (PPP)** in the United States. The role of FinTech in PPP provision is comparatively more relevant in locations where the economic effects of Covid-19 were more severe. They show that borrowers were more likely to obtain a FinTech-enabled PPP loan where local banks could not originate it. Likewise, Cororaton and Rosen (2020), for a sample of firms using the PPP, document that only 13% of eligible firms end up participating. Using preliminary data, Granja et al. (2020) investigate whether areas more affected by the pandemic, measured as declined hours worked or business shutdowns, and get more allocations.

To sum up, the interaction and competition of FinTech companies and traditional banks during the Covid-19 pandemics is a fertile field for the ongoing research agenda.

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Articles

The European Banking Union: Challenges Ahead

by Howard Davies[22]

"This time the banks are not part of the problem, as was the case in the financial crisis of 2008, but part of the solution"(1). Such was the verdict of Felix Hufeld, then the President of the Bafin, the German financial regulator, in June 2020.

Hufeld himself has since moved on, a casualty of the Wirecard scandal, but his sentiment has been echoed by many regulators, commentators, and even some politicians who have been sparing in their praise of the banking sector in the past. It has even become something of a cliché, beloved of bankers themselves, who have enjoyed basking in the warmth of unaccustomed praise.

Bankers are human too (at least they like to think they are), so congratulations are always welcome, but some have been uncomfortably aware that these golden opinions may have come at a hefty price. Banks have been strongly encouraged, even required, to keep their branches open through the Covid lockdowns even when the footfall has been very light. They have given extended mortgage holidays to personal borrowers on demand. And they have extended loans to distressed companies, to help them through dips in demand, or even enforced closures. Some of those loans have been fully or partly guaranteed by governments, but it would be unrealistic to assume that the banks will not incur major losses on that and other lending. Some have been pushed into loss for 2020. And these losses come at a time when bank profitability is under serious threat from very low, or even negative interest

22. Chair of the Natwest Group. Professor at Sciences Po, Paris.

rates. With yields on low risk assets almost flat as far as the analyst's eye can see, the usual attractive and rewarding banking business of maturity transformation on an upwardly sloping curve has not been available.

That banks have survived this very difficult period can largely be attributed to the strong capital ratios they displayed when the crisis hit. Regulators have therefore taken some credit for the banks' success. The aggressive re-regulation of the sector since 2008, led by the Basel Committee, has paid off. In spite of the sharpest recession for a century in the largest European economies, no significant bank has fallen over, or needed to be rescued by the state. And banks demonstrated remarkable operational resilience. The ECB acknowledges that there was no noticeable rise in operational losses due to business disruption or system failures. That is as remarkable as the strong capital position.

But in spite of this robust performance at a very challenging time the market has drawn the unsurprising conclusion that future profitability is uncertain and that bank stocks are to be treated with great care. Most large European banks have continued to trade at a significant discount to book value, well below 100% and systematically below their US counterparts in most cases, even though there was something of a rally in early 2021 (1).

Some might be tempted to think that if this is what it means to be a solution, maybe being a problem was not such a bad thing after all.

As we emerge from what we must hope to have been the worst of the pandemic, it is time to ask whether, from the banks' perspective, anything has changed. Will politicians and regulators conclude that large banks, which many saw as dinosaurs, ready to be wiped out by agile digital fintech newcomers, or by the BigTech monoliths, have their social uses after all, and should not be allowed to vanish into the primeval swamp along with diesel engine plants and high street fashion retailers? Or will the Covid crisis be seen merely as a temporary respite in a process of secular decline?

To attempt an answer to that question we need to parse it a little, and address four sub-questions:

1. Can we expect the regulatory environment to change as a result, in ways that might benefit traditional banks?
2. Might the experience of the crisis, and the solidity the banks displayed, affect customer behaviour, and create a kind of 'flight to safety'?

3. Has the crisis weakened some new competitors and demonstrated weaknesses in their business models?
4. Are banks therefore now in a stronger competitive position, or is their predicament fundamentally unchanged?

1. Regulation

The European regulators' initial response to the Covid crisis was not encouraging from a bank perspective. In March 2020 both the European Central Bank and the Bank of England imposed restrictions on bank dividends, indeed they effectively banned any capital distributions during the whole of the year, to retain as much capital as possible within the banking system. The Federal Reserve did not take the same line, allowing normal dividends, typically accrued quarterly in the US, to continue, but did impose a moratorium on share buybacks, which in recent years have dominated US bank distributions.

The banks reacted negatively, arguing that their capital positions were strong enough to sustain normal dividends, and that preventing them from rewarding their shareholders would adversely affect investors' views of the investability of bank stocks, thereby raising their cost of capital in the longer term. They pointed out that the ban was also inconsistent with the capital framework put in place since the crisis, with its higher ratios, buffers and rigorous stress tests.

By early 2021 there were signs that the regulators were beginning to soften their position, and allowing modest distributions to go ahead. The Bank of England revised its guidelines. The ECB allowed stronger banks to resume dividends within strict limits, noting that the average tier 1 capital ratio for the banks it supervised had risen from 14.4% at the start of 2020 to 15.2% at the end (2). The revised rule was that dividends in 2021 should not exceed 15% of 2019-20 profits, or 20 bps of CET1 capital. Though the secretary of the Basel Committee, Carolyn Rogers, alarmed bankers (and some regulators alike) in November 2020 by arguing that the dividend ban should continue until the full extent of the covid hit to the economy was clear (3). That may take some time, as the pandemic rumbles on for longer than expected.

In other respects, however, the regulators were somewhat more helpful to the banks. The ECB implemented a series of relief measures, which were broadly paralleled by the Bank of England and others. They allowed, indeed encouraged banks to dip into their capital conservation buffers, and allowed some capital instruments which would not normally be counted towards pillar 2 requirements to be incorporated. The ECB revealed in January 2021 that nine banks, which would otherwise have fallen below its CET1 guidance, had taken advantage of that flexibility, though most have not needed to do so. The regulators also allowed the use of transitional IFRS 9 provisions, which somewhat reduced the procyclicality of the expected loss calculations. Banks could operate below the 100% liquidity coverage ratio until the end of 2021, and that may be extended. Furthermore, a series of other supervisory interventions were deferred or abandoned, notably the deadline for meeting the 2019 qualitative guidance.

But these transitional relief measures are specifically related to the crisis period, and there has been no suggestion from the ECB, or the Bank of England, that capital requirements will be relaxed in the longer term. Indeed the full implementation of Basel 3, to which the regulators are committed, would increase minimum capital for a number of institutions, putting further pressure on profitability, which is already challenged. As the ECB itself concludes: "Banks profitability and business model sustainability remain under pressure from the economic environment, low interest rates, excess capacity, low cost efficiency, and competition from banks and non-banks"(4). They do not include high capital and liquidity requirements in that list of obstacles. While in the US there have been some signs of willingness to lighten capital requirements on small institutions in particular, there is no sign yet of a similar move in Europe.

The banks, while not requesting a major relaxation of the rules, have asked the ECB to rethink the remainder of the Basel 3 reforms, and invited the Commission to use its discretion to reduce the scale of the levy paid to the Single Resolution Fund. Both requests have so far been declined.

A recent report by the independent banking analyst at Autonomous has argued the capital rules for banks in the UK, and the same could certainly be said of banks in the Eurozone, are now arcane and in some respects dysfunctional. "The UK capital framework is creaking under the weight of its

own complexity", the author Christopher Cant maintains, and "the level of complexity is a deterrent for investors" (5). The stress testing arrangements are opaque, and there is still no clarity on the transitional arrangements for IFRS 9. There is uncertainty over the MREL and liquidity requirements. Overall, they conclude, "the scenario doesn't exactly bode well for a rapid normalisation of dividends".

There is another dimension of regulation, however, where change might be in prospect. For some time the banks have maintained that new digital competitors, whether small fintech start-ups or Bigtech giants, have benefited from lighter regulation in areas such as data usage and anti-money laundering, where banks seem to be held to higher standards. And there has been a bias towards promoting new competition, through forcing the opening up of banking relationships (open banking) and regulatory sandboxes, in which the regulators help new entrants to develop compliant business systems.

The response from regulators to date has been that the same activity is subject to the same regulation, and that most of these new entrants have chosen not to be banks, which brings obligations as well as rights.

There are signs that this line may be in the process of being rethought. A February 2021 paper (6) by Fernando Restoy, of the Financial Stability Institute, a think tank linked to the Bank for International Settlements in Basel, questioned the current approach. Restoy notes that the 'same activity, same regulation' mantra is not accurate, and that incumbent banks have specific entity-based prudential and other obligations which do not facilitate a level playing field. He argues that 'the growth potential of fintech and big tech companies could be, in part, the consequence of lighter regulatory requirements'. He goes on 'regulation specific to banks entails higher compliance costs and can therefore put them at a competitive disadvantage'.

The policy implications of his analysis are intriguing. His main point is that while banks have argued that regulation should be activity-based to promote a level playing field, that may well not be the consequence, and that fintechs may 'generate concrete threats to relevant policy objectives such as market integrity or stability or fair competition'. Those threats may create a case for entity-based regulation of these new entrants, which would achieve a better balance of policy objectives, and would in practice level what is now a very bumpy playing field.

It is too early to say whether this argument will influence key decision-makers in the European Commission, or elsewhere in the Tower of Basel for example, but the implications could be far-reaching.

It is possible, too, that payments initiatives led by central banks themselves will alter the competitive landscape. The most recent survey by the BIS shows that 86% of the central banks surveyed are working on their own digital currencies (7). The gauntlet thrown down by Facebook's Libra initiative, now dubbed Diem, has stung the central banks into a response. Depending on the nature of the response CBDCs could disintermediate commercial banks or strengthen them. The ECB has (8) suggested in a consultation paper that individuals should hold digital euros through their accounts at private sector banks. If they maintain that view commercial banks could find their position in the payments landscape reinforced.

So the incumbent banks robustness and resilience in the Covid crisis has pleased regulators, and there are signs that the nature of desirable competition may be under review. But in the long run customer preferences will be decisive. Has their performance paid dividends with customers?

2. Flight to Safety

The key lending support schemes for businesses affected by the covid crisis were backed by governments in various ways. But while that was true, lenders still needed the balance sheet strength to participate in the schemes. For the most part they took the view that, at least in the early stages, they would lend only to existing clients. Performing new 'know your customer' checks was almost impossible in the timescales involved. So businesses which had moved their business to challenger banks or peer to peer lenders faced a problem if those lenders could not extend their facilities rapidly.

Some of the new lenders – Tide is an example in the UK – were able to participate fully in the government schemes, but others had less balance sheet flexibility. There are no reliable data on how many companies were affected by the inability of their principal bank to extend further credit, but there is some anecdotal evidence. Alan McIntyre, head of Accenture's global banking practice, commented, "Part of the fintech challenge is that in times of

uncertainty and stress, traditional banks are seen as a safe haven. This partly reflects a flight to safety, as people hew closer to institutions with long track records that they judge more likely to survive an economic downturn"(9).

How significant has this factor become? Have new competitors in the banking sector in fact lost share to the larger incumbents. The answer is not clearcut. A research note by Jeffries in July 2020 entitled "Will Corona kill the Digital-Only Challenger? (10)", focussing on the UK market, argued that "digital engagement has inflected back into the hands of large incumbents in the era of coronavirus". Their evidence to back this claim showed that the rates at which customers were installing apps from large and small banks had begun to change in 2020. For some time the app share of challenger banks had been rising, but the trend changed in early 2020. The significance of this change of trend is disputed. Starling, a strong digital challenger, said "we simply do not recognise the picture outlined in this report". It may also simply reflect an improvement in the digital offerings of the larger banks, rather than a lack of confidence in the stability of new entrants.

3. Competition

There are signs, however, that the competitive environment for the big banks may have become a little less intense. Some fintechs have struggled in the new landscape. While finance has remained available to fund the growth of the most promising and competitive, the implied equity valuations have fallen when new money has been raised. Some have withdrawn from markets in which they are marginal players. N 26 pulled out of the UK, for example, but the cost advantages of the new entrants which focus on payment services, with up to date technology and without the cost drag of large branch networks, remain strong. Both Monzo and Revolut have continued to grow their customer base, though profitability remains elusive.

And the societal and behavioural changes driven by lockdown restrictions may work to their advantage. Deloitte point out that "as social distancing has taken hold worldwide, there has been tremendous growth in the use of digital services and e-commerce (11)". The footfall in traditional bank branches has necessarily fallen, which may have the effect of reducing brand loyalty in the

medium term. The number of bank branches in the EU fell by over 6% in 2019: the fall is likely to have been sharper in 2020. Deloitte's conclusion, which is plausible, is that "an important outcome of COVID-19 for fintechs may well be the continued acceleration of partnerships with financial institutions, which can offer the benefits of capital, distribution access, and compliance infrastructure, but often lack highly sought-after digital solutions".

Different considerations apply to the Bigtech companies, Apple, Google, Amazon and Facebook in particular. They can hardly be described as financially challenged. Their balance sheets are stronger than those of any major bank, and their market valuations are of a different order. Amazon's market capitalisation in early February 2021 was around $1.7 trillion, compared to JP Morgan's $420 billion.

The challengers and peer to peer lenders who offer credit face a different challenge. They will almost certainly experience a credit environment which will be far more hostile than they have encountered hitherto. I suspect some may be crushed under the wheels of an unforgiving credit cycle. There will be an element of chance in who survives and who does not. Those which had completed a funding round shortly before the crisis hit may well have the resources to ride out the storm. Others, who need more capital to grow (and many are still loss-making) will find new money harder to raise except on terms which may constrain their growth ambitions. Investors in peer to peer lenders have found it difficult to access their cash, with waits of several months at some providers (12). That is likely to constrain growth in the future as investors will be far more reluctant to fund them if they fear their money is locked up. Some have sought wholesale funding to replace the retail funds, which may guarantee short-term survival but will put pressure on margins in the longer run.

A continued shake-out in the challenger bank and peer to peer sectors seems very likely. But will that be enough to alter the competitive dynamics of the European banking sector, and return it to acceptable levels of profitability, with share prices at or above book value?

Are banks now stronger?

Generalisations about the prospects for European banks are hazardous. Some large banks, especially those in Scandinavia, have remained acceptably profitable throughout the last difficult decade. They have achieved low cost-income ratios, maintained strong market positions and innovated successfully and repeatedly. Their reputations have remained strong, too, though in some cases tarnished through money-laundering problems. But, on average, large European banks have found it difficult to earn their cost of capital.

Looking forward, the most decisive influence will be the level and shape of the yield curve. That in turn will be influenced ultimately by the supply of and demand for investment funds. The central banks will not raise rates to rescue the profitability of the banking sector. Negative interest rates will make the problem more severe for banks, as it is both technically and presentationally difficult to charge negative rates to retail customers who have the opportunity to switch money holdings into cash. The ECB has tried to mitigate the impact of very low rates on the banks, with mixed success. They may continue to do so, as may the Bank of England if it also imposes negative rates. In February 2021 they asked the banks to prepare for that eventuality.

When challenged about the viability of the banking sector the ECB typically points to a lack of concentration, and high costs, suggesting that many of the remedies lie in the hands of the banks themselves. In 2016, for example, Mario Draghi said: "Overcapacity in some national banking sectors, and the ensuing intensity of competition, exacerbates this squeeze on margins (13)". How valid is this argument, and what scope is there for further bank consolidation in Europe?

On a conventional definition, concentration in EU banking seems quite high. On average the top 5 banks per country have 65% of the market as defined by balance sheet size, with the range running from 28 to 97% (14). But the ECB have attempted a more sophisticated analysis to try to determine what we mean by overcapacity in the banking sector, and where it is present.

The research (15) identifies three overlapping definitions of overcapacity. The first is size, measured by bank assets as a percentage of GDP, and as a percentage of the whole financial sector. The second is the intensity of competition. As proxies they use the number of banks per 100,000 inhabitants,

the concentration ratio and also measures of Net Interest Margin and Return on Assets. The third dimension they call "Infrastructure/efficiency" which includes a basket of measures such as the number of people per bank branch, customer deposits per branch and total assets per bank employee. From these three components they construct a composite indicator of overcapacity.

The methodology may be open to criticism, and the composite measure involves a degree of subjective judgement on the weights to be attached to individual factors. But the results are intuitively reasonable. They show that those Scandinavian countries where returns on equity, and price to book ratios, are healthy, show low volumes of overcapacity. At the other end of the European scale Germany, Austria, France and Italy have relatively more overcapacity. As the authors point out, 'the banking systems of these countries are often characterised by the traditionally strong role of savings and cooperative banks, and, thus, a high number of banks, lower degree of concentration and an extensive physical infrastructure".

Where that is the principal reason for overcapacity it is not easy for private sector banks to solve the problem Draghi identified. There are countries where consolidation is possible, and there has been some recent activity in Spain and Italy, but the analysis suggests that different approaches are needed in different countries. In some cases progress can be made through conventional efficiency improvements, such as branch closures. In others exit of some players may be needed. These are controversial and time-consuming changes.

Pre-crisis, the ECB's solution was threefold: reductions in Non-Performing Loans, for those still with high stocks of such loans, in-market consolidation by weak-performing small banks and a combination of bank-level restructuring and cross-border M&A activity for poor performers among the large banks (16). The first option now looks harder to achieve. In-market consolidation is difficult but not impossible and the crisis may give those efforts a boost, as we have seen in some cases. But significant cross-border consolidation looks as far off as ever, for cultural, political and regulatory reasons. In 2018 bank M&A activity in Europe was lower than at any time this century (17). Andrea Enria, the Chairman of the ECB's Supervisory Board, has acknowledged that countries are still ringfencing liquidity and capital at the national level, which means that limited benefits emerge from operating across borders.

Conclusions

One conclusion from this review might be that nothing fundamental has changed.

Banks with high costs and weak positions in slow-growing markets remain as challenged as before. Indeed the likely resurgence of NPLs, which had been declining for several years, will make their dilemma sharper.

The interest rate prospect, from a bank's perspective at least, has become even more pessimistic. The prospect of strongly positive real interest rates has retreated further into the future.

The attractiveness of new digital competitors in the payments arena, unburdened by the legacy costs of unwieldy technology stacks, remains strong.

But that conclusion does require some qualification. Politicians and regulators have seen that the financial re-regulation they oversaw since 2008 has indeed delivered a banking sector which is robust, even in a sudden and unparalleled economic crisis delivered by the pandemic. Over time, that will reduce the pressure for ever higher capital ratios, which were in prospect before the crisis hit. They have seen that strong bank balance sheets are a highly valuable asset at times when the private sector needs credit and liquidity support on a massive scale, and that bank systems can deliver sharply higher volumes of activity very quickly. As a result, the reputation of banks, and trust in bankers, have risen, after a long period in which the latter were languishing near the bottom of the trust league, along with politicians and journalists. That reputational benefit does not translate into an enhanced return on equity in the short term but it will have a value over time.

We have also seen that non-bank credit provision can have fragile foundations, causing some business customers to appreciate the value of a solid banking relationship more. That may also translate into business opportunities in the longer run.

But the pressures on banks to reduce cost income ratios, to focus on business areas where they have a defensible market position, to control NPLs and to upgrade their technology to compete effectively with new competitors will remain intense. Covid is not going to offer the banks a 'get out of gaol card' but some of the more fanciful predictions of the death of banking may

need to be revised. In 1997 Bill Gates said "We need banking. We don't need banks any more"(19). It is fortunate for the global economy that this is one of his predictions which did not come true.

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Banking and COVID-19 Through the Crisis and Beyond

by Thorsten Beck[23]

Unlike during the Global Financial Crisis and Great Recession, the financial sector has not been at the core of the current crisis. Rather, the financial sector has been affected as much as other sectors by the public health crisis and the lockdown measures imposed by governments. Borrowers affected by the pandemic are less likely to repay loans and the lowering of interest rates across the globe has put pressure on banks' interest margins.

At the same time, however, the financial sector has served a critical function in the transmission of multiple support measures of governments and central banks to limit and mitigate the economic fall-out from the pandemic. Specifically, monetary authorities have not only reduced interest rates (where they were not already in negative territory as in the euro area), but also expanded asset purchase programmes and stepped in as market maker of last resort where financial markets showed clear disruptions. These aggressive monetary policy actions have had the objective to maintain liquidity and credit to the real economy.

There has also been a wide range of government support programmes, including (i) compensating firms for the containment measures enforced to close businesses or reduce economic activity such as government-sponsored job retention programmes paying firms for specific fixed costs such as rents or interest on loans, (ii) tax cuts or holidays, and (iii) public guarantee schemes and

23. Professor of Banking and Finance, The Business School (formerly Cass), City, University of London, Director, Florence School of Banking and Finance, European University Institute, and Research Fellow, CEPR.

moratoria on loan repayments. Payments of support programmes are transacted through the banking systems and guaranteed loans often granted by banks.[24]

Finally, there has been a variety of supervisory measures, including (i) capital relief (i.e., allowing banks to operate below regulatory minimum thresholds), (ii) relaxation of loan classification and provisioning rules and, (iii) (in the euro area) delay of stress tests and the supervisory review and evaluation process (SREP) to 2021. These actions aimed at easing operational pressure on banks and providing incentives to maintain if not extend lending during the crisis. In return, banks were requested to constrain profit distribution to thus maintain the necessary liquidity and buffers both for lending and for loss absorption.

These different support measures can also – at least partly- explain why banks have not suffered as one might have expected given the economic downturn. On the one hand, banks have benefitted from higher fee-based revenue from activities in financial markets. On the other hand, loan loss recognition has been delayed, an effect that seems stronger than the effect of loan moratoria. And while lending might not have increased by as much as simple multiplier models of the capital relief suggested, buffers have been maintained if not built up and resilience strengthened, even if at the costs of lower returns for shareholders (Hardy, 2021). This also implies, however, that the pain might still be ahead.

The real economy after the pandemic

As much as governments have provided emergency support for real economies across the globe and thus taken on economic losses stemming from the pandemic, there is likely to be a fallout. Specifically, while government support has achieved to 'freeze the economy' and avoid unnecessary frictions of illiquidity and insolvency in the real economy, this has also put on hold the market-based process of resource allocation. And as a lot of support has come in the form of debt rather than grants, many firms might exit the crisis with a debt overhang.

24. See ESRB (2021) for more detail on support measures in the EU.

A first important step will be the exit strategy from support for the real economy, both in timing and in speed.[25] At the core lies the tension between "Keynes" and "Schumpeter". On the one hand, continuous support even beyond the opening-up phase can be justified with the attempt to avoid hysteresis, i.e., the risk that the current severe economic downturn and consequent high unemployment (in absence of support measures) cause unemployed individuals to lose their job skills or become demotivated, turning into high rates of long-term or structural unemployment. Such scaring effects would hamper not only economic recovery but also permanently reduce potential output and ultimately result in lower long-term growth rates. Similar arguments can be developed for other economic input factors, such as commercial real estate and manufacturing capital. This is not only challenging from macroeconomic perspective, but also from social and political viewpoints. Supporting firms and people is thus the first priority – and through such support, pressure is also being relieved on banks.

On the other hand, the pandemic will have (possibly permanently) changed the returns on activity in different sectors and industries. There is thus a need for reallocation of resources within the economy post-pandemic. This requires a process of Schumpeterian "creative destruction", where some firms, even if viable before the outbreak of the pandemic, may have to undertake a profound transformation towards new products, services and/or markets, and new firms are created in sectors and industries with growth opportunities. Such a process would be impossible, if support measures keep all firms in their current structure alive, independent of whether they are viable in their current structure in the long-run or not. Capital and labour would be tied in such firms, reallocation thus impossible and growth depressed.

At the core of this tension is uncertainty. While Europe has been emerging from the third wave, it is not clear whether this will be final one. While the introduction of different vaccines has provided hope, their effectiveness against further mutations is unclear as is the point when COVID-19 is no longer to be regarded as pandemic but limited to local and possibly much less fatal outbreaks. Given the uncertain trajectory of the (exit from the) public health crisis, there is similar uncertainty about the necessary constraints on

25. For a more extensive discussion on exit strategies, see Beck, Bruno and Carletti (2021)

socio-economic life, which will impact the economic recovery. On the one hand, this speaks for maintaining the support for longer until the recovery process has clearly taken off, thus also avoiding cliff effects that can result in wide-spread insolvency and unemployment; on the other hand, this calls for a more differentiated approach in support going forward, focusing on sectors that are most affected by continuing constraints on economic activity and where persistence effects in consumption will imply a slower recovery process. Most importantly, however, this calls for erring on the side of maintaining support for too long rather than terminating too early.

On a more macroeconomic level, these considerations also strongly speak against repeating the mistake from the early 2010s when an expansionary fiscal policy to (successfully) mitigate the extent of the Great Recession (or rather: prevent a second Great Depression) was quickly replaced by an austerity stance on both sides of the Atlantic – in the US due to political conflict between president and Congress and in Europe to comply with arbitrary fiscal policy constraints and the political desire of several euro area core countries to lead periphery countries with 'good example' on how to implement austerity. On the euro area level, this ultimately resulted in a deflationary fiscal policy stance, deepening the economic recession and putting too much burden on monetary policy. While one might argue about the appropriate size of fiscal policy stimulus (a discussion primarily on-going in the US), it would be economically illiterate and damaging to use the inadequate appeal to 'household finances' to 'recover' government expenditures incurred during the crisis and aggressively reduce government deficits and debt levels. As the example of austerity in the UK in the first half of the 2010s has shown, this can throttle a speedy recovery, augment deficits and debt levels further, and have severe socio-political repercussions.

It is clear, however, that as we proceed towards an exit from the public health crisis and thus, towards broader-based economic recovery, the weights on the reallocation process in the real economy become stronger compared to the weights on the survival/hysteresis arguments. Some sectors that rely a lot on personal interaction or physical presence will have to shrink, while others that rely on remote interaction will have growth potential. There might also be a geographic reallocation of growth potential, possibly away from larger cities. On the micro-level this implies that some firms are no longer viable while there is the potential for new enterprises entering growth sectors.

This reallocation process will not necessarily be without frictions. Important will be the distinction between (i) unviable firms and (ii) viable but overindebted firms, where among the latter some might already have entered the pandemic with overleveraged balance sheets, while others have seen an unsustainable increase in debt during the pandemic. The regular insolvency framework might not be appropriate for widespread corporate fragility nor might be its heavy focus on liquidation rather than debt restructuring.

There are different ways to address widespread corporate fragility (Sandbu, 2020): one would be to convert emergency loans – either direct ones or bank loans guaranteed by the government – into grants; however, this would be costly and would probably be mis-targeted, as it would benefit firms that might not rely on such support while keeping alive unviable firms. A more targeted measure would be government equity support for viable but overindebted firms; however, this will be difficult to manage given the large number of firms and the limited if not negative track record of governments to pick winners. A third option would be a bank-based restructuring process, as especially for smaller firms in Europe the largest part of their debt will be bank loans, so that banks have the right information and capacity to restructure debt. The main problem is whether banks have the right incentives to undertake this role in the societally most efficient way; if they provide too much debt relief to benefit from future relationships with their clients, borrowers might jump ship to other banks afterwards; if they provide too little, the economy might end up with walking zombies, even though these clients are tied to the bank, deteriorating banks' asset quality. Regulatory rules (as well as taxation) might influence banks' actions. Having a central role for banks in this process, however, might also divert their resources from the necessary funding of new companies and thus the economic recovery process.

In previous crises, this challenge has been addressed with asset management companies (AMC), which can help reduce non-performing assets on banks' balance sheets by transferring them to special purpose vehicles. Among the benefits of AMCs are economies of scale in the workout of non-performing assets and helping to close the gap in pricing, when asset prices are temporarily depressed. AMCs might also be in a better position to restructure the debt of borrower with multiple bank relationships and – by taking on a coordination role – avoid fire sales that result in a further depression of asset prices. At the

same time, being able to off-load non-performing assets allows banks to focus on lending to performing and new borrowers. While in theory, similar effects can be achieved through market-based securitisation schemes, asymmetric information between banks and investors (resulting in a lemons problem) and the more urgent need for banks to offload assets than for investors to buy might result in market failures, in addition to absorption limits of private markets. Public-private partnerships, where publicly-supported AMCs are partly funded by private investors, seem a more promising route. The more successful AMCs, including after the Global Financial Crisis in Ireland and Spain, however, have dealt with real estate rather than with SME loans, which are more heterogeneous, complex and costly to work-out.

