

# Non-performing Loans - New risks and policies?

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NPL resolution after COVID-19: Main  
differences to previous crises

External authors:

Ata Can BERTAY

Harry HUIZINGA





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## NPL resolution after COVID-19: Main differences to previous crises

### **Abstract**

This paper reviews the main differences between the prospects for NPL build-up and resolution between the current pandemic and the financial crisis of 2008-2009. To facilitate NPL reduction following the pandemic, the ECB should actively counter the revealed tendency of banks with low profitability to implement relatively low loan loss provisions.

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### **AUTHORS**

Ata Can BERTAY, Sabanci University.  
Harry HUIZINGA, Tilburg University.

### **ADMINISTRATOR RESPONSIBLE**

Marcel MAGNUS  
Rebecca SEGALL

### **EDITORIAL ASSISTANT**

Donella BOLDI

### **LINGUISTIC VERSIONS**

Original: EN

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To contact Economic Governance Support Unit or to subscribe to its newsletter please write to:  
Economic Governance Support Unit  
European Parliament  
B-1047 Brussels  
E-mail: [egov@ep.europa.eu](mailto:egov@ep.europa.eu)

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## LIST OF ABBREVIATIONS

<b>AMC</b>	Asset Management Company
<b>BRRD</b>	Bank Recovery and Resolution Directive
<b>CEO</b>	Chief Executive Officer
<b>CET1</b>	Common Equity Tier 1
<b>CRR</b>	Capital Requirements Regulation
<b>EBA</b>	European Banking Authority
<b>ECB</b>	European Central Bank
<b>EBP</b>	Earnings Before Provisions
<b>EU</b>	European Union
<b>GDP</b>	Gross Domestic Product
<b>GDPR</b>	General Data Protection Regulation
<b>IMF</b>	International Monetary Fund
<b>IFRS</b>	International Financial Reporting Standard
<b>LLP</b>	Loan Loss Provision
<b>NPE</b>	Non-performing Exposure
<b>NPL</b>	Non-performing Loan
<b>ROA</b>	Return on Assets
<b>SMEs</b>	Small and Medium Enterprises

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## EXECUTIVE SUMMARY

Based on data for historical banking crises, Ari et al. (2020) estimated that euro area banks would reach a peak NPL ratio of 7.1% after 2.5 years, as triggered by the financial crisis of 2008-2009. These estimated NPL dynamics, while informative, have to be qualified when applied to the current pandemic, as the banking sector was better capitalised but less profitable this time.

These differences are also reflected in the ECB's (2020a) analysis of the vulnerability to the pandemic of significant institutions in the euro area. In a COVID-19 central scenario with cumulative negative growth of -0.8% during 2020-2022, the ECB finds that the aggregate CET1 capital ratio declines from 14.5% in 2019 to 12.6% in 2022, implying that a systemic banking crisis is avoided. This outcome reflects significantly higher projected credit impairments only in 2020 and overall losses only in that year.

Credit impairments are projected to remain limited partly due to the adoption of pandemic-related loan guarantee programs in several countries, including France, Germany, Italy, the Netherlands, and Spain. These loan guarantee programs offer an implicit bailout of the banking system in the current crisis, compared with the provision of explicit bailouts in earlier crises.

The European Commission's (2020a) recent communication on tackling non-performing loans related to the pandemic introduces the idea of an EU hub for data on NPL transactions to promote the development of the secondary market for NPLs. Data on past NPL transactions, however, may not be very useful to price new NPLs in the case of opaque borrowers, as is the case for many SMEs. Unfortunately, NPLs to SMEs especially are likely to be prevalent in the near future. On the positive side, a greater availability of NPL transaction data, including ex post cash flow workouts, potentially enables selling banks to build a reputation for treating their buyers fairly, which could stimulate further development of the NPL secondary market.

The communication further discusses the potential public involvement in national AMCs. Any public involvement in AMCs, with or without some form of public financing, has to rest on the existence of market failures that prevent an adequate NPL resolution by purely private AMCs. As possible market failures, Haben and Quagliariello (2017) mention information asymmetry and market illiquidity, at least at an early stage of the NPL secondary market development. Asymmetric information will be a problem for public AMCs as well, even though it may be avoided by buying entire loan portfolios, for example, during a bank resolution. Public AMCs may also have a useful role to play in providing market liquidity, yet this will depend on the time, country and asset class under consideration.

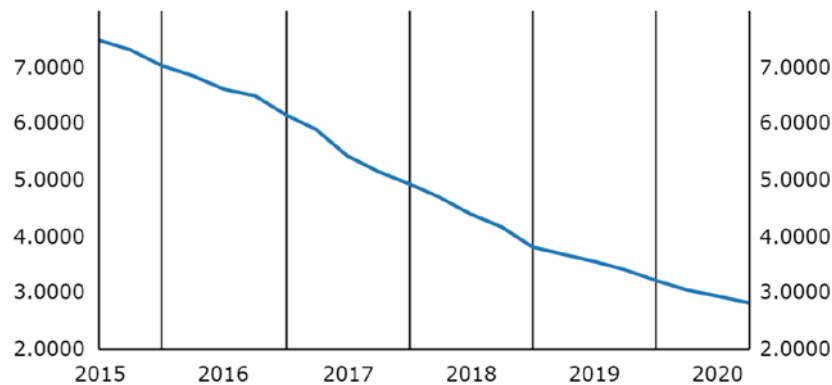
To facilitate NPL resolution by either on-balance-sheet or off-balance-sheet channels, it is important that banks record any asset quality deterioration as accurately as possible. This paper finds that banks' loan loss provisioning during the pandemic and their pre-pandemic profitability are positively related after controlling for bank risk. This suggests that low-profitability banks provision too little in response to the pandemic in order to cushion the impact of the pandemic on their capitalisation. The ECB should actively counter the revealed tendency of banks with low profitability to implement relatively low loan loss provisions in response to the pandemic.



## 1. INTRODUCTION

The COVID-19 pandemic and ensuing lockdowns have caused a steep decline in economic activity in the euro area. According to a first estimate, euro area Gross Domestic Product (GDP) fell by 6.8% in 2020. This economic contraction implies lower revenues for firms and households and is likely to cause non-performing loans (NPLs) in the banking sector to increase.<sup>1</sup> However, this has not happened yet. Figure 1 instead shows that the NPL ratio has continually decreased from 7.48% in the second quarter of 2015 to 2.82% in the third quarter of 2020.

