Supervisory Policy Stimulus: Evidence from the Euro Area Dividend Recommendation*

Preliminary & incomplete draft

Ernest Dautovic
European Central Bank

Leonardo Gambacorta
Bank for International Settlements

Alessio Reghezza
European Central Bank and University of Genoa

Abstract

At the onset of the Covid-19 outbreak central banks and supervisors introduced dividend restrictions as a new policy instrument aimed at supporting lending to the real economy and strengthening banks' capacity to absorb losses. In this paper we inspect the bank-lending and the risk-taking channels of the ECB dividend recommendation. For identification, we rely on credit registry data and a measure capturing variation in the compliance with the recommendation across banks in the euro area. The analysis disentangles the confounding effects stemming from the wide range of monetary and fiscal policies supporting credit during the Covid-19 downturn and investigates their interaction with the dividend recommendation. We find that dividend restrictions have been an effective policy in supporting financially constrained firms. The effects are driven by lending to small and medium enterprises and to Covid-19 vulnerable sectors. At the same time, we do not find evidence of a significant increase in lending to riskier borrowers and zombie firms, or increased risk-taking by banks with structurally high NPLs. The effects of the dividend recommendation are significant on all loan categories, but are stronger for those loans subject to government guarantees.

Keywords: Dividends, Dividend restrictions, Credit supply, European Central Bank, Covid

JEL classification: E5, E51, G18, G21

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1 Introduction

The Covid-19 has prompted governments and central banks to implement innovative policy solutions to support the real economy. One of the main policy innovations was the introduction of policies to restrict dividend distributions, Svoronos and Vrbaski (2020). In Europe, the Banking Supervision arm of the European Central Bank (ECB) has adopted a dividend *recommendation* policy urging but not obliging banks not to pay dividends. The ECB revealed policy objective aimed at supporting lending to the real economy and at strengthening banks' capacity to absorb losses.[1] Till then there is no historical precedent or regulation pressing banks not to distribute dividends and informing investors that their dividends can be forgone at the favor of banks' portfolio expansion or capital conservation.

In this paper we inspect the bank-lending and the risk-taking channels of the ECB dividend recommendation. To disentangle loan demand and loan supply effects, we rely on granular credit registry data and a direct measure that capture the variation in the compliance with the recommendation across banks in the euro area. We find that dividend restrictions have been an effective policy in supporting the financially constrained firms. The effects are significant on lending to small and medium enterprises and to Covid-19 vulnerable sectors. At the same time, we do not find evidence of a significant increase in lending to riskier borrowers or zombie firms or increased risk-taking by banks with structurally high NPLs.

The idea of restricting dividend payments is not completely new. Recent literature has argued for sector-wide dividend restrictions in downturns, see Forti and Schiozer (2015), Ashraf et al. (2016). Empirical evidence shows that in times of crisis banks tend to non decrease dividend distribution, Saunders and Wilson (2020), or actually expand them Acharya et al. (2012), to signal capital and liquidity strength in bad states, Kauko (2012), Abreu and Gulamhussen (2013), Wu (2018). From the perspective of who bears the default risk, dividend payouts in crisis times

[1] On 27 March 2020, the ECB issued a Recommendation that, at least until 1 October 2020, no dividends are paid out and no irrevocable commitment to pay out dividends is undertaken by the credit institutions for the financial years 2019 and 2020. This Recommendation was addressed to significant institutions directly supervised by the ECB. See the ECB press release from 27 March 2020 at: https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200327~d4d8f81a53.en.html. This was followed by an EBA statement on 31 March urging "banks to follow prudent dividend and other distribution policies, including variable remuneration". Many NCAs subsequently issued their own regulatory announcements in a similar vein.

are hence comparable to transfers from depositors and debt holders, in extreme cases taxpayers, to equity holders. The supervisory dividend restrictions can then be justified and timely in the face of an economic downturn to induce banks to conserve capital and provide lending to the real economy. [2]