There are constraints, however, on the use of publicly-supported AMCs, as they are subject to state aid conditions and have to be compatible with BRRD and can thus only be established for solvent banks with viable business models. Further, the effectiveness of AMCs might be hindered by slow and ineffective corporate insolvency frameworks, a problem that is stronger in some EU member states than in others.

A critical issue are the prices at which AMCs take on non-performing assets from banks. If purchased at book prices, this involves a transfer of losses from banks to the AMC and ultimately government, in conflict with state aid rules. A transfer at market prices, on the other hand, can result in large losses for banks and thus the need for recapitalisation or resolution. A transfer at the economic value (most likely in between market and book values) might reduce bank losses, but at the same time result in the need for government resources to be tied up in the AMC.

Banks' asset quality after the pandemic

Debt restructuring of some firms and liquidation of others will have obvious repercussions for the quality of banks' asset portfolios. There is certainly variation across banks and countries in this negative impact. It is important, however, that these losses be recognised; any delay can result in zombie lending and further accumulation of losses as the case of Japan in the 1990s has shown. At the same time, leaving the process completely to banks creates the risk of

overwhelming them and thus hindering the reallocation and recovery process. AMCs as discussed in the previous section, might come in useful here.

In spring 2020, loan loss classification standards were relaxed in Europe, with supervisors advising banks "to make use of the flexibility provided by standards and take a long-term view in assessing which creditors are in a good position to recover from the crisis." (ESRB, 2021), while at the same time forcing banks to start accumulating general provisions in response to the deterioration of the macroeconomic scenario. Such flexibility, however, can result in opaqueness of banks' balance sheets and provide perverse incentives for banks to roll-over loans to non-performing borrowers and thus zombie lending. Evergreening and zombie lending has negative repercussions not only for average firm growth but also negative growth implications for non-zombie firms who might be undercut in pricing by zombie firms and who cannot expand at the expense of zombie firms. It also prevents the entry of new innovative firms that might contribute to overall (productivity) growth in an industry or sector (Adalet McGowan et al., 2018). It is thus clear that a return to forward-looking loan loss provisions is an important part of the exit strategy for regulators.

As banks have to provision for prospective loan losses, incur such loan losses, or have to adjust book value in the context of transfers to AMCs, the question on how to deal with the consequent bank fragility arises. Stress tests under way in Europe will give a clearer picture of banks' prospective post-pandemic asset quality; the continuous uncertainty on the course of pandemic and economic recovery, however, makes clear prediction on future asset quality and the likelihood of different scenarios more difficult. Importantly, authorities have to be prepared for possible bank failures, a topic I will turn to next.

Bank resolution in Europe – ready for the first big test?

The absence of effective bank resolution frameworks forced European authorities in 2008 into one of two 'corner solutions': send failing banks into corporate liquidation processes or bail them out. The former ignores the interconnected character of banking and the negative externalities that the failure of banks cause for borrowers, depositors and the broader economy; the

global shock of the Lehman Brothers' failure illustrated these effects and can explain why European authorities went mostly for the bail-out option, at least in the case of larger banks. However, the bail-out implied not only losses for taxpayers and consequent cuts in other government budget lines (one of causes for the subsequent rise of populist parties), but also raises moral hazard concerns.

The introduction or reforms of bank resolution regimes across Europe aimed at ending such bail-outs, while at the same time allowing for efficient resolution or liquidation of failing banks and minimising negative externalities and spill-over effects on other banks and the real economy. The Bank Recovery and Resolution Directive (BRRD), translated into national legislation, created common standards, including restrictions on the use of taxpayer resources.

Even in the years leading up to the adoption of the BRRD across the EU, there was already a shift from bail-outs to bail-ins (World Bank, 2016). Most prominently, the failure of Banco Espirito Santo (BES) in Portugal was addressed by a mix of bail-in of junior debtholders, a good-bank bad-bank split and a bridge bank structure. Specifically, the resolution involved the immediate creation of a bridge bank named Novo Banco that received sound assets and liabilities such as cash, retail deposits, performing loans, and central bank funding. In contrast, shareholders and junior bondholders were bailed in and thus left with the toxic assets that led to the mounting losses, which remained in a "bad bank" that was subsequently liquidated. Importantly, the newly created bank became fully owned by the Portuguese Resolution Fund, which provided the entirety of the Euros 4.9 billion of capital. The financial resources of the Fund did not include public money, as it was financed by the initial and periodic contributions of all of the country's lenders as well as the proceeds from a levy on the banking sector. Beck, Da-Rocha-Lopes and Silva (2021) show that firms linked to BES suffered a significant contraction of credit at the intensive margin, but were on average able to compensate for the supply-driven shock. However, affected SMEs experienced a binding reduction of funds available through credit lines, and those with lower internal liquidity increased precautionary cash holdings and reduced investment and employment. This suggests that bank resolution without bail-outs and taxpayer support can limit though not eliminate real sector costs from bank failures. It is important to stress, however, that the failure of BES was an idiosyncratic case, not related

to deeper imbalances or fragilities in the Portuguese banking system. The swift intervention thus limited any contagion effects, though the idiosyncratic nature of the BES failure might have limited them anyway. One cannot conclude from these findings for this specific case, that the fallout of bail-ins would be similar in a systemic crisis situation.

Since the adoption of the BRRD, gaps in the new resolution frameworks have become clear. These gaps include a focus on liquidation for banks, for which there is no positive public interest assessment for resolution (assessment that normal insolvency proceedings would "give rise to significant adverse effects on the financial system and severely impede the functioning of the real economy in one or several Member States", SRB, 2019). While there might be indeed no such narrowly defined public interest in the case of many smaller banks, widespread insolvency and liquidation of several smaller banks, especially if geographically concentrated can have severe negative economic repercussions (e.g., Ashcraft, 2005). Further, "significant differences in national legal regimes for the liquidation of banks imply divergences from the European supervisory framework; they generate level playing field concerns that might impair banking market integration and they may stand in the way of a smooth exit from the market for the weakest players" (Enria, 2020). Discussions on possible reforms are currently under way, but any such reforms will be too late to address possible bank fragility post-COVID-19.

Can the current bank resolution framework be used in a systemic banking crisis? Theory is ambiguous on the effect of a more comprehensive bank resolution framework on stability during instances of systemic distress. On the one hand, reducing the likelihood of bailouts and thus taxpayer support, allowing early intervention, and providing ample tools for resolution of failing banks reduces moral hazard risk (Repullo, 2005; Farhi and Tirole, 2012). Specifically, bail-in and clarity on how losses will be distributed in case of bank failure can increase market discipline by equity and debtholders of banks. They can also reduce incentives for too high leverage on banks' balance sheets (Adrian and Shin, 2014). On the other hand, a rule-based system that ties regulators' hands can result in bank runs and contagion if regulators have private information about bank performance (Walther and White, 2020). Rule-based bail-ins might make banks more vulnerable to adverse events and thus destabilize the financial

system in the middle of a crisis, through direct interlinkages of banks holding each other's' claims, as well as information effects and a sudden reassessment of bank risk (Acharya and Yorulmazer, 2008; Eisert and Eufinger, 2018). According to this view, bailouts of failing banks (which were supposed to end with the post-2008 reforms) can protect other banks from contagion and thus provide incentives to reduce risk-taking (Cordella and Yeyati, 2003; Dell'Ariccia and Ratnovski, 2019). There might also be economic costs of too rigid an application of rules, resulting in underinvestment (Keister, 2015; Leonello, 2018).

Beck, Radev and Schnabel (2020)'s empirical assessment of the relationship between bank resolution frameworks and systemic risk sheds doubt on the usefulness of bank resolution frameworks during systemic banking crises. Specifically, they show that banks in countries with more comprehensive bank resolution frameworks experience a higher increase in systemic risk contributions after system-wide shocks, such as the Lehman Brothers' failure or the Greek debt crisis; further, these amplification effects are mainly driven by the overall bail-in framework and the tools and powers the resolution authority has at its disposal, while the existence of a designated resolution authority is related to system-wide shocks and banks' systemic in a dampening way. Interestingly, the authors do not find such amplifying effects during idiosyncratic shocks (such as, for example, the failure of Banco Espirito Santo, discussed above). These results suggest that more comprehensive bank resolution may exacerbate the effects of system-wide shocks and should not be solely relied on in cases of systemic distress.

The theoretical and empirical evidence matches experience from previous crises across the globe, where often blanket guarantees, system-wide recapitalisation efforts and – as discussed above – asset management companies are being used (Laven and Valencia, 2018). Bank resolution frameworks are designed for idiosyncratic failures and both the toolbox of resolution techniques and political appetite for bail-ins shrink in the face of systemic fragility, something also referred to as scale diseconomies of resolution (De Young et al, 2013, Beck, 2011). Specifically, the simultaneous failure of several institutions not only exacerbates the stress experienced by directly or indirectly affected institutions, but also limits the effectiveness of resolution techniques, such as purchase and assumption of failing banks by healthy ones, as potential acquirers might either be affected themselves or be reluctant to acquire in times of high uncertainty.

In the context of multiple and geographically concentrated bank fragility in Europe, a strict adherence to the current framework, designed for idiosyncratic bank failures (just to stress this again), might exacerbate fragility, as discussed above. A flexible approach to the use of the different tools discussed above including where a positive public interest assessment might not be met in normal times, with waivers of state aid rules where necessary and – most importantly - pan-European solutions, is critical. As a focus on purely national fiscal policy stances is no longer an option within the euro area, forcing resolution, restructuring and recapitalisation decisions onto the national level can restart the vicious cycle of bank and sovereign fragility we saw in the early 2010s. While a completion of the banking union and a reform of the BRRD is not feasible to address bank fragility in the short-run, the spirit of a complete banking union should be applied. This also implies early coordination between regulators, resolution authorities and governments on the national and European level.

The crisis as opportunity

While the immediate objective of the banking union was to cut the vicious cycle between bank and sovereign fragility, the medium- to long-term objective has been to create a Single Market in Banking, moving away from national towards an integrated banking system. Neither of these two objectives has been fully accomplished. The banking union is not complete and the early stages of the COVID-19 crisis increased fear of a renewed bank-sovereign fragility cycle, ultimately countered with the aggressive actions by the ECB and the strong signal sent by the European Recovery Fund (Next Generation EU). One example for negative repercussions of an incomplete banking (and fiscal) union emerged in spring 2020: while the ECB asked for restrictions on profit distribution on the group-level within the EU, several national supervisors also restricted within-group profit distribution, effectively undermining the Single Market of free capital movement but with the valid argument that local subsidiaries benefit from national fiscal support packages. And while banks in Central, Eastern and South Eastern Europe are much less dependent on parent bank funding that a decade ago, memories of lending retrenchment in the wake of the Global Financial Crisis are still fresh, while an incomplete banking union

leaves national authorities in these countries in a relative weak position vis-à-vis home country authorities (Ahmad et al. 2019).

However, even a completion of the banking union is only a necessary but not sufficient step towards a Single Market in Banking. Cross-border mergers can help delink banks from countries and thus governments; but it is the same governments that often stand in the way, as the recent example of Germany has shown where the government actively tried to facilitate a merger of the two largest private banks.

Beyond creating a truly Single Market in banking, where larger banks are European rather than national, one can consider a second longer-term objective: reducing the bank-bias in the European financial system (Langfield and Pagano, 2016). Strengthening public capital markets is only one aspect, strengthening private capital markets, including equity funds, angel financing and venture capitalists are other important aspects. Balancing the financial system is critical in the context of the increasing importance of intangible relative to tangible capital (Haskel and Westlake, 2017). Recent research has shown the limitations that banking faces when enhancing growth of industries and economies increasingly relying on intangible assets that are harder to be used as collateral that can be recovered and resold and with more uncertain investment projects (Beck et al., 2020). This is consistent with increasing evidence that such industries are more likely to be financed by non-bank financial institutions, including venture capitalists, equity funds but also through public capital markets (Dell'Ariccia et al., 2021).

Another medium- to long-term challenge for the European banking system is the rise of fintech and bigtech companies, which have the potential to disrupt banking markets. Fintech companies have undermined banks' franchise in specific services, most prominently payment services, and are thus threatening economies of scope and scale banks have been enjoying by offering bundles of services. Bigtech companies have a critical advantage vis-à-vis banks through their access to big data and large networks, which they can use for an envelopment strategy in new markets, including financial services. Ultimately, the competitive threat to banks from bigtechs and banks' reactions will be critically determined by the regulatory response.

Conclusions

The crisis has not started in the banking system, but banks have been a critical transmission tool for the management of the economic crisis. It is clear, however, that unless the phasing out of support programmes is undertaken carefully and in a coordinated way, there is the risk that corporate distress will result in banking distress, in the form of a vicious cycle that might even bring sovereign fragility back into the picture. And while the bank resolution tools at the disposition of authorities are vastly superior to the ones available in 2008/9, it is doubtful that they are sufficient to resolve multiple bank failures, especially if geographically concentrated.

Careful coordination between different national authorities (bank supervisors, resolution authorities, and governments) and between European and national authorities is needed to not only design coordinated exit plans but also put in place the necessary plans for severe fragility in an adverse scenario; plans that build on existing frameworks, but with the necessary flexibility to address systemic banking distress.

On the upside, if properly handled, any bank fragility resulting from the pandemic and the economic fallout can be used to kickstart a deeper restructuring of Europe's banking systems, completing the banking union and building a truly Single Market in banking in Europe. The time to prepare is now.

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Lessons From the Regulatory Response to the Covid-19 Crisis

by José Manuel Campa and Mario Quagliariello[26]

1. Introduction

Since the Great Financial Crisis (GFC), the European banking sector has made significant progress in restoring resilience and market confidence. At the beginning of 2020, while there were still significant challenges ahead – not least the structurally low profitability and pockets of idiosyncratic vulnerabilities particularly in mid-sized banks – the positive trend was robust and consolidated. Banks and supervisors were actively addressing remaining weaknesses, and market participants were expecting decisive steps towards the completion of the balance sheet repair.

The outbreak of the Covid-19 pandemic was an unprecedented test for the economy and made any forecasts outdated and obsolete. Organisations, professionals and individuals have gradually adapted to the new conditions and learnt how to mitigate the operational difficulties and emerging risks of a worldwide pandemic. Yet, with the vaccination campaigns progressing at uneven pace in different jurisdictions and widespread uncertainty on the start and speed of economic recovery, many challenges lie ahead. This is true for the health systems, the economies as well as the banking sector.

26. European Banking Authority (EBA). This article is based and elaborates on José Manuel Campa's speech "The regulatory response to the Covid-19 crisis: a test for post GFC reforms" at the Italian Banking Association, Rome, September 21, 2020. We are grateful to Valerie de Bruyckere, Valentina Drigani, and Achilleas Nicolaou for useful discussions and support. The opinions expressed are those of the authors and do not involve either the EBA or its Board of Supervisors.

The exceptional measures adopted globally in response to the first wave of the epidemic have brought the global economic activity to a sudden freeze. Because of the various forms of population confinement – such as lockdowns and social distancing – the Gross Domestic Product (GDP) has markedly declined in the EU and at the global level and the path to recovery remains uncertain.

The impact of Covid-19 largely depends on how successful governments are going to be in their vaccination campaigns, limiting the spread of new variants and preventing further waves. The effectiveness of the actions taken to support the economy will also determine the pace of economic recovery.

Banks were not the source of this crisis, nor have they been the most affected sector. Thanks to strong starting positions and unprecedented public measures to support the economy, the banking sector proved able to absorb the initial shock, remain resilient, and provide liquidity to struggling households and firms.

The combination of inner strength and prompt supervisory responses allowed banks to play an important role in supporting the economy during the heights of the crisis also thanks to the exceptional monetary and fiscal policies. EU supervisory authorities demonstrated the capacity to act quickly, resolutely, and effectively to mitigate the impact of the crisis on the financial sector. The European Banking Authority (EBA) took a number of steps, first, to facilitate banks to continue providing financing to households and corporates at a very difficult juncture and, second, to monitor the evolution of the crisis in order to adjust its measures as deemed necessary.

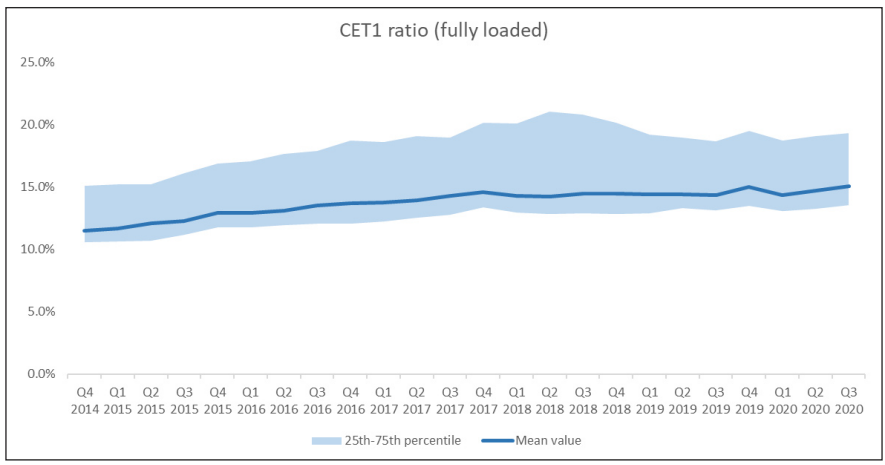
However, as the pandemic continues to affect the economy, a legitimate question arises of whether banks will be able to absorb the full impact of the crisis as they continue providing adequate lending to the economy. Unquestionably, the crisis will also have longer-term implications on the future shape of the banking sector. There are some additional questions on whether the regulatory framework is fit for purpose to allow banks to pursue these goals.

In this article, we try to address these questions with a focus on the European Union. We describe how banks entered the crisis, explain the rationale for the actions taken as the immediate response, provide some initial thoughts on the lessons learnt and try to look forward and sketch some possible implications for future policy-making.

2. Banks at the start of the crisis

European banks entered the Covid-19 epidemic with relatively high capital levels and abundant liquidity buffers, particularly when compared to the recent past. The solvency level of EU banks had improved significantly since the GFC (chart 1) and, more importantly, the cross-sectional dispersion reduced materially, with banks in the lower quartile catching up steadily. In December 2019, EU banks' Common Equity Tier 1 ratio (CET1) was 15.1% on average and banks were comfortably above regulatory minima. The management buffer – which is the additional capital banks hold in excess of capital requirements, buffers and supervisory expectations – was 300bps. This trend of higher capital ratios – which is also visible when looking at the evolution of non-risk-weighted metrics such as the leverage ratio – has been driven by both deleveraging and the increase in own funds, also in connection with the gradual adjustment to the Basel 3 standards.

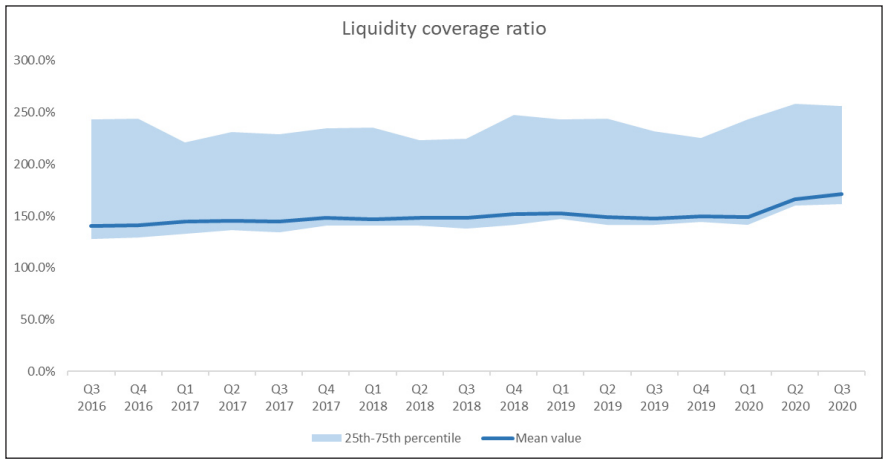
Chart 1 – EU Banks: Common equity tier 1 (CET1) ratio



Similarly, liquidity buffers were ample, with the Leverage Coverage Ratio (LCR) close to 150% (chart 2). Also in this case, the contraction of the interquartile range and the overall move upwards of the distributions are impressive and confirm that the progress was widespread. Banks' funding mix was also more balanced and stable, with a steady increase of the share of

household and non-financial corporation deposits since the GFC. In contrast to previous recent crises, available liquidity buffers increased even further in 2020, in connection with massive central banks interventions providing cheap funding to the banking sector. Banks also benefited from favourable conditions in wholesale funding markets in the quarters before the outbreak of COVID-19.

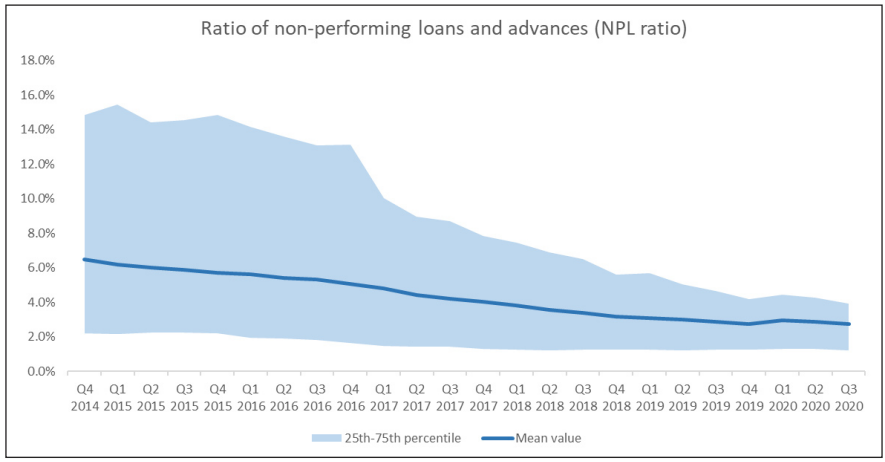
Chart 2 – EU Banks: Liquidity coverage ratio (LCR)



Banks had also significantly reduced non-performing loans (NPLs) and improved asset quality, with an acceleration after the approval of the Council's NPL action plan in 2017. With the introduction of a common definition of NPLs, the EBA provided the regulatory framework and monitoring mechanism that allowed supervisors to push banks strategies.

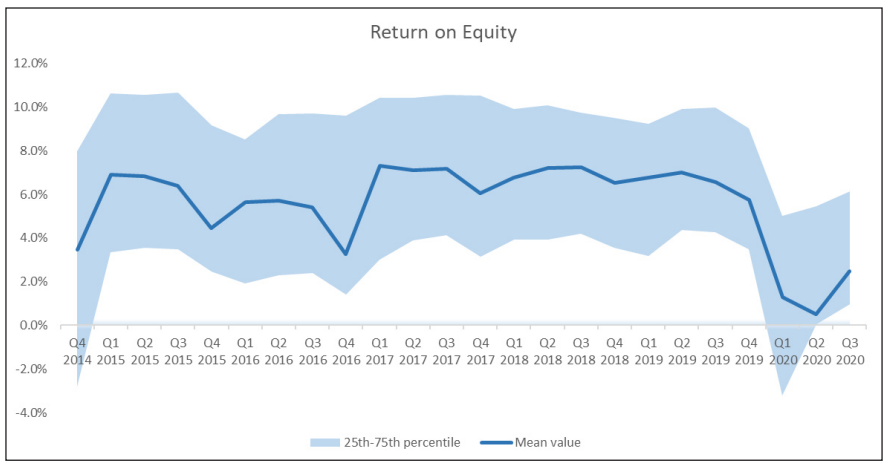
Since 2014, NPL volumes have more than halved (chart 3) and the progress, while generalised, was more pronounced for countries with higher starting NPL ratios. The positive downward trend affected all sectors and asset classes and was achieved through both internal organic workout and disposals in secondary markets, either portfolio sales or securitisations. However, the pace of the adjustment in the sector could have been faster. The NPL ratio in 2019 stood at 3.1% on average, higher than in other advanced economies, with many countries still showing levels well above those recorded before the GFC.

Chart 3 – EU Banks: Non-performing loan (NPL) ratio



Despite the efforts put by banks in repairing their balance sheets and improving asset quality, a number of challenges remained in the industry. Banks' profitability had not recovered since the GFC, with returns remaining subdued amidst low interest rates and banks' difficulties in reducing operating expenses (chart 4). For many banks, the return on equity has not covered the cost of equity for many years, as also reflected in their market valuations.

Chart 4 – EU Banks: Return on Equity (RoE)



Persistent low profitability, and remaining pockets of poor asset quality, along with competitive pressures coming from new digital players, are likely to be exacerbated by the current crisis. Supervisory measures adopted in 2020 provided an immediate response to short-term tensions and the sudden halt of economic activities. However, banks still need also to address long-term outstanding problems, which require structural reforms.

3. A review of the regulatory response

The immediate reaction of the supervisory community to Covid-19 and the gradual deployment of containment measures by governments aimed at ensuring business continuity in such difficult circumstances. It was important that banks were able to serve the economy and their customers, avoiding the collapse of credit to the real economy at the very moment when it was required to transmit fiscal stimulus to corporates and households.

The rationale of the measures adopted by the supervisory community was clear. The target was to safeguard business continuity in the sector, allow banks to use the capital and liquidity buffers accumulated over time, and remove any unintended obstacles to the widespread use of public support measures.

Regulators provided operational relief to banks, allowing them to shift resources where mostly needed. This decision was not made lightly. Postponing the ongoing 2020 EBA EU-wide stress test exercise by one year, delaying remittance dates for supervisory reporting, and putting on hold consultation processes determined a loss of valuable information, in particular on banks' latest conditions, at the very moment authorities actually needed it the most. Nevertheless, this was the right thing to do in exceptional circumstances, with banks in great need to focus on critical functions and operational resilience.

The EBA recognised the need for a pragmatic approach in the 2020 Supervisory Review and Evaluation Process (SREP) as well as for recovery planning, and recommended that supervisory authorities focus their efforts on the most material risks and vulnerabilities driven by the crisis.

At the global level, the implementation of the Basel 3 standards finalised in December 2017 was deferred by one year to January 2023. In Europe, the EBA reminded that capital – and liquidity – buffers accumulated by banks over time were a reserve to absorb losses but also to ensure continued lending to the economy. In the same spirit, several macroprudential authorities released

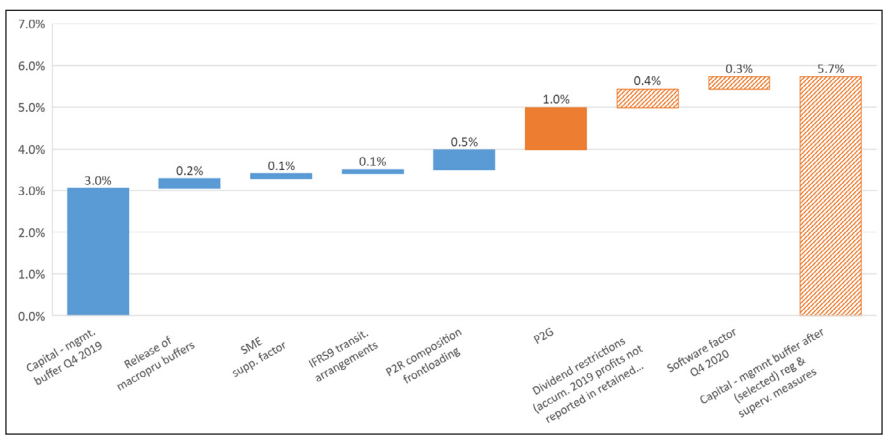
the countercyclical buffers and supervisors allowed banks to operate below their Pillar 2 Guidance (P2G). It was also clarified that part of the Pillar 2 requirements could be covered with instruments other than CET1.

