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When and how to un-wind COVID-support measures to the banking system?

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When and how to unwind COVID-support measures to the banking system?

Abstract

This in-depth analysis proposes ways to retract from supervisory COVID-19 support measures without perils for financial stability. It simulates the likely impact of the corona crisis on euro area banks' capital and predicts a significant capital shortfall. We recommend to end accounting practices that conceal loan losses and sustain capital relief measures. Our in-depth analysis also proposes how to address the impending capital shortfall in resolution/liquidation and a supranational recapitalisation.

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LIST OF ABBREVIATIONS

BRRD	Banking Recovery and Resolution Directive
CBR	Combined buffer requirements
CCyB	countercyclical capital buffer
CET1	Common Equity Tier 1
CRD IV	Capital Requirements Directive IV
CRD V	Capital Requirements Directive V
CRR	Capital Requirements Regulation
EAD	Exposure at default
EBA	European Banking Authority
ECB	European Central Bank
ESM	European Stability Mechanism
ESRB	European Systemic Risk Board
EU	European Union
FASB	Financial Accounting Standards Board
FOLTF	Failing or likely to fail
GDP	Gross Domestic Product
GFC	Global financial crisis
IAS 39	International Accounting Standard 39
IASB	International Accounting Standards Board
IFRS 9	International Financial Reporting Standard 9
IMF	International Monetary Fund
IRB	Internal rating based approach

LGD	Loss given default
LCR	Liquidity coverage ratio
NPL	Non-performing loans
O-SII	Other systemically important institutions
PD	Probability of default
P2G	Pillar 2 Guidance
P2R	Pillar 2 Requirements
SA	Standard approach
SICR	Significant increase in credit risk
SRB	Single Resolution Board
SREP	Supervisory Review and Evaluation Process
SRF	Single Resolution Fund
SRMR	Single Resolution Mechanism Regulation
SSM	Single Supervisory Mechanism
SyRB	Systemic risk buffer
TARP	Troubled Asset Relief Program

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EXECUTIVE SUMMARY

In the current crisis, public authorities took several unprecedented measures to support the economy. Importantly, EU regulators and supervisors gave banks leeway in meeting regulatory requirements. In general, temporary capital and liquidity relief measures during a recession are well justified to avoid procyclicality and to help ensure continued lending by banks. However, keeping these measures in place for too long can amount to forbearance that ultimately weakens the banking sector. The recent European experience shows that undercapitalised banks loaded-up with a vast amount of government debt, shrunk their loan books and thus slowed the economic recovery after the Global Financial Crisis (GFC). Against this background, this policy briefing discusses when and how to unwind banking supervisory relief measures.

Based on a simulation exercise based on German micro level data, we conclude that unwinding the corona support measures would likely result in a significant deterioration of European banks' capital ratios, despite their high Common Equity Tier 1 (CET1) ratios. This implies that strict enforcement of regulatory requirements during the pandemic outbreak crisis would have likely triggered a new banking crisis, providing a rationale for COVID-19 support measures.

However, the simulation exercise also illustrates that specific supervisory relief measures, i.e. allowing banks to deviate from International Financial Reporting Standard 9 (IFRS 9) requirements and applying moratoria for supervisory purposes, may create severe frictions, as current balance sheets do not reflect the actual solvency status of banks. Such lack of transparency creates a challenge for investor confidence and ultimately jeopardises financial stability. In fact, we believe that looming downsides of insufficient provisioning facilitated by inadequate accounting methodologies already impair investor confidence. The corona pandemic affected the macroeconomic environment quite similarly across Europe, albeit with different orders of magnitude. Therefore, our analysis can be interpreted as representing a lower bound for the macroeconomic shock euro area economies experience due to the pandemic.

Therefore, the European Central Bank (ECB), jointly with the European Banking Authority (EBA) and the European Systemic Risk Board (ESRB), should use the opportunity of the 2021 stress test to provide a realistic account of the asset quality of euro area banks. A realistic account of the actual state of the banking sector is specifically blurred by overly optimistic macroeconomic forecasts endorsed by the ECB for accounting purposes. These should be revised. The ECB itself acknowledges that *"maintaining the correct risk identification practices and risk management incentives"* is crucial, despite the extraordinary circumstances. In our view, this requires an instant return to realistic reporting methodologies under IFRS 9.

In principle, we believe that the current EU bank crisis management framework is suited to address many of the existing problems. In fact, the corona crisis may offer the opportunity to address legacy problems of a sustained and long-lasting undercapitalisation of euro area banks and may ultimately lead to a welfare-increasing consolidation of the European banking sector.

Banks that have no realistic prospect of fulfilling the regulatory capital prescriptions, even after an economic recovery, should be forced to exit the market. All other banks should be recapitalised following the successful example of the Troubled Asset Relief Program (TARP) in the US. In this spirit, a supranational recapitalisation fund could acquire stakes in the largest banks of all EU Member States. All healthy banks should be included in such a program to avoid coordination and signaling problems (i.e., a stigma for the weaker ones) and to avoid contagion. The closest equivalent to such an injection of government funds into ailing banks outside of resolution is the precautionary recapitalisation familiar from the European resolution framework.

1. SINGLE SUPERVISION IN THE BANKING UNION IN TIMES OF COVID-19 AND BEYOND

The ECB-led supervision of banks in the banking union aims at the stringent and impartial enforcement of prudential regulation in order to safeguard financial stability and foster the single market (cf. SSM-Regulation, art. 1). However, the COVID-19 pandemic precipitated exceptional circumstances that induced regulators and central banks around the globe to deviate from steady-state policies, not only, but also *vis-à-vis* banks. The objective of these special measures was to enable banks to perform their critical function throughout the crisis and mitigate the looming economic downturn. Banks should continue to provide liquidity to the economy and a credit crunch was to be avoided. The tremendous uncertainty regarding the course of the crisis and its economic impact triggered significantly larger liquidity demands among businesses (Acharya and Steffen 2020; Schularick et al. 2020). Therefore, banks were granted some relief from prudential rules and standards in order to have more unused regulatory capital at hand to underpin their much needed lending operations.