Dividends are considered as the most important form of payout and firms tend to distribute a substantial percentage of their earnings as dividends, Allen and Michaely (1995). In our data, dividends planned but not distributed by the 110 euro area *signifcant* banks under the ECB supervision amounted to €11.8 billion for the fiscal year 2019.[3] Figure 1 illustrates the cumulative planned dividend distributions prior to the ECB recommendation and the compliance with the policy. Unconditional on positive dividend distribution plans, this represents a sizeable payout ratio of 45.1% of FY2019 earnings, conditional on positive dividend distribution plans, the payout ratio is 56.7% of FY2019 earnings, and forms an additional 47 basis points of risk-weighted common equity at disposal to be deployed across credit supply, loan loss provisions and capital. The potential overall impact, if all the undistributed dividends were to be allocated to lending, can be seen through the lending multiplier-effect within a risk-based capital framework. In the euro area case, the undistributed €11.8 billions of dividends in 2020, when fully used to supply lending, can finance up to €211 billion in new assets to the real economy.[4]

Banks' managers witness a choice of capital allocation when they decide to follow the ECB recommendation. On one hand, they might opt for using the surplus capital to accommodate

[2]It is worth pointing-out that dividend restrictions can have also short-term negative effects on banks' stock prices, in particular when the lifting of restrictions is uncertain, see for instance the recent evidence in Andreeva et al. (2021) and Matyunina and Ongena (2022), as well as previous work by Lee (1995). See Table 1 in Abreu and Gulamhussen (2013) for a summary of the empirical evidence on dividend payout policies and stock prices.

[3]The criteria for a bank to be a significant institutions and hence be directly supervised by the ECB and not by the national Competent Authorities (NCA) follwoing criteria are applied: 1) Size: the total value of its assets exceeds €30 billion; 2) Economic importance for the specific country or the EU economy as a whole; 3) Cross-border activities: the total value of its assets exceeds €5 billion and the ratio of its cross-border assets/liabilities in more than one other participating eurozone member state to its total assets/liabilities is above 20%; 4) Direct public financial assistance: the bank has requested or received funding from the European Stability Mechanism or the European Financial Stability Facility; 5) A supervised bank can also be considered significant if it is one of the three most significant banks established in a particular country. For the full defintion of eurozone significant institutions see the ECB explainer at: https://www.bankingsupervision.europa.eu/banking/list/criteria/html/index.en.html.

[4]This calculation is performed holding the average regulatory capital ratio, and risk-weights, of euro area banks fixed at the end of 2019. For ECB banking supervision data, see the publicly available statistics at: https://www.bankingsupervision.europa.eu/banking/statistics/html/index.en.html.

lending supply, acting thus countercyclically, Gambacorta et al. (2020). They can decide to increase their resilience to future shocks by saving capital, and/or strengthen their current loss absorption capacity by setting aside loan loss provisions. In this study, we focus on credit allocation and estimate how effective was the dividend recommendation in: i) promoting lending to non-financial corporations, ii) nudging banks to allocate lending decisions to firms that needed it the most, and iii) limiting riskier lending.[5]

The study of the impact of dividend taxation is receiving growing attention in the empirical corporate finance literature. This literature is generally driven by impact evaluations of divident tax *cuts* on: capital allocation Becker et al. (2013), employment and productivity Jacob (2021), firm leverage Lin and Flannery (2013), mergers and acquisitions Ohrn and Seegert (2019), dividend payments Chetty and Saez (2005), investment policies Isakov et al. (2021), and equity issuance Moon (2022). Broadly speaking we can think of the central bank dividend restrictions as a temporary 100% tax *increase* on dividends which would discourage banks to distribute any, creating thus surplus liquidity for alternative capital allocations. Most recently, Boissel and Matray (2021) investigate the effects of a three-fold dividend tax *increase* in France, and find that the extra liquidity created by the tax led to higher investments.