With the Capital Requirements Regulation (CRR) 'quick fix', which was approved by the European Parliament in June 2020, the transitional arrangements for smoothing the impact on capital of the introduction of International Financial Reporting Standard (IFRS) 9 on own funds were extended by 2 years. Other measures already in the pipeline – for instance a revised and more generous supporting factor for lending to small and medium enterprises (SMEs) – were introduced ahead of schedule. The EBA also frontloaded the rules on the prudential treatment of software investments introducing their partial deduction from capital.

The corollary of capital relief measures was the recommendation to banks to follow prudent dividend distribution policies. Dividend restrictions and bans forced banks to preserve capital with an overall impact of about 40 billion Euros. This was a controversial measure, with a few stakeholders arguing that a case-by-case approach would have been better than a generalised restriction. However, a system-wide approach was proportionate to the severity of the crisis and the uncertainty on its effects. A case-by-case approach would have not achieved the same objective and the stigma effect on some banks could have adversely affected those intermediaries in more urgent need of support.

We have mentioned already that banks entered the crisis with good solvency positions and a management buffer of about 300bps of RWAs in December 2019 (chart 5).

Chart 5 – Evolution of management buffers in 2020



Capital related measures had the objective of further enhancing banks' ability to finance the economy, thus creating additional headroom for lending. Taken together, these measures contributed to free up capital, with the management buffer increasing to 570 bps assuming the full use of P2G. However, the availability of buffers was uneven across the EU due to the different starting position of banks and to the diverse implementation of macroprudential measures across Europe.

The EBA also intervened to avoid any unintended reclassification in default status for debtors in temporary liquidity difficulties. In particular, there was a pressing need to address the prudential treatment of legislative and non-legislative payment moratoria, which were introduced by several countries as a support measure to provide payment breaks to borrowers. The EBA published guidelines[27] to clarify that the payment moratoria do not automatically trigger forbearance classification and the assessment of distressed restructuring if they are based on the applicable national law or on an industry-wide initiative agreed and applied broadly by relevant credit institutions.

These guidelines were necessary for avoiding the automatic reclassification in forborne or defaulted status of loans under moratoria, but they also confirmed the necessity of a timely and accurate measurement of credit risk. They safeguarded borrowers with temporary liquidity problems, but did require the assessment of the long-term unlikeliness to pay.

The emergency determined by Covid-19 called for emergency measures. However, it was – and it is – important to preserve the correct measurement of risks and the reliability and timeliness of risk metrics. Therefore, the EBA also put in place adequate tools in order to enable supervisors and stakeholders to monitor these exposures and adequately assess the evolving situation in the banking sector. The EBA introduced ad-hoc reporting and disclosure requirements for the exposures benefitting from moratoria and public guarantees. This allows supervisors to understand the materiality of the exposures as well as their classification for prudential and accounting purposes.

27. EBA (2020), Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis.

4. Is this time different?

Capital ratios have improved further since March 2020, NPLs have not increased and liquidity has remained ample. Compared with the previous crises, bank lending to the real economy has increased, particularly in the first half of 2020. In the early stages of the COVID-19 outbreak, non-financial corporations (NFCs), especially small and medium-sized enterprises (SMEs), made use of available loan commitments to secure liquidity and operational continuity. Later on, credit demand was mostly driven by government guaranteed loans.

The increase in lending, along with the surge in cash balances that followed central bank extraordinary liquidity allotments, has resulted in a 9% increase in total assets in the first three quarters of 2020. This figure could slightly underestimate the size of asset growth since, in some jurisdictions, fully guaranteed loans can be derecognised by banks and, thus, are not visible in their balance sheets.

In this section, we explore further the data available at the EBA, with a focus on banks' use of moratoria and deposit guarantees and forward-looking indicators of asset quality[28]. This should provide a more accurate picture of the future evolution of credit risk, beyond headline figures.

In September 2020, EU banks reported EUR 587 billion of loans under moratoria compliant with the EBA guidelines, which represents around 5% of the total outstanding loans to households and NFCs. Banks also reported that moratoria had expired for about EUR 350bn of loans. The use of moratoria was heterogeneous across countries, reflecting the different timing and impact of the epidemics as well as the variety of national support measures deployed by governments.

Loans under moratoria were around 6% for NFC, whereas 4% of household loans had been granted some form of payment holidays in September 2020, which is about half the amount recorded in June. Moratoria were more widely used by small and medium enterprises, which typically rely more on bank credit for financing their funding needs. About 55% of the moratoria had a maturity of less than 3 months, and around 85% of them were to mature before March 2020.

28. EBA (2020), First evidence on the use of the moratoria and public guarantees in the EU banking sector.

The EBA guidelines require banks to perform the usual due diligence on asset quality evolution and, in particular, on debtors' likeliness to pay. Therefore, the evolution of credit risk for loans under moratoria provides valuable information on the quality of these loans as well as on banks' risk management approach during the pandemic. In September 2020, about 20% of loans under moratoria were classified as stage 2, which is more than double the share for total loans. The NPL ratio for loans subject to moratoria was 3%, which is slightly higher than the EU average (2.8%). This is, however, not surprising considering that some national schemes included only performing loans as eligible for payment moratoria. In our view, this suggests that banks, to some extent, have been proactive in assessing the unlikeliness to pay – in the absence of past-due criterion for the loans under moratoria – as well as any material increase in credit risk triggering the migration of loans from Stage 1 to Stage 2. On the other hand, this is also in line with the evidence that moratoria reached the intended recipients – i.e., the economic sectors most affected by the crisis – which tend also to be riskier.

The use of public guarantees (PGS) was also widespread. In September 2020, newly originated loans subject to PGS amounted to around EUR 289 billion. This volume represents a relatively small share of the stock of total loans on average (about 1.6%) but is material for some banks and jurisdictions. Public guarantees were granted predominantly for loans to NFCs, which represented almost 94% of all new loans benefitting from PGS. PGS impact on banks' lending was rather significant in the countries more affected by the first wave of Covid-19 contagion.

Public guarantees have the potential to reduce significantly banks' RWAs. In September 2020, banks reported RWAs of EUR 45 billion for exposures subject to PGS of EUR 289 billion. This implies an average risk weight of around 16%, which can be compared with an average risk weight for banks' NFC exposures of 54%[29]. According to estimates, this corresponds to a benefit in terms of CET1 ratio ranging between 10 and 20 basis points.

Overall, public support measures – both on the fiscal and prudential side – along with very low interest rates did shield the banks from the first round effects of the crisis. NPL ratios and volumes remained low and the declining trend was confirmed, even though at slower pace than pre-Covid-19.

29. EBA (2020), Risk Assessment of the European Banking System.

However, there are also early signals of asset quality deterioration, particularly looking at more forward-looking indicators. The volume of loans classified under IFRS 9 stage 2 – those that are still performing but for which there was a significant increase in credit risk – increased by 24% to EUR 1.2bn in 2020, bringing their share to 8% of total loans. A similar trend was observed for forborne loans, which can at some point turn into non-performing status if the conditions of the restructured debtors worsen further.

This dynamic was also reflected in profit and loss accounts. Banks have booked substantial provisions on performing loans that resulted in a material increase in the cost of risk, albeit with significant dispersion. As a result, the cost of risk – the ratio between the flow of impairments and total loans - was significantly higher than in 2019 (0.74% in Q3 2020 vs 0.46% in Q3 2019). Profitability deteriorated quickly due to increased provisions and plummeted to zero in Q1 2020, with a moderate recovery in the following quarters. Pressure on interest margins will not decrease anytime soon, as the low or negative interest rate environment is expected to persist for even longer.

While it is difficult to make accurate forecasts on the timing and materiality of asset quality deterioration, all these elements point to a new wave of NPLs in the coming quarters. According to a sensitivity analysis carried out by the EBA for assessing the impact of COVID-19 on EU banks, stage 3 assets could increase to levels comparable to 2014 and credit risk losses could determine a decline of CET1 ratios between -230bps to -380bps, without taking into account the mitigating impact on impairments of PGS[30]. EU banks would have, on average, enough capital buffers for absorbing these losses, but there could be cases requiring corrective measures. While we are cautious in interpreting these results given the uncertainty on future economic conditions and the mitigating impact of the government support measures, this is an area that requires close monitoring, proactive actions and enhanced policy toolkit. Currently, the EBA is performing its biennial stress test exercise of European banks, which will provide a more detailed account on the status of the banking sector and its ability to weather a severe downward macroeconomic scenario.

30. EBA (2020), The EU Banking Sector: First insights into the COVID-19 impacts.

There are ways to mitigate the impact of the expected increase of credit risk on financial stability. First, it is for banks to proceed with the early and transparent recognition of any deterioration of asset quality. It is imperative that investors do not lose their trust in the EU banking sector as in the aftermath of the GFC, when banks – notwithstanding the strengthening of capital positions – were perceived to be hiding losses in their balance sheets. Banks need to have enough provisions. This crisis may be less harmful than we expect or the recovery faster but, at this stage, it is safer to err on the conservative side and reverse provisions later.

Low for long interest rates can have a positive mitigating impact on credit risk, but it should not lead to unjustifiable delays of non-viable firms, nor to the delay in recognition of potential non-performing exposures. The same principle should apply to the banking sector itself. The low interest rate environment should also not delay a long-due restructuring of the sector and the orderly exit of weaker banks. In addition, low for longer interest rates will make it harder to regain profitability through credit intermediation. Banks need to redefine their business models, find other income sources, partly embracing innovation but also leveraging on their traditional competitive advantage in serving their customers, offering advice and higher value added services, and supporting their migration towards a greener economy.

5. Lessons for regulation

All crises are different but they also share similar patterns. In the midst of the turmoil, economic agents tend to react looking primarily within their private interests and cooperation and coordination suffer. At the national level, this results in actions being taken pursuing national objectives and, at times, with insufficient coordination. This is understandable when there is an urgency to act under time pressure and uncertainty, but it is far from optimal and can jeopardise the overall economic recovery and the level playing field.

The reaction to this crisis shows a mix of national bias and a strong, genuine effort to provide a common EU response with stronger coordination. On the one hand, the actions at the European level have been unprecedented, particularly when compared with previous crises. The monetary policy,

macroprudential and supervisory responses were quick and well-coordinated. More importantly, the EU agreed on a long-term budget that, coupled with NextGenerationEU, represents a strong commitment to deliver an EU-wide post-crisis stimulus package financed through the EU money.

On the other hand, the immediate public support provided to the economy was diverse across countries and commensurate to the fiscal capacity of the single Member States. Payment moratoria and public guarantee schemes affecting the banking sector were launched from national initiatives with little or no supranational coordination, different deadlines, coverage and conditionality. The EBA tried to provide with its guidelines on moratoria a harmonised framework for the prudential treatment of such measures. However, the policies implemented remain different in many aspects.

Going forward, it is important that the interaction of these policies with the need for orderly restructuring of the corporate sector as a result of the crisis does not result in a fragmentation of the single market and an uneven playing field within the EU banking sector.

The crisis has also proven that the regulatory reforms agreed at the global level in the aftermath of the GFC have been successful in strengthening banks' resilience. While the long-term impact of Covid-19 is still to be determined, high capital, ample liquidity, improved asset quality, enhanced digital capacity, stronger risk management helped banks to respond to the emergency. This confirms the importance of a sound regulatory framework and its effective implementation. Globally agreed standards have helped us manage this crisis and have confirmed their overall usefulness. This is a lesson for the future.

Regulatory authorities have proved to be up to the challenge and willing to make full use of the flexibility permitted in the prudential and – to the extent possible in their remit – the accounting frameworks. Flexibility was increased by the legislator where it was deemed necessary. Some rules, particularly on the treatment of non-performing assets, required some fine-tuning, but, overall, we did not change their philosophy confirming the need to timely recognise and measure risks, while avoiding automatisms that can determine unintended consequences in case of systemic crisis and system-wide support measures.

Authorities allowed banks to support the economy, while demanding the preservation of reliable risk metrics. The distinction between short-term

liquidity difficulties and insolvency – or unlikeliness to pay – was crucial in squaring this circle and proved fit for purpose. The evidence on the classification of loans under moratoria provides some initial reassurance that banks have implemented supervisory guidance as required. However, it is important that credit risk is monitored carefully so to ensure that banks identify any early signal of borrowers' distress and provision against potential losses accordingly.

Authorities have been also proactive in triggering the countercyclical features embedded in the Basel 3 framework. Since the onset of the crisis, micro- and macroprudential, European and national authorities provided the unequivocal message that capital is there to be used. Relaxing capital requirements and encouraging banks to make use of their liquidity buffers in a crisis do not come natural to supervisors, but they are key to allow the banking sector to act as a stabiliser rather than an amplifier of the shocks. This was the very purpose of including a macroprudential perspective in the prudential standards.

Banks have, so far, made limited use of this flexibility. Until the third quarter of 2020, there is no sign of a decline in the CET1 ratio, at least on average at the EU level, and banks – with a few exceptions – are still able to meet their overall capital requirements. A first observation is that there is some confusion on the concept of buffer "usability". Banks can use buffers to absorb losses and still be able to meet minimum requirements. This implies that buffers are used when losses are recognised. Banks can also use buffers to absorb the increase of risk-weighted assets in a crisis without reducing lending. If credit is flowing fine to the economy and the supply matches customers' demand, then there is no need to use the buffers.

At this stage, it is too early to say whether the issue of buffer usability is material. We documented that credit did increase in the aftermath of the crisis. Banks also increased provisions, but below some analysts' expectations.

Still, this is an important discussion looking forward. There is a view that banks are reluctant to use the buffers for reasons beyond supervisory expectations. If this is true, it is important to understand those specific concerns, their relevance, and consider whether adjustments to the framework are needed.

On the one hand, there could be a general apprehension related to the market stigma associated with the use of buffers or even with the simple

decline of capital ratios. This would indicate the reluctance of market participants to accept fluctuations of capital ratios in banks as a normal – cyclical – event.

On the other hand, the scarce usability of the different buffers can be linked to the function they are expected to perform. In the prudential framework, some buffers – e.g., the countercyclical capital buffer (CCyB) – are inherently countercyclical since authorities can activate and deactivate the requirement depending on the evolution of economic conditions. Countercyclical, releasable buffers are designed to be used for macroeconomic adjustments.

Other buffers – e.g., the capital conservation buffer – are instead structural and work as automatic stabilisers since banks failing to meet the requirement are automatically subject to capital conservation measures. Banks can be hesitant to use the structural buffer since this may undermine their ability to payout dividends and coupons if they are at risk of breaching the overall capital requirements and, thus, triggering maximum distributable amount rules.

The relative size of the buffers determine their usability for the different economic policy objectives. This can also call for a recalibration of the buffer structure, with a greater role for buffers that can be switched off by the authorities. However, since countercyclical buffers have been built up only in a limited number of jurisdictions and to relatively limited levels, the question is whether we should also harmonise the way these buffers are deployed, pushing for a faster and larger accumulation in good times. While buffers should continue to reflect national financial conditions, some centralisation of their use at the EU level would be warranted, particularly in crisis times.

The toolkit of macroprudential authorities is also relatively weak when it comes to preserving capital in the system. While microprudential supervisors can prevent institutions for distributing dividends on a case-by-case basis, no binding instrument is available for imposing system-wide payout restrictions.

Finally, the crisis has also confirmed the urgency to complete the Banking Union and remove any obstacles to the free flow of capital and liquidity in the Single Market. National policies to address national stability concerns can often impede the free flow of funding across the union. Ring-fencing generates inefficiencies and eventually results in the inefficient allocation of resources, poor incentives to cross-border consolidation, and higher costs for customers.

6. Conclusions

The EU banking sector has been resilient so far but there are challenges ahead. The strong capitalisation and liquidity profile, coupled with the decisive response of the regulators and supervisors, have enabled the European banks to cope with the immediate impact of the crisis, while supporting their customers and governments' efforts to push liquidity in the system. Looking forward, the key question is whether banks will be able to withstand the likely increase of credit risk losses and maintain adequate lending volumes, particularly when moratoria, public guarantee schemes and other support measures expire.

With the legacy and the experience from the GFC, it is important to be ready with credible, long-term tools to deal with the deterioration of asset quality. The 2021 EU-wide stress test will allow authorities to better assess the consequences of the crisis on banks, start discussing the appropriate way forward, and set supervisory expectations on capital planning.

Banks should do their part assuring the accurate and transparent assessment of credit risk. Capital buffers provide headroom for prudent provisioning and there is no reason for delaying risk recognition.

The Commission's NPL action plan shows that this time is different and authorities want to be proactive rather than reactive. Asset management companies can be part of a broader toolkit within well-functioning efficient NPL secondary markets to transfer non-performing assets out of the banking sector and, while they are often associated to state-aid and resolution rules, they have a broader role to play particularly in case of widespread deterioration of credit quality. Early and proactive engagement with borrowers must be undertaken in a way that is customer centric if we are to retain public trust in financial services.

The Covid-19 crisis has also made some weaknesses in the EU banking sector more visible and accelerated some trends affecting the industry. In this sense, the crisis can represent a catalyst to restructure and make EU banks more resilient and efficient. Some issues are generalised across the sector, while others may be more idiosyncratic. The EBA analyses show that the sector is overall resilient, but banks that entered the crisis with lower capital levels, poor business models and riskier exposures may face greater

challenges. In addition, further waves of contagion and a delayed economic recovery could further weaken the banking sector. Deteriorating asset quality and the 'lower for longer' interest rate environment are expected to weigh on an already subdued profitability.

The need to address overcapacity and advance with banking sector consolidation will become ever more important and supervisors are supporting measures to facilitate such process. A coherent and consistent application of the European resolution framework is a precondition of an orderly exit for those banks that become non-viable in the crisis. Although the challenges ahead are huge, the crisis can be the catalyst to address pre-existing vulnerabilities.

Finally, digitalisation and the use of ICT was able to progress rapidly in the crisis thanks to the work of regulators and a further acceleration could be a game-changer for banks. It could bring costs down and allow them to move towards more sustainable business models, but this should go together with careful management of ICT risks and careful consideration of the environmental and social implications of enhanced use of digital channels and machine led offerings.

The crisis triggered by the Covid-19 pandemic put the post GFC reforms in the banking industry to test, a real-life stress test of the system. We believe that the experience so far has vindicated the reforms. The philosophy behind the post-GFC regulation – more demanding requirements in normal times that can be relaxed in bad times – has been successful. This does not mean that there are not some aspects of the existing framework that may require a critical review. Changes may be necessary, but we see this as a fine-tuning and calibration of the framework rather than a fundamental rethinking of it.

We would also advocate taking enough time to reflect, discuss and make decisions. Changing the rules while the crisis is ongoing would be premature, imprudent and could be interpreted as a signal of weakness of the banking sector, at a time when markets are volatile and investors nervous. Once the health crisis is – hopefully – under control and the emergency over, it will be natural to make a stock-take of the elements that have worked well and those deserving some adjustments.

We also learnt that some flexibility in regulation may be necessary, but we should avoid reinstating national discretions. We believe it would be also

advisable to go back to the roots of the Lamfalussy's reform, with primary legislation setting only the overarching principles and leaving the technical details – which may need quick fixes – to level 3 regulation. Supervisory judgment is also important, but only if exercised under a consistent EU umbrella.

Non-Performing Loans: An Old Problem in a New Situation[31]

by Ignazio Angeloni[32]

One year has passed since the Covid-19 pandemic was discovered and recognized as such. The world economy plunged into a major recession; some areas have recovered, some are in the process of doing so while others are still deep into it. Policymakers have responded promptly with measures to protect the economy; in particular, massive support has been provided to the banking sector in the form of credit moratoria and guarantees. These measures have helped spared people, firms and banks the brunt of the crisis but have also suspended the normal functioning of the market mechanisms. As a result, the full consequences of the crisis are not visible yet. As one ECB supervisor put it to me recently, referring to eurozone banks: "we stopped the car; when we will have to start it again, we don't k now what we will find under the hood".

Virus and lockdowns impact the banks through multiple channels. The first to manifests itself is an increase in the demand for credit, as households and firms experiencing revenue shortfalls draw on their credit lines, often with the support of public guarantees. The increase in the amount of guaranteed credit is revenue-positive for the banks; this explains, for example, why 2020 was a surprisingly good year for small banks in the US[33]. This positive effect is dampened, and may even be reversed, by the reduction of lending margins

31. This draft is based on an intervention made on 11 February 2021 at the Global Annual Conference organized by the European Banking Institute in Frankfurt.
32. Harvard Kennedy School.
33. Wall Street Journal: "The best year ever: 2020 was surprisingly good to small banks", 14 December 2020. https://www.wsj.com/articles/the-best-year-ever-2020-was-surprisingly-good-to-small-banks-11607941800.

which follows from a more accommodative monetary policy. Over time, however, both of these impacts are likely to be dwarfed by the deterioration of credit quality resulting from the recession. This effect becomes evident with a considerable time lag, after the public support measures are lifted.

In the eurozone, an increase in the demand of credit was observed in early 2020. The growth rate of bank loans to non-financial firms, close to 3 percent in the pre-Covid period, rose to 5 percent in the first quarter and reached a plateau around 7 percent in the summer months[34]. Intermediation margins shrunk somewhat, due to the decline of lending rates on certain components of the loan portfolio, mainly overdrafts. By contrast, no deterioration of credit quality has been observed so far in the supervisory statistical reports. The (gross) NPL ratio for the euro area as a whole, slightly over 3 percent at the end of 2019, continued to decline, reaching 2.8 percent in September 2020[35]. However, recent surveys by the ECB suggest that this benign phase may be ending and the post-Covid "wave" of NPLs may now start[36].

Eventually, NPLs are expected to rise sharply in the eurozone. An estimate based on an adverse scenario, published by the ECB, puts the peak at 1.4 trillion euros[37], which would imply a CET1 ratio depletion of up to 5.7 percent. It is interesting to compare this estimate with the NPL increase observed after the great financial crisis (GFC). Between 2007, the last pre-crisis year, and 2013, the peak year, the NPL ratio in the euro area rose by roughly 6 percentage points, while NPLs in nominal terms increased by over 600 bn. euros. If one makes the milder assumption that NPL may rise up to 1 tn. euros, the increase relative to today's level would be comparable in magnitude to that occurred after the GFC. Under the aforementioned adverse scenario, it would be significantly greater.

34. See ECB Economic Bulletin, various issues. https://www.ecb.europa.eu/pub/pdf/ecbu/ecb~b6a4a59998.eb_annex202101.pdf.
35. ECB supervisory statistics, https://www.bankingsupervision.europa.eu/banking/statistics/html/index.en.html.
36. A. Enria, "European banks in the post-Covid world", speech given at the Morgan Stanley European Financials Conference, 16 march 2021. https://www.bankingsupervision.europa.eu/press/speeches/date/2021/html/ssm.sp210316~55c3332593.en.html.
37. A. Enria, "An evolving supervisory response to the pandemic", Speech given at the European Banking Federation, October 2020; https://www.bankingsupervision.europa.eu/press/speeches/date/2020/html/ssm.sp201001_1~ef618a5a36.en.html.

While magnitudes may be comparable, the context in which the NPLs increase occurs this time is completely different. In the GFC, the epicenter of the crisis were the banks themselves – their excessive risk taking in the earlier period and later the delays in recognizing the problem and dealing with it. Now, the banks are "victims" of an exogenous and unpredicted shock, which they are in fact contributing to mitigate. As Augustin Carstens, general manager of the BIS, put it at an early stage, banks this time are part of the solution, not of the problem[38]. And they have in fact already started doing so, by keeping credit channels open. Supervisory and regulatory measures to deal with the problem should accordingly be different.

Broadly speaking, four were the main areas of response of eurozone supervisors and regulators after the GFC, in dealing with NPLs:

1. *Supervisory action by the ECB*. ECB action was organized in a specific action plan, which included guidelines, regular and ad-hoc reviews and inspections, as well as guidelines and Pillar II requirements applied to capital and provisions;
2. *Pillar I provisioning requirements*. These requirements, embodied in EU law in 2019, are often referred to as "calendar provisioning";
3. *Accounting rules*. They relate to the way in which NPLs are quantified for accounting purposes, and were introduced in the EU as part of the new IFRS9 framework;
4. *Asset management companies (AMCs)*. Various proposals were made to establish AMCs either at national or at area-wide level, to help banks remove NPLs from their balance sheets. These proposals were extensively discussed but never implemented.

In the following sections, these areas are examined from the viewpoint of whether they can help in the new situation. The conclusion is that the two main new regulatory elements which were introduced, points 2 and 3, are no longer suited or at least would require significant adaptation. Asset management companies, at national or at area-wide level, are an interesting avenue to consider but for several reasons are not likely to become part of a realistic policy package in the foreseeable future. Traditional micro-

38. A. Carstens, "Bold steps to pump coronavirus rescue funds down the last mile", Financial Times, 29 March 2020.

supervisory tools will therefore continue to occupy center stage. The final section expands on this conclusion with some comments on how the ECB can overcome the challenge.

1. Supervisory action

ECB supervision started dealing with NPLs immediately after its inception, in 2014. It did so by launching a dedicated "action plan", which was started in 2015 and virtually completed, except for routine follow-ups, before Covid struck at the beginning of 2020. Details on the ECB NPL action plan are available from several sources[39]. For our purpose here, three aspects need highlighting.

First, the plan put major emphasis on the need for banks to maintain efficient structures to measure and monitor the state of their exposures and the debtors' ability to pay. These structures would include ad-hoc internal units able to collect all relevant information, with direct access to top management and decision-making boards. Before the ECB action plan, this was not regarded as a priority by many banks. Often, information on credit quality was not available in a systematic way and therefore boards and management were not always properly informed. As part of the action plan, the ECB requested banks to set up dedicated units in charge of monitoring loan performance, with direct reporting lines to the board, responsible also for proposing solutions for NPL disposal if needed.

This aspect remains crucial today; in fact, good internal information and governance are going to be particularly important in the post-Covid scenario. While bank exposures are provisionally protected by moratoria and guarantees, banks need to continue to maintain an updated picture of the clients' ability to pay. This is an aspect the ECB supervision has repeatedly insisted on in 2020. Using the earlier metaphor, maintaining good internal information will lower the probability of bad surprises when the "hood of the car" will be opened.

39. *ECB Guidance on Non-Performing Loans*, 2017; see https://www.bankingsupervision.europa.eu/ecb/pub/pdf/guidance_on_npl.en.pdf; and I. Angeloni, *Beyond the pandemic: reviving Europe's banking union*; VoxEU. See https://voxeu.org/content/beyond-pandemic-reviving-europe-s-banking-union.

Secondly, the ECB action plan was based on the idea that the NPL strategies should be tailored to the specific conditions of each bank. For this purpose, emphasis was placed on a constant dialogue between the teams of examiners and the bank. Their interaction would exploit the best information available on the situation of the bank's loan portfolio, in order to propose to the bank's decision makers and to the supervisory authority itself, the strategy most appropriate in each case.

Third, while tailored to the bank's specific condition, the NPL strategies should also satisfy criteria common across all supervised banks. Consistent criteria fulfil the banking union's principle of a single supervisory concept applied to all participating banks. Criteria should be not only consistent, but also transparent. Transparency, a universal principle of good governance, is also a contributor to effectiveness because policies which are well understood tend to be more easily accepted and followed.

The ECB meant to fulfil the twin requirement of consistency and transparency by announcing "supervisory expectations" regarding NPL provisioning. Banks with a significant NPL problem were asked to set-up provisioning plans within specific time frames, different across loan types. "Supervisory expectation" were not rigid rules but rather starting points of supervisory dialogues, during which specific elements could be taken on board and modifications in the provisioning calendar could be made. NPL strategies would eventually become an input in the annual supervisory reviews (Supervisory Review and Evaluation Process, or SREP[40]), thereby contributing to the determination of Pillar II requirements.

This combination of general criteria and bespoke elements helped exert the right amount of supervisory pressure while not losing sight of individual considerations. This approach was successful: the (gross) NPL ratio for the euro area declined between 2013 and 2019 from close to 7 percent to close to 3 percent, with a marked convergence across countries. The plan and the recapitalization processes that followed did not prevent, in that period, a restart of the bank lending process in the eurozone and a recovery of its economy.