The realistic prospect of overcoming the pandemic when highly potent vaccines finally become available in the EU begs the question of when and how to exit the exceptional supervisory relief measures (release of capital buffer requirements and adapted reporting standards as well as acceptance of moratoria for supervisory purposes, for details see section 2). We focus on these measures, as they are the only ones that can be autonomously affected by the ECB. The key concern is to avoid procyclicality, i.e. to prevent clogging liquidity flows to the real economy and thereby stalling the economic recovery from the COVID-19 crisis. Yet, extending exceptional relief measures well into the steady state will impose significant costs on the economy as well. Insufficiently capitalised banks that only survive because forbearing supervisors do not compel adequate provisioning for pending loan losses cannot extend credit to fund a swift recovery adequately. Recent research by Jordà et al. (2020) shows that economies with a weakly capitalised banking system take considerably longer to regain previous output levels after an economic shock. A closely related paper by Acharya et al. (2020) demonstrates that fiscally constrained governments in Europe often opted for supporting their banking sector through regulatory forbearance and government guarantees after the GFC. These undercapitalised banks loaded up on government debt and shrunk their loan books, i.e. they did not support the rebound of private investment and became a drag on the recovery.

Against this background, this in-depth analysis briefly describes and evaluates the most relevant supervisory relief measures geared towards euro area banks (section 2). It continues to model the potential impact of a pandemic-driven economic downturn on banks' balance sheets in order to gauge the magnitude of potential troubles the financial sector will have to cope with in the aftermath of the COVID-19 crisis. In line with prior research (e.g. Schularick et al. 2020), we find that euro area banks are likely to face a significant capital shortfall (section 3). With this in mind, we highlight ways forward that hinge on full transparency of losses and meaningful recapitalisation capacities for viable banks (section 4).

2. RELIEF MEASURES FOR BANKS IN REACTION TO THE COVID-19 CRISIS

Several supervisory measures seek to avoid a procyclical tightening of capital and liquidity requirements for banks during the COVID-19 crisis. Most of the relevant measures are geared directly towards financial institutions and come in the form of adapted supervisory practices, including recommendations regarding the application of reporting standards (2.1). Moratoria on loan repayments promulgated in Member States' legislation or based on industry-wide schemes sponsored by national banking associations also have an impact on banks' balance sheets and institutions' safety and soundness (2.2).

2.1. Direct Supervisory Measures

As an immediate response to the COVID-19 crisis, the ECB adopted a capital relief policy on March 12, 2020 (ECB 2020a). Within the Single Supervisory Mechanism (SSM), the ECB allowed banks to operate temporarily with capital levels below Capital Requirements Regulation (CRR) and Capital Requirements Directive IV (CRD IV) requirements. Banks are allowed not to comply with Pillar 2 Guidance (P2G) until at least end-2022 and can also fully use their capital and liquidity buffers.[1] Moreover, euro area banks are also allowed to employ capital instruments that do not qualify as CET1 capital to meet the Pillar 2 Requirements (P2R). This relief in the composition of P2R was originally scheduled to come into effect simultaneously with the entry of the CRD V, i.e. the ECB accelerated the already foreseen steady state reform.

In the second round of relief measures published on March 20, 2020, the ECB delivered guidance to euro area banks on provisioning for credit risk (ECB 2020b). In addition to the flexibility already foreseen in the ECB Guidance on NPL (ECB 2017), a favorable treatment of loans backed by public support measures was endorsed: even in arrears, these loans need not be qualified as non-performing. In another attempt to minimise loss recognition, on April 1, 2020, the ECB encouraged banks to apply the transitional IFRS 9 provisions foreseen in the CRR and to avoid excessively pro-cyclical assumptions in the IFRS 9 models being used to determine their provisions (ECB 2020c). More precisely, the ECB encouraged a specific approach to collectively assess the significant increase in credit risk (SICR), the use of long-term macroeconomic forecasts, and the use of macroeconomic forecasts for specific years. The critical assumptions banks could factor into their forecasts with the acquiescence of the supervisor are that (i) "*a sharp rebound in economic activity could be expected once the social restrictions have been lifted*", (ii) this rebound "*might occur within 2020*", and (iii) the "*mean reversion can be assumed earlier than under normal conditions*". We explain how credit loss provisioning under IFRS 9 potentially contributes to more procyclicality in Box 1 below.

[1] Several Member States gave banks additional breathing room by also releasing the countercyclical capital buffer (CCyB), the systemic risk buffer (SyRB) and the other systemically important institutions (O-SII) buffer, for a list of Member States' macroprudential measures see ECB (2021a). While the ECB has no competence to initiate such relief measures, it has the power to apply more stringent buffer requirements than adopted nationally, see SSM-Regulation, art. 5. Therefore, not interfering with Member States' supervisory relief decisions after notification indicates that the ECB agrees with the underlying macroprudential policy. This is consistent with the ECB's own decisions to grant capital relief for banks in reaction to the pandemic and thus forms part of a consistent policy response.

Box 1: Expected Credit Loss Provisioning and Procyclicality

The introduction of IFRS 9 for annual periods beginning on or after January 1, 2018, marked a significant change in the accounting rules applicable to capital market oriented financial institutions in Europe. The most drastic change relates to the provisioning for loans. While under the old accounting regime, i.e. International Accounting Standard 39 (IAS 39), provisioning requirements followed the incurred loss model, IFRS 9 introduced the expected credit loss approach. The experience of the financial crisis of 2007 and 2008 provides the rationale underpinning this switch. Supervisors and policy makers argued that banks recognised *too little* losses *too late* under IAS 39. Therefore, the Financial Stability Forum held that earlier recognition of loan losses could have reduced procyclicality during the crisis and asked the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) to improve the accounting rules for financial instruments on recognition and measurement (see Financial Stability Forum 2009). In Europe, this resulted in the introduction of IFRS 9 for annual periods beginning on or after January 1, 2018.