Our study contributes to the nascent literature on the impact of the *easing* of supervisory polices. We complement the empirical evidence on the impact of releases in capital requirements on lending showing that banks tend to increase loan supply after a release of requirements, see Jiménez et al. (2017), Imbierowicz et al. (2018), Sivec and Volk (2022), Couaillier et al. (2022b).[6]

Dautović et al. (2021) and Martínez-Miera and Vegas (2021) provide first evidence on the ECB dividend recommendation but fail to control respectively for unobserved firm credit demand effects, and simultaneous policy interventions by monetary and fiscal authorities. We aim to fill those gaps

[5]In an earlier technical report for the set of euro area significant institutions, Dautović et al. (2021) show that treated banks increased their loan loss provisions by around 5.5% relative to the control group strengthening their relative capacity to absorb future losses.

[6]It is instructive to note that from a welfare perspective, restricting dividend distributions to generate additional lending is superior to easing of capital requirements, the latter does not necessarily increase banks' loss absorption capacity since banks can exploit this release by distributing more dividends instead of increasing lending, Imbierowicz et al. (2018). It follows that from a policy perspective restricting dividends can be more effective in supporting the real economy, in particular when combined with a regulatory capital release. Related, in a modelling framework, Muñoz (2021) and Fischer and Kessler (2022) show that dividend prudential policies can be superior to conventional macroprudential policies in smoothing the financial cycle providing additional welfare gains.

and add evidence to this literature using a unique euro area wide dataset combining information from a series of euro area monetary and fiscal policy stimuli targeted at sustaining lending, and a unique ECB survey collecting information on bank dividend distribution plans and their effective disbursements after the ECB recommendation.

For the identification of the results we exploit a quasi-natural experiment, LaLonde (1986), Angrist (1990), Card (1990), by using the differential variation in compliance across the largest financial institutions in nineteen eurozone countries. Our main variable of interest is the deviation of non-distributed dividends from planned dividends distributions scaled by risk-weighted assets (RWAs).

Several empirical challenges must be overcome to estimate the effect of the dividend recommendation on lending behaviour during the Covid-19 pandemic. First, the econometric framework need to acccount for shifts in firms' credit demand affected by emergency liquidity needs during the pandemic. We exploit multiple bank-relationships and borrower-time fixed effect as in Khwaja and Mian (2008) as well as industry-location-size fixed effects estimator (ILS FE), similar to Acharya et al. (2019), Degryse et al. (2019) and Berg et al. (2021), to control for unobserved demand effects that might confound the impact of the policy on credit supply.

Second, the analysis needs to isolate bank credit supply shifts from pandemic-related measures. Most notably, monetary policy quantitative easing, government guarantees and moratoria schemes. Figure 3 shows the evolution of monetary and fiscal policy measures before and after the pandemic: the surge of policy support in banks' balance sheet is clearly visible as of end 2020Q1. Monetary policy relaxed funding conditions to banks. Altavilla et al. (2020) show that in the absence of the third wave of the Targeted Longer-Term Refinancing Operation (TLTRO) lending to firms would have been 3 percentage points lower. At the same time, government guarantees on new loans helped firms obtaining funds to roll over liquidity and working capital needs, see Falagiarda et al. (2020), Bachas et al. (2021), Altavilla et al. (2021b), Jiménez et al. (2022); while moratoria on debt repayments have been widely use to mitigate liquidity concerns of households and firms, Budnik et al. (2021), Gaffney et al. (2022).

In addition, two further confounding factors are worth emphasising: supervisory policy releases which can further contribute to the provision of credit, and credit lines which are generally booked off-balance sheet but when the are drawn by firms they are moved on-balance and increase lending and RWA, see Greenwald et al. (2021) and Kapan and Minoiu (2021). Figure 4 shows that after the onset of the pandemic these two forces where also at play in sustaining lending growth.

Third, we need to factor in the fact that the recommendation on dividend distributions was aimed to be temporary and exceptional in nature.[7] It follows that financial institutions might have opted for saving the non-distributed dividends for future times, when the ECB would lift the recommendation, and hence decide not to use this capital to support lending. Disentangling the inter-temporal allocation of surplus capital is challenging, as it poses an accent on the importance of permanent vs. temporary nature of policy reforms. For instance, Figure 1 shows that as of March 2020, more than half of the not yet distributed dividends were planned to be payed out in 2021. The inter-temporal optimisation of dividend distributions would be in line with dividend smoothing theories, Lintner (1956), Allen and Michaely (1995), Larkin et al. (2017), Koussis and Makrominas (2019), and with the signalling theory where managers might have the objective to preserve the equity value of the firm to signal bank quality, see Boldin and Leggett (1995), Abreu and Gulamhussen (2013), Wu (2018), Muñoz (2021) and hence optimize inter-temporally payouts of already earmarked resources for dividends. Similarly, the positive impact on lending is uncertain since banks can put market discipline as a priority in uncertain times, and use non distributed dividends to strengthen their solvency positions Matyunina and Ongena (2022).