40. See https://www.bankingsupervision.europa.eu/about/ssmexplained/html/srep.en.html

After the pandemic, the SREP was essentially suspended. Pillar II requirements have been kept constant except for a few specific cases. This means that the underlying conditions of the banks' exposures are no longer reflected in supervisory policies. However, the underlying approach with its blend of rule-based and ad-hoc elements remains valid; in fact, it will be particularly useful during the exit from the pandemic. At that time, bank specific conditions will be particularly important because each bank is impacted differently by the virus and the lockdowns depending on the sectoral and geographical mix of its exposures. The quantum of discretionary decisions by the supervisor is likely to increase. This raises the bar for the ECB, which will need to apply in each case the proper mix of flexibility and determination. Common principles regarding NPL disposal and provisioning plans will remain useful but will require adaptation to individual circumstances. Excessively rigid instruments (like the legal provisioning calendars discussed in the next section) are not going to be helpful.

2. Calendar provisioning

The concept of "supervisory expectation" mentioned in the previous section was initially not universally well understood. While parts of the banking community and some member countries were resisting the ECB's pressure towards cleaning balance sheets, the European Parliament objected on the legal side, arguing that supervisory expectations invaded the prerogative of legislators by being akin to general rules rather than specific risk-based requirements applied on a case-by-case basis[41].

Misunderstandings and criticisms converged in putting in motion a process leading to a legislative package dealing with NPLs, which after a long gestation entered into force in 2019[42] . The law prescribed minimum legal coverage levels for loans (so-called "prudential backstops"), with percentages

41. See letter sent to the ECB by the President of the EP on .. 2017 (https://www.politico.eu/wp-content/uploads/2017/10/Letter-to-President-Draghi.pdf).
42. See a Council summary here https://www.consilium.europa.eu/en/press/press-releases/2019/04/09/council-adopts-reform-of-capital-requirements-for-banks-non-performing-loans/. The full text is here https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0630&from=EN.

increasing with the time of non-performance (between 1 and 10 years), distinguishing among different loan categories: secured by immovable collateral, secured by movable collateral, and unsecured. The legal (Pillar I) requirement was intended to coexist with possible additional requirements set by the supervisor as part of Pillar II.

Unlike the "expectations", however, the legal requirement lacked any flexibility in responding to bank specific conditions. This may have been unfit to individual banks in some cases. More seriously, it could become inapplicable to the system as a whole in case of system-wide adverse shocks outside the banks' control – for example: a pandemic like Covid-19. Not surprisingly, the prudential backstops were de-facto suspended as a result of the entry into force of moratoria and government guarantees[43].

Even beyond the short term, the prospect of restoring the "prudential backstop" in its present form after the pandemic is questionable. Provisioning calendars enshrined in law may at times become an alibis discouraging supervisors from proactively applying Pillar II powers for the same purpose. Parameters set by law across the board, as already mentioned, may not fit individual circumstances. More seriously, in presence of certain shocks they become impossible to apply. Rules whose application is impeded by circumstances difficult to foreseen in advance lose credibility, especially when such circumstances occur.

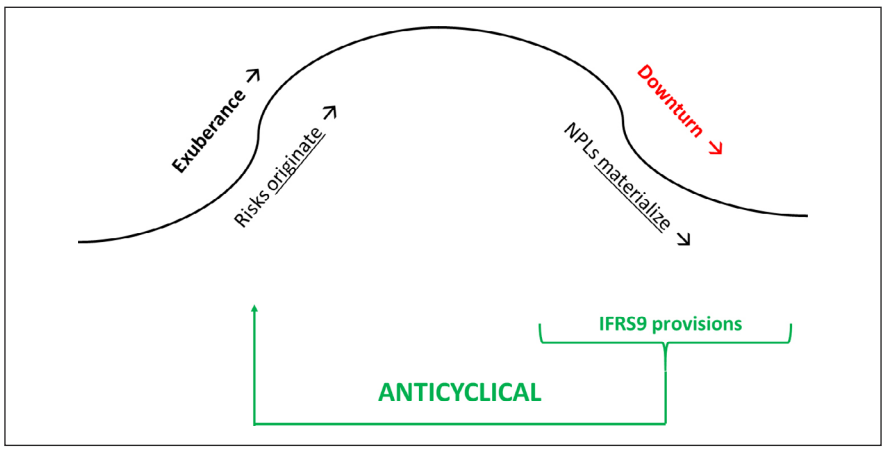
3. Accounting treatment of NPLs

As part of the reforms undertaken globally after the GFC, accounting rules for financial institutions were changed in several respects, with the aim of making financial statements responsive to changing economic conditions. Part of the amendments regarded NPLs. The underlying logic there was to make NPL recognition and provisioning no longer based on incurred (past) losses, but rather corresponding more closely to the moment in which the corresponding risks were undertaken.

43. The EU "banking package" introduced in 2020 is available here https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_757.

Fig. 1 provides a graphical representation. During normal demand-driven business cycles, risks are perceived to be low in the upswing. In this phase banks tend to undertake more risky lending (left-hand part of the curve), which normally results in NPLs later in time. If provisions are based on incurred losses, they end-up being made when the economy declines (right-hand side of the curve), hence strengthening the recession. It may then be appropriate to anticipate the provisions to match the time when risks originate. Early provisioning dampens growth in booms and stimulates it downswings. Basing provisions on the expected level of NPLs therefore exerts a desirable counter-cyclical effect.

Figure 1: Demand cycle



Following this type considerations, and consistent with the general move towards mark-to-market accounting after the crisis, new IRFS9 rules were introduced in EU law in 2016[44], effective in 2018 but with a gradual transition which foresaw a full phasing in only in 2023.

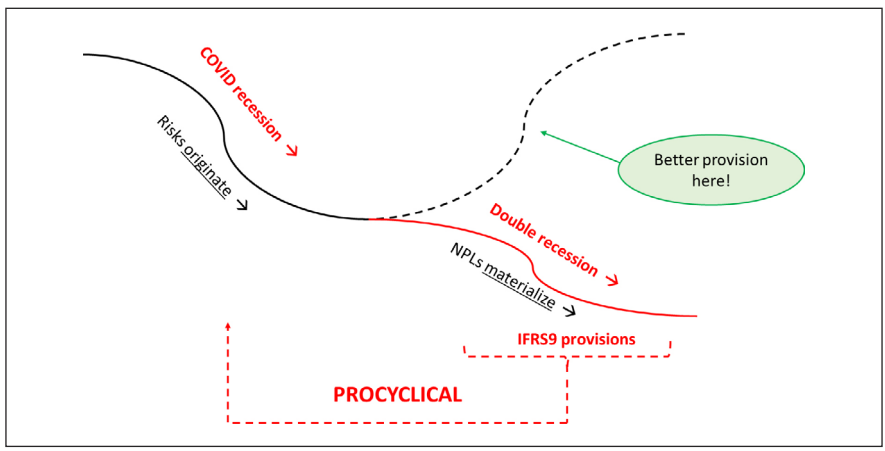
The new approach has two problems. First, it requires banks to formulate accurate expectations of their future losses. This may not be easy, not only because of the inherent uncertainty but because, as already noted,

44. Commission Regulation 2016/2067; see https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R2067.

expectations tend to be optimistic in booms and pessimistic in busts[45]. The second, more serious problem is that the logic just described applies only under the specific demand-driven cycle depicted in fig. 1.

Fig. 2 represents a different economic cycle, more similar to that occurred under Covid-19. The left side of the curve represents the time when the pandemic hits the economy with the related initial lockdowns; say, the first half of 2020. The wave of NPL is not yet manifest in that phase; it will occur later. If provisions are based on expected losses, they tend to worsen the economic cycle when it is already declining due to the pandemic shock. It is better, in this case, to delay the provisioning to a later time when the economy recovers (right side of the curve). Under this type of cyclical pattern, unlike in the previous one, traditional, backward looking NPL provisioning based on incurred losses is counter-cyclical, while that stemming from the new accounting rules is pro-cyclical.

Figure 2: COVID-19 Cycle



In 2020, the transitional regime of IFRS9 was further prolonged to take this into account. De-facto, its implementation was suspended. Once again, unexpected circumstances required suspending application of an element of the post-GFC reform program right after it was adopted.

45. See for example J. Abad and J. Suarez, "IFRS 9 and COVID-19: Delay and freeze the transitional arrangements clock"; VoxEU 2 April 2020, see https://voxeu.org/article/covid-19-and-expected-loss-provisioning.

As for the case of calendar provisioning, whether the IFRS9 rules for NPLs can be revived as such after the pandemic is questionable. The new rules are inherently fragile because of the uncertainty of loss expectations. Even abstracting from that, undesired effects arise in a variety of circumstances, as soon as one departs from the textbook case of demand-driven cycles. Well-functioning accounting rules for NPLs need to be designed in a way to respond appropriately in all circumstances, so as to be robust from a macro-prudential perspective. This is a complex question, requiring further analyses which go well beyond the limited scope of this paper.

4. Asset management companies

The idea of removing NPLs from eurozone banks and relegating them in an area-wide AMC was suggested while the ECB was still in the early phases of its NPL action plan. Though an AMC does not in itself necessarily involve mutualization of bank risks (this depends on how the scheme is designed), the proposal immediately faced opposition from some eurozone members, fearing that the proposal would allow countries with large amounts of legacy assets, preceding the launch of the single supervision, to offload part of the burden onto others.

In 2018 the Commission, fulfilling a mandate given by the Council, issued a "blueprint" with criteria for member countries willing to set up their own, national AMCs.[46] The document spelled out conditions for creating such schemes, making suggestions on various aspects including accounting, risk management, transfer pricing, impact on public finances and so on. The blueprint raised interest but as such was not applied, for several reasons. First, no explicit relaxation of state-aid criteria was included in the scheme, thereby limiting its feasibility for countries facing public finance constraints (countries with public finance problems often have also high NPL levels). Second, in the meantime the ECB supervision had advanced in its NPL action plan, and a more active secondary market for NPLs had developed. This allowed several banks in high-NPL countries to conclude important offload operations, alleviating the

46. See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2018:72:FIN.

problem in the countries concerned. In the background, there was also a perception of stigma annexed to national AMCs, whose creation may in itself signal a systemic fragility in the banking sector of the country in question.

The eurozone-wide AMC proposal was revived in 2020 by the ECB[47] and echoed by the European Commission as part of its Covid strategy[48]. The Commission proposal, however, dropped the idea of an area-wide scheme arguing instead in favor of a "network" of cooperation, of unspecified content, among national AMCs.

These new proposals, while still rather general, are of interest and should be carefully considered. An element in favor of them is that in the situation created by the pandemic the AMC solution is less prone to the criticisms that had plagued the proposal previously. NPLs derived from Covid cannot be regarded as a "legacy" of past errors by bankers or attributed to national supervisors, as had been the case in the past. These NPLs are the result of a common shock which hit all countries and was outside of their control. The underlying logic of the proposal is therefore stronger.

Yet, there are hurdles in this new proposal as well. First and foremost, the entity of the problem is not known. The wave of Covid-related NPLs has not been observed yet; we do not know when it will develop, how large it will be, how it will be distributed across countries and banks. It seems unlikely that such scheme can be agreed upon, let alone implemented, before this information is available.

Second, certain obstacles faced by the earlier proposals persist, to some extent. Even before Covid, an NPL problem still existed in certain countries and banks. Distinguishing between new, Covid-related losses and the preceding ones may not be easy in all cases. As a result, the objections raised in the past with reference to "legacy" problems may resurface. In addition, the "stigma" effect may still discourage certain countries from setting-up national schemes. The set-up of national "bad banks" could be regarded as a sign of underperformance in a broader sense, not only in dealing with banks including but also in the way the health situation has been handled or the supports to the economy have been provided.

47. A. Enria, "The EU needs its own 'bad bank'"; Financial Times, 27 October 2020.
48. "Coronavirus response: Tackling non-performing loans (NPLs) to enable banks to support EU households and businesses"; 16 December 2020. See https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2375.

5. Conclusions

The wave of NPLs expected to develop in the eurozone as a consequence of Covid-19, while perhaps not too different in size from to the one observed after the financial crisis, is different in nature and will therefore require different remedies. Predictions are premature, because the phenomenon has not been observed yet. But it is already possible to make some reasoned conjectures on whether the regulatory tools put in place after the earlier crisis are going to be helpful in the new situation.

The two main regulatory instruments introduced before the pandemic in the eurozone's Pillar I structure for tackling the NPL problem, namely, the so-called "calendar provisioning" and the new accounting principles based on expected losses, are not suitable to deal with the new situation. Even prospectively, after the pandemic will be overcome, their usefulness in their present form is questionable, because either they are excessively rigid, or excessively sensitive to uncertainty, or both. Conversely, the proposals to create AMCs, at national or supranational level, are valid but cannot be seriously considered before the dimension of the post-Covid NPL problem is known.

Absent these, traditional micro-supervisory instruments will continue to play a key role. One more time, the responsibility of cleaning eurozone banks from their NPLs will be predominantly fall on ECB supervision. Pillar II powers will have to be applied flexibly, depending on the conditions of individual banks. But when the moment comes, supervisory pressure should be exerted with determination, using all the independent power that the law and the statutes accord to the single supervision. Not an easy task; but the ECB has the instruments and the expertise necessary to carry it out.

Bank Lending to Euro Area Firms What Have Been the Main Drivers During the COVID-19 Pandemic?[49]

by Matteo Falagiarda[50] and Petra Köhler-Ulbrich[51]

1. Introduction

The coronavirus (COVID-19) pandemic had a strong impact on firms' business plans and financing needs. In view of the importance of bank borrowing as a source of financing for euro area non-financial firms,[52] the banking sector has played a key role in facilitating the flow of credit to the corporate sector during the COVID-19 pandemic. This role has been crucially supported by the sizeable support measures by monetary, fiscal and supervisory authorities, which have so far acted as a backstop against the risk of an adverse feedback loop between the real and financial sectors. This article discusses the main drivers of bank lending to euro area firms during the pandemic. Understanding the relative role of credit supply and demand forces as well as the impact of the various policy measures is crucial for policy makers in order to draw appropriate conclusions with respect to the effectiveness of the implemented measures and the possible need for further action. Against this background, the article first focuses on the early stages of the pandemic, when acute emergency liquidity needs arising from the lockdown measures were satisfied by bank borrowing at very favourable conditions. Then, it examines bank lending dynamics in the second phase of the pandemic, which was

49. The views expressed in this paper are those of the authors and do not necessarily reflect the views of the European Central Bank or the Eurosystem.
50. European Central Bank.
51. European Central Bank.
52. For more details on bank lending to euro area firms in recent years, see Adalid et al. (2020).

characterised by abating liquidity needs, a continuation of the policy support measures, but also by the emergence of pressures on bank intermediation due to intensifying concerns about the deterioration of borrowers' creditworthiness. The article concludes by highlighting some of the risks to banks' credit intermediation capacity in the near future.

2. The first phase of the COVID-19 crisis: emergency liquidity needs met by favourable bank lending conditions amidst ample policy support

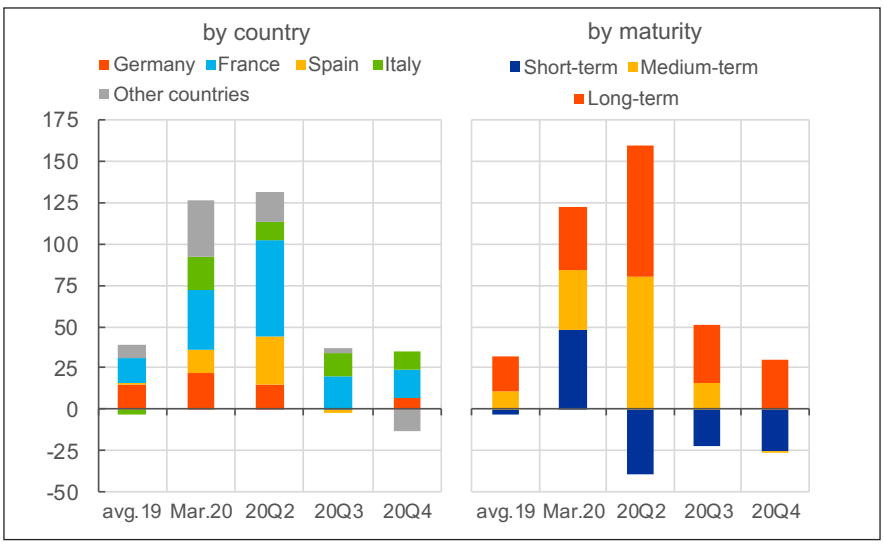
In the first months of the pandemic, the unprecedented nature of the shock led to a marked increase in bank lending to euro area firms. Demand from firms for bank loans soared to record levels in most euro area countries from March to May 2020 as firms scrambled to bridge liquidity gaps originating from the COVID-19 shock (Chart 1, left panel, and Chart 1A in the Appendix). This increase in demand was driven by a decline in the capacity of firms to finance their ongoing costs via operating cash flows, owing to a sharp fall in their revenues during the lockdown period in the first half of 2020. This situation resulted in acute liquidity needs to finance working capital, as also indicated in the euro area bank lending survey (BLS) (Chart 2)[53]. Moreover, in a context of high uncertainty, firms drew their credit lines and applied for new loans, often with government guarantees, with a view to building up precautionary liquidity buffers, as suggested by the same survey (Chart 2A, left panel). This is also visible in the exceptionally large accumulation of bank deposits by firms in the first months of the pandemic (Chart 2A, right panel). The aggregated balance sheet of the corporate sector reveals that firms overcompensated the large decline in revenues with an even larger recourse to bank loans and market-based financing.

In March 2020, acute emergency liquidity needs were mainly satiated by the recourse to short-term loans by drawing down previously agreed credit lines. In later months, the substantial lending flows largely reflected the use of medium- and long-term loans (Chart 1, right panel), maturities which were typically backed by the public guarantee schemes implemented since April 2020 in most euro area countries. The flat yield curve, the perceived longer duration of the pandemic and the ensuing high degree of uncertainty have also contributed to the increase in

53. The euro area bank lending survey (BLS) provides information on bank lending conditions in the euro area. It supplements existing statistics with information on the supply of and demand for loans to enterprises and households. The BLS is conducted four times a year, and published in January, April, July and October. For more details see Köhler-Ulbrich et al. (2016) and ECB (2021).

firms' demand for long-term borrowing. This maturity shift mitigated firms' rollover and liquidity risks that would have intensified had the new loans been granted in the form of short-term commitments. The increase in the demand for long-term loans contrasts with historical regularities, as acute liquidity needs for working capital are typically associated with higher demand for short-term loans, while long-term loans are used to finance fixed investment projects (Chart 3A).[54] In fact, as indicated by the BLS, in contrast with firms' financing needs for working capital, those for fixed investment declined sharply in the first half of 2020 (Chart 2),[55] mirroring the steep fall in business investment, which reflected either a reduction or a postponement of capital expenditure by firms, driven by the need to compensate revenue losses in a context of elevated uncertainty.

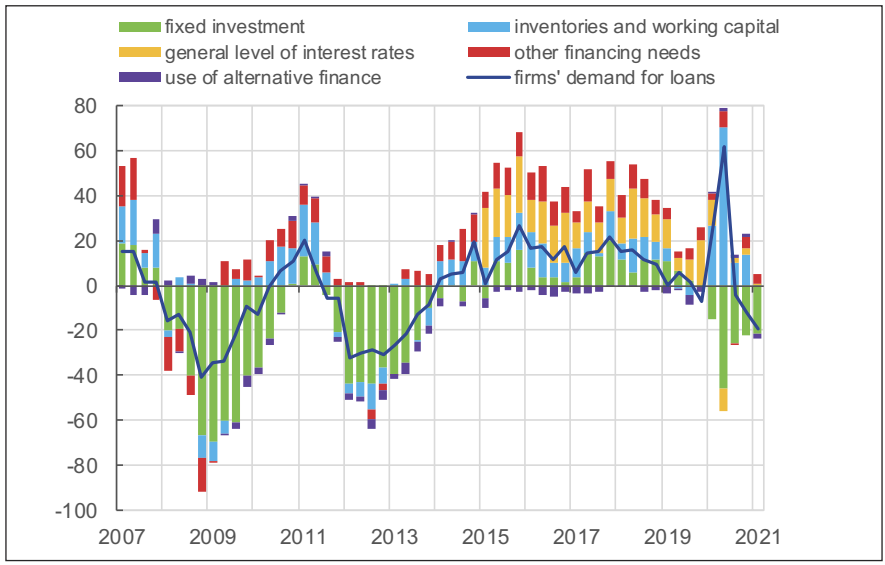
Chart 1. Bank loans to firms (flows in EUR bn)



Source: ECB (BSI) and authors' calculations.
Notes: (lhs panel) Bank loans to non-financial corporations adjusted for sales, securitisation and cash pooling activities. The term "Other countries" includes flows to other euro area countries as well as seasonal adjustment residuals to preserve the additivity to the total euro area flows. The term "avg.19" refers to the quarterly average flow recorded in 2019. (rhs panel) Bank loans to non-financial corporations non-adjusted for sales, securitisation and cash pooling activities. The term "avg.19" refers to the quarterly average flow recorded in 2019.

54. For more details on the drivers of firms' loan demand in the euro area during the pandemic, see Falagiarda et al. (2020a).
55. The fact that firms have used external financing mainly for inventories and working capital and less for fixed investment is confirmed by the Survey on the Access to Finance of Enterprises (SAFE) in the euro area. The SAFE provides information on the latest developments in the financial situation of enterprises, and documents trends in the need for and availability of external financing. The survey is conducted twice a year. For more details, see Bańkowska et al. (2020), ECB (2020) and Ferrando and Ganoulis (2020).

Chart 2. Changes in demand for loans to firms and contributing factors (net percentages of banks)



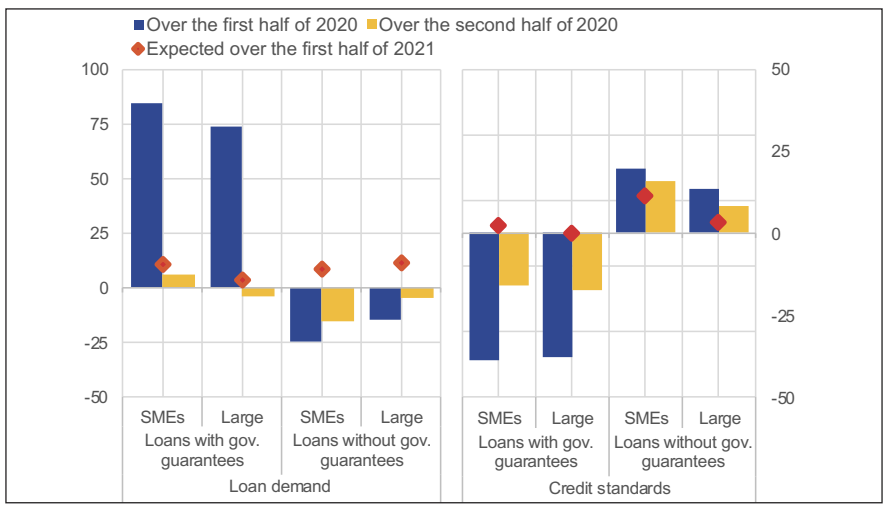
Source: ECB (BLS).
Notes: Net percentages are defined as the difference between the percentages of banks reporting an increase (contribution to an increase) and the percentages of banks reporting a decrease (contribution to a decrease). "Other financing needs" are an unweighted average of "M&A and corporate restructuring" and "debt refinancing/restructuring and renegotiation"; "use of alternative finance" is an unweighted average of "internal financing", "loans from other banks", "loans from non-banks", "issuance/redemption of debt securities" and "issuance/redemption of equity". "General level of interest rates" was introduced in 2015 Q1.

COVID-19-related concerns about physical contact and the concomitant lockdown policies caused a large loss of value added in trade, transport, accommodation and food service activities. Strict lockdowns, a lack of demand, interruptions to supply chains and high uncertainty also spilled over into large segments of the manufacturing sector. A comparison of financing needs across sectors shows that the increase in corporate lending in the first half of the year had been highest in these sectors, the hardest hit by the COVID-19 pandemic (Chart 4A), pointing to acute liquidity needs for firms in these segments. Firms in less affected sectors have also increased their borrowing in the first half of 2020, with a view to building up precautionary liquidity buffers in an environment of high uncertainty. Developments in sectoral activity are broadly in line with the evidence from the BLS, according to which, in the first half of the year, loan demand increased considerably in the manufacturing sector, services sector (excluding financial services and real estate) and wholesale and

retail trade sector (Chart 5A). Loan demand increased less in the construction sector, and more particularly in the real estate sector, where firms were less affected by the crisis. This can be attributed to the lower labour intensity and fixed costs of real estate activities, which resulted in smaller liquidity needs during the lockdown period in the first half of 2020.

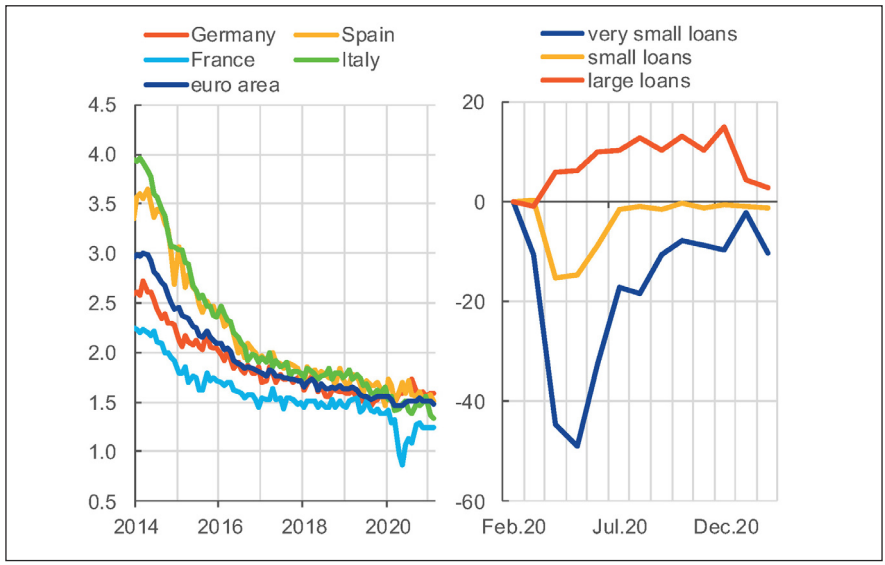
A comparison across firm sizes shows that the surge in bank borrowing recorded in the first half of 2020 was more pronounced for small and medium-sized enterprises (SMEs) than for large firms. SMEs have benefited substantially from policy support measures for bank lending, such as the TLTRO III operations, as well as from public loan guarantees, which are typically targeted to this specific group of firms (see below for a more detailed discussion of the policy measures). In particular, the take-up of guaranteed loans has been significantly higher for SMEs and the self-employed than for large firms, reflecting their relatively larger emergency liquidity needs, smaller liquidity buffers, their greater dependence on banks for financing compared with large firms and overall easier and fast-track procedures in the provision of guaranteed loans for smaller amounts. The BLS confirms that the increase in the demand for loans (and, in particular, guaranteed loans) in the first half of 2020 was higher for SMEs than for large firms (Chart 3, left panel).

Chart 3. Changes in firms' demand and credit standards for loans with and without government guarantees (net percentages of banks)



SourceSource: ECB (BLS).
Notes: (lhs panel) Net percentages are defined as the difference between the percentages of banks indicating an increase and the percentages of banks indicating a decrease; (rhs panel) net percentages are defined as the difference between the percentages of banks indicating a tightening and the percentages of banks indicating an easing.

Chart 4. Bank lending rates on new loans to firms (lhs panel: percentages per annum; rhs panel: basis point changes since February 2020)



Source: ECB (MIR).
Notes: (rhs panel) Very small loans are loans up to Eur 0.25 million, small loans are loans of more than Eur 0.25 million and up to Eur 1 million and large loans are loans of more than Eur 1 million.