Under the incurred loss model, banks only built up provisions once a loan experienced a credit loss event, i.e. borrowers being past due with their payments, opening of bankruptcy proceedings or debt restructuring. Under this old regime, banks were not allowed to apply their own historic credit risk estimates to determine their accounting provisions. The innovation under the new IFRS 9 is that banks form provisions based on their internal models and credit risk estimates (see Bischof et al. 2021 for further details). Provisions for individual loans are calculated based on a three-stage model. Stage 1 comprises all newly extended performing loans. Provisions for stage 1 loans amount to the losses expected for the next 12 months. Once a loan experiences a deterioration of credit quality (i.e. a change from an investment grade to a non-investment grade rating or a downrating by two rating notches at non-investment grade loans), a loan migrates to stage 2. For stage 2 loans, banks already write-off the expected lifetime losses although no actual credit loss occurred at this point. Once a loan has defaulted, banks form provisions according to the loss given default of the loan (stage 3). Under IAS 39, banks formed provisions similar to these stage 3 provisions only.

The introduction of IFRS 9 introduces an enormous degree of complexity. Banks are required to determine each loan's probability of default (PD) with the help of statistical default models (similar to model based capital regulation) as well as the exposure at default (EAD), and loss given default (LGD). At the same time, the new accounting standards also increase the amount of discretion banks enjoy in forming their loss provisions. The actual impact of IFRS 9 on procyclicality has been debated in the current literature. In a theoretical model, Abad and Suarez (2017) show that whether IFRS 9 will reduce or increase procyclicality depends on banks' ex-ante willingness to build up precautionary provisions, as well as on their ability to foresee future macroeconomic shocks. Empirically, Bischof et al. (2021) show for a sample of German banks that they strategically classified too few loans as stage 2 loans around the introduction of IFRS 9. This concealment of credit risk will amplify procyclicality in the event of a shock.

Source: own illustration based on Bischof et al. (2021).

However, the ECB made it clear from the outset that, even in times of distress "*[i]n exercising flexibility, the right balance should be achieved between helping banks absorb the impact of the current downturn, on the one hand, and maintaining the correct risk identification practices and risk management incentives, on the other, as well as ensuring that only sustainable solutions for viable distressed debtors are deployed*" (ECB 2020d). The ECB also clarified its "*operational expectations regarding the management of the quality of loan portfolios, so that supervised institutions could take timely action to minimise any cliff effects with a clear understanding of the risks they were facing, thus enabling them to devise appropriate strategies*" (ECB 2021).

In addition, the ECB adopted a couple of other measures aimed at providing banks with sufficient leeway to lend throughout the crises[2] (ECB 2020d) and took a pragmatic approach in the 2020 supervisory

[2] The ECB allowed banks to operate temporarily below the 100% liquidity coverage ratio (LCR) requirement until at least end-2021. Furthermore, the ECB rescheduled on-site inspections and extended deadlines for remedial actions arising from recent on-site inspections and internal model investigations were extended. Similarly, the ECB also extended the deadline for complying with the supervisory review and evaluation process (SREP) 2019 qualitative measures by six months. Additionally, the ECB used the stick and recommended banks to preserve capital and liquidity and not to pay dividends or conduct share buy-backs in order to be able to support households, small businesses and corporate borrowers and/or to absorb losses on existing exposures to such borrowers.

review and evaluation process (SREP) that also sought to avoid additional pressure on banks' lending capacity (ECB 2021b).[3]

2.2. Moratoria on repayments

While the promulgation of moratoria that directly benefit corporate or retail debtors falls within the ambit of Member States' national legislation, the prudential treatment of deferred obligations eligible for such schemes remains a matter of banking regulation and supervision. The ECB also granted flexibility to the NPL classification of exposures covered by qualifying legislative and non-legislative[4] moratoria. If a national moratorium meets the criteria set out by the respective EBA Guidelines (EBA 2020b), the more than 90 days past due that determine default under CRR (art. 178(1)(b)) need to be counted in light of the moratorium, i.e. the revised payment schedule devised under it. COVID-19-induced payment moratoria are not considered as forbearance measures and covered exposures need not to be qualified as NPLs. However, moratoria do not suspend banks' general obligation to assess the credit quality of exposures and to qualify them as defaulting once the borrower becomes unlikely to pay (CRR, art. 178(1)(a)). Put differently, moratorium schemes have to be blind with regard to benefactors' creditworthiness, but banks are nevertheless expected to watch the solvency of individual borrowers closely.

2.3. Evaluation

The relief measures allowing banks to undercut P2G requirements, to meet P2R with lower quality capital instruments and to fully use buffers to cushion increased losses and meet heightened liquidity demands are fully aligned with the rationale that underpins the respective prudential requirements. Additional capital and liquidity requirements were put in place after the GFC to increase the resilience of banks against unanticipated shocks and thus need to be available once a crisis hits. Therefore, by design, capital buffers should be lower during a recession as suggested by Holmström and Tirole (1997).

In contrast, we judge the ECB's recommendation to use highly optimistic macroeconomic assumptions in financial reporting more critically. Contrary to the projections the ECB induced banks to use for their accounting forecasts (see Section 2.1.), macroeconomic conditions did not rebound within 2020. Furthermore, even after the first quarter of 2021, there is still significant uncertainty about future economic activity in the euro area. In any case, as a matter of principle, supervisors should audit compliance with reporting standards and not seek to influence banks' respective choices. More importantly, taking a forbearing stance that allows banks to conceal a deterioration of credit quality lowers transparency. Ultimately, investors in bank capital who feel unable to assess the actual quality of bank's assets may lose confidence in the viability of the institution and therefore start withdrawing short-term funding. The looming fragility is particularly harmful during a recession and may ultimately thwart the supervisory efforts to maintain banks' lending capacity. Finally, the lack of robust information on the actual asset quality also impedes on the effective resolution of failing banks.

In a similar vein, a broad recognition of moratoria in prudential regulation has the potential to camouflage impending losses as well. It is therefore important that the ECB remains credibly committed to compelling banks to assess the unlikely to pay-criterion.

[3] Euro area banks also gained some leeway to master the operational challenges posed by the pandemic when the EBA decided to postpone the 2020 annual EU-wide stress test to 2021 (EBA 2020a).

[4] Industry- or sector-wide private initiatives agreed and applied broadly by relevant banks.