To strengthen our analysis and overcome these challenges, we have access to proprietary datasets which we use to perform inference observing banks' behaviour. This help us to overcome the problem of omitted variables and limits estimation biases. Moreover, the inclusion of additional controls helps to tackle endogeneity issues that could stem from contemporaneous policy efforts by monetary and fiscal authorities targeted at supporting credit growth.

To control for the confounding effects of monetary policy measures on lending, we match the euro area credit registry data *AnaCredit* with bank-firm level information on payment moratoria and government guarantees schemes. We also merge Anacredit with the ECB dataset on TLTROs,

[7] See the ECB press release of 28 July 2020 at: `https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200728_1~42a74a0b86.en.html`

and we use the amount of deposits held by commercial banks at the ECB as the measure for the take-up of Asset Purchase Programs (APPs) and Pandemic Emergency Purchase Programme (PEPP).[8] TLTROs, APPs and the PEPP constitute the main arms of the ECB quantitative easing.[9]

As regards fiscal policies, we control for both government guarantees and moratoria on loans, which aimed to sustain the provision of credit by banks. To net out their effects from our coefficients of interest, we further match the data with confidential supervisory data on the take-up by financial institutions of government guarantees programs and moratoria. The richness of our data allows us to explore interactions between the government guarantees and the dividend recommendation policies. We use supervisory bank level balance sheet data to control for bank-specific characteristics such as size, profitability, asset quality, off-balance sheet exposures, funding, risk profile and distance from the minimum capital requirements. The inclusion of these variable in the empirical specification is essential, as planned dividends and credit supply growth can be correlated with banks' characteristics.

A further element that facilitates a clean identification of our estimates stems from the inherently unexpected nature of the pandemic: we work under the assumption that the ECB dividend recommendation could not be anticipated by banks since the Covid shock was exogenous to their financial and lending decisions. In other terms, the dividend recommendation was not foreseeable by banks in late 2019 when dividend plans were drawn. Therefore, we regard the distribution plans as pre-determined to the policy decision and hence not affected by it excluding thus endogeneity concerns arising from anticipation effects. All these elements together help us to design a quasi-natural experiment to assess the real effects of the dividend restriction policy on lending.

Our results show an overall positive effect of the dividend recommendation on credit supply. In our baseline specification a 1 percentage point (p.p.) increase of the non-distributed but planned dividends over RWAs ratio is estimated to have contributed to an additional lending growth of

[8]See Copeland et al. (2021); Demiralp et al. (2021); Ryan and Whelan (2021) for a similar approach on asset purchases. The amount of deposits at the Central Bank serves also as an individual control measure of the costs that a negative interest rate policy has on each financial institution, Heider et al. (2019), Bubeck et al. (2020).

[9]For an overview of ECB asset purchase programs before and during the Covid-19 pandemic consult the page: `https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html`

4.3-4.7 p.p.[10] From the general equilibrium perspective, our findings can have important implications. Recent evidence in Bräuer et al. (2022) shows that investors' consumption is planned and excessively sensitive around dividend distribution dates suggesting that a dividend restriction policy can effectively move resources from planned shareholders' consumption to credit growth which might have a higher multiplier in a downturn.

The effect is larger for medium and small firms (+2.05p.p. and +2.67 p.p. respectively). Importantly, from the standpoint of helping more affected firms by the Covid lock-downs, the effect is 2.88 p.p. stronger for Covid-19 vulnerable sectors. The dividend recommendation sustains bank lending also in the absence of government guarantees (+2.07 p.p.).