Figure 1: NPL ratio for significant institutions



NPL ratio is the ratio of non-performing loans and advances to gross loans and advances. Data are quarterly, end-of-period, and in percent. Source: ECB Supervisory Banking Statistics.

Any increases in NPLs triggered by the pandemic will have to be followed by a process of adequate NPL resolution. This paper reviews some of the main differences between the prospects for NPL build-up and resolution between the current pandemic and the financial crisis of 2008-2009. In addition, it discusses some aspects of the European Commission's (2020a) recent communication on tackling non-performing loans in the aftermath of the COVID-19 pandemic.

Based on data for historical banking crises, Ari et al. (2020) estimated that euro area countries would reach a peak NPL ratio of 7.1% following the financial crisis of 2008-2009. This estimate, while informative, has to be qualified when applied to the current pandemic, as the banking sector was better capitalised but less profitable this time.

These differences are also reflected in the European Central Bank's (2020a) analysis of the vulnerability to the pandemic of significant institutions in the euro area. In a COVID-19 central scenario with cumulative negative growth of -0.8% during 2020-2022, the ECB finds that the aggregate CET1 capital ratio declines from 14.5% in 2019 to 12.6% in 2022, implying that a systemic banking crisis is avoided. This outcome reflects significantly higher projected credit impairments only in 2020 and overall losses only in that year. Credit impairments are forecast to remain limited partly due to pandemic-related loan guarantee programs in several countries, including France, Germany, Italy, the Netherlands, and Spain. These loan guarantee programs offer an implicit bailout of the banking system in the current crisis, compared with explicit bailouts in earlier crises.<sup>2</sup>

The European Commission's (2020a) recent communication on tackling non-performing loans related to the pandemic introduces the idea of an EU hub for data on NPL transactions to promote the

<sup>1</sup> Non-performing loans are loans that are 90 days past due or unlikely to be repaid by the borrower.

<sup>2</sup> Conditions that applied to public guarantees on loans as a temporary state aid measure are set out in section 3.2 of European Commission (2020b).

development of the secondary market for NPLs. Data on past NPL transactions, however, may not be very useful to price new NPLs in the case of opaque borrowers such as many small and medium enterprises (SMEs). Unfortunately, NPLs to SMEs especially are likely to be prevalent in the near future.

Following the previous crisis, banks now have to apply International Financial Reporting Standard (IFRS) 9 when provisioning for loans, and supervisors impose time-bound loan loss provisioning requirements for NPLs. These new rules, however, offer no guarantee that this time there will be an adequate accounting for asset deterioration. In fact, we show evidence that the loan loss provisioning of euro area banks during the pandemic positively reflects their prior profitability after controlling for bank risk and business models. This suggests that low-profitability banks provision too little in response to the pandemic in order to cushion the impact of the pandemic on their capitalisation. The ECB should actively counter the revealed tendency of banks with low profitability to implement relatively low loan loss provisions in response to the pandemic.

In the remainder, section 2 reviews some main differences between the build-up of NPLs and their potential resolution in the pandemic compared to earlier crises. Section 3 discusses some potential new policies to facilitate NPL resolution. Section 4 examines banks' loan loss provisioning following the pandemic. Section 5 concludes.

## 2. MAIN DIFFERENCES TO PREVIOUS CRISES

This section examines what sets loan non-performance in the current crisis apart from previous crises. In turn, we consider NPL dynamics as based on Ari et al. (2020), banking outcomes in the pandemic as projected by the ECB's (2020a) vulnerability analysis, the role of pandemic-related public loan guarantees, and additional policies regarding NPLs that have been implemented since the previous crisis.

### 2.1. Expected NPL dynamics based on Ari et al. (2020)

Ari, Chen, and Ratnovski (2020) provide evidence on the determinants of the dynamic development of NPLs using data for 88 banking crisis episodes from 1990 to 2017. Specifically, they consider four aspects of NPL dynamics: i) the peak NPL ratio, ii) the time it takes to reach the peak NPL ratio after the start of a crisis, iii) the time to NPL resolution, meaning the time it takes for the NPL ratio to fall below 7%, if it has risen above this level before, and iv) the likelihood of a timely NPL resolution, meaning that the NPL ratio decreases below 7% within 7 years after the start of a crisis. As potential determinants of these aspects of NPL dynamics, the authors consider a wide range of macroeconomic, banking-sector, and non-banking-sector variables. The estimated models are used to see what NPL dynamics outcomes could have been expected in the euro area following the Great Financial Crisis of 2008-2009 given euro area circumstances. In particular, for euro area countries, the models provide for an average peak NPL ratio of 7.1%, and an average time for the NPL ratio to peak of 2.5 years.<sup>3</sup> In addition, the average time to NPL resolution and the likelihood of a speedy NPL resolution are estimated to be 8.7 years and 23%, respectively.

One can ask to what extent these prior estimates regarding NPL dynamics are relevant in the current pandemic. The main difference in circumstances is that the pandemic has so far not triggered a banking crisis, in part reflecting unprecedented amounts of public support to the economy. This implies that euro area banks continue to operate with relatively high capitalisation ratios, which should facilitate NPL resolution as compared to the NPL dynamics estimated by Ari et al. (2020). Other variables that enter the analysis of Ari et al. (2020) currently also take materially different values, which should translate into other estimated NPL dynamics as well. Compared to the Great Financial Crisis, euro area banks, for instance, entered the pandemic without a prior credit boom, which suggests more favourable NPL dynamics ensuing the pandemic. On the negative side, however, banks were less profitable and government debt ratios were higher this time. Overall, it is difficult to say how we should expect pandemic-induced NPL dynamics to differ from the earlier estimates of Ari et al. (2020), short of redoing the estimations with entirely updated data.