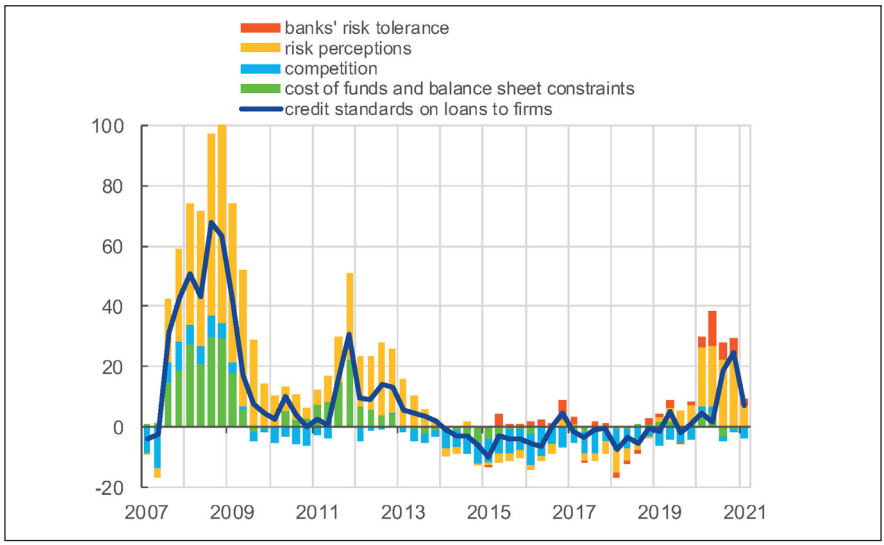
The surge in the demand for loans by euro area firms in the initial period of the pandemic was met by historically low bank lending rates and favourable bank lending conditions.[56] This is especially important in a strongly bank-based financial system like the euro area. Bank lending rates charged on loans to euro area firms have declined significantly in the first half of 2020, reaching new historical lows in many euro area countries (Chart 4).[57] The decline in rates was concentrated on those charged on very small loans, suggesting that SMEs benefitted the most from the favourable financing conditions over this period. At the same time, credit standards (i.e. banks' internal guidelines for their lending policies or loan approval criteria) for loans to firms, both to large

56. For more details on bank lending conditions for euro area firms in recent years, see Burlon et al. (2019).
57. Among the large euro area countries, very low interest rates have been recorded in France, reflecting the very favourable pricing conditions of guaranteed loans, the take-up of which was very large in second quarter of 2020. Notwithstanding the decline in euro area nominal lending rates, the disinflationary nature of the COVID-19 shock has put upward pressure on real lending rates, which have increased somewhat in 2020.

firms and to SMEs, tightened slightly in the first quarter of 2020, when support measures were still on their way and uncertainty was exceptionally high, but remained broadly unchanged at the euro area level in the second quarter when such measures were implemented (Chart 5). While some sectors were more affected than others (Chart 5A), banks' credit standards remained overall beneficial across sectors in the first half of 2020. Given the size of the pandemic shock, the continuation of favourable bank lending conditions was remarkable and very much in contrast with developments during the global financial and sovereign debt crises.

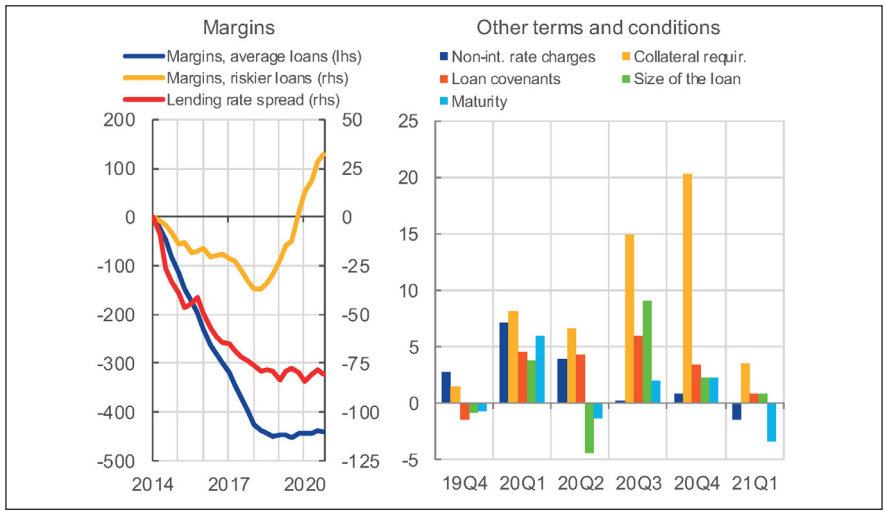
This notwithstanding, banks already indicated in the first half of 2020 increased concerns about economic developments, industry-specific risks and borrowers' creditworthiness for their lending policy, as reflected in the tightening impact of risk perceptions on their credit standards as well as in the tightening impact of banks' risk tolerance (Chart 5). At the same time, banks' balance sheet situation did not have a tightening impact, reflecting the persistent positive impact of pre-crisis improvements in the resilience of bank balance sheets as well as the effective policy support. In particular, following the global financial and sovereign debt crises, banks stepped up their capitalisation, partly related to stricter supervisory and regulatory requirements. In addition, banks, in particular in some jurisdictions, have cleaned their balance sheets and reduced their share of non-performing loans. This is a noticeable difference to the financial and sovereign debt crises, during which banks' balance sheets constraints were a relevant factor in the tightening of bank lending conditions.

Chart 5: Changes in credit standards on loans to firms and contributing factors (net percentages of banks)



Source: ECB (BLS).
Notes: Net percentages are defined as the difference between the percentages of banks reporting a tightening and the percentages of banks reporting an easing. "Cost of funds and balance sheet constraints" are an unweighted average of "cost related to capital position", "access to market financing" and "liquidity position"; "risk perceptions" are an unweighted average of "general economic situation and outlook", "industry or firm-specific situation and outlook/borrower's creditworthiness" and "risk on collateral demanded"; "competition" is an unweighted average of "bank competition", "non-bank competition" and "competition from market financing". "Risk tolerance" was introduced in 2015 Q1.

Chart 6: Terms and conditions on loans to firms (left panel: cumulated net percentages of banks and cumulated basis points; 2014Q2=0; right panel: net percentages of banks)



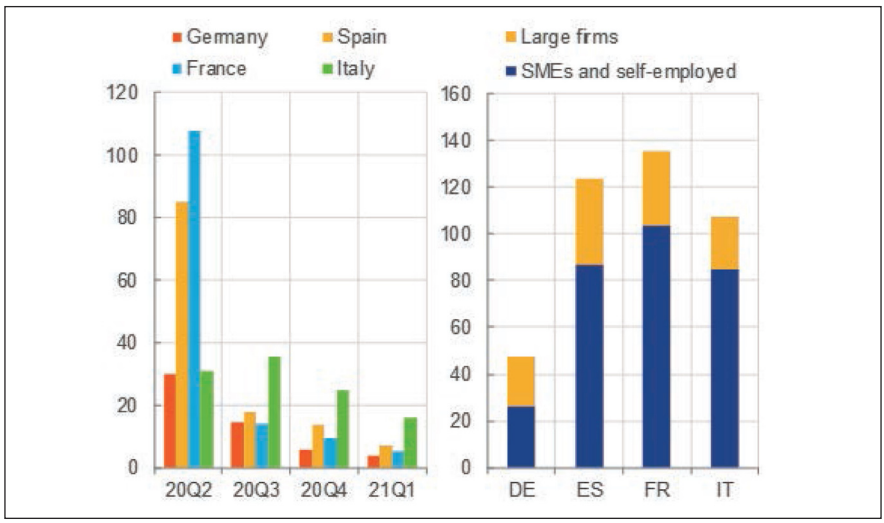
Source: ECB (BLS and MIR).
Notes: Net percentages are defined as the difference between the percentages of banks indicating a tightening and the percentages of banks indicating an easing. "Margins" are defined in the BLS as the spread of lending rates over a relevant market reference rate; a widening of margins is defined as a tightening. The cumulated lending rate spread refers to the composite lending rate for firms minus 3-month OIS.

The benign developments in banks' credit standards in the first half of 2020 were consistent with banks' actual credit terms and conditions, as agreed between banks and borrowers in the loan negotiation process. In line with historically low bank lending rates and squeezed spreads of bank lending rates over market reference rates, margins on average loans remained narrow in the first half of 2020, while they tightened for riskier loans (Chart 6). Over the same period, non-price terms and conditions tightened slightly. A comparison across firm sizes indicates that terms and conditions applied by banks on loans to SMEs were reported to have developed more favourably than for large firms in the first half of the year (Chart 6A), in line with actual lending rate developments. This evidence confirms that SMEs, which generally tend to be more at risk of becoming credit constrained during crisis periods, benefitted the most from the supportive lending conditions engendered by the strong policy response to the COVID-19 crisis.

In the first half of 2020, bank lending conditions for euro area firms remained beneficial in spite of the unprecedentedly large demand for loans

and the deteriorating creditworthiness of many borrowers. This evidence points to the effectiveness of the response by monetary policy, fiscal policy and supervisory authorities to the COVID-19 crisis. Besides their direct impact on lending, these policies also provided assurance to the private sector on forceful counter-measures, thereby reducing overall macroeconomic uncertainty.

Chart 7. Take-up of loans covered by COVID-19-related public guarantees (EUR bn)



Sources: National authorities and authors' calculations.
Notes: The take-up data refer to approved amounts of guaranteed loans. As guaranteed loans can also be granted in the form of revolving credit facilities, the approved amount is higher than the amount actually disbursed. In the absence of a breakdown by firm size for Italy, it is assumed that guaranteed loans to SMEs are those granted via the Fondo di Garanzia, while guaranteed loans to large firms are those granted via SACE (the Italian export credit agency).

The monetary policy accommodation introduced by the Eurosystem in response to the crisis supported considerably euro area firms' financing conditions. First, under the Pandemic Emergency Purchase Programme (PEPP) announced in March 2020, the ECB's asset purchases were expanded and made more flexible by allowing fluctuations in the distribution of purchases over time, across asset classes and among jurisdictions. The PEPP, by impacting yields across the maturity spectrum, exerted significant downward pressures on lending rates. Second, the ECB's targeted longer-term refinancing operations (TLTRO III) have offered attractive bank funding conditions, which

banks passed on to their customers, thereby facilitating bank lending to euro area firms during the pandemic[58]. Third, the ECB introduced temporary collateral easing measures in April 2020. These measures eased the conditions at which credit claims are accepted as collateral in the liquidity providing operations of the Eurosystem and facilitated the availability of eligible collateral to support the provision of credit via the Eurosystem's refinancing operations[59]. Fourth, the ECB's negative interest rate policy (NIRP) contributed to historically low lending rates, thereby supporting bank lending.[60] Overall, according to banks' assessment, the ECB's monetary policy measures contributed positively to an increase in lending volumes and an easing of bank lending conditions during the COVID-19 period (Chart 7A).[61]

Besides monetary policies, also other policy domains provided critical support to the credit provision to euro area firms. The microprudential policy response to the crisis has provided important capital relief for banks, which created further space for bank balance sheet expansion. National fiscal policies have also been instrumental in providing liquidity support, thereby averting so far a potential wave of corporate bankruptcies. Schemes of public guarantees on bank loans were implemented by most euro area governments in April 2020 in order to help banks accommodate the surge in loan demand at favourable conditions. These programmes transferred some of the credit risk (in some cases the entire credit risk) and potential credit losses from banks to governments, thereby mitigating the costs for banks.[62] The window for applying for loans covered by guarantee schemes was initially set to close at the end of 2020. In addition, public and private moratoria were introduced in

58. The TLTRO III recalibrations in March and April 2020 increased further the attractiveness of the TLTRO III. Altavilla et al. (2020) show that banks' ability to supply credit would have been severely affected during the first phase of the pandemic in the absence of the funding cost relief associated with TLTRO III.
59. Among other things, the eligible collateral was expanded to include very small loans and loans covered by COVID-19-related public guarantees.
60. The NIRP has proven to be effective in easing financing conditions for euro area firms. For more details, including a discussion on the channels through which the NIRP may impact bank loan provision, see Boucinha and Burlon (2020).
61. Other measures implemented by the ECB as a response to the COVID-19 crisis included a recalibration of the Asset Purchase Programme (APP) and the pandemic emergency longer-term refinancing operations (PELTROs).
62. The features of the loan guarantee schemes vary across countries but they must all comply with the guidelines adopted by the European Commission (see Section 3.2 of the Communication from the European Commission on the "Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak"). For more details on COVID-19-related guarantee schemes in euro area countries, see Albertazzi et al. (2020), Falagiarda et al. (2020b) and Anderson et al. (2021).

most euro area countries to provide short-term relief through the suspension of principal and/or interest payments on loans.[63] These schemes avoided that loans to solvent corporates became non-performing due to temporary liquidity needs to bridge the pandemic.

Public loan guarantee schemes have played a key role in supporting corporate lending dynamics in the second quarter of 2020, thereby contributing to the surge in loan demand provided at favourable lending conditions to firms, as described above. The substantial lending flows recorded over this period largely reflected the take-up of loans covered by public guarantees, most of which were granted to SMEs (Chart 7). Gross flows of guaranteed loans were higher than overall net lending flows in all large euro area countries, implying a shift from non-guaranteed loans into guaranteed loans. Moreover, lending dynamics were proportionally stronger in countries with a higher take-up of guaranteed loans, such as Spain and France. In these two countries, where fiscal support for firms was delivered mainly via guarantee schemes, more than 60% of new business volumes in the second quarter of 2020 consisted of guaranteed loans. The impact of loan guarantee schemes was also reflected in the favourable developments of bank lending conditions. First, guarantees crucially contributed to the drop of lending rates to historically low levels, especially for small loans, the ones typically backed by these programmes. Moreover, they exerted considerable easing pressures on credit standards (Chart 3, right panel) and credit terms and conditions, particularly in the countries where the use of this type of loans was the largest.

3. The second phase of the COVID-19 crisis: liquidity needs abated, while incipient signs of tighter credit supply counteracted by continued policy support

As the spread of COVID-19 temporarily decelerated and lockdown restrictions were relaxed in mid-2020, activity started to rebound and firms' sales recovered. Firms' demand for credit started to abate correspondingly (Chart 1, left panel, and Chart 1A), also dampened by the significant

63. These schemes were compliant with the guidelines of the European Banking Association (EBA).

precautionary liquidity buffers built-up over the period from March to May 2020. The marked moderation in bank borrowing by firms over the summer of 2020 was also reflected in the diminished demand for loans benefitting from a public guarantee (Chart 7, left panel). In the last quarter of 2020 and at the beginning of 2021, bank lending to firms stabilised at modest levels, in spite of the resurgence of the pandemic and the associated tightening of containment measures. The absence of a large surge in emergency borrowing reflected available liquidity buffers and direct government support measures, which shielded firms in affected sectors in an environment of renewed revenue shortfalls. In addition, at the aggregate level, the second and third waves of COVID-19 infections and the resultant containment measures have not been as disruptive to firms' sales and operating cash flows as during the first wave. This is because some economic sectors were less affected, partly as they profited from the recovery of the global economy. In addition, firms and customers seem to have adapted better to the new environment.[64] At the same time, loan demand continued to be dampened by the high uncertainty, especially for financing fixed investment in the sectors more affected by the pandemic. The use of other sources of financing by large firms in less affected sectors also weighed on loan demand over this period. Finally, some firms may have also become more reluctant to take on more bank debt because they might have had accumulated already significant amounts of debt.

In the second half of 2020, longer-term loans continued to support lending dynamics (Chart 1, right panel), reflecting their coverage under guarantee schemes and the flat yield curve. While the increase in corporate lending in the first half of the year had been highest in the sectors hardest hit by COVID-19, the deceleration in the second half of the year has been broad-based across activities (Chart 4A). In addition, bank lending dynamics displayed increasing heterogeneity across countries. Positive lending flows were recorded in France, Italy and to a lesser extent Germany, while net redemptions were recorded in Spain. In Italy, lending to firms continued to reflect the take-up of loans benefitting from a public guarantee. In this country, net lending was also supported by moratoria on loan repayments (i.e. implying temporarily less loan redemptions), as the usage of these schemes continued to be larger than in other countries.

64. For more details, see Battistini and Stoevsky (2021).

The moderation in bank lending dynamics observed since the summer of 2020 is confirmed in the BLS by a net decline in firms' loan demand for the second half of 2020 and the first quarter of 2021, following the highest net balance ever recorded in the second quarter of 2020 (Chart 2). The net decline in loan demand was somewhat stronger for SMEs than for large firms, especially for non-guaranteed loans. In line with lower emergency liquidity needs and existing liquidity buffers, banks reported during this period overall lower financing needs for inventories and working capital than in the first half of 2020. Still, liquidity needs and precautionary buffers continued to be relevant factors for firms' demand for loans with public guarantee (Chart 2A, left panel). Importantly, firms' financing needs for fixed investment continued to dampen loan demand, suggesting that firms' long-term business plans have been put on hold due to the high uncertainty, especially in sectors more affected by the pandemic, which may postpone a sustained recovery.

After declining significantly since the outbreak of the COVID-19 pandemic, bank lending rates on loans to euro area firms have rebounded but remained around record lows in the second half of 2020 and in the first months of 2021 (Chart 4). Lending rates on very small loans displayed a marked U-shaped pattern, characterised by an increase since May 2020 that has been almost equally steep as the prior decline. This mirrors the developments in the use of guaranteed loans, the majority of which were granted to SMEs at very attractive conditions. Overall, the developments in lending rates support the view that the deceleration in credit dynamics observed in the second half of 2020 was largely driven by the reversal of the extraordinarily high demand for loans seen in the early stages of the crisis.

Despite bank lending rates remaining around historically low levels, banks became overall less forthcoming in their attitude towards credit expansion in the second half of 2020. Credit standards on loans to firms tightened both in the third and fourth quarters of 2020 (Chart 5). This was the first significant tightening in the last eight years and was above the historical average since 2003, while remaining considerably below the peak during the great financial crisis. It also remained below the euro area peak during the sovereign debt crisis, where only some countries were affected. The tightening of credit standards was driven by heightened concerns of banks about intensifying risks to borrowers' creditworthiness and possible loan losses in the future, in

particular in the sectors most affected by the pandemic. The tightening was stronger in the commercial real estate and in the trade sectors, while the services sector (that covers both those businesses which suffered and those which profited from the pandemic) and manufacturing were somewhat less affected (Chart 5A). Construction and residential real estate sectors were the least affected from tightening credit standards in the second half of 2020, reflecting the resilience of residential real estate markets to the COVID-19 shock. In the first quarter of 2021, a less pronounced tightening of credit standards was reported by banks in net terms, on account of a smaller contribution of risk, both in terms of perceived risk and risk tolerance of banks. This likely reflected the prolongation of fiscal support measures, the continued support from monetary policy and supervisory measures and the broader improvement in risk sentiment in the first quarter of 2021. Still, risk perceptions related to the economic and firm-specific situation and outlook continued to be the main factor contributing to the tightening of credit standards on loans to firms.

In line with the reduced use of guaranteed loans, the easing impact of these loans on credit standards was more limited during this period than in the first half of 2020 (Chart 3, right panel), while credit standards continued to tighten for non-guaranteed loans. In addition, in the fourth quarter of 2020, the tightening of credit standards became somewhat stronger for SMEs than for large firms, on account of a stronger net tightening of credit standards for non-guaranteed loans to SMEs, despite the continued presence of ample policy support, often tailored specifically towards SMEs. While this development became less acute in the first quarter of 2021, it may nonetheless signal that banks consider credit risks for SMEs being larger, in line with typical patterns of higher risks for SMEs being credit constrained given their more opaque balance sheets due to lower and later reporting requirements.

During past episodes of stress, the BLS indicator of credit standards has proved to be a reliable harbinger of future weakness in bank credit. Historical regularities suggest that credit standards tend to lead lending to corporates by around five quarters (Chart 8A). At the same time, the predictive information content of credit standards tends to be state-contingent, as it emerges more prominently in periods of stress. This is because, over these periods, a significant tightening in credit standards is typically associated with binding

supply constraints. However, unlike previous crisis episodes, the net tightening of credit standards for loans to firms in the second half of 2020 and in the first quarter of 2021 was not accompanied by a tightening contribution of banks' cost of funds and balance sheet constraints (which in fact had overall an easing impact in this period), a factor historically associated with worsening credit supply conditions. This reflected the more resilient state of the banking system, compared with the great financial and sovereign debt crises, as well as the policy response to the pandemic, which has been much more proactive than in prior crisis episodes. Both factors have been key to mitigating the adverse supply pressures originating from deteriorating risk perceptions.

At the same time, the favourable lending rate developments observed since the summer of 2020 might have concealed compositional effects, arising from a shift of new loans to lenders with a better credit risk profile as well as changes in the non-price terms and conditions of loans. Reflecting banks' increased concerns about the riskier loan segments, margins on riskier loans widened further in the second half of 2020 and in the first quarter of 2021 (Chart 6, left panel). Banks also intensified their tightening of non-price terms and conditions, in particular their collateral requirements (Chart 6, right panel), which reached in the last quarter of 2020 a level unseen since 2011 (although remaining well below the peak during the global financial crisis). This indicates that banks aimed to protect themselves against higher credit risks by demanding the pledging of assets as security. On more general grounds, banks often tend to adjust their non-price terms and conditions when they perceive higher credit risk, as this provides an opportunity, compared with changing the pricing of the loans, to reduce potential adverse selection issues in lending. Consistent with this, a comparison across firm sizes shows that bank lending policies, in particular as regards collateral requirements and margins on riskier loans, tended to become stricter especially for SMEs in the last quarter of the year (Chart 6A). This evidence confirms that banks' attitude towards SMEs may have become more cautious.

Banks' concerns about firms' debt servicing and repayment capacity and possible loan losses were also reflected in their indications on the impact of non-performing loans (NPL) on their bank lending conditions. Following a modest impact of NPL ratios on banks' credit standards in 2018 and 2019, the impact has increased in the course of 2020 (Chart 9A). At the same time, euro

area banks' actual NPL ratios remained broadly stable. Nevertheless, actual NPL developments should not be interpreted as a reassuring sign of unchanged credit risk on banks' balance sheets. First, according to the accounting procedure of NPLs, loans are considered as non-performing only if borrowers do not meet their agreed repayment arrangements for 90 days or more. Second, support measures such as moratoria on loan repayments have contributed to delays in NPL recognition, although credit risk was already materialising. The phasing out of these schemes could lead to an increase in NPLs. In fact, euro area banks have built up their provisions for loan losses, dampening bank profitability in the second half of 2020. The surfacing of new NPLs may constitute an important headwind to banks' intermediation capacity in 2021.

In order to prevent the emergence of bottlenecks in the provision of bank financing resulting from the economic fallout from the resurgence of the pandemic, policy support measures were prolonged and in part recalibrated in the second half of 2020 and in the first half of 2021.

On the monetary policy side, the ECB announced in December 2020 various measures, including: (i) a recalibration and prolongation of TLTRO III with the aim of preserving favourable funding conditions for banks and further incentivise their lending to the real economy, (ii) an increase of the envelope of its asset purchases under the PEPP, and (iii) an extension of the duration of the set of collateral easing measures adopted at the onset of the crisis.

Similarly, on the fiscal side, support measures were extended into 2021. After being phased out in September 2020, EBA's guidelines on moratoria were reactivated in December 2020. Besides setting the new deadline for application at the end of March 2021, a cap of nine months to the length of payment extension was introduced in order to mitigate the risk faced by banks. In addition, following the prolongation of the Temporary Framework for state aid measures by the European Commission in October 2020, the window for applying for loans covered by guarantee schemes has been extended by an additional six months until the end of June 2021 in most euro area countries. Some governments also loosened conditions on the original guarantee schemes, e.g. in the form of longer maturity and grace periods for repayments, or proposed programmes of participative loans. These loans will be still granted by banks and guaranteed by the state, but will be treated as equity, thereby improving firms' debt position. Finally, in view of the persistence of

the pandemic, in January 2021 the European Commission extended for additional six months until the end 2021 the Temporary Framework for state aid measures.[65]

4. Concluding remarks

The vigorous and prompt policy response to the COVID-19 shock has been key to keeping bank lending conditions favourable in the euro area, thereby supporting the financing of firms. While the anatomy of the moderation in bank lending dynamics since the summer of 2020 points to a preponderance of demand-side factors, incipient signs of tighter credit supply conditions have emerged. Moreover, the uncertainty surrounding the evolution of the pandemic and related containment measures continued to weigh on firms' demand for financing fixed investment, especially in the sectors more affected by the pandemic. In this environment, the expected further deterioration of the balance sheet health of borrowers and lenders may pose risks of adverse financial amplification effects. The continuation of a supportive policy environment will thus be crucial for staving off the risk of a deterioration in credit supply conditions. This would also improve the confidence that firms need in order to engage in long-term investment projects, on which a sustained recovery in economic activity depends.

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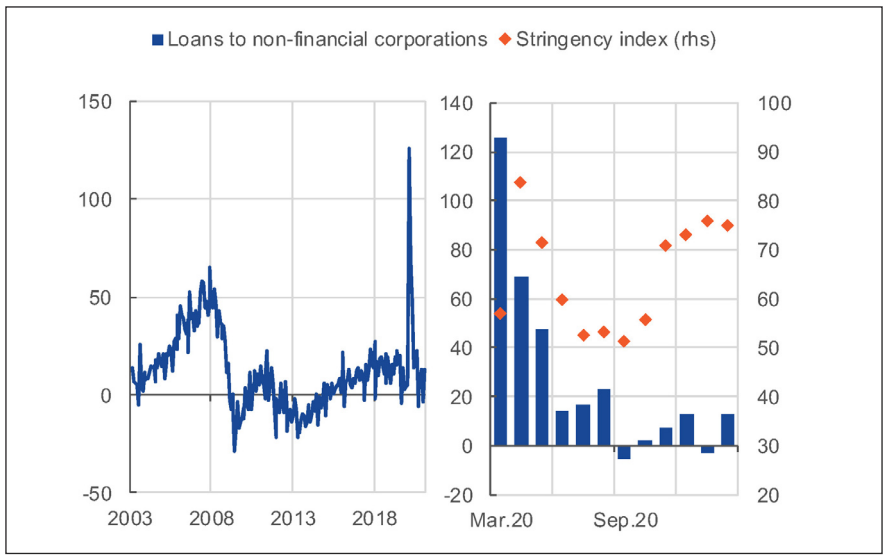
APPENDIX

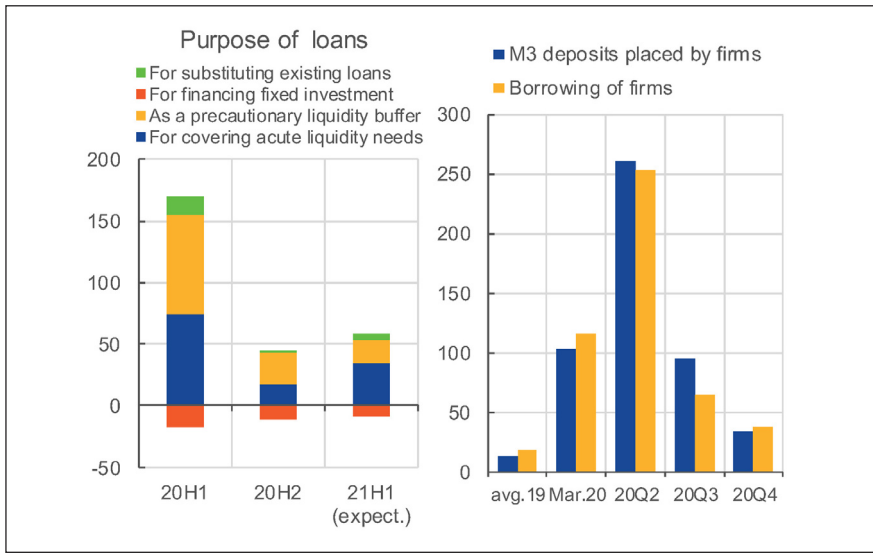
Bank Lending to Euro Area Firms - What Have Been the Main Drivers During the COVID-19 Pandemic?