3. IMPACT OF UNWINDING COVID-19 SUPPORT MEASURES ON EUROPEAN BANKING MARKETS

Our estimation on how retracting the COVID-19 support measures would affect the European banking sector cannot rely on current balance sheet information of European banks for at least two reasons. First, as pointed out before (2.1), banks do not apply the current macroeconomic scenario when determining their provisions. Thus, reported balance sheet figures do not reflect the adjustments banks may ultimately need to carry out. Second, the moratoria translate into a lower level of bankruptcies. Therefore, banks experienced an artificially depressed level of loan defaults. Once these indirect national measures expire, it is likely that loan defaults will accelerate.

Against this background, we conduct the subsequent simulation to bypass the shortcomings of noisy balance sheet information. We collect information on banks' loan portfolios and capital positions prior to the corona pandemic. Based on this data, we simulate recession shocks of different magnitudes. Doing so allows us to estimate how the corona shock would impact banks' capital ratios, once the ECB unwinds the COVID-19 support measures. Before performing the simulation, we briefly assess banks' capital positions prior to the pandemic to better understand the backdrop conditions of the European banking sector.

3.1. Status of current regulatory environment and Europeans ability to withstand shocks

Since the last financial crisis, extensive regulatory efforts – culminating in the final version of the Basel III Accord still pending implementation into European law – increased minimum capital requirements and sought to make them more responsive to macroeconomic and idiosyncratic shocks.[5] Figure 1 below summarises the quarterly development of CET1 ratios from 2016 to the end of 2020 for European banks. As a result of regulatory tightening, we observe a constant increase of the average CET1 ratio. In December 2019, the CET1 ratio of significant institutions directly supervised by the ECB stood at 14.9%. When interpreting CET1 ratios since the outbreak of the corona pandemic, a caveat is that these figures are affected by the support measures described above. Once these are reversed, actual CET1 ratios would likely be considerably lower. In the next subsection, we aim at estimating the impact of such a policy action.

[5] While the final Basel III Accord's implementation is still pending, many of the reforms have been implemented since the publication of the original version of the Accord in 2013.

Figure 1: Quarterly developments of CET1 ratio, ECB Supervisory Review, January 2021.

Source: ECB supervisory statistics.

3.2. Impact on banks' solvency when support measured would be unwound

We aim to quantitatively assess the impact of unwinding the current relief measures. The ECB's capital relief decision and its stance to afford banks' more leeway in setting their provisions constitute the most relevant support measures (see 2.1). Unwinding these support measures would be equivalent to ask banks to adjust their provisions to the current macroeconomic environment. Furthermore, banks would be required to comply with the full-fledged capital requirements including buffers and P2G.

We conduct a simulation in order to obtain an estimate of the impact such a policy reversal may have. The data and methodology of this simulation are borrowed from a recent paper by Bischof et al. (2021). Given that we have only access to micro level data of German banks, the simulation can only be conducted for this sample. However, we believe that our results can be transferred to a broader European context, for the reasons set out below.

Box 2: Methodological Details of the Simulation

The sample of the simulation comprises the 64 German banks that are required to determine their provisions under IFRS 9. All listed companies in the EU were mandated to apply IFRS 9 for financial years beginning in 2018. Out of these 64 sample banks, 45 banks determine their regulatory capital requirements based on internal risk models, i.e. apply the internal rating based (IRB) approach. The remaining 19 banks operate under the so-called standard approach (SA) which uses risk weights stipulated in CRR that sometimes hinge on external ratings. The aim of the simulation is to assess the impact on bank capital of a shock that is similar in magnitude to the current pandemic recession. The methodology and sample is taken from Bischof et al (2021). All data items are based on Deutsche Bundesbank's supervisory data sets.

We take the pre-corona loan portfolios of the 64 banks in the sample as our starting point. Given that the corona crisis reached Europe in February/March 2020, the credit register data of 2019 Q4 constitutes the relevant pre-shock point in time. The credit register does not indicate the IFRS 9 classification of individual loans (see Box 1 for details). To obtain the IFRS 9 classification, we use past information from the credit register. More specifically, each loan is tracked back to its origination. At origination, each new loan is classified as stage 1. If a loan is rated 'investment grade' at issuance and later obtains a non-investment grade rating, the loan will be classified as stage 2 from that date onwards. If a loan is rated 'non-investment grade' at issuance and the loan's rating deteriorates by more than one rating notch over time, it will also be classified as stage 2 from this date onwards. In the case of a loan default, it is classified as stage 3. Based on this exercise, we obtain the relevant IFRS 9 classifications for each loan in the credit register at 2019 Q4.

Next, we determine the magnitude of the recession shock. For that purpose, we cannot take the credit risk parameters of the 2020 recession because the ECB allowed banks to assume a highly optimistic macroeconomic scenario for these credit risk measures (see 2.1). Figure 2 shows that the recession of 2009 produced a shock similar to the 2020 recession in Germany. We thus measure how credit risk parameters (i.e. PDs and LGDs) changed from 2008 Q1 to 2010 Q1. By doing so, we obtain credit risk estimates of a similar recession where provisioning rules had not been affected by permissive supervisory interference. Each loan is assigned to a rating class from AAA to D based on its PD both in 2008 Q1 and 2010 Q1. By aggregating this information from all borrowers, we obtain a migration matrix for each rating class. This matrix indicates the probability that, after the recession hits, a given loan migrates from one rating class to another. If we aggregate the migration matrix over the three IFRS 9 stages, we obtain the following values: under the scenario of the 2009 recession the probability of a stage 1 loan to remain a stage 1 loan during the recession is equal to 74.35%; the probability of a stage 1 loan to deteriorate to stage 2 is 23.36% and the probability that such a loan defaults (i.e. becomes stage 3) is 2.30%. For a loan being classified as stage 2 before the recession, there is a 26.63% probability that this loan will improve to stage 1, and a 68.32% probability that the loan will remain in stage 2; with a probability of 5.05% that the loan will default.