### 2.2. The impact of the pandemic on significant institutions according to ECB projections

During April-July 2020, the ECB (2020a) conducted an analysis of the vulnerability of significant institutions to the economic fallout of the pandemic. This analysis provides estimates of credit impairments over the 2020-2022 period, and their implications for bank capitalisation. The analysis covers 86 institutions, but only aggregated results are published. The methodology follows the 2020 European Banking Authority (EBA) European Union (EU)-wide stress test by assuming static balance sheets. Key inputs into the analysis are GDP growth projections. Reflecting considerable uncertainty, the ECB considered a COVID-19 central scenario, which it deemed most likely, and a COVID-19 severe scenario. In the COVID-19 central scenario, GDP growth in the euro area is -8.7% in 2020, and cumulatively -0.8% during 2020-2022, while in the COVID-19 severe scenario, GDP growth is -12.6% in

<sup>3</sup> These estimates are lower than the realised average peak NPL ratio of 19.9% as well as the average realised time for NPLs to peak of 5.6 years, which the authors attribute to the fact that the financial crisis of 2008-2009 was followed by a sovereign debt crisis for some euro area countries.

2020 and -6.3% during 2020-2022. As a first estimate, GDP growth has been -6.8% in the euro area in 2020, which suggests that also the COVID-19 central scenario was too pessimistic.

A key difference between the current crisis and the financial crisis of 2008-2009 is that euro area banks entered the present crisis with a relatively high Common Equity Tier 1 (CET1) capital ratio of 14.5% in 2019. In the COVID-19 central scenario, the CET1 ratio declines to 12.8% in 2020 and to 12.6% in 2022, while in the severe scenario it declines more to 10.9% in 2020, and to 8.8% in 2022. The ECB (2020a, p. 3) states that in the severe scenario, which is now increasingly unlikely, several banks would need to take action to maintain compliance with their minimum capital standards. Table 1 provides estimates of credit impairments and corresponding profit/loss numbers in the central scenario for the years 2020-2022.

Table 1: Projected credit impairment and profit or loss of significant institutions

	2019A	2020E	2021E	2022E
Impairment of financial assets not measured at fair value	-44	-119	-43	-36
Profit or (-) loss for the year	67	-53	39	40

These are aggregate data for 86 significant institutions in billions of euros. 'A' means actual and 'E' means expected. Source: ECB (2020a, p. 30)

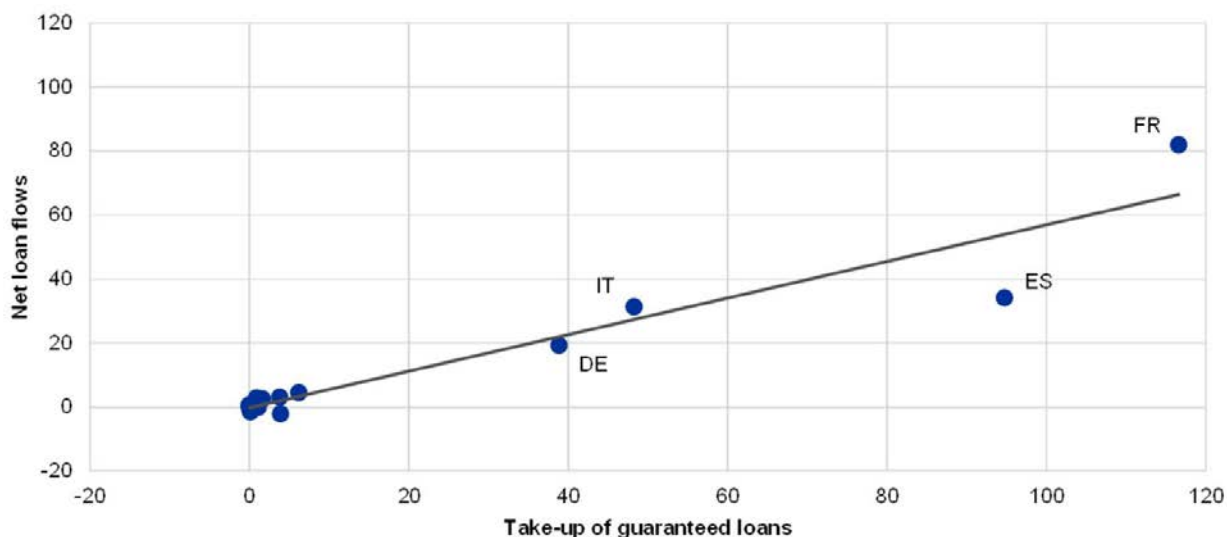
Expected credit impairments are EUR 119 billion in 2020, which is higher than the realised credit impairment of EUR 44 billion in 2019. For the years 2021 and 2022, expected credit impairments are relatively low at EUR 43 billion and EUR 36 billion, respectively. Correspondingly, banks in the aggregate suffer a loss (of EUR 53 billion) only in 2020. According to these projections, significant institutions will not be overwhelmed by the provisions that they will need to take on their combined performing and non-performing loans.<sup>4</sup>

### 2.3. The role of government loan guarantees in the pandemic

Unlike in the previous crisis, many governments in the euro area adopted loan guarantee programs during the pandemic that enable banks to provide new loans covered by public guarantees. National loan guarantee programs differ somewhat in characteristics such as their pricing, the share of the loan that is guaranteed, the maximum amount per borrower, and eligibility criteria (see Albertazzi et al. (2020, Table A) for details on the loan guarantee programs of France, Germany, Italy, the Netherlands, and Spain). Application periods for new guarantees in these five countries were set to expire at the end of 2020, while the duration of guaranteed loans could extend till the end of 2021 (see Rancoita et al., 2020, Chart A.5). Loan guarantees directly help the affected borrowers, but they indirectly benefit the banks, as newly provided guaranteed loans enable borrowers to continue servicing prior loans. Evidence that new government-guaranteed loans replace prior bank loans is provided in Figure 2 (from Falagiarda et al., 2020), as the take-up of guaranteed loans tends to exceed the increase in net lending.

<sup>4</sup> In contrast, Schularick, Steffen and Tröger (2020) argued in mid-2020 that depressed bank equity prices compared to book values implied that European banks were undercapitalised and thus required recapitalisation.

Figure 2: Take-up of guaranteed loans and net lending to non-financial corporations and the self-employed over the period April-July 2020 in billions of euros



This figure reproduces Chart C, part a in Falagiarda et al. (2020).