Chart 1A. Bank loans to firms (lhs panel: monthly flows in EUR bn; rhs panel: monthly flows in EUR bn, index)



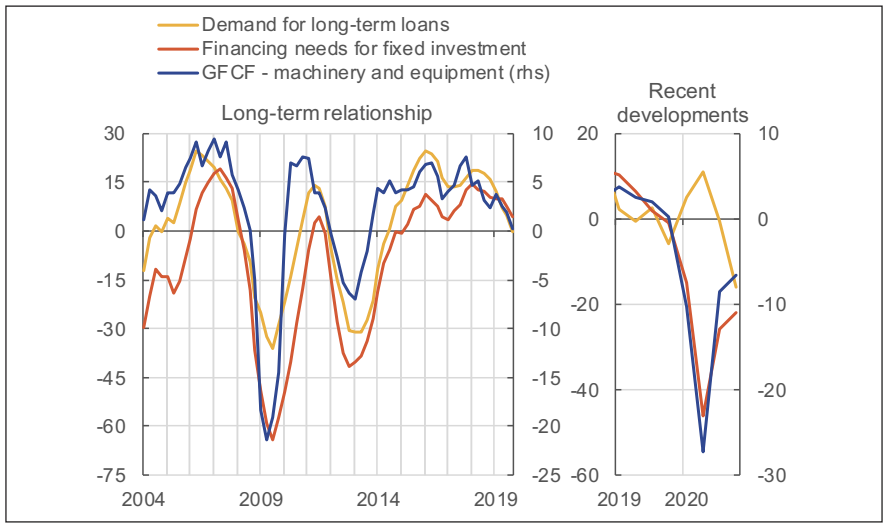
Source: ECB (BSI), University of Oxford and authors' calculations.
Notes: Bank loans adjusted for sales, securitisation and cash pooling activities. The stringency index is a composite index produced by the University of Oxford that captures the strength of government restrictions on social and businesses in response to COVID-19. The index for the euro area is the GDP-weighted average of the indexes for individual euro area countries. A level of 100 denotes the maximum level of restrictions.

Chart 2A. Purpose of loans and firms' deposit inflows (lhs panel: net percentages of banks; rhs panel: flows in EUR bn)



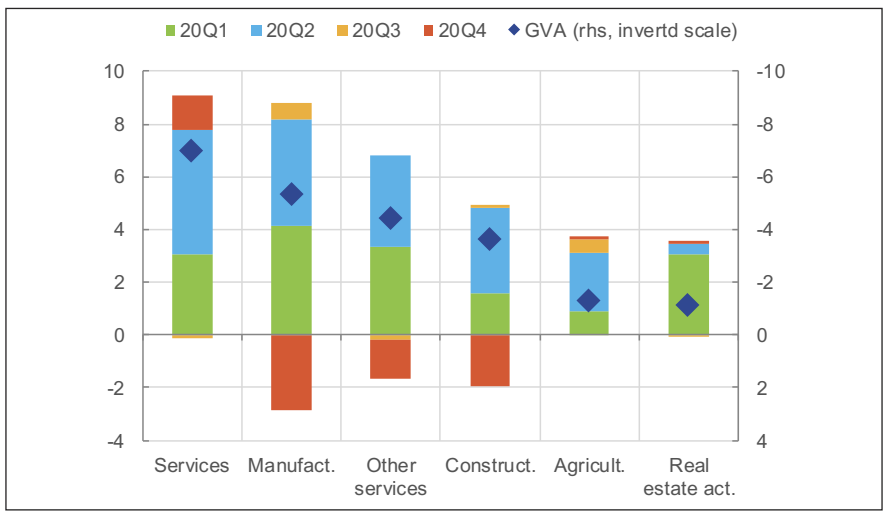
Sources: ECB (BLS, BSI) and authors' calculations.
Notes: (lhs panel) Factors affecting the demand for loans or credit lines with COVID-19-related government guarantees. The net percentage refers to the difference between the sum of the percentages for "increased considerably" and "increased somewhat" and the sum of the percentages for "decreased somewhat" and "decreased considerably». Banks can select more than one factor that affects loan demand. Therefore, the sum of the net percentages can exceed 100 in this chart. (rhs panel) Borrowing of firms include bank loans and debt security issuance. The term "avg.19" refers to the quarterly average flow recorded in 2019.

Chart 3A. Firms' financing needs for fixed investment and demand for long-term loans (lhs panel: four-quarter moving average of net percentages of banks, annual percentage changes; rhs panel: net percentages of banks, annual percentage changes)



Sources: ECB (BLS), Eurostat and authors' calculations.
Notes: "GFCF" stands for gross fixed capital formation. Demand for long-term loans and financing needs for fixed investment are net percentages of banks indicating an increase or a positive impact on firms' loan demand.

Chart 4A. Bank loans to firms and gross value added by sector (p.p. contributions to percentage changes 2020Q4 vs 2019Q4, percentage changes 2020Q3 vs 2019Q4)

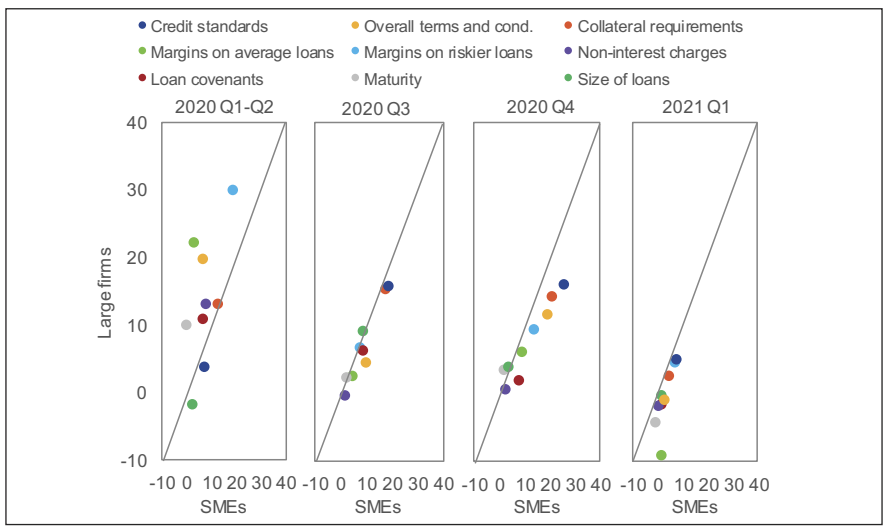


Sources: ECB (BSI), Eurostat and authors' calculations.
Notes: Based on outstanding amounts of non-adjusted loans to non-financial corporations. Services include trade, transportation, accommodation, food service activities and ICT.

Chart 5A. Changes in credit standards and loan demand across economic sectors (net percentages of banks)

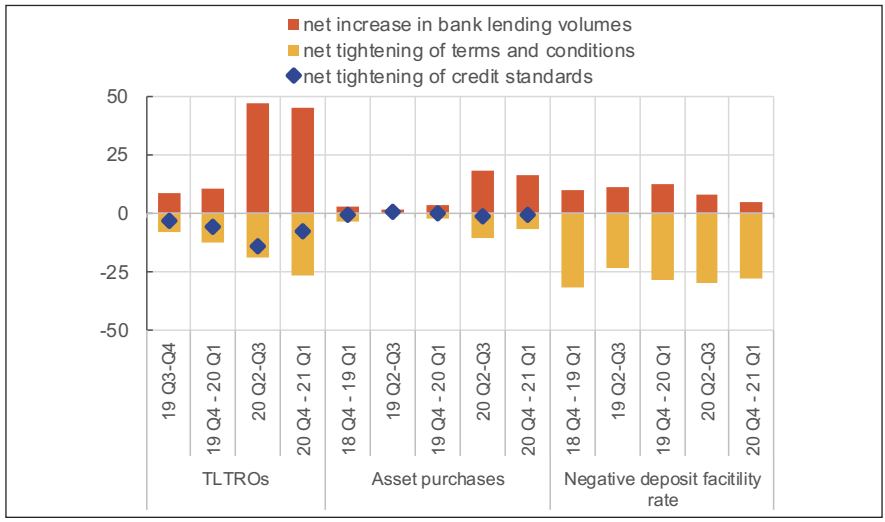
Source: ECB (BLS).
Notes: Sectors are defined based on the NACE Rev. 2 classification. Construction (excluding real estate), services (excluding financial services and real estate). Net percentages for credit standards are defined as the difference between the percentages of banks reporting a tightening and the percentages of banks reporting an easing. Net percentages for loan demand standards are defined as the difference between the percentages of banks reporting an increase and the percentages of banks reporting a decrease.

Chart 6A. Credit standards and terms and conditions by firm sizes (net percentages of banks)



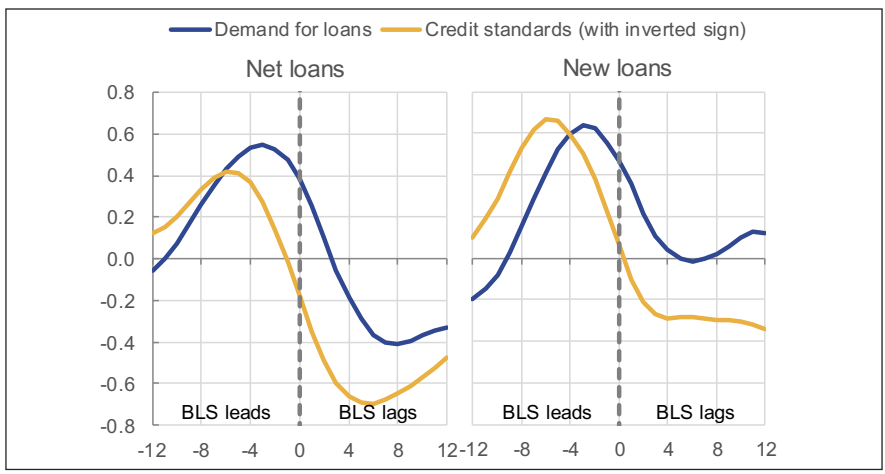
Source: ECB (BLS).
Notes: Net percentages are defined as the difference between the percentages of banks indicating a tightening and the percentages of banks indicating an easing. "Margins" are defined as the spread over a relevant market reference rate.

Chart 7A. Impact of the ECB's unconventional monetary policy on bank lending (net percentages of banks)



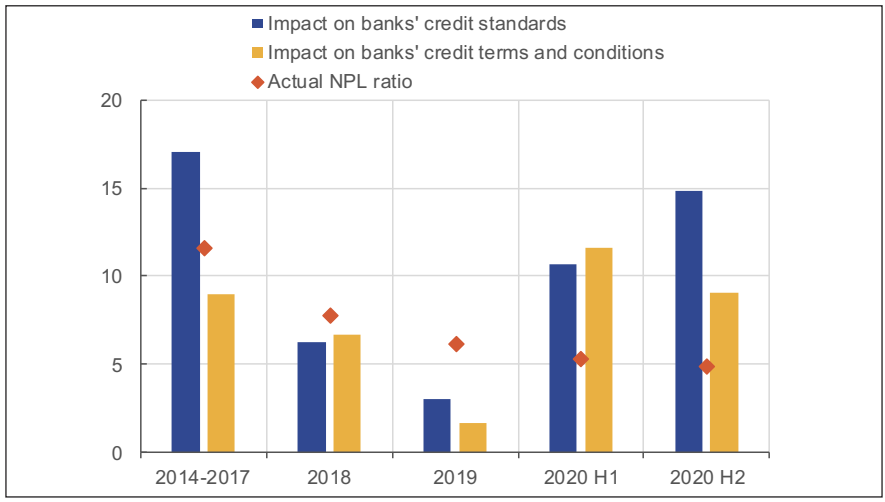
Source: ECB (BLS).
Notes: Net percentages are defined as the difference between the sum of the percentages of banks indicating a tightening or an increase and the sum of the percentages of banks indicating an easing or a decrease. "Net tightening of credit standards" is not available for the negative deposit facility rate.

Chart 8A. Correlation at different leads/lags between loans to firms and BLS indicators (correlation coefficient by quarter, where 0 denotes contemporaneous correlation)



Source: ECB (BSI, BLS) and authors' calculations.
Notes: Correlation between 4-quarter moving averages of BLS indicators and annual growth rate of loans to non-financial corporations.

Chart 9A. Impact of banks' non-performing loan ratios on their lending conditions and actual NPL ratios for loans to euro area firms (net percentages of banks and percentages)



Sources: ECB (BLS and Supervisory banking statistics).
Notes: In the BLS, the NPL ratio is defined as the stock of gross non-performing loans on banks' balance sheets as a percentage of the gross carrying amount of loans. The actual NPL ratios refer to euro area significant institutions and are defined as the gross carrying amount of non-performing loans (and advances), as a percentage of total loans (and advances). They are calculated as an average over the respective periods. The first period for the actual NPL ratio refers to 2015 Q2 – 2017 Q4.

Corporate Bond Issuance and Bank Lending in the United States

by Olivier Darmouni[66] and Kerry Y. Siani[67]

Abstract

Corporate bonds and bank loans are the two main sources of credit for large firms. Economic theory and practice have shown that they are quite different, and thus that debt composition has implications for firms, the macroeconomy and economic policy. In this article, we map out some key trends in corporate bond issuance and bank lending in the United States and discuss how the COVID shock in 2020 affected firms and credit markets. We draw some comparisons with Europe as well as some implications for policymakers.

1. Bond Issuance vs. Bank Lending

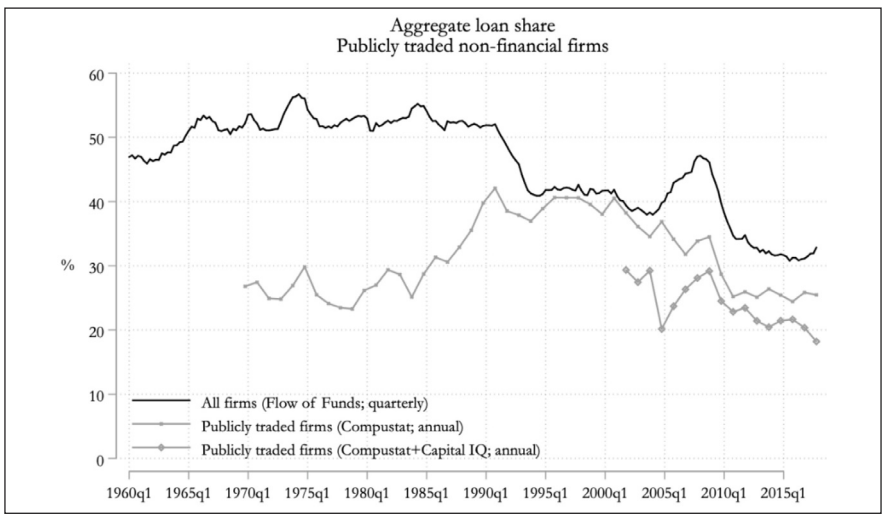
A first important fact is the striking difference in firms' debt composition between the United States and Europe. Langfield and Pagano (2016) refer to this difference as a European "bank bias." In general, U.S. firms are much more reliant on market financing and bonds relative to European firms of the same size. Using micro-data from public firms, Darmouni and Papoutsi (2021) estimate that the bond share of corporate credit is roughly twice as large in the United States. For instance, in 2009, bonds represent 35% of U.S. firm's total

66. Associate Professor, Columbia Business School.
67. Ph.D. Candidate in Finance and Economics, Columbia Business School.

debt, relative to only 13% in the Euro Area. Accordingly, it is appropriate to label the European financial system as 'bank-based' and the American as 'market based'. While the reason for this long-standing gap is complex, differences in institutions are often deemed to play an important role. De Fiore and Uhlig (2011) cite differences in the informational environment. Becker and Josephson (2016) emphasize differences in insolvency resolution; the existence of Chapter 11 bankruptcy tilting the scale in favors of bonds in the United States.

However, this fact should not suggest that this picture is static. Firms rely on both sources of financing, and the relative share of bonds vs. bank loans has changed over time. Berg, Saunders and Steffen (2020) provide evidence that bond financing has grown in the recent decade in the United States, even though it started at a relatively high level relative to Europe. They estimate that bond financing has grown from 17% of GDP in 2008 to 21% of GDP in 2019. Crouzet (2021) finds similar trends using a variety of data sources, as shown in Figure 1. Stricter bank regulation and loose monetary policy likely played a role in this trend. Mota (2020) also highlights the role of a growing demand for safe assets, Grosse-Rueschkamp (2021) of universal banks. Note however that the growth in bond financing has been even larger in Europe, implying a reduction in the loan-bond gap in recent years (Darmouni and Papoutsi, 2021).

Figure 1: Aggregate loan share relative to bonds in the United States



Source: N. Crouzet, «Credit disintermediation and monetary policy.» IMF Economic Review (2021): 1-67.

What are the implications of corporate debt composition for firms? It is well understood that bank lending and market financing are not perfect substitutes. A central aspect of this difference is that loans are made through banking relationships, while bond financing is done at 'arm's length'. Relationships allows for monitoring and screening, while bond investors tend to rely on public information like credit ratings (Holmstrom and Tirole, 1997). In addition, relationship lending allows for the potential renegotiation of the terms of credit, while there is much less flexibility in bond financing (Bolton and Scharfstein, 1996). A key implication of this difference is that firms with more bonds have a larger cost of financial distress in bad times. The reason is that bonds tend to be widely held by a dispersed base of investors, which makes them harder to renegotiate. This coordination (free rider) problem across bond creditors means that market financing is typically seen as less reliable in bad times compared to relationship lending from banks.

The firm's decision to issue bonds as opposed to getting a bank loan is often viewed as a trade-off between growth and risk. The bond market can offer significantly larger amounts and longer maturities than banks, allowing firms to make big, long-term investments. However, this additional capacity has a potential cost if the borrower faces a negative shock that impairs its ability to service its debt. This is especially true in case of recessions that do not originate from the banking sector, such as the COVID-driven recession of 2020. The growth in bond financing has indeed been associated with a shift towards higher risk. For instance, the BBB-rated segment (one notch above the Investment Grade rating threshold) has been growing the fastest in recent years. In Europe, Darmouni and Papoutsi (2021) shows that new bond issuers tend to be smaller, more levered, and less profitable relative to historical issuers.

Will bank lending eventually be replaced by bond financing for large firms? This should not be case, because bonds cannot replace one key role of banks: the provision of liquidity on demand. Indeed, credit plays a dual role: a firm can borrow to finance a long-term investment that will pay off in the future (term lending); or borrow to withstand temporary cash-flow shocks (liquidity provision). Bank-issued credit lines are the corporate analog to households' credit cards: firms have an available balance that they can draw when they need to and repay when able to. Banks thus have a special advantage in liquidity provision; there is no market substitute that provides liquidity on demand, even in the U.S.

Why are banks unique in providing liquidity? The main explanation is related to banks' deposit-taking activities. Gatev and Strahan (2006) argue that funds tend to flow towards safe bank deposits in bad times because of a 'flight-to-safety' effect. Thus, banks are flush with liquidity precisely in times when firms need funds the most. Kashyap, Rajan and Stein (2002) relatedly argue that banks have an incentive to hoard liquid assets to meet potential deposit outflows, and that these liquid assets can also be used to meet drawdowns on credit lines. Another line of argument is given by Holmstrom and Tirole (1998), which show that credit lines set up in advance can alleviate financial frictions through a liquidity insurance mechanism. In contrast, the bond market, by its very nature, cannot provide funds in advance.

Bank credit lines account for a significant portion of firms' access to credit. Large U.S. firms maintain sizeable credit lines with banks even if most of their term funding comes from the bond market (Sufi, 2009; Greenwald et al. 2020). The importance of credit lines has been growing in the recent years following the financial crisis (Berg et al., 2020). Notably, credit lines have grown while bonds have crowded out bank term lending. The common view is that banks are still central to corporate credit markets, but that their role has shifted towards providing relatively more liquidity provision in the form of undrawn credit lines, rather than term lending in the form of term loans.

These pre-2020 facts lead to natural predictions about the effects of a large aggregate shock on corporate credit markets. In the absence of a banking crisis, bank loans should take precedence over bonds. Specifically, bank credit lines should play a very special role in providing liquidity to firms. In contrast, the bond market should be suppressed due the lack of profitable investment opportunities and greater risk aversion in market participants. The next section compares these predictions with patterns of loans and bonds issuance in 2020.

2. The COVID Shock: Liquidity-Driven Bond Issuance and the Federal Reserve Response

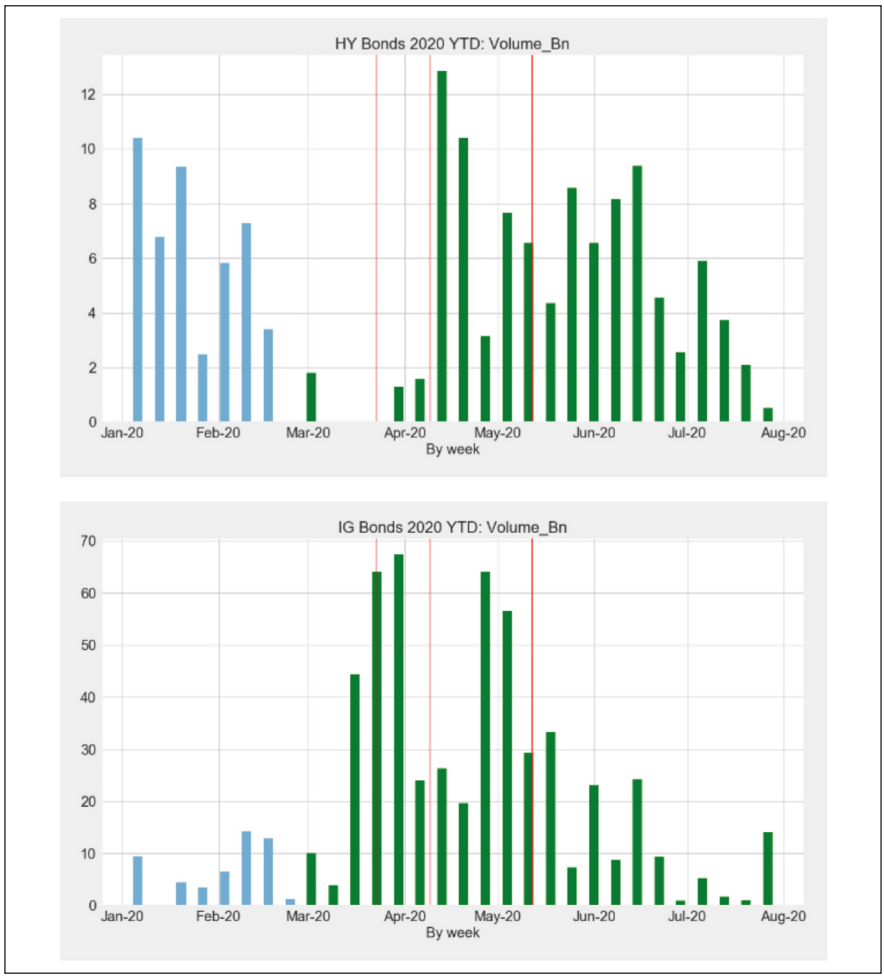
The spread of COVID led to a large drop in corporate cash-flows in spring 2020. There was a widespread "dash for cash" across the corporate sector as firms scrambled for liquidity (Acharya and Steffen, 2020a; Li et al., 2020). This

episode raises many questions: what is the role of the bond market in providing liquidity in bad times? What form of debt do firms prefer to raise to meet their emergency liquidity needs? What are the implications for monetary policy and the real economy?

The COVID period is particularly useful to study the firm's side of the equation, as neither the supply of bond capital nor bank capital was severely constrained. The bond market lent extensively to firms in this period, a surge that was partly due to a spectacular change in the Federal Reserve credit policy that supported the corporate bond market directly for the first time.[68] Both investment-grade (IG) and high-yield (HY) markets reached historical heights in the post-March 2020 period. Figure 2 shows that, as of end of May 2020, investment grade (high yield) issuance by reached $500 billion ($110 billion), compared to $200 billion ($89 billion) over the same period last year.[69]

68. See for example Haddad et al. (2020), Boyarchenko et al. (2020), Kargar et al. (2020), O'Hara and Zhou (2020), Gilgricht et al. (2020) or Liang (2020).
69. The sample includes U.S. firms and firms that issue in USD and report financial statements in USD.

Figure 2: Bond issuance in 2020



Source: Darmouni and Siani (2020). Data from Mergent FISD, http://bv.mergent.com/view/scripts/MyMOL/index.php, retrieved July 30, 2020.
Note: Red lines correspond to March 23, 2020 (first Fed announcement to buy corporate bonds); April 9, 2020 (first Fed announcement to buy high yield corporate bonds); and May 12, 2020 (start of Fed bond buying program).

How did firms choose to use the bond capital that became more available due to policy intervention? How does bond issuance interact with bank financing? To explore these questions, it is necessary to first understand how firms' balance sheets change around bond issuance. Analyzing balance sheets before and after bond issuance helps inform what firms do with the funds raised

from the bond market in bad times vs. normal times. Below, we present a summary of some key facts studied in more detail in Darmouni and Siani (2020).

Borrowing Without Investment

During COVID, firms used the bond market differently than in normal times. First, while in normal times, firms follow an issuance pattern and raise bonds when they have lower cash balances and debt coming due, firms issuing during COVID raise bond capital earlier in their bond financing cycle and have less debt coming due. This fact indicates that bond issuance during this time was not simply due to firms rolling-over bonds as they mature. Firms actively sought to increase their reliance on the bond market.

Second, after issuance, COVID-era issuers are more likely to hoard the proceeds from bond issuances rather than invest in real assets. We find that in normal times, 58% of IG issuers increase non-cash assets by the second quarter following issuance; however, in COVID times, only 18% issuers did. In addition, firms were less likely to payout to equity holders after issuing during COVID. This pattern lends credence to the view that a large share of issuance was "precautionary" and thus unlikely to be immediately reinvested. Chevron, for example, issued $650 million in bonds on March 24th, but cut its 2020 capital spending plan by $4 billion.

The spike in debt issuance in bad times can be explained by recalling the dual role of credit. Liquidity-driven debt issuance spikes *because* the real recovery is expected to be slow. On the other hand, investment-driven debt issuance is delayed. These bond issuance patterns are drastically different from normal times. The textbook view of bond issuance exclusively financing long-term investment holds only in good times. 2020 has shown that "liquidity-driven" bond issuance can be equally as important as investment-driven issuance.

The Crowding-Out of Bank Loans

One key aspect of the 2020 crisis is that it did not originate in the banking sector. In fact, banks were healthy and entered the year with strong balance

sheets, largely because of tighter regulation put in place since the Great Financial Crisis. In fact, according to the Federal Reserve Senior Loan Officers Survey of April 2020, less than 10% of banks cited capital or liquidity positions as a reason for tightening their lending standards. This is important to frame predictions: the common view would suggest that banks provided most of the funding relative to the bond market. Indeed, while firms issued bonds in the GFC, the main interpretation is that loan supply was restricted after a banking crisis (Becker and Ivashina, 2014).

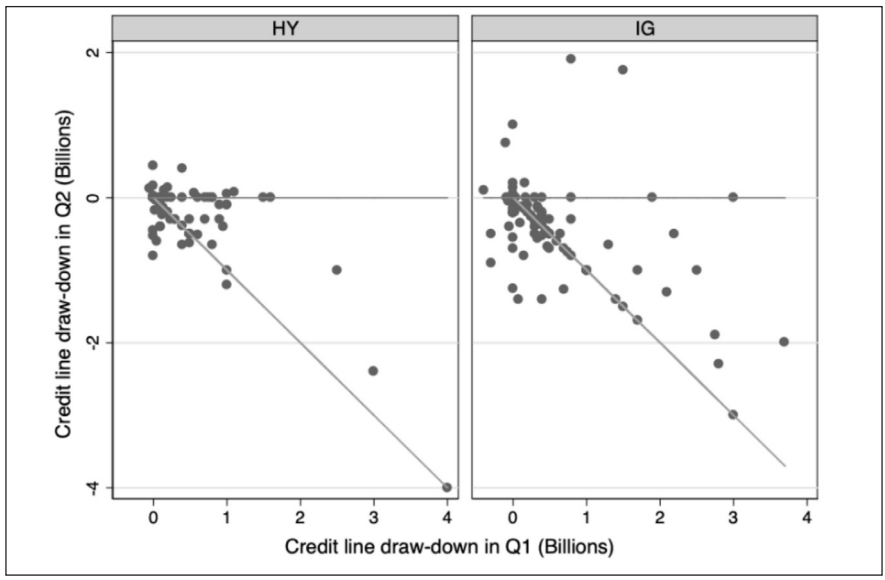
However, even though the shock did not originate in the banking sector, bond issuance crowded out bank loans in 2020, in two ways.