We now apply this migration matrix to each loan in the pre-pandemic credit register dataset. Figure 3 illustrates how the simulated recession impacts the composition of the portfolios of stage 1, stage 2 and stage 3 loans. Banks report LGDs on the loan-portfolio level depending on the average credit ratings of the borrower. To determine the corresponding loan loss provisions (LLPs) for stage 1 loans, we multiply the share of loans with the average PD and the average LGD. For stage 2 loans we compute the corresponding loan loss provision assuming an average maturity of three years. Since banks have to cover the expected life time loss, the provisions are calculated in the same way as for stage 1 loans but multiplied by three. Provisions for stage 3 loans are equivalent to the LGD. Summing up, the LLPs of three different stages provide the amount of write-offs banks have to conduct as a percentage of the total loan volume. The difference between the LLPs of the pre-shock scenario and the provisions of the recession scenario constitute the additional provisions banks have to deduct from their equity capital as a consequence of the projected 2020 recession scenario. These values are shown in Figure 4.

A recession further impacts the calculation of risk-weighted assets in case banks apply the IRB approach to determine their regulatory capital charges. The main characteristics of this approach are internal default models that determine the PD for each loan. These PDs are then mapped via the so-called Basel function to determine banks' risk-weighted assets. These risk-weighted assets constitute the denominator of banks' regulatory capital ratio. We apply the migration matrix described above to the pre-corona loan portfolio to determine how the risk weight of a specific loan changes due to the recession. Of course, we only estimate the changes in risk-weighted assets for those banks whose regulatory capital requirements are determined by the IRB approach.

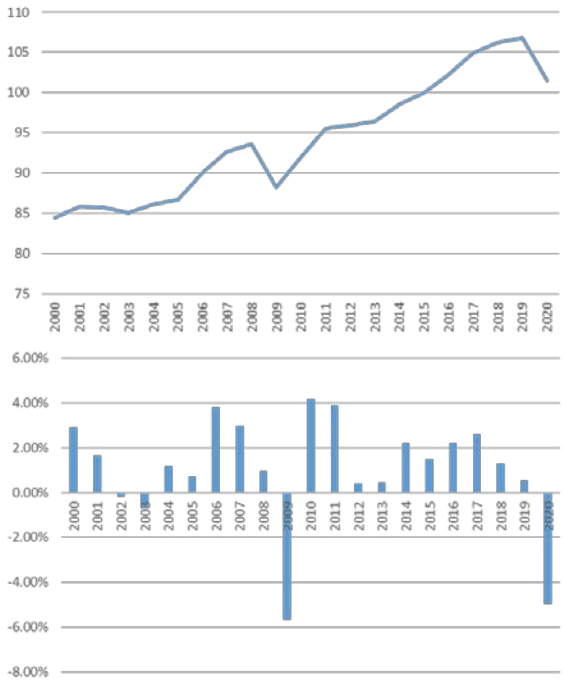
Source: Bischof et al. (2021).

By its very nature, the corona pandemic affected the macroeconomic environment quite similarly across Europe, albeit with different orders of magnitude. According to the IMF World Economic Outlook Database, October 2020, the real gross domestic product (GDP) growth rates for the year 2020 were -9.8% in France, -6.0% in Germany, -12.8% in Spain, -9.8% in the United Kingdom, and -10.6% in Italy. Therefore, our analysis for Germany can be interpreted as representing a lower bound for the

macroeconomic shock euro area economies experience due to the coronavirus pandemic.[6] We also focus only on capital market oriented banks, i.e. those banks that are required to apply the new IFRS 9 standard to determine their provisions. This is important for our simulation since these banks are the main benefactors of the current relief measures.

The idea of the simulation is quite simple. We take balance sheet and credit register information of German banks before the spread of the corona pandemic (i.e. end of 2019 figures). In the next step, we take a historic recession that resembles the corona induced downturn. In Figure 2, we plot the German GDP since 2000. We can see that the 2009 and 2020 recessions are of very similar magnitudes (i.e. a drop in GDP growth by -5.7% in the 2009 recession as compared to a decline of -5.0% in 2020). Further, both the 2009 and the 2020 recession came as a surprise given that they were caused by unexpected shocks (i.e. Lehman bankruptcy/U.S. subprime crisis and the corona pandemic). There are several reasons why the corona recession shock is likely to be more severe than the 2009 recession. First, insolvencies in the corporate sector could accelerate once public aid programs expire (see e.g. the moratoria discussed in Section 2.2). Thus, the current GDP figures do not incorporate potential insolvencies that may occur once the public aid programs end. Second, recovery of the 2009 recession was very fast for the German economy and the 2020 recession has not come to an end yet. We thus design the second scenario (factor 1.5) in which we assume that the magnitude of the downturn we will observe in the aftermath of the COVID-19 crisis will be 1.5 higher the one observed in the 2009 recession.

Figure 2: Gross Domestic Product Germany; 2015=100



Source: Deutsche Bundesbank.

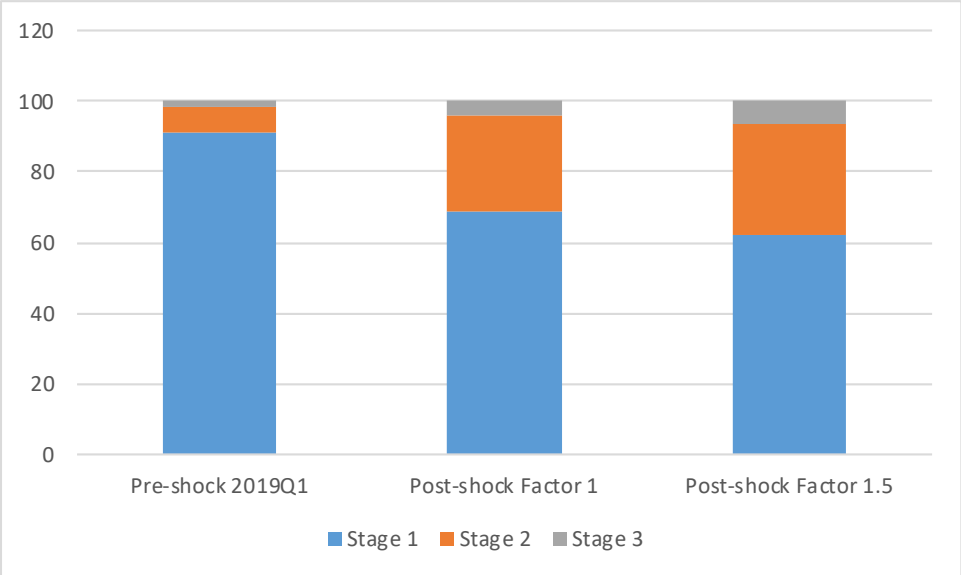
We now refer to credit register data around the 2009 recession and measure how this recession impacted loan portfolios of German banks (see Box 2 for details with regards to the methodology). While different types of loans might be affected during the 2020 recession, the aggregate impact on the rating migration is likely to be similar in any recession. The migration matrix obtained from the 2009 recession is then applied to the pre-corona loan level data of German banks. We believe our findings can