The ECB (2020a) incorporates public guarantee programs as an add-on in the EBA stress test methodology that is otherwise followed. In keeping with the static balance sheet assumption, the ECB assumes that new loans are generated only to replace maturing ones at equal volume and maturity, and that the credit quality of new loans is equal to that of maturing loans.<sup>5</sup> Moreover, guarantees are allocated in a uniform, proportionate way to eligible loans. Under this set of assumptions, loan guarantees are estimated to reduce credit impairments by EUR 21 billion during the 2020-2022 period in the COVID-19 central scenario (ECB, 2020a, p. 20). Using information from Table 1, we can see that the pandemic is projected to raise credit impairments by EUR 66 billion over the 2020-2022 period, compared to the counterfactual scenario where credit impairment would remain at the 2019 value of EUR 44 billion throughout the 2020-2022 period (as  $66 = 119 + 43 + 36 - 3 \cdot 44$ ). Without the guarantees, additional pandemic-related credit impairments would then be EUR 87 ( $= 21 + 66$ ) billion. This suggests that public loan guarantees absorb a share of about 24% ( $= 21/87$ ) of the additional credit impairments.<sup>6</sup> By reducing credit impairments, the loan guarantee programs limit the negative impact of the COVID-19 crisis on euro area bank capitalisation, acting as an indirect bailout of the banking system.

## 2.4. Policy initiatives related to NPL resolution since the financial crisis of 2008-2009

The financial crisis of 2008-2009 and the subsequent euro area sovereign debt crisis saddled European banks with high NPL ratios that declined only slowly afterwards. In a publication entitled 'A Strategy for Resolving Europe's Problem Loans,' Aiyar et al. (2015) of the International Monetary Fund (IMF) identified a range of obstacles that would need to be addressed by policymakers to facilitate NPL resolution. The identified obstacles relate to the following five aspects of NPL resolution:

- Supervision with respect to loan loss provisioning and write-offs
- The legal framework

<sup>5</sup> In practice, these static assumptions are likely to be violated, as banks have strong incentives to give new loans to especially risky borrowers not only to replace maturing loans but also in anticipation of loans that mature at a later date, with the effect of transferring additional credit impairment to governments.

<sup>6</sup> In a different analysis, Albertazzi et al. (2020, Chart A) provide estimates of the shares of losses transferred to governments by the loan guarantee schemes based on varying assumptions of the reduction in the cash flows of nonfinancial companies and the decline of euro area GDP in 2020. For the euro area as a whole, estimates of this share are between 30% and 40%.

- The infrastructure of distressed debt markets
- Information pertinent to distressed debt loans
- The tax treatment of provisioning and write-offs

Policies and practices in these five areas tended to vary across European countries, which suggested that the perceived need to address pertinent obstacles also differed internationally. To gain insight into this, Aiyar et al. (2015) conducted surveys of country authorities and major banks in individual European countries on how important obstacles in the five areas were perceived to be. In particular, respondents were asked to provide a score of their concerns on a scale from 1 to 3 for each area. Survey results averaged per country for 9 unnamed euro area and 11 unnamed non-euro area countries are reproduced in Figure 3. From this survey, two main results emerged: (i) there is much variation in the responses among euro area as well as non-euro area countries suggesting considerable differences in the perceived need for policy reform, and (ii) obstacles related to the legal framework and the infrastructure of distressed debt markets are considered to be most important, with highest average scores across countries of 2.0 and 2.2, respectively.<sup>7</sup>

Figure 3: IMF survey-based scores on obstacles to NPL resolution, by country and area

Institutional Obstacles Scores						
	Information	Supervisory framework	Tax regime	Legal framework	Distressed debt market	Composite score
EA	2.6	2.5	3.0	3.0	3.0	2.8
NEA	2.0	2.3	1.6	2.5	3.0	2.3
NEA	1.8	2.0	2.8	2.1	2.7	2.3
EA	2.4	1.8	2.0	2.4	2.7	2.3
NEA	1.7	2.3	2.0	2.0	3.0	2.2
NEA	1.8	1.8	2.0	2.3	3.0	2.2
NEA	1.8	1.8	2.0	2.1	3.0	2.1
NEA	2.0	1.5	1.8	3.0	2.0	2.1
NEA	1.3	1.5	2.0	2.0	3.0	2.0
EA	2.2	2.0	1.0	2.5	2.0	1.9
NEA	1.8	1.3	2.0	2.0	2.5	1.9
NEA	1.8	1.5	2.3	2.0	2.0	1.9
EA	1.4	1.8	1.0	2.3	3.0	1.9
NEA	2.0	2.0	1.2	1.7	2.0	1.8
EA	1.8	2.0	1.3	1.4	2.0	1.7
NEA	1.8	1.5	2.0	1.7	1.0	1.6
EA	1.8	1.5	2.0	1.7	1.0	1.6
EA	1.0	1.3	2.0	2.0	1.0	1.5
EA	1.2	2.0	1.0	1.0	2.0	1.4
EA	1.0	1.0	1.0	1.0	1.0	1.0
Avg	1.8	1.8	1.8	2.0	2.2	

Data are from IMF surveys of country authorities and banks. EA = euro area country; NEA = non-euro area country. The country survey is a survey of country authorities and the bank survey is a survey of banking groups with operations in the countries included in the country survey; 3 = high degree of concern, 2 = medium degree of concern; 1 = no concern. The scores shown in the figure are Max (country, bank), that is, max score from country and bank survey. For each country, composite score is a simple average of obstacle scores in each of the five areas. This figure reproduces Figure 6 in Aiyar et al. (2015).

Since the publication of Aiyar (2015), policy-related obstacles to NPL resolution have been addressed at the euro area or EU level by a number of legislative and non-legislative policy initiatives. Key initiatives in the areas of supervision, the legal framework and the infrastructure of distressed debt markets, and the availability of information on NPLs to date can be summarised as follows:

*Supervision*

Since January 1, 2018, EU banks determine their loan loss provisions using the expected credit loss model of IFRS 9. In 2017, the ECB (2017) provided banks with extensive accounting and other guidance

<sup>7</sup> The EBA (2020) documents substantial national variation among EU countries in loan recovery rates, loan recovery times, and the judicial costs of loan recovery, consistent with varying legal barriers to debt recovery.

on NPLs of a non-quantitative nature, for instance requiring banks to formulate NPL reduction targets. Subsequently, the ECB has introduced time-bound loan loss provisioning rules to mitigate provisioning discretion. Specifically, the ECB (2018, p. 11) stipulates that loan loss provisions should cover 100% of the unsecured part of a loan two years after the loan becomes non-performing, and 100% of the secured part of the loan seven years after it is classified as non-performing. In addition, the ECB (2019) is currently implementing the EU-wide Capital Requirements Regulation (CRR) Pillar 1 non-performing exposures (NPEs) treatment, which stipulates a deduction from Pillar 1 capital to the extent that a bank has insufficient loan loss provisioning levels for NPEs for loans originated from 26 April 2019 onwards. Taken together, these supervisory policies, if adhered to, should promote an adequate accounting for any asset quality deterioration.