First, many firms left their existing credit lines untouched while issuing bonds instead. For instance, CVS had $6 billion of its credit line available at the beginning of 2020, yet it still issued $4 billion in BBB-rated bonds. Strikingly, this behavior includes many riskier HY firms: almost 40% of HY issuers received no new net bank funding between January and March. Only 21% had maxed out their credit line by end of March, and the average draw-down rate was below 50%. Many of these riskier firms had available «dry powder» from banks, arranged before the crisis, that they did not use. The pattern is even stronger for IG firms, which represent the bulk of issuance in this period, with over 60% not drawing on their existing credit lines. In aggregate, the amount of undrawn bank credit available at the beginning of 2020 was larger than the total funds raised from bond issuance. HY issuers in our matched sample issued $90 billion in bonds while having $142 billions of undrawn credit available. The gap is even larger for IG issuers.

Second, a large share of issuers that did borrow from their bank early in the crisis repaid by issuing a bond in the following weeks. For example, Kraft Heinz, which was downgraded from IG to junk in February 2020, drew $4 billion from its credit line between February and March. In May, it issued $3.5 billion in bonds (up from a planned $1.5 billion, due to strong investor demand) and used these funds to repay its credit line. In six months, the share of Kraft's credit coming from banks went from zero to 12% and then back to zero. We find that Kraft is far from an isolated example: among HY issuers repaying bank loans, the median firm paid back 100% of its Q1 borrowing, representing 60% of their bond issuance. In aggregate, a full quarter of HY firms' bond proceeds went to pay back bank loans. The pattern is similar for

IG firms, although a smaller share drew on their credit lines in the first place. We estimate that at least $70 billion was repaid by bond issuers to banks between April and July 2020. Moreover, the majority of the Federal Reserve single-name corporate bond portfolio consists of issuers that had access to bank funds which they did not draw.[70]

Figure 3: Credit lines draw-downs in 2020 Q1 vs. Q2



Source: Darmouni and Siani (2020). Based on Capital IQ Capital Structure Summary table, separately by high-yield and investment grade issuers. For ease of interpretation, the figure also displays the negative 45-degree line (exact repayment in Q2) and horizontal line (no change in credit line in Q2). Excludes large outliers Volkswagen, Ford, and GM.

Why would firms prefer issuing bonds over drawing on credit lines in spite of the prediction of common wisdom? There are at least two reasons why this was the case in the spring of 2020.

First, bond financing is more *committed* for a long period of time: it typically has a longer maturity and no maintenance covenants that banks can use to renegotiate credit (Sufi, 2009). This is attractive because recessions

70. Based on Federal Reserve portfolio as of July 31, 2020, as reported on August 10, 2020. https://www.federalreserve.gov/monetarypolicy/smccf.htm

typically imply cash-flow shocks that last for as long as a few years, and firms that need to cover operational fixed costs thus prefer sources of funds that are committed for a longer period. This implies a more nuanced perspective on the value of bank «flexibility» relative to market financing.

Second, the spectacular reversal of the Federal Reserve credit policy has at least partially eliminated one key aspect of banks' specialness: the implicit and explicit government support they receive. This support implies that banks are viewed as a safe haven by investors, enhancing their willingness to hold deposits in bad times (Gatev and Strahan, 2006). Historically, the corporate bond market has been outside the scope of government support, but this has changed in dramatic fashion in Spring 2020. Correspondingly, investor demand for bonds was sufficiently strong during the COVID episode to finance record levels of issuance in April and May 2020. Moreover, while Falato et al. (2020) document unprecedented outflows from corporate bond funds in March and early April, the phenomenon was short-lived. Following the Federal Reserve's announced intent to support corporate bond markets on April 9, there were significant net inflows to both HY and IG bond funds that remained very large through August.

Implications for Monetary Policy

Our findings have important implications for the conduct of monetary policy. In particular, direct support for the corporate bond market has received a lot of attention, with many open questions. Our evidence shows that it is important to account for the crowding out of bank loans when evaluating the aggregate effects of these new public programs on the real economy. For the majority of issuers, propping up bond markets does not alleviate a hard credit constraint, since they already have available bank funding. Moreover, firms by and large did not re-inject the record amount of bond issuance into their operations: they instead hoarded most of it in cash on their balance sheet or repaid existing debt. This evidence suggests that the V-shaped recovery of bond markets, propelled by the Federal Reserve, is unlikely to lead to a V-shaped recovery in real activity.

Preventing large bank credit line drawdowns is nevertheless valuable for at least three reasons: (1) it guarantees a longer-term funding source for firms,

(2) it helps weaker issuers to «keep their powder dry» to weather any further negative shocks, and (3) it reduces balance sheet constraints on banks (Acharya and Steffen, 2020b). However, as of now, there is little evidence that corporate bond purchases have "trickled down" to smaller borrowers. In fact, it seemed that small firms were largely unable to borrow from banks during the spring of 2020 (Chodorow-Reich et al., 2020, Greenwald et al., 2020). Moreover, the benefits of supporting the bond market directly by extending lender of last resort policies beyond the banking sector must be balanced against potential losses on central bank bond holdings or asset price distortions leading to excessive risk-taking.

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How Has the Covid-19 Crisis Impacted the Use of Machine Learning and Data Science in UK Banking?

by David Bholat[71], Oliver Thew[71] and Mohammed Gharbawi[71]

Abstract

The Covid-19 crisis continues to have a profound effect on the financial sector, with firms reassessing and adapting strategies, business models, and investment plans. Technological transformation is likely to be a significant part of this adjustment and early evidence from a survey conducted by the Bank of England suggests that the use of machine learning (ML) and data science (DS) could have an increasingly important role to play in these shifts. The technological, financial, and social changes wrought by the pandemic have also compelled businesses across the economy to look for opportunities in using different processes, developing different products, and exploring different markets. This paper looks at some of the early signs of what those changes are likely to be and how banks are responding.

The use of ML and DS in UK banking before Covid

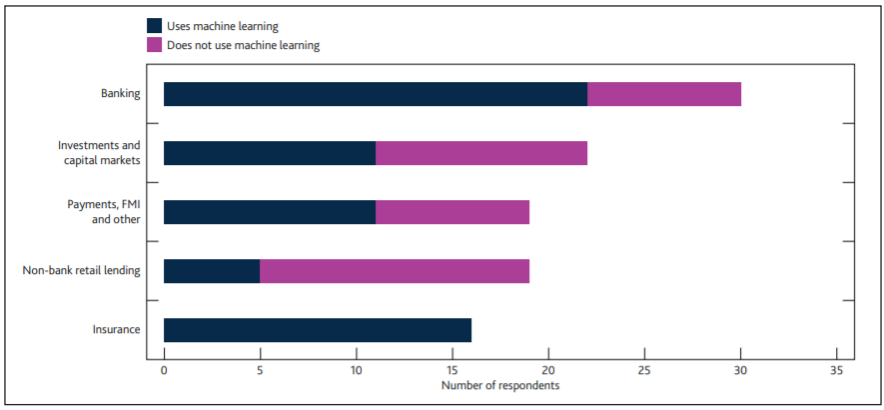
Recent trends in ML and DS

Over the past two decades, digitalisation of society and the economy has generated vast amounts of data (WEF, 2019). DS has therefore become an increasingly important tool for businesses looking to capitalise on data-driven insights (McKinsey & Company, 2019a). This has also led to the increased use

71. Bank of England.

of ML across a range of businesses and sectors (McKinsey & Company, 2019b), including finance (Centre for Data Ethics and Innovation, 2020), which has seen widespread adoption of ML and DS in recent years. In 2019, The Bank of England conducted a joint survey (Bank of England, 2019) with the Financial Conduct Authority (FCA) to understand how ML was being used in UK financial services. The survey showed that ML was already being used by a majority of firms across a range of financial sub-sectors and business lines (Chart 1).

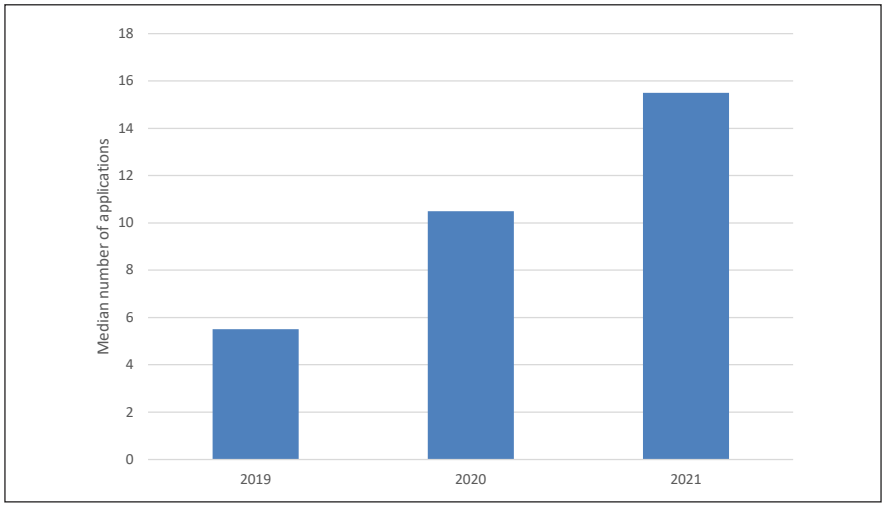
Chart 1: Two thirds of respondents have ML applications in use



Source: Bank-FCA (2019), Machine learning in UK financial services.

Banking was the sub-sector with the highest number of ML applications and second highest share of ML applications relative to the number of survey respondents. The two most prominent uses were customer engagement and risk management. For a majority of the banks surveyed in 2019, the use of ML had matured to the point where it was being deployed in the regular run of operations. Moreover, the majority of banks expected the number of ML applications to triple by 2021(Chart 2).

Chart 2: Banks expect significant growth in use of ML

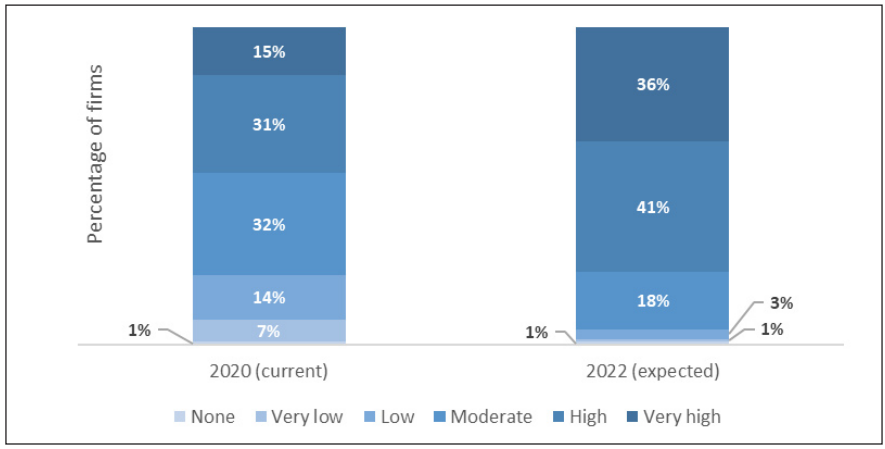


Source: Bank-FCA (2019), Machine learning in UK financial services.

Other regulatory authorities have reported similar findings. For example, in 2019, Canada (Bank of Canada, 2019) and Hong Kong (HKMA, 2019) reported similar increases in the importance of ML and its adoption by banks in their respective jurisdictions.

These pre-Covid patterns in banks' use of ML and DS were backed-up by a survey conducted by the Economist Intelligence Unit in February and March 2020 (The Economist, 2020b), as well as a study published in January 2020 by the Cambridge Centre for Alternative Finance (CCAF) and the World Economic Forum (WEF) (Ryll, et al., 2020). The CCAF and WEF surveyed 151 fintech start-ups and incumbent firms across 33 countries. They found that 85% of respondents already used some form of AI, most commonly in risk management, 65% expected to use AI in three or more business areas within two years, and 77% anticipated that AI would have high or very high overall importance to their business by 2022 (Chart 3).

Chart 3: Before Covid financial firms expected AI to become strategically more important by 2022
Current and expected strategic importance of AI to firms (surveyed pre-Covid)



Source: CCAF and WEF (2020), Transforming Paradigms: A Global AI in Financial Services Survey.

Benefits for households, banks and the economy

ML and DS have wide-ranging applications in financial services, which can bring benefits to consumers, businesses and the economy. For example, many banks use ML and DS for anti-money laundering (AML) processes (Delle-Case et al., 2018). In many instances, this has reduced the rate of false positives in money laundering detection,[72] with one large UK bank lowering its false positives by 70% (IBM, 2019). For consumers, this helps reduce the number of erroneously blocked or delayed payments. For banks, this frees up scarce resources and speeds up internal processes. For the economy as a whole, this can help banks and authorities more precisely identify illicit financial activity.

ML and DS also have the potential to provide more inclusive and tailored products to consumers. For example, ML is already being used by banks and fintech companies around the world to analyse newer data sources (such as social media data) to provide risk assessments of individuals with limited credit histories, which might help underserved or unbanked customers access financial services (Ryll, et al., 2020). Some UK fintechs (Holmes, 2020) and

72. False positives are notifications of potential suspicious payments or financial activity that do not end up resulting in the filing of a suspicious activity or suspicious transaction report.

banks (McKinsey & Company, 2020) are using new data sources for consumer and business risk assessments. This trend looks set to continue with one credit rating agency announcing plans to offer UK banks access to a broader range of transactional data for consumer credit scores, including money earned and spent, council tax payments, savings and investments, and subscription payments (Business Insider, 2020).

Risks and challenges

At the same time, existing risks may increase and new risks may emerge from the use of ML and DS in financial services. Respondents to the Bank-FCA survey and a similar report from the UK's Centre for Data Ethics and Innovation note that risks may increase due to ML's lack of explainability (the so-called 'black box' problem), meaning the outputs cannot always be easily understood (Bundy et al., 2019; CDEI, 2020). In addition, ML models may perform poorly when applied to a situation they have not encountered before in the training data. This is particularly relevant in the context of the Covid pandemic when the underlying data may have changed (data drift) or the statistical properties of the data may have changed (concept drift) (Robotham, 2020; Ma and Jarrett, 2020, respectively).

These risks could materialise at an individual bank or system-wide level. Systemic risks are particularly concerning as they can create financial instability, which can in turn adversely affect the real economy and the prosperity of households and businesses. Therefore, regulators and central banks have an interest in understanding how ML and DS are being deployed and managed.

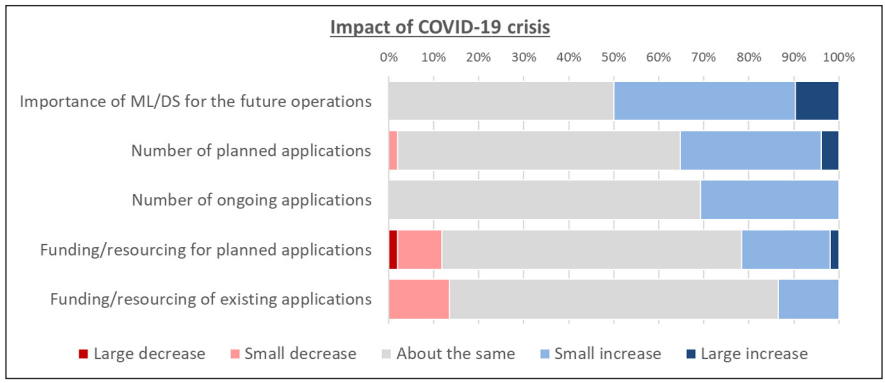
The impact of Covid on ML and DS in UK banking

To better understand the impact of Covid on ML and DS in the UK banking sector, the Bank of England conducted a survey of Prudential Regulation Authority (PRA) regulated banks in August 2020.[73] The survey focused on banks' perception of ML and DS, as well as the resourcing for current and planned ML and DS projects.

73. The survey consists of 32 submissions in total, with 17 from UK banks, nine from foreign banks with operations in the UK, and six from insurers. The sample of insurers was too small to be judged representative of the sector and the results are not included in this article. Note that, although the survey only covers 26 banks, the assets of those banks account for close to 90% of all UK bank assets.

Around 40% of respondents reported an increase in the importance of ML and DS for future operations, and a further 10% of banks reported a large increase. None of the banks reported a decrease in the importance of ML and DS. This is an unexpected finding given the suggestion from some commentators that a new 'AI winter'[74] might unfold in as a result of reduced investment budgets due to the economic impact of Covid or because pre-pandemic ML systems may not have performed well (The Economist, 2020).

Chart 4: Half of banks view ML and DS as more important for future operations since Covid
Impact of Covid on banks' plans for, and current use of, ML and DS



Source: BOE (2020), ML, DS and Covid survey.

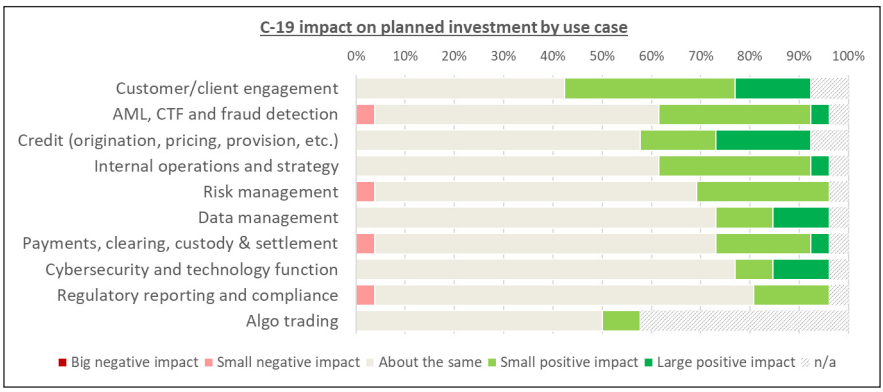
Around a third of banks said there was an increase in the number of ongoing ML and DS applications. Yet only 16% of banks reported an increase in funding and/or resourcing for existing applications and a similar number reported a decrease. Similarly, around 35% of banks reported an increase in the number of planned applications. But only 23% of banks reported an increase in funding and/or resourcing for planned applications and 12% of banks reported a decrease.

Banks may be looking to use ML and DS to increase efficiency and improve digital customer channels as they manage the cost and revenue impact of Covid. The crisis has accelerated use of ML-powered tools to manage an

74. An AI winter is shorthand for a time when interest and investment in AI wanes, for example, as occurred in the early 1970s (Frankenfield, 2020).

unprecedented uptick in customer enquiries (Motsi-Omoijiade, 2020). Half of the banks in the survey reported a 'positive' impact on plans for customer engagement applications. Around a third of banks also reported a 'positive' impact on planned investment in internal operations and financial crime applications. As the 2019 Bank-FCA survey found, ML models have already been used in all three of these areas.

Chart 5: Banks plan to invest more in ML and DS across a range of business areas due to Covid
Impact of Covid on planned investment by use case



Source: BOE (2020), ML, DS and Covid survey.

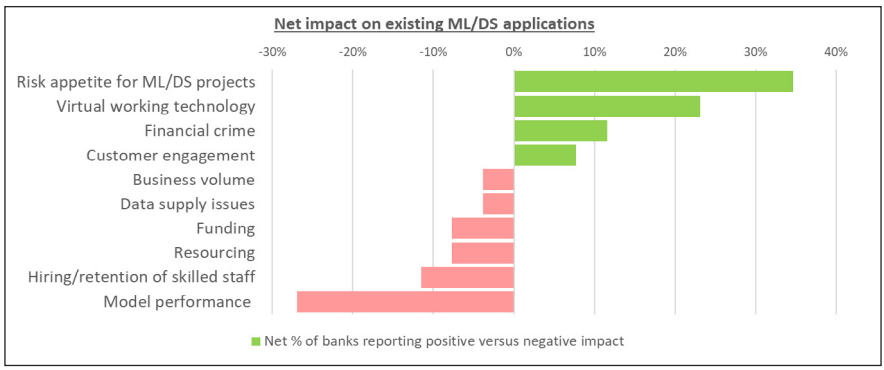
The overall planned investment picture is largely similar for all banks in the survey, with UK- headquartered banks having slightly more positive expectations. More specifically, nearly 60% of banks headquartered in the UK reported that Covid has had a 'positive' impact on planned investment in customer engagement applications. Similarly, almost half of these banks noted the 'positive' impact on planned investment in DS and ML applications in credit (including origination and pricing), with 29% of the banks reporting a large positive impact. One reason could be the use of ML to deal with the high volume of customer enquiries (Motsi-Omoijiade, 2020) and government guarantee loan applications (Hinchliffe, 2020).[75] These banks may also use ML

75. There were more than 1.6 million applications for the Bounce Back Loan Scheme, 159,277 applications for the Coronavirus Business Interruption Loan Scheme and 1,034 applications for the Coronavirus Large Business Interruption Loan Scheme between March and October 2020 (HM Treasury, 2021).

and DS as they look to refine expected credit loss calculations in line with the IFRS 9 accounting regulation.[76]

The survey shows that around 35% of banks reported that ML and DS had a 'positive' impact on technologies that support remote working among employees. The same percentage also reported a positive impact on their overall risk appetite for ML projects, meaning these banks are more willing to use these techniques. At the same time, around 35% of banks reported a negative impact on ML model performance with just 8% reporting a positive impact. This is likely because the pandemic has created major movements in macroeconomic variables, such as rising unemployment and mortgage forbearance, which required ML (as well as traditional) models to be recalibrated. Other areas where banks noted a negative impact were in 'resourcing' and in 'hiring/retention of skilled staff'.

Chart 6: Covid had a net negative impact on model performance
Issues (opportunities and risks) encountered by existing applications as a result of Covid



Source: BOE (2020), ML, DS and Covid survey.

It is important to note that while Chart 6 indicates where net 'positive' or negative effects are felt, the numbers do not tell us the extent of these effects, beyond small or large, nor indeed how they may impact banks' business models or financial performance. More research is needed to gauge how

76. Expected credit loss calculation under IFRS 9 involves the definition of forward-looking scenarios to derive provisioning. The extreme nature of the Covid shock has meant that these forecasts have needed amending.

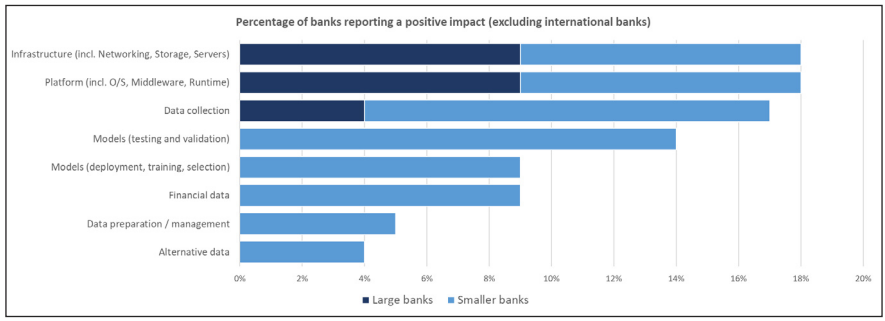
material the affected ML/DS models are to banks' overall performance, operations and risk profile, and hence the overall impact of the crisis.

Finally, there were marked differences between small and large UK[77] banks with respect to their use of third-party vendor products and services. Chart 7 shows that smaller banks reported a 'positive' impact (eg in terms of performance, impact, use) of Covid on all categories of DS and ML, with data collection, and model testing and validation being the areas with the largest 'positive' impact. Large UK banks reported a 'positive' impact on use of outsourced platforms and infrastructure. These findings are in line with market intelligence that smaller banks are looking to increase their use of off-the-shelf ML products. This stands to reason given the generally more substantial in-house data and analytical capabilities of large banks.

Alongside the usual risks associated with outsourcing, the use of ML and DS can pose additional risks and challenges (PRA, 2021a). For example, outsourced ML models may be more difficult to interpret because detailed knowledge in terms of how they were developed resides outside the bank. This can make it more difficult for banks to understand how the model works and to monitor performance, which could result in unexpected or unexplained performance, and risks materialising. If multiple banks use the same third-party provider and ML model, this could also potentially lead to an increase in herding, concentration and even the possibility of systemic risks where methodologies are common.

77. The PRA divides all deposit-takers it supervises into five 'categories' of impact. 'Large banks' here refers to the Category 1 banks, namely, the most significant deposit-takers whose size, interconnectedness, complexity, and business type give them the capacity to cause very significant disruption to the UK financial system by failing or by carrying on their business in an unsafe manner. Survey respondents included all Category 1 banks and 72% of Category 2 banks by assets.

Chart 7: Covid had a positive impact on outsourcing and the use of third-party providers by large banks



Source: BOE (2020), ML, DS and Covid survey.

Explaining the survey findings

Prior to the survey, we expected that UK banks' investment in ML and DS in response to Covid might follow the same historical pattern as other business investments during an economic downturn. Most businesses tend to respond to negative macroeconomic shocks by reducing expenditure, including spending on investment and innovation (Archibugi, 2013). In this way, business investment is typically pro-cyclical (Younes et al., 2020), rising in upswings and falling in downturns (Barlevy, 2007).

A major reason businesses reduce investments in innovation during economic downturns is the need to prioritise near-term cash flow rather than long-term technology projects. Businesses may become increasingly hesitant to invest in long-term capabilities when revenues are declining, and when there is higher uncertainty around future profits. There is plenty of evidence to suggest that uncertainty has increased during the pandemic (Altig et al., 2020). Our Decision Maker Panel survey (DMP, 2020), designed to be representative of the population of UK businesses, found that 70% of firms viewed overall economic uncertainty as high or very high in August 2020 when we conducted our survey.

Yet the Covid survey shows that banks' investment and interest in ML and DS has held up. The strategic imperative to drive efficiency through automation and has perhaps been reinforced by the low interest rate environment. Furthermore, the nature of this shock means that demand for

banking and other financial services may not have suffered to the same degree as other industries like hospitality (Office for National Statistics, 2020), given the extent and impact of lockdown measures.

The pandemic has also catalysed more extensive use of computers and smartphones for commerce, remote working and socialising (Kemp, 2020). This has likely increased the amount of data businesses have available to them. This in turn is likely to increase demand for data scientists, data engineers and other IT professionals (CDEI, 2020). Ultimately, if necessity is the mother of all invention, then Covid has arguably accelerated demand for data and technical innovation (Taalbi, 2017).

Banks have benefited from ML during the pandemic

In March 2020, the Bank of England put in place a package of measures to help mitigate the economic shock resulting from Covid (BoE, 2021). The UK Government also provided a range of financial support for businesses, including government-guarantee loan schemes. As noted earlier, some UK banks used ML (Temenos, 2020) to process the high volume of government guaranteed loan applications (Curtis, 2020), resulting in increased operational efficiency.

As the emphasis was on providing finance to businesses quickly during the early stages of the pandemic, lenders were given a 100% government guarantee on Bounce Back Loans, and borrowers could apply in a streamlined process with no assessment of their creditworthiness. Market intelligence suggests that banks are now using ML to enhance their credit risk management and to help identify and manage higher risk loans within certain portfolios, some of which may be expected to have higher default rates compared to other loan portfolios (NAO, 2020).

Covid may amplify certain risks associated with ML

As the survey highlights, Covid has had a negative impact on the performance of some ML models. This is linked to the fact that ML models' performance can change or deteriorate under conditions different to those displayed in the data on which they were originally trained. This can occur either when the underlying data changes (data drift) or the statistical properties of the data change (concept drift). The Covid crisis has led to both data and concept drift, which has challenged models in unusual and

unexpected ways. Therefore, monitoring for data drift and concept drift is one of the key challenges for firms to ensure appropriate risk management.

Our survey also showed that small banks have increased their use of third-party providers of data, infrastructure, and off-the-shelf or bespoke ML models as a result of Covid. As previously mentioned, while there are many advantages to outsourcing and third-party provider models, they can carry additional operational risks that may be amplified as banks seek to integrate new ML applications into existing legacy IT systems PRA (2021b).