[6] As explained in detail below, we also consider a recession scenario in the magnitude of 1.5 times the German recession.

be essentially carried over to the European context. The implicit assumption is that the structure of German banks' loan portfolios is similar to that of banks chartered in other European countries. While this is a fairly strong assumption, it is impossible to verify without access to loan level data. Nevertheless, we do not see obvious reasons why loan books of similarly situated public banks should be affected in a systematically different way. Moreover, the average levels of NPLs in German banks tend to be rather low by European standards. Therefore, our simulation can be considered to illustrate lower bound effects.

In Figure 3, we illustrate how such a recession shock would impact the composition of banks' loan portfolios. While 1.5% of all loans were non-performing in the pre-corona period, our simulation implies an increase in these NPLs (stage 3 loans) to 4.04% under the 2009 recession scenario and an increase to 6.21% if we assume the 1.5 factor shock. While an increase in NPLs is an obvious characteristic of a recession shock, it is unclear what happens to the fraction of loans that are classified as "risky" (i.e. stage 2 loans) around the shock. If banks build up provisions in a conservative manner during good times, the fraction of these performing "risky" loans may decrease since some of them now migrate to non-performing. If banks, however, provisioned only few loans in good times, the fraction of performing "risky" loans may increase during a recession. This is exactly what our simulation yields. While these so-called stage 2 loans make up only 7.35% of total loans in the pre-corona loan portfolios, this number increases drastically to about 27% for the factor 1 scenario to even about 32% for the factor 1.5 scenario. Given that banks have to write off the expected lifetime loss for these stage 2 loans, this result already suggests a strongly procyclical impact in case supervisors would demand banks to rapidly comply with the IFRS 9 rules.

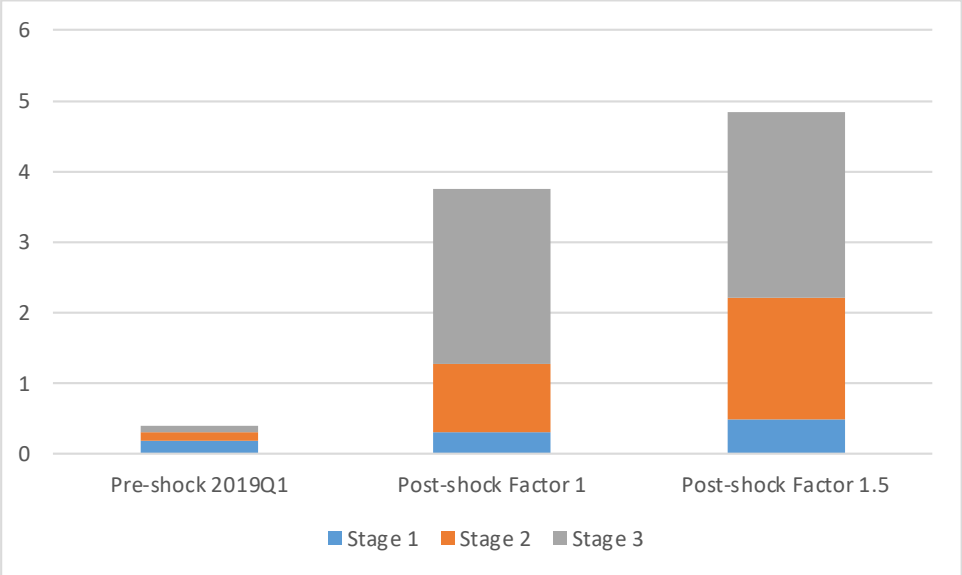
Figure 3: Composition of banks' loan portfolio



Source: Bischof et al. (2021), own illustration.

The impact expressed in value terms of this simulation on loan loss provisions is shown in Figure 4. Total provisions made up about 1% of the total loan portfolio before the corona shock, which increases to about 2.8% under the factor 1 scenario and to 5.2% under the factor 1.5 scenario. The difference between these numbers are the extra provisions banks have to write off due to the recession (1.8% or 4.2% depending on the scenario).

Figure 4: Change in loan loss provisions



Source: Bischof et al. (2021), own illustration.

Banks' capital ratios do not just deteriorate due to provisions but also due to higher risk weights used for capital ratio calculations once credit risk parameters worsen under the internal rating based approach. While in principle banks are supposed to apply through-the-cycle credit risk estimates for their internal default models, the experience of the 2009 recession is that borrowers' probability of defaults (PDs) do, on average, increase during a recession. As explained in Box 2, we do adjust borrowers' risk-weighted assets in a similar way as we have adjusted the provisions for both scenarios. The combined impact of the recession on pre-corona loan portfolios is summarised in Table 1.

Table 1: Bank capital ratios adjusted to corona shock scenarios

	IFRS 9	IAS 39
Factor 1		
Pre-shock Tier 1	17.31%	17.31%
Post-shock Internal Rating Based Approach	11.97%	13.10%
Post-shock Standard Approach	13.50%	14.79%
Factor 1.5		
Pre-shock Tier 1	17.31%	17.31%
Post-shock - Internal Rating Based Approach	8.46%	10.95%
Post-shock Standard Approach	9.57%	12.50%

Source: own calculation.

Our simulation implies a drastic decline of banks' Tier 1 ratio in the recession scenarios if COVID-19 relief measures were to unwound rapidly. Before the event, the sample banks had an average Tier 1 ratio of 17.31%. Under the factor 1 scenario and the factor 1.5 scenario, this ratio would shrink to approximately 11.07% and 8.46%, respectively.[7] In this case, a considerable fraction of bank assets would not be covered by required regulatory capital: about 16% of bank assets in the factor 1 scenario and about 42% of bank assets under the factor 1.5 scenario.