On March 20, 2020 the ECB announced that it would apply supervisory flexibility regarding loan loss provisioning and the declaration of NPLs in reaction to the coronavirus.<sup>8</sup> First, debtors with loans subject to public guarantees or public moratoriums are not necessarily 'unlikely to pay', triggering reclassification to NPL status and higher loan loss provisioning. Further, loans under public guarantees that become non-performing will benefit from prudential supervisory treatment in terms of expectations about loan loss provisioning. Finally, the ECB will deploy full flexibility when discussing with banks the implementation of their NPL reduction strategies. On April 1 and December 4 2020, the ECB (2000c, 2000b) addressed letters to bank chief executive officers (CEOs) regarding its supervisory flexibility, conveying that, notwithstanding this flexibility, banks need to ensure that loan loss provisioning levels continue to accurately reflect asset quality.

#### *The legal framework and the infrastructure of distressed debt markets*

The European Parliament and European Council's (2019) 'Directive on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt' is a building block towards an improved legal framework to deal with NPLs in the EU. This Directive provides a valuable step towards harmonising European insolvency laws. In addition, the European Commission (2018b) has proposed a 'Directive on credit servicers, credit purchasers and the recovery of collateral', which aims to ensure adequate debtor protection in case a loan is sold by the initial lending banks and to facilitate out-of-court collateral enforcement in the case of business loans. The subject matter of this proposed directive is currently under discussion with the European Parliament and the European Council.<sup>9</sup>

In 2018, the European Commission (2018a) published a blueprint on how countries can set up national asset management companies (AMCs) that purchase NPLs from banks. The blueprint provides non-binding guidance on how to design and operate national AMCs. Setting up an AMC with State aid would be subject to State aid rules and the Bank Recovery and Resolution Directive (BRRD).

#### *The availability of information on NPLs*

In 2017, the EBA developed data templates<sup>10</sup> on NPLs to improve the quality and comparability of data on NPLs, to be used by participants in the secondary market for NPLs. The use of these templates was expected to widen the investor base and to support price discovery, thereby facilitating the development of the secondary market for NPLs.

<sup>8</sup> See the press release entitled 'ECB Banking Supervision provides further flexibility to banks in reaction to coronavirus'.

<sup>9</sup> Securitisation is a potential way for banks to dispose of NPLs. To facilitate securitisation, the European Commission (2020c) has made a 'Proposal to amend Regulation (EU) 2017/2402 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardized securitisation to help the recovery from the COVID-19 pandemic'. In addition, European Commission (2020d) provides a 'Proposal for a regulation to amend Regulation (EU) No 575/2013 as regards adjustment to the securitisation framework to support the economic recovery in response to the COVID-19 pandemic'.

<sup>10</sup> See press release entitled 'EBA publishes its standardised data templates as a step to reduce NPLs', 14 December 2017.

### 3. NEW POLICIES TO FACILITATE NPL RESOLUTION?

In December 2020, the European Commission (2020a) published a communication on tackling non-performing loans in the aftermath of the COVID-19 pandemic. As a next step in the reform agenda summarised in section 2.4, the European Commission introduces the idea of an EU data hub for NPL transactions. The European Commission also discusses the use of national AMCs as a potential NPL resolution tool following the pandemic, mainly referring to its earlier blueprint on AMCs. In turn, this section discusses some aspects of a potential new EU data hub on NPLs and of the potential use of AMCs following the pandemic.

#### 3.1. A potential EU data hub for NPL transactions

A new EU data hub for NPL transactions in the secondary market, as envisioned by the European Commission, would collect information on pre-trade NPL characteristics, the sale price, and possibly on post-trade workout cash flows. More available information on prior NPL transactions is intended to facilitate the pricing of new transactions, thereby reducing bid-ask spreads and increasing the volume of transactions. Greater data availability no doubt would be useful, but it would necessarily be limited to 'hard', quantifiable and verifiable, data. Unfortunately, 'hard' information on prior NPL transactions may be insufficient to properly price new NPLs to SMEs, for which 'soft' information stemming from the bank-client relationship is paramount. NPLs to SMEs are expected to be prevalent in the near future, compared to real estate loans and loans to households that were relatively more important in previous crises. Thus, the current pandemic may prove to be a relatively inopportune time to prove the usefulness of a central EU data hub for NPLs. A proper assessment of the idea of a new EU data hub for NPLs further requires an estimate of its likely cost. Unfortunately, the communication is silent on this, and also on which parties will have to bear this cost.<sup>11</sup>

One way for financial markets to overcome asymmetric information is for market participants to build reputations to treat their counterparties fairly, despite being able to 'cheat' them. Thus, an EU NPL data hub could advance the development of the secondary market in NPLs over time, if it enables participating selling banks to establish reputations for setting fair prices, even in the case of NPLs to opaque borrowers where valuation depends importantly on 'soft' information. For this to work, the NPL data hub needs to include information on workout cash flows so that ex post rates of return to buyers of NPLs can be calculated. In addition, it will be necessary that the same sellers frequently sell similar NPLs, and that the identities of the selling banks are known.<sup>12</sup>

#### 3.2. The potential use of AMCs following the pandemic

The communication discusses how public funding of national AMCs can be made consistent with existing State aid rules and the BRRD. Any public involvement in AMCs, with or without some form of public financing, has to rest on the existence of market failures that prevent an adequate NPL resolution by purely private AMCs. As possible market failures, Haben and Quagliariello (2017) mention information asymmetry, and market illiquidity and shallowness, at least at an early stage of the NPL secondary market development. It should be noted that public AMCs will also face information asymmetries unless they perhaps buy entire loan portfolios, for instance, as part of a bank resolution. As already mentioned, the pandemic will give rise to relatively many NPLs to SMEs, which will present informational difficulties that could be equally difficult to surmount for AMCs with public

<sup>11</sup> Furthermore, reducing asymmetric information on NPLs is no panacea for eliminating the secondary market bid-ask spread. A high asking price could reflect inadequate provisioning by a bank, which would trigger a higher realized loss relative to provisioning upon sale. Even if provisioning is formally adequate, relatively low provisioning could exist as provisioning tends to reflect a valuation of future cash flow based on a low discount rate (compared to an investor's discount rate), and as it does not reflect any resolution costs to be borne by an investor (Fell et al., 2016). This means that a material bid-ask could persist even in the absence of asymmetric information.