What next for ML and DS?

The repercussions of the Covid crisis, including its impact on ML and DS trends in financial services, will likely be with us for many years to come and firms across the sector, including banks, are reappraising the use of data-driven technologies to augment revenue streams, refine cost reduction programmes, and enhance risk management processes. Against a potential post-pandemic background of persistently low interest rates, increasing competition, and subdued economic conditions, the opportunities to grow revenues in retail and commercial banking may be limited. The focus would therefore remain on cost containment or cost reduction as the main drivers of profitability. This implied increase in efficiency and productivity is likely to be achieved primarily through technological transformation, including the adoption and use of ML and DS.

Technological transformation carries with it significant execution risk and the operational risks run by firms with ambitious automation programmes may well increase in the short term. Firms will also need to keep a keen eye on the skills base necessary to ensure that the technical and cultural aspects of change are managed effectively and appropriately.

The directions in which ML and DS will move over the next few years are dictated by an evolving set of factors propelled and accelerated by the pandemic. These could be at the technological level, with ever increasing use of alternative data, cloud, or off-the-shelf ML solutions; the firm level, with more automation given additional impetus by virtual and agile working patterns; and the societal level, where regional and demographic variations may push firms to use ML and DS in devising more localised and narrowly targeted products.

The pandemic has also altered, perhaps permanently, strategic priorities, objectives, and plans. It has made it much easier to argue for more decentralised business models and organisational structures. ML and DS are key components in managing an effective distributed and networked business.

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Effect of COVID-19 on Payment Patterns: A Policy Perspective*

by Nicole Jonker[78], Carin van der Cruijsen[78], Michiel Bijlsma[79/80], Wilko Bolt[78/81]

Abstract

COVID-19 has affected almost every aspect of our daily lives including the way we pay. The pandemic caused a large drop in the use of cash triggering more contactless payments at the point of sale. The question comes up whether this change in payment usage is temporary or permanent. We use payment diary survey data to study the shift in payment behaviour and payment preferences. Since the start of the lockdown in the Netherlands the usage of debit card versus cash has increased by 10 percentage points. The initial drop in cash usage by 17 percentage points has only partly been reversed. The reversal occurred especially with people aged 65 and above as well as with people with a low-income. Thus the shift appears to be long-lived. Moreover, the pandemic has also resulted in a shift in payment preferences. People who used to prefer electronic payment have shifted to contactless payment. The percentage of people preferring cash only slightly decreased from 21% to 20%.

* Wilko Bolt is the corresponding author. E-mail: w.bolt@dnb.nl. For econometric approach and results this article draws on Jonker et al. (2020). The views expressed in this article do not necessarily reflect the views of DNB or those of the Eurosystem.

78. De Nederlandsche Bank (DNB), the Netherlands.
79. SEO Amsterdam Economics, the Netherlands.
80. Tilburg University, the Netherlands.
81. Vrije Universiteit, Amsterdam, the Netherlands.

1. Introduction

The COVID-19 pandemic is affecting almost every aspect of our daily lives. The pandemic has not only made the way we live more contactless but also the way we pay. Although lockdowns have led to a sharp fall in consumer spending, electronic payment instruments at the point of sale (POS) became more attractive relative to cash by avoiding close physical contact with the cashiers. Retailers promoted the usage of contactless payments at the expense of cash, and banks made it easier and more convenient for consumers to pay contactless. As a result, electronic payment instruments gained further ground.

In this article we illustrate the impact of the COVID-19 pandemic on consumer payment behaviour and payment preferences using unique payment diary data collected among a representative panel of Dutch consumers. This payment diary data includes information both on cash payments and electronic POS payments. Moreover, in addition to payment usage information, our diary data also provides useful information on payment preferences. The daily data used in this paper covers the Netherlands and ranges from January 1 2019 until December 31 2020. The nature of the data allows us to examine whether the effects of the outbreak of COVID-19 and its associated measures led to a shift in payment behaviour and payment preferences. If the shift increases adoption by forcing consumers to incur learning cost and breaking cash habits, or if the shock leads to a change in preferences, the ensuing change in payment behaviour is expected to persist. This would then create extra incentives for commercial banks and other third parties to speed up the provision of contactless, mobile and online payment services.

The Netherlands offers a particularly good setting to analyse the impact of the COVID-19 pandemic and its associated containment measures on payment behaviour and preferences. First, cash and debit cards are – *de facto* – the only two payment instruments that matter at the point of sale. Payment choice in the Netherlands is effectively a binary choice; credit cards, store value cards or checks hardly play any role for shopping at the point of sale. In 2019, 32% of POS payments were in cash, 24% by debit card with PIN and 43% contactless (i.e. a total of 99%; DNB 2020a). Moreover, paying contactless by debit card happens much more often than paying contactless by smartphone, as 90% of all debit cards are contactless-enabled (DNB 2020a).

Second, since the pandemic started half-March 2020, Dutch government, commercial banks and merchants have been taking measures to limit and contain the spread of the virus. Among others, this facilitated easier and more convenient contactless payments. Pre-COVID-19, consumers were required to enter their PIN code when they made a payment of more than EUR 25 and to insert their payment card into the payment terminal. If payments of EUR 25 and below reached a cumulative limit of EUR 50 the PIN code was also required. In 2020 the cumulative limit was (temporarily) increased to EUR 100 on March 19, while the transaction limit was raised to EUR 50 on March 24.

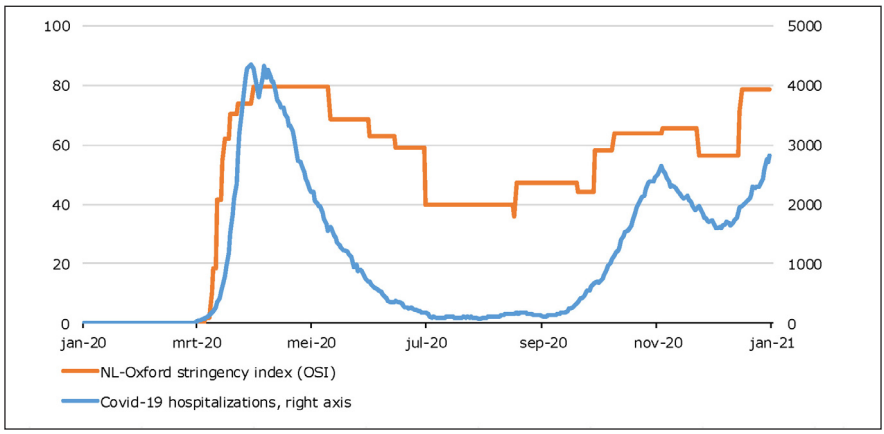
Third, merchants stimulated people to pay contactless as it lowers the likelihood of hand contact between customers and cashiers. For example, they applied doorplates and notices next to the cash counter asking and steering people to pay contactless. Moreover, the Centraal Bureau Levensmiddelenhandel (CBL) – the Dutch organisation that looks after the interests of supermarkets – appealed to consumers to pay contactless.[82]

Fourth, during the first lockdown in the Netherlands, which started on March 16 2020, people were still allowed to leave their home and visit a POS as often as they wanted, except for POS in particular sectors such as restaurants and bars, recreation and culture and the services sector. Furthermore, kindergartens, schools and universities were closed and people were encouraged to work from home and to avoid public transport as much as possible. From mid-May 2020 onwards, the imposed containment measures have gradually been relaxed, and by the beginning of July 2020 the pandemic appeared largely under control. As a result, from July 1 onwards, many of the COVID-19 measures were further relaxed by the government: the maximum of people that could visit a pub, restaurant or recreational/cultural venue was increased to 100 (but subject to 1.5m distance), people were allowed to participate in sport competitions, and those working from home, were – although not recommended – (partially) allowed to go to the office. However, on October 14 2020 the Dutch government tightened the COVID-19 containment measures again to combat a second wave of infections. Cafes and restaurants were closed again, as well as cinemas, museums, theatres, sports clubs, conference centers and sport events were

82. See the press release https://www.cbl.nl/pinnen-als-voorzorgsmaatregelen-tegen-coronavirus/ (in Dutch). Also the WHO (2020) has been advising to not use paper tender and to use as many cashless options as possible to help contain the spread of the coronavirus.

cancelled. On December 15 2020 the Dutch government took a third set of measures in order to mitigate the impact of new more contagious COVID-19 variants. For instance, it closed all schools and non-essential service providers as well as non-essential shops. The interplay between containment measures, as described by the so-called Oxford OSI index, and the number of daily COVID-19 related hospitalizations is shown in Figure 1.

Figure 1: Containment measures and COVID-19 hospitalizations in the Netherlands



The remainder of this paper is structured as follows, section 2 reviews the related literature on the main drivers of payment patterns as well as the potential impact of COVID-19 on payment behaviour. Section 3 briefly describes the payment data and diary setup, while section 4 presents our main stylized facts and results. We end with a discussion and conclusion in Section 5.

2. Related literature

In the past decades numerous studies were conducted on the drivers of payment patterns and how to influence them. A wide range of factors emerges. Various studies find that cash usage increases with age, decreases with education and income, and negatively correlates with transaction amount (e.g. Jonker 2007; Arango-Arango et al. 2018, Wang and Wolman 2016). Moreover, it is shown that

payment choice depends on the ability to monitor liquidity (von Kalckreuth et al. 2014), keep control of one's budget (Hernandez, Jonker and Kosse 2017) and the perceived speed of payment, its user-friendliness, and safety (Jonker 2007; Schuh and Stavins 2010; van der Cruijsen and Plooij 2018). Financial incentives matter too (Arango-Arango et al. 2018; Bolt et al. 2010; Stavins 2018; Simon et al. 2010). In addition, payment behaviour depends on how well a payment instrument is accepted at the POS (Bagnall et al. 2016; DNB 2020a).[83]

In spite of this large literature on the drivers of payment behaviour, relatively little is known about the effect of external shocks on consumers' payment behaviour. Using 2005-2008 data on the Netherlands, Kosse (2013) shows that newspaper articles on skimming fraud has a limited but significant negative impact on debit card usage on the same day. However, these small effects of informational shocks do not sustain or accumulate in the long run. In a recent paper, Choi and Loh (2019) find empirical evidence that downsizing the network of ATMs in Singapore – a densely populated city – has increased customers' travel distances to ATMs and increased their usage of the bank's digital platform.

The COVID-19 pandemic offers a unique opportunity to study to what extent external shocks and associated containment measures by the government, banks and retailers can result in a change in payment behaviour and payment preferences. There are a few first studies. According to Chen et al. (2020) there is some early survey evidence from Spring 2020 that cash usage at the POS by Canadian citizens has decreased at the expense of debit and credit card payments, but that the role of cash as a store of value has somewhat increased. In particular, a third of the survey respondents reported that they had decreased their use of cash in response to the pandemic. Similarly, based on a yearly payment diary carried out in the U.S., Coyle et al. (2021) find that, in general, respondents hold more cash in their wallet and as a store of value in their homes, compared to trends reported in the 2019 diary. Moreover, focusing on changing payment behaviour, the results show that approximately 20% of the respondents have switched to paying online or over the phone.

83. There is a limited number of studies showing the importance of socio-psychological factors – e.g. social norms, attitudes, perceptions and feelings – for payment behaviour (van der Horst and Matthijsen 2013; Khan et al. 2015; van der Cruijsen and Knoben 2020; van der Cruijsen and van der Horst 2019).

Other recent reports show that the pandemic has accelerated the use of electronic payment instruments in Europe. Four out of ten respondents in an ECB study carried out in July 2020 say they use less cash since the start of the COVID-19 pandemic and a majority of these people expect to stick to this behaviour after the pandemic has faded away (ECB 2020). The fact that electronic payment instruments have been made more convenient is the most often mentioned reason for the change in behaviour. In a recent report by the Danish central bank (Danmarks Nationalbank 2020), the analysis shows that contactless and online payments quickly gained ground while cash payments fell during the lockdown in the spring of 2020. More specifically, 30% of the Danish respondents reported increased payment card use relative to before the lockdown, and 41% reported less cash usage. The Danish study also indicates that the use of cash gradually increased during the reopening of the economy by the end of August 2020. In addition, online payments have returned to pre-lockdown levels in Denmark.

In Mínguez et al. (2020) information on card usage is used to estimate the drop in consumptive expenditures during the lockdown in Spain. The analysis shows that immediately after the start of the full lockdown and the state of alert was declared in Spain, a drastic drop of around 50% (y-o-y) in payment card spending and ATM withdrawals was observed. Payment card spending returned back to normal levels by the end of June 2020, while ATM withdrawals remained well below 2019 levels. Online purchases in Spain have shown a large increase and this trend seems persistent. Using transaction data from Dutch customers of ABN AMRO bank, Golec et al. (2020) attempt to separate the economic effects of voluntary responses to COVID-19 from those attributable to government lockdown measures. They compare municipalities that experienced large COVID-19 outbreaks with municipalities that had few or no cases. Their findings suggest that in municipalities with higher levels of infections, the impact on consumption is larger.

3. Payment data

Given the COVID-19 outbreak and its associated measures by the government, banks and retailers, we expect a reduction of the share of POS transactions paid in cash and an increase in the share of electronic payments

since the lockdown. Moreover, there may be reasons to believe that this change in payment usage is escorted by a shift in payment preferences causing a long-lived shift in payment behaviour. It is likely that at least part of the group of prior non-users who made the step towards paying contactless and experienced the convenience and ease of paying contactless, became enthusiastic about this payment method and changed their payment preferences accordingly. Second, payment preferences depend on perceived payment instrument characteristics. COVID-19 has changed the relative cost and benefits of different payment methods in terms of health risk and safety, ease of use and likelihood of acceptance. Third, social norms may have changed. People may infer that the social norm has moved toward paying contactless and not to using cash if more and more people do so. Prior research has shown that people copy the payment behaviour of others (van der Cruijsen and Knoben 2020).

To assess the impact of COVID-19 on consumers' payment behaviour and preferences we use unique payment diary data collected from Dutch consumers. De Nederlandsche Bank (DNB) and the Dutch Payments Association (DPA) commissioned the data collection. The main goal of the DNB/DPA Survey on Consumers' Payments (SCP) is to monitor consumers' payment behaviour at the POS (Jonker et al. 2018). Members of the *GfK* market research-panel, aged 12 years and over fill out the questionnaire. The results give a representative picture of cash and debit card usage at the POS by the Dutch. Survey participants register their payment behaviour on the registration day. They give detailed information about the transactions they made during the day such as the payment instrument used, how much they spent at each POS, and what sector the POS belongs to. In addition, participants answer an additional questionnaire. We use this part to get insight in payment preferences.

For our analysis of payment behaviour and payment references we use data from January 1 2019 until December 31 2020. For our analysis of payment preferences we used information from all participants. This results in information from around 48,000 different people. On average, we have close to 70 diaries per day. For our analysis of payment behaviour we selected the payment dairies where the respondent made at least one payment at a POS on the registration day. We exclude payments that were not made with cash

or the debit card, leaving us with more than 63,000 POS payments. We focus on cash and debit card usage, as these are by far the most frequently used means of payment at the POS in the Netherlands.

4. Main stylized facts and results

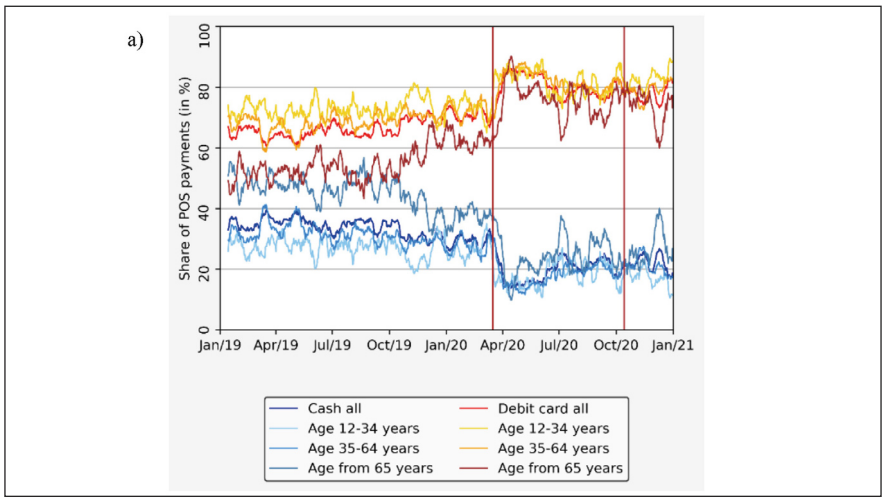
Figures 2 and 3 show the change in payment behaviour and payment preferences over time. Figure 2a shows 14-days moving averages of the share of POS payments made by cash or by debit card between January 2019 until December 2020 by age class and Figure 2b by income class. We highlight three key moments in time (vertical lines): the start of the lockdown on March 16 2020, the start of the second lockdown on October 14 and the implementation of a set of additional containment measures on December 15. At the start of 2020, the proportion of cash in the total number of cash and debit card POS payments still stood at 31%. Bottoming out at 13% on 12 April 2020, cash transactions rebounded to 23% at the end of June. Overall, this suggests that a large part of the shift in payment behaviour appears to be persistent because from the second half of July onwards no major changes have been observed in consumers' payment behaviour. While the decrease in cash use is seen across all age groups, it is most pronounced among consumers older than 65 (see Figure 2a). However, in this age group there seems to be a trend back to normal as well, which was only temporarily reversed in December 2020 after the second set of measures in the second lockdown. Thus, this age group appears to be very responsive to the containment measures.

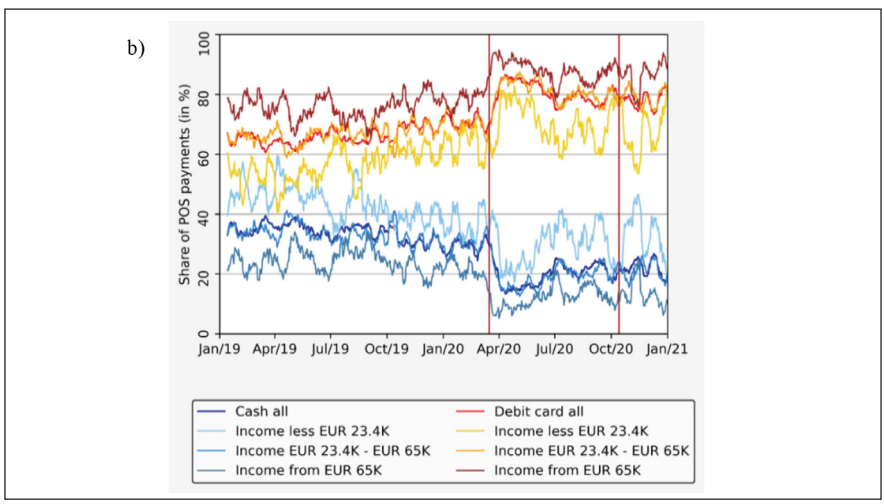
With respect to people from different income groups, we also observe a drop in cash usage at the start of the first lockdown (see Figure 2b). This decline was largest for people in the lowest income group. Many consumers who reduced their cash payments since the COVID-19 pandemic first broke out, still made fewer cash payments at the end of the year. However, those in the lowest income group did not. They have reverted almost entirely to their previous payment behaviour. In February 2020, just before the pandemic started, they used cash for 41% of their purchases, and at the end of the year this percentage stood at 39%.

Consumers in the Netherlands have given various reasons for the change in their payment behaviour at the POS (DNB 2020b). The most frequently

cited reason was that merchants strongly encouraged them to pay contactless or they did not accept cash (37%). Consumers also responded that they paid electronically more often because the government advised them to do so (36%), because paying electronically has been made more convenient, or because the virus can be transmitted via banknotes or through hand-to-hand contact with the cashier (29% for all three).

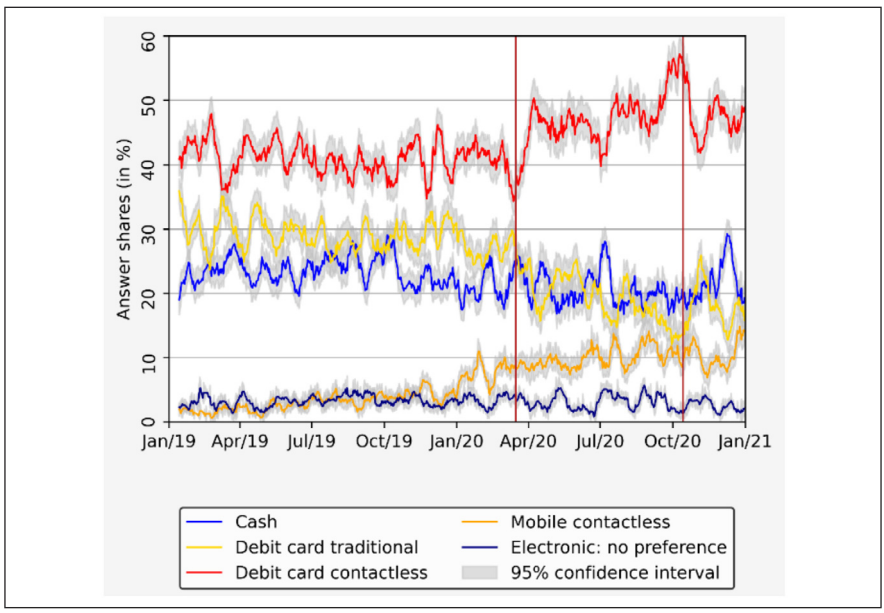
Figure 2: Payment usage (2019-2020) – by age and income group





Payment preferences have also changed considerably since the start of the lockdown; contactless payments clearly gained ground. Figure 3 shows 14-days moving averages of the share of people preferring different payment methods during January 2019 until December 2020. Since March 16 2020 substantially more people developed a preference for paying contactless, whereas the share of people preferring to pay with their debit card in the traditional way (so by inserting the card into the payment terminal and providing a PIN code) decreased. Both paying contactless by debit card and mobile phone became increasingly popular. The share of consumers preferring these payment instruments increased from 39% to almost 49%, respectively, from 7% to 10%, so a combined total increase of 13 percentage points. This occurred mainly at the expense of the share of people preferring to use the PIN debit card, which dropped from 29% to 19%. Surprisingly, the share of people preferring to pay with cash only declined by 1 percentage point, from 21% to 20%.

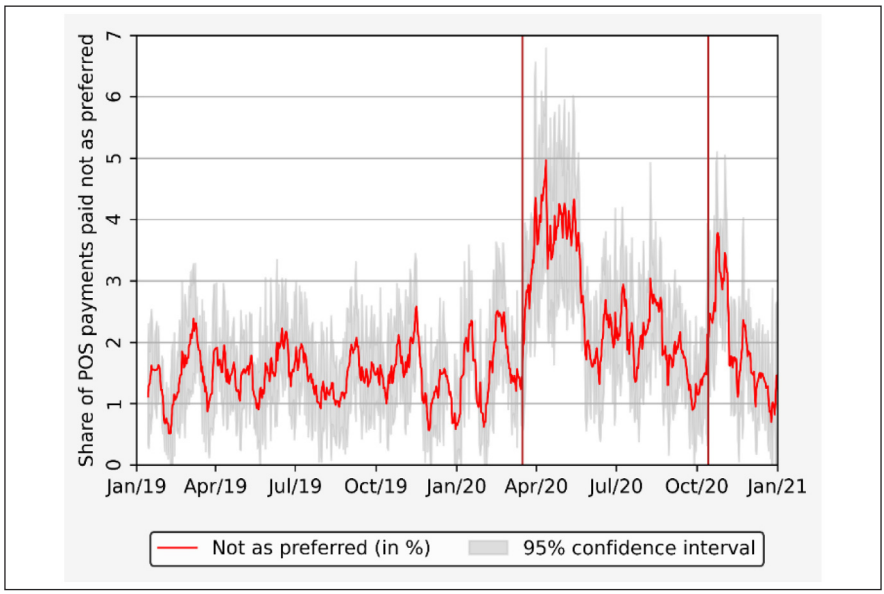
Figure 3: Payment preferences (2019-2020)



Note: 14-days moving averages

Relatedly, Figure 4 depicts the percentage of people unable to pay in their preferred way. We observe a peak after the first lockdown, which seems to subside relatively quickly as people get used to the new status quo. After the end of the lockdown another peak is observed, which may indicate that people were able to go out and shop again, but cash payments were still not possible in many places. Then, after the second lockdown comes into force, there is no indication of a substantial effect.

Figure 4: POS payments not with preferred instrument (2019–2020)



Note: 14-days moving averages

A more detailed regression analysis (using data until October 13 2020) shows that the COVID-19 pandemic has led to an increase in the likelihood of a debit card transaction at the POS in the Netherlands at expense of cash (Jonker et al. 2020). Since the start of the March lockdown the likelihood that consumers use their debit card instead of cash increased by 13 percentage point compared to debit card usage before the lockdown. Moreover, empirical evidence suggests that part of the shift in payment behaviour may be long-lived. That is, about 60 percent of this shift has persisted seven months after the start of the pandemic in the Netherlands.

Furthermore, the likelihood that someone prefers to pay contactless increased by debit card by 8 percentage points compared to before the lockdown, whereas the likelihood of preferring to use the debit card with a PIN code decreased with 6 percentage points. There appears to be no significant effect of the pandemic and associated containment measures on the likelihood that people prefer to use cash or their mobile phone. More importantly, there is no reversal of payment preferences after the end of the first lockdown. These results suggest that the changes in payment behaviour and payment preferences stem for a large part from the measures taken by government, banks and retailers and are not caused directly by the fear of getting infected. The likelihood of using the debit card for payments and the likelihood of preferring contactless do not significantly relate to the severity of the pandemic, which is proxied by the number of new infections by province (Jonker et al. 2020).

5. Conclusions

In our analysis, we find that COVID-19 and its associated containment measures initially led to a 13 percentage point increase of the likelihood of debit card versus cash usage. The impact of the pandemic on people's payment behaviour appears to be mainly triggered by the containment measures to control the pandemic. In addition, for many people payment behaviour has not returned to pre-COVID-19 levels. The share of cash payments at the POS has only partially reversed since its lowest point in April 2020. Thus, at least part of the effect appears to be persistent, although it seems too early to tell what part of the shock is temporary and what part of the shock is permanent. Also, we conclude that the lockdown did not have a homogeneous impact on people's payment behaviour; the effect differs across age classes and income classes. Elderly people older than 65 and people with low income seem to return to their pre-COVID payment behaviour to a larger extent relative to younger age and higher income groups. Their payment behaviour seems to fluctuate more implying that the availability of cash remains important for these groups.

Overall, our results suggest that payment behaviour will not return to its pre-pandemic level in the future as payment preferences of many people have

changed. Substantially more people now prefer to pay contactless. The share of people preferring to use their debit card with a PIN code has seen a large decline, whereas the share of people fond of cash usage only slightly declined. There are several possible interpretations for the persisting lower share of cash usage. People who preferred to use cash may have continued to pay electronically because of the fear of getting the virus. It could also be that they still perceive that retailers and other people do not want them to pay by cash. Paying electronically may now be perceived as the new social norm. COVID-19, together with its associated containment measures, may have helped to break old social norms. Another plausible explanation is that COVID-19 and the subsequent measures have induced people to break their cash habits.

Our findings provide a better understanding of how an external health shock and its associated measures by the government, banks and retailers can shift payment behaviour and payment preferences. Only within a few months' time, a persistent change in payment behaviour appears to have taken place that, if we extrapolate pre-pandemic trends, normally would have taken several years. Compared to other external shocks, the impact of the pandemic on payment behaviour has been relatively large in magnitude and long-lasting in duration.

The COVID-19 pandemic is reshaping consumer shopping and retail payments across the globe. Although consumer spending is likely to recover over time, the way people shop and pay for goods and services may persistently change. At the same time, this creates new opportunities for banks and other payment providers to speed up the provision of contactless and online payment services. However, there is a group of elderly and low-income people that prefers to stick to cash. These people may on average be less digitally able or use cash as a way to monitor and manage their spending. Also, they may prefer some specific properties of cash, such as the anonymity of a cash payment, or perceive cash as less risky than digital money. For them, cash is still king.

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