Our simulation illustrates how current capital requirements and their interplay with accounting standards amplify procyclicality once banks are hit by an unexpected shock, such as the corona recession. If banks still operated under the incurred loss model (i.e. IAS 39), the same recession shock would have resulted in considerably lower additional write-offs, i.e. a Tier 1 ratio of 13.1% and of 11% for the different scenarios respectively. Note that this finding is in line with previous literature on the procyclical impact of model-based capital regulation (Behn et al. 2016). As shown in the last row of Table 1, Tier 1 ratios would be considerably higher during this recession if banks operated under the standard approach. The combination of the internal rating based approach and IFRS 9 is a toxic accelerant for procyclicality.

[7] Our figures can be compared and are roughly in line with the ECB's corona vulnerability analysis of July 2020, (ECB 2020e). The ECB found for its central scenario that banks' aggregate CET1 ratio will be depleted by approximately 1.9 percentage points to 12.6%, and by 5.7 percentage points to 8.8% in the severe scenario.

3.3. Main take away from the simulation

Our simulation indicates that despite the currently reported high CET1 ratios of European banks (see Figure 1), unwinding the corona support measures would likely result in a significant deterioration of banks' capital ratios. The numbers provided by our simulation are likely a rationale for the ECB's move to encourage banks to deviate from the IFRS 9 provisioning requirements during the corona pandemic. A strict implementation of these rules would have probably triggered a new banking crisis.

However, this result illustrates the main issue with the current support measures. While temporary capital and liquidity relief measures – including those taken on the national level and acquiesced by the ECB – simply allow P2G and capital buffers to perform their intended (and expected) cushioning function in unexpected stress scenarios, lenience towards insufficient provisioning, i.e. allowing banks to deviate from IFRS 9 requirements and applying moratoria for supervisory purposes also, has the potential to create severe frictions. Banks' current CET1 ratios do not reflect the actual solvency situation of these institutions. This lack of the much-needed transparency creates a challenge for investor confidence and ultimately increases the fragility of the financial sector (see 2.3). In fact, we believe that looming downsides of insufficient provisioning facilitated by inadequate accounting methodologies already impair investor confidence.

4. HOW TO UNWIND COVID-19 SUPPORT MEASURES

Our in-depth analysis yields several results on how the ECB should retract from its COVID-19 support measures.

In the short term, the ECB should deliver on its promise to pay attention to *"maintaining the correct risk identification practices and risk management incentives"* despite granting supervisory relief. In our view, this requires an immediate return to realistic reporting methodologies under IFRS 9. The overly optimistic macroeconomic forecasts of a fast and momentous rebound of the euro area economies in 2020 already (see 2.1) are refuted not only by the year-end data indicating a deep recession for key economies (see 3.2.), but also by the ongoing lockdowns that continue to hamper economic activity in the Member States. These adequate accounting practices must also be restored to safeguard financial stability. Investors in bank capital need to regain confidence that euro area banks are forming provisions according to actual credit risks. Should the wedge between actual macroeconomic developments and the long-term forecasts used under IFRS 9 continue to grow, it becomes rational for investors to withdraw their funding for banks, thereby precipitating a banking crises. The ECB should, furthermore, continue to support adequate provisioning by sustaining capital relief measures that allow banks to use buffers and P2G to cushion impending losses and to lend to the economy.

Additionally, we believe that the looming risk of inadequate provisioning resulting from inadequate accounting methodologies already impairs investor confidence. The ECB, jointly with the EBA and the ESRB, should therefore use the opportunity of the 2021 stress test to provide a realistic account of the asset quality of euro area banks. After the publication of the methodology (EBA 2021a), the adverse scenario (ESRB 2021) and the market risk scenario (EBA 2021b), the key issue will be a high degree of transparency and traceability of results to allow markets to assess banks' actual health.

In line with prior research (e.g. Schularick et al. 2020), our in-depth analysis indicates that euro area banks are likely to face a significant, aggregate capital shortfall. Supervisors, resolution authorities and policy makers should not ignore this probable consequence of the COVID-19 crisis and hope for divine intervention. Forbearance will leave euro area banks undercapitalised and thus unable to fund a swift recovery from the pandemic (see section 1).

However, we believe that the current EU bank crisis management framework is in principle suited to address many of the impending problems. In fact, the corona crisis may pose an opportunity to address legacy problems of a sustained, welfare-decreasing undercapitalisation that haunted euro area banks already for a long time (see Acharya et al. 2020) and may ultimately lead to a welfare-increasing consolidation of the European banking sector.

Banks that have no realistic prospect of fulfilling the regulatory capital prescriptions, including combined buffer requirements (CBR) and P2G, even after economic conditions improve, should be forced to exit the market, i.e. be either put in resolution or – if the public interest does not mandate the application of the special regime – unwound in regular insolvency proceeding. The ECB and Single Resolution Board (SRB) should not limit the critical failing or likely to fail (FOLTF) determination under BRRD, art. 32(1)(a), SRMR, art. 18(1)(a), to institutions that have already lost more than 50% of their own funds (cf. BRRD, art. 32(4)(a), SRMR, art. 18(4)(a)). The fear that such a rigid application of the resolution framework could destabilise European banks seems less plausible after the European Stability Mechanism (ESM) reform will provide a potent backstop to the Single Resolution Fund (SRF), which secures adequate resources for stabilising loss taking by the SRF. Moreover, the second prong of our proposal – to recapitalise all other banks from fiscally potent supranational coffers – will quell panic-driven contagion from the outset.