<sup>12</sup> The EU General Data Protection Regulation (GDPR) should not be a barrier to including information on the selling bank's identity.



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involvement.<sup>13</sup> Public AMCs could well play a useful role in mitigating market illiquidity, but this will depend on the time, country, and asset class under consideration. Thus, the potential usefulness of AMCs following the pandemic is likely to be country and asset specific as well.

Grodzicki et al. (2015) discuss additional factors that need to be considered to determine the appropriate NPL resolution approach, with AMCs being one of the options. Generally, relatively homogeneous assets with a high proportion of debtors that have become gone concern favour an off-balance-sheet approach, such as an AMC. In case of loans backed by real estate, an off-balance-sheet approach is difficult to implement if the relevant real estate market is depressed. In addition, more highly concentrated banking systems with larger banks may find it relatively easy to work out NPLs internally, in which case an AMC is inappropriate. These factors tend to differ across countries, implying a varying attractiveness of AMCs as a potential NPL resolution channel.

The question arises whether there are any advantages of organising an AMC at a European level rather than nationally. According to European Commission (2020a), there is a scope for national AMCs to collaborate in the task of providing an EU NPL data hub with input. Going beyond this, Beck (2017) argues (i) that an AMC at the euro area level can realise economies of scale, (ii) that it can help to ameliorate NPL overhang at internationally active banks that would otherwise hinder the single banking market, and (iii) that it would provide banks internationally with equal incentives to reduce their NPL overhang, which is deemed appropriate given their equal access to central bank funding. Arguments of this kind in favour of an international AMC need to be balanced against the importance of country-specific factors that would favour a country-specific approach to NPL resolution through a national AMC or otherwise.

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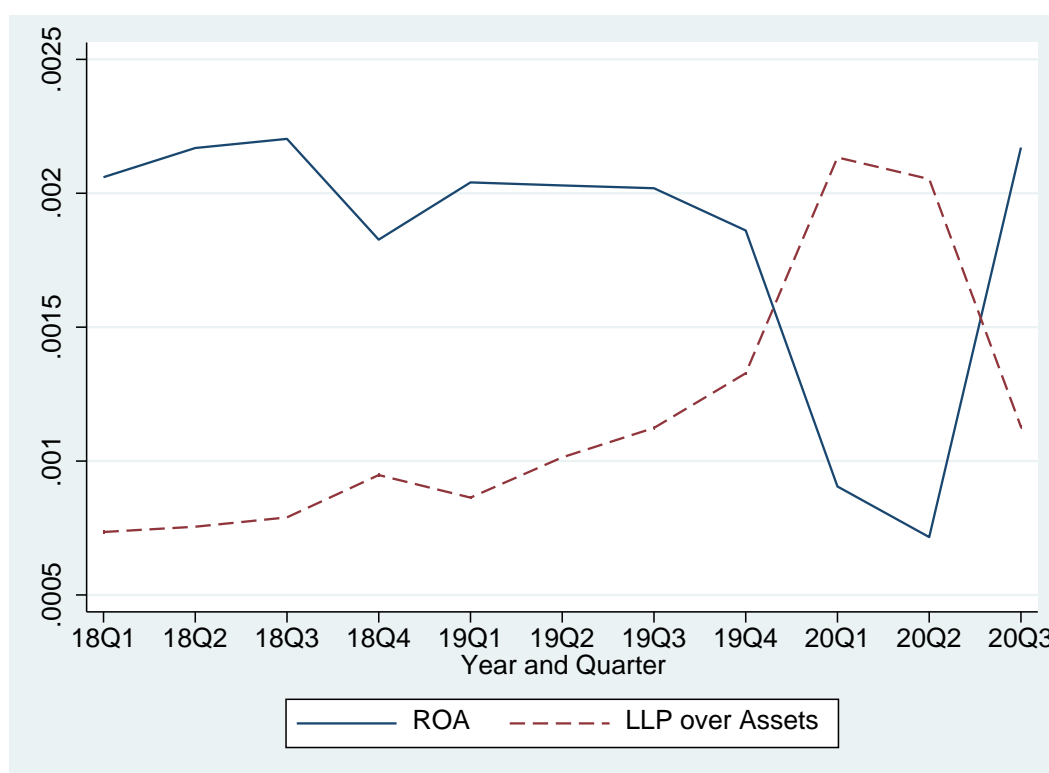
<sup>13</sup>Based on data for 135 European banks over the period 2000-2016, Brei et al. (2020) find that bad asset segregation, which could be through an AMC, is only effective in promoting bank lending if the bank at the same time is recapitalized.

## 4. LOAN LOSS PROVISIONING FOLLOWING THE PANDEMIC

A swift NPL reduction following the pandemic requires informative data on credit impairment, regardless of whether banks manage their NPLs themselves or sell them off to other parties such as investors or AMCs. Rancoita and Mór  (2020, Chart B) show that loan loss provisions in the first half of 2020 vary positively with bank profitability for a sample of the 37 largest banks in the five largest euro area countries. This could reflect that banks with a low profitability are too weak to provision adequately, which would be a reason for supervisory concern. Alternatively, however, low-profitability banks may tend to lend to safer borrowers, giving rise to less credit impairment due to the pandemic. In this section, we show the results of some empirical estimation where we examine whether loan loss provisioning continues to be positively related to bank profitability after we control for proxies of bank riskiness.