All other banks should be recapitalised following the successful U.S. example of the TARP. First and foremost, the recapitalisation program needs to be designed in a resolution-remote manner; that is, receiving funds does not require a FOLTF assessment of individual institutions. Instead, a supranational recapitalisation fund, established as a special facility of the ESM, could acquire stakes in the largest banks of all Member States — even some healthy ones — to avoid coordination and signaling problems (i.e., a stigma for the weaker ones) and to avoid contagion (Philippon and Schnabl 2013). Establishing such a COVID-19 specific bank recapitalisation facility at the ESM would harness the fiscal firepower of this institution and ultimately that of Member States in response to extraordinary circumstances. The proposed recapitalisation facility would also fulfil the overarching objective of the banking union which seeks to break through the doom loop of mutually reinforcing banking and fiscal crises.[8] The closest equivalent to such an injection of government funds into ailing banks outside of resolution is the precautionary recapitalisation under BRRD, art. 32(4)(d), SRMR, art. 18(4)(d). This instrument was arguably envisioned by European legislators to fend off systemic crises where creditor loss participation in resolution would prove counterproductive (Tröger 2018). A recent proposal (Schularick et al. 2020) takes the rationale one step further and argues for supranational precautionary recapitalisations deploying ESM funds. It thereby draws the ultimate conclusion from the ESM's new role as a pan-European backstop for euro area banks. We endorse this proposal in principle, under the precondition that strict conditionality applies. Furthermore, banks should only be allowed to repay the funds received after they passed a stress test administered by the ECB and EBA in coordination with the ESRB.

[8] The ESM's facility to directly recapitalise banks was originally agreed upon with a view to exactly this policy objective (Council of the European Union 2012). We envision a narrowly restricted revitalisation of this ESM instrument which the ESM's new role as common back stop for the SRF will generally supersede.

REFERENCES

Abad, J. and J. Suarez (2018): *Assessing the cyclical implications of IFRS 9 - a recursive model*, ESRB Occasional Paper No. 12.

Acharya, V. and S. Steffen (2020): "The Risk of Being a Fallen Angel and the Corporate Dash for Cash in the midst of COVID", *COVID Economics* (10), 44-61.

Acharya, V., L. Borchert, M. Jager, S. Steffen (2020): "Kicking the Can Down the Road: Government Interventions in the European Banking Sector", *Review of Financial Studies* (forthcoming).

Behn, M., R. Haselmann, and P. Wachtel (2016): "Procyclical Capital Regulation and Lending", *Journal of Finance* **71** (2): 919-956.

Bischof, J., R. Haselmann, O. Schlueter, and I. Stein (2021): *Forward Looking Loss Provisioning*, mimeo.

Council of the European Union (2012): *Euro Area Summit Statement 29 June 2012*. Available at: https://www.consilium.europa.eu/media/21400/20120629-euro-area-summit-statement-en.pdf (Accessed: 9 March 2021)

EBA (2020a): "EBA statement on actions to mitigate the impact of COVID-19 on the EU banking sector". Available at: https://www.eba.europa.eu/eba-statement-actions-mitigate-impact-covid-19-eu-banking-sector (Accessed 8 March 2021).

EBA (2020b): *Guidelines for legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis*.EBA (2021a): *2021 EU-Wide Stress Test – Methodological Note*. Available at: https://www.eba.europa.eu/sites/default/documents/files/document_library/Risk%20Analysis%20and%20Data/EU-wide%20Stress%20Testing/2021/936417/2021%20EU-wide%20stress%20test%20-%20Methodological%20Note.pdf (Accessed: 9 March 2021)

EBA (2021b): *2021 EU-Wide Stress Test – Market risk scenario*.

ECB (2017): *Guidance to banks on non-performing loans*.

ECB (2020a): "Press Release: ECB Banking Supervision provides temporary capital and operational relief in reaction to the coronavirus". Available at: https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200312~43351ac3ac.en.html (Accessed: 9 March 2021)

ECB (2020b): "Press Release: ECB Banking Supervision provides further flexibility to banks in reaction to coronavirus". Available at: https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200320~4cdbbcf466.en.html (Accessed: 9 March 2021)

ECB (2020c). "Letter of the Chair of the Supervisory Board to all Significant Institutions. IFRS 9 in the context of the coronavirus (COVID-19) pandemic". Available at: https://www.bankingsupervision.europa.eu/press/letterstobanks/shared/pdf/2020/ssm.2020_letter_IFRS_9_in_the_context_of_the_coronavirus_COVID-19_pandemic.en.pdf (Accessed: 9 March 2021)

ECB (2020d): "FAQs on ECB supervisory measures in reaction to the coronavirus". Available at: https://www.bankingsupervision.europa.eu/press/publications/html/ssm.faq_ECB_supervisory_measures_in_reaction_to_the_coronavirus~8a631697a4.en.html (Accessed: 9 March 2021)

ECB (2020e): "Euro area banking sector resilient to stress caused by coronavirus, ECB analysis shows". Available at: https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200728~7df9502348.en.html (Accessed: 9 March 2021).

ECB (2021a): "Macroprudential measures taken by national authorities since the outbreak of the coronavirus pandemic". Available at: https://www.ecb.europa.eu/pub/financial-stability/macroprudential-measures/html/index.en.html (Accessed: 9 March 2021)

ECB (2021b): *2020 SREP aggregate results*.

ESRB (2021): *Macro-financial scenario for the 2021 EU-wide banking sector stress test*.

Financial Stability Forum (2009): *Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System*.

Holmström, B. and J. Tirole (1997): "Financial Intermediation, Loanable Funds, and the Real Sector", *The Quarterly Journal of Economics* **112**(3), 663-691.

Jordà, O., B. Richter, M. Schularick, and A. Taylor, (2020): "Bank Capital Redux", *Review of Economic Studies* (forthcoming).

Philippon, T., and P. Schnabl (2013): "Efficient Recapitalizations", *Journal of Finance* **68**(1): 1-42.

Schularick, M., S. Steffen and T.H. Tröger (2020): *Bank capital and the European recovery from the COVID-19 crisis*, CEPR DP 14927.

Tröger T.H. (2018): "To Complex to Work – A Critical Assessment of the Bail-In Tool Under the European Bank Recovery and Resolution Regime", *Journal of Financial Regulation* **4**(1): 35-72.

This in-depth analysis proposes ways to retract from supervisory COVID-19 support measures without perils for financial stability. It simulates the likely impact of the corona crisis on euro area banks' capital and predicts a significant capital shortfall. We recommend to end accounting practices that conceal loan losses and sustain capital relief measures. Our in-depth analysis also proposes how to address the impending capital shortfall in resolution/liquidation and a supranational recapitalisation.

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