For our analysis, we collected quarterly balance sheet and income statement data for more than 90 euro area banks. Figure 4 shows how the average quarterly return on assets and the ratio of loan loss provisions over assets evolved from 2018Q1 to 2020Q3 for a sample of 52 institutions with data for this entire period.<sup>14</sup> The average rate of return on assets was well below 0.25% per quarter before the COVID-19 shock, and it dropped to below 0.1% in the first two quarters of 2020.<sup>15</sup> The average rate of return on assets was back at a pre-COVID-19 level in the third quarter of 2020. Loan loss provisions reduce pre-tax profits. Therefore, the ratio of loan loss provisions over assets in the figure mirrors the return on assets, with this ratio exceeding 0.2% in the first two quarters of 2020.

Figure 4: Quarterly return on assets and loan loss provisions over assets during 2018-2020



Return on assets (ROA) and loan loss provisions (LLP) over Assets are bank averages weighted by total assets.

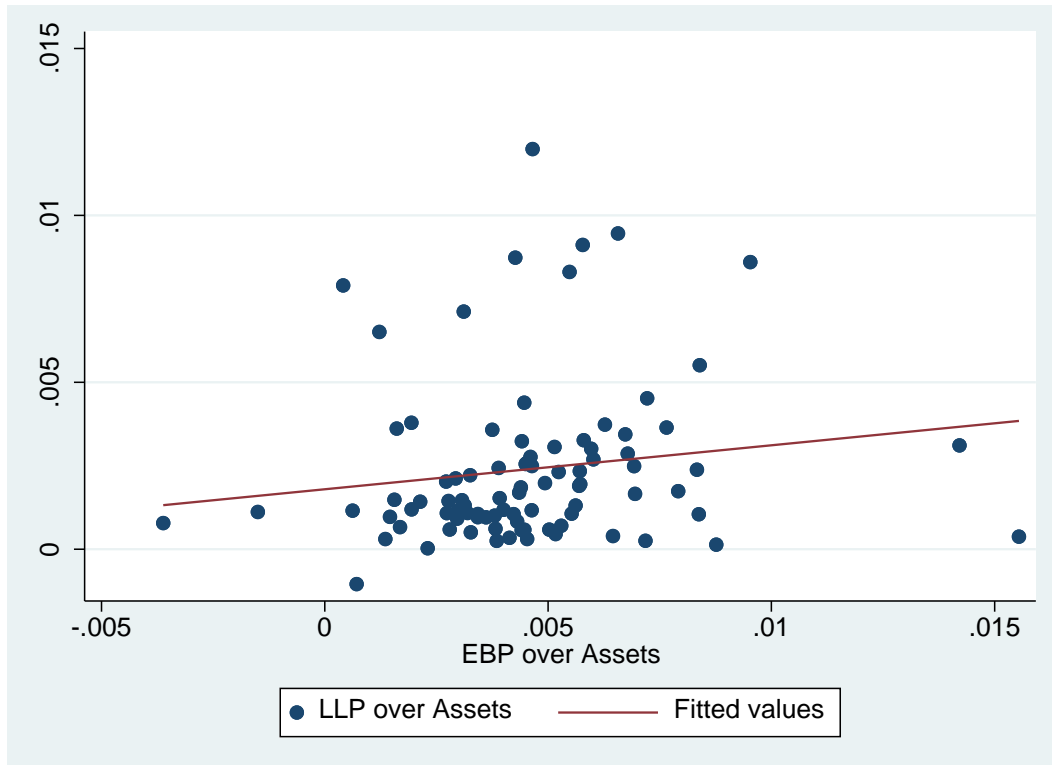
Figure 5 shows that there has been a considerable variation in loan loss provision and profitability across banks. This figure, in particular, plots cumulative loan loss provisions over assets during the first

<sup>14</sup> An alternative graph based on incomplete data for the full sample looks very similar.

<sup>15</sup> See Bertay and Huizinga (2019) for an analysis of the subdued profitability of significant banks in the Banking Union.

two quarters of 2020 against cumulative bank profitability in the first two quarters of 2019, with bank profitability measured as the ratio of profits before taxes and loan loss provisions over assets. The displayed positive relationship indicates that banks with higher pre-pandemic profitability provisioned more during the initial two quarters of the pandemic.

Figure 5: Loan loss provisions and bank profitability



LLP over Assets is the sum of the ratios of loan loss provisions over assets in the first two quarters of 2020. Earnings Before Provisions (EBP) over Assets is the sum of the ratios of profits before taxes and loan loss provisions over assets in the first two quarters of 2019. Both variables are trimmed at the 1<sup>st</sup> and 99<sup>th</sup> percentiles, leading to the exclusion of four outliers. The displayed positive relationship is not sensitive to the inclusion of these outliers

Next, we estimate the relationship between loan loss provisions during the pandemic and pre-pandemic profitability while controlling for bank risk. Similarly to Huizinga and Laeven (2019), we estimate an econometric model as follows:

$$LLP\ over\ Assets_i = \alpha + EBP\ over\ Assets_i + Bank\ Risk_i + \ln(Assets)_i + Loans\ over\ Assets_i + Deposits\ over\ Assets_i + \theta_c + \varepsilon_i$$

The dependent variable is *LLP over Assets<sub>i</sub>*, which is cumulative loan loss provisions over assets in the first two quarters of 2020 for bank *i*. The main explanatory variable is *EBP over Assets<sub>i</sub>*, which is cumulative profits before taxes and loan loss provisions over assets in the first two quarters of 2019. We control for bank risk by including the variable *Bank Risk<sub>i</sub>*. Alternatively, we use the Z-score, the ratio of equity over assets, and the ratio of regulatory capital over assets as proxies for bank risk (see the Annex for variable definitions). Furthermore, *ln(Assets)<sub>i</sub>* controls for bank size, and *Loans over Assets<sub>i</sub>* and *Deposits over Assets<sub>i</sub>* control for a bank's business model. Country fixed effects,  $\theta_c$ , account for country-level differences, for instance, in GDP growth rates. Bank-level risk and control variables are lagged by four quarters.<sup>16</sup>

The first three regressions of Table 2 alternatively include the Z-score, the ratio of equity over assets, and the regulatory capital ratio as proxies for bank risk. In all three regressions, EBP over Assets receives

<sup>16</sup> Summary statistics for the variables included in the empirical analysis are provided in the Annex.

a positive and statistically significant estimated coefficient. The estimated relationships are also economically meaningful. The estimated coefficient of 0.420 in regression 1, for instance, implies that a one-standard-deviation increase in EBP over Assets of 0.8% is associated with an increase in loan loss provisions over assets of 0.34% (=0.008\*0.420), which amounts to 59% (=0.34%/0.57%) of the standard deviation of this variable. The results in regressions 1-3 are robust to including cumulative quarterly loan loss provisions over assets during 2018 and 2019 as an additional variable to control for loan risk, as shown by regressions 4-6. Regressions 7 and 8 are similar to regression 1, but they include data for the cumulative first to third quarters and only the first quarter of 2020, respectively, yielding similar estimated coefficients for EBA over Assets.

Overall, Table 2 provides evidence that loan loss provisioning during the pandemic and pre-pandemic profitability are positively related after controlling for bank risk. This evidence should concern supervisors, as it suggests that low-profitability banks provision too little in response to the pandemic in order to cushion the impact of the pandemic on their capitalisation.

Table 2: Loan loss provisions, bank profitability and risk-taking

VARIABLES	(1)	(2)	(3)	LLP over Assets			(7)	(8)
				Q1-Q2			Q1-Q3	Q1
<b>EBP over Assets</b>	<b>0.420***</b>	<b>0.403***</b>	<b>0.496***</b>	<b>0.322***</b>	<b>0.321***</b>	<b>0.420***</b>	<b>0.365***</b>	<b>0.571***</b>
	<b>(0.074)</b>	<b>(0.089)</b>	<b>(0.025)</b>	<b>(0.046)</b>	<b>(0.034)</b>	<b>(0.147)</b>	<b>(0.040)</b>	<b>(0.081)</b>
ln(Z-score)	-0.001			0.000			-0.001	-0.001***
	(0.001)			(0.001)			(0.001)	(0.000)
Equity over Assets		-0.005			-0.007*			
		(0.006)			(0.004)			
Regulatory Capital Ratio			0.003			0.005		
			(0.013)			(0.013)		
Cumulative LLP over Assets (2018-19)				0.161***	0.160***	0.079		
				(0.054)	(0.047)	(0.162)		
Observations	92	93	79	86	87	74	52	87
R-squared	0.823	0.817	0.861	0.857	0.859	0.863	0.884	0.891
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variable is loan loss provisions over assets in 2020 cumulative for different quarters. Bank-level control variables, ln(Assets), Loans over Assets, and Deposits over Assets, are included in all regressions, but their coefficients are not reported. They are all statistically insignificant, with the exception of a negative and significant coefficient on Deposits over assets in regression 8. See the Annex for variable definitions. \* and \*\*\* denote significance at 10% and 1%.

## 5. CONCLUSION

According to the ECB's (2020a) vulnerability analysis, credit impairments following the pandemic will be relatively modest and not cause a systemic banking crisis, reflecting relatively high pre-pandemic bank capitalisation levels. Credit impairments are expected to remain relatively small partly due to national loan guarantee programs. These programs can be interpreted as a form of indirect bank bailout, compared to direct bailouts that were prevalent in the financial crisis of 2008-2009.

To improve data availability on NPLs, the European Commission has recently suggested the establishment of an EU data hub on NPL secondary market transactions. Such a data hub may not be able to solve the problem of asymmetric information in case of NPLs to opaque borrowers such as SMEs. However, it could indirectly support the development of a secondary market for opaque NPLs if it enables frequent sellers in this market to build a reputation for treating buyers fairly.

Any public involvement in AMCs needs to be motivated by the existence of market failures, such as information asymmetry or market illiquidity. Asymmetric information will be a problem for public AMCs as well, even though it may be avoided by buying entire loan portfolios, for example, during a bank resolution. Public AMCs may also have a useful role to play to provide market liquidity, yet this will depend on the time, country and asset class under consideration.

To facilitate NPL resolution by both on-balance-sheet and off-balance-sheet channels, it is paramount that banks record any asset quality deterioration as accurately as possible. To ensure this, the ECB should actively counter the revealed tendency of banks with low profitability to implement relatively low loan loss provisions in response to the pandemic.

Potential questions:

Q1: Would an EU data hub for past NPL transactions be an effective tool to overcome asymmetry of information related to new NPLs?

Q2: What type of market failure could justify public involvement in an AMC? Is there any country or specific asset class where a public AMC could play a useful role?

Q3: What is the ECB doing to counter the apparent tendency of banks with low profitability to provision less in response to the pandemic?

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## ANNEX

Table A1: Variable descriptions

Variable	Definition	Source
LLP over Assets	Loan loss provisions over assets	Compustat Global
EBP over Assets	Profits before taxes and loan loss provisions over assets	Compustat Global
ln(Z-score)	Log of (ROA + Equity over assets)/std. dev.(quarterly ROA from 2018 and 2019))	Compustat Global
Equity over Assets	Shareholder's equity over assets	Compustat Global
Regulatory Capital Ratio	Regulatory capital (Tier 1 plus Tier 2) over risk-weighted assets	Compustat Global
ln(Assets)	Log of total assets in millions of euros	Compustat Global
Loans over Assets	Net loans over assets	Compustat Global
Deposits over Assets	Customer deposits over assets	Compustat Global
Cumulative LLP over Assets (2018-19)	Quarterly loan loss provisions over assets summed over 2018-2019	Compustat Global

Table A2: Summary statistics for variables in regressions 1-6 of Table 2

Variable	Obs	Mean	Std. Dev.	Min	Max
LLP over Assets (2020Q1+Q2)	93	0.003	0.006	-0.006	0.045
EBP over Assets (2019Q1+Q2)	93	0.005	0.008	-0.020	0.072
ln(Z-score)	92	4.829	0.938	0.391	7.537
Equity over Assets	93	0.090	0.049	0.036	0.438
Regulatory Capital Ratio	79	0.180	0.028	0.139	0.263
ln(Assets)	93	10.593	1.865	6.880	14.680
Loans over Assets	93	0.649	0.146	0.248	0.946
Deposits over Assets	93	0.497	0.213	0.022	0.918
Cumulative LLP over Assets (2018-2019)	93	0.006	0.012	-0.003	0.094

Bank risk and control variables are for 2019Q2.



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This paper reviews the main differences between the prospects for NPL build-up and resolution between the current pandemic and the financial crisis of 2008-2009. To facilitate NPL reduction following the pandemic, the ECB should actively counter the revealed tendency of banks with low profitability to implement relatively low loan loss provisions.

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