The effects are similar controlling for bank risk-taking: lending growth is 1.76 p.p. lower when a bank-firm relationship has accumulated impairments (within the p25-p95 range of impaired loans per bank-firm relationship), while the point estimates of more problematic zombie borrowers (above the 95th percentile of impaired loans with a specific bank), fail to reject the null hypothesis of the absence of credit growth originating from non-distributed dividends. Similarly, effects are not different from zero for banks with high non-performing loans (NPLs) ratios. Further, we find that the impact of the ECB dividend recommendation is mostly short lived with absence of significant persistent effects, the beneficial impact vanishes in 2020Q4 and it is mostly concentrated in 2020Q3.

After we introduce the ILS FE to accommodate firms with a single bank relationship in the estimation sample results remain robust. Estimates are however approximately thirty percent lower suggesting that the bulk of the positive impact is detected for firms with multiple bank credit relationships. Validation tests show that the reduction of the impact is entirely driven by the statistically *non significant* effect of firms with a single relationship. The absence of a positive impact of dividend recommendation on single credit relationship firms is probably due to their lower size as 77.4% of single relationship firms are micro enterprises with no market power, limited

[10] In order to understand the economic significance of these effects note that, conditional on the 53 banks that did not follow their plan, the average ratio of non-distributed but planned dividends over RWAs is 0.47% of RWA (ranging from -0.05% to 2.34%, with a p05-p95 range of 0.15%-1.05%). Evidence of the ECB recommendation for the case of Spain is also provided in Martínez-Miera and Vegas (2021). The authors exploit credit registry data and find larger effects on credit supply (11.9%-14.5%). These large point estimates may arise from omitting to control for the simultaneity of unprecedented monetary and fiscal policies which are all statistically and economically significant in our specifications.

economies of scale and hence lower collateral value. To further corroborate the findings, we run the ILS FE estimator separately on a multi-relationship sample to find same magnitudes of point estimates as in the baseline Khwaja and Mian (2008) estimator. Finally, we perform few placebo tests by shifting the event date from 202Q2 to a series of quarters in 2019 to corroborate our results. Doing so, we do not find any evidence of significant loan growth for banks that did not distribute dividends as planned. It is important to note that these placebo tests can act also as formal parallel trend test showing no significant differences in loan growth between the treated and control groups of banks.

The remaining of the paper is organised as follows. Section 2 describes the data and some stylised facts. Section 3 presents the empirical design, while Section 4 presents the results and the robustness tests, including the placebo analysis. The last section concludes with some policy considerations.

2 Data and stylised facts

2.1 Data Sources

The data on dividend distribution plans and their effective disbursement was collected by the Single Supervisory Mechanism (SSM) through confidential surveys in the course of 2020 aimed at monitoring the compliance with the policy. This represents a unique data source for assessing the impact of the dividend restrictions in the euro area because we do not need to make any assumption on bank dividend distribution plans to build our variable of interest (Dividends/RWA).

The main survey was conducted in the first quarter of 2020. The survey asked banks to report their dividend distribution plans for 2020 prior to the ECB recommendation, and the expected compliance with the ECB recommendation. Of particular interest to this study it was asked to report the amount of dividends planned to be distributed in 2020, the amount cancelled, and the amount, if any, already disbursed. Through the survey we are able to directly observe banks' distribution plans prior and after the Covid-19 shock. Figure 1 gives an aggregate view of dividend plans and the compliance with the ECB recommendation by the banks in the euro area.

Dividend distribution plans are generally based on previous fiscal year profits. In the case of the ECB recommendation they were therefore decided by banks' executive boards in late 2019, or early 2020. Nevertheless, following the ECB recommendation, in most cases banks did not have distributed their dividends yet, it follows that the effective dividends distributed in 2020 deviated from the planned ones for most of the banks. In our sample of euro area significant institutions, 75 (out of 110) banks were planning dividend payments for 2020. Among those, 53 did not pay dividends and represent our main treatment group, one bank distributed marginally more than planned, and 11 banks distributed all that they planned for 2020 because either they already distributed their dividends prior to 27 March 2020, when the ECB issued the recommendation, or soon afterwards because their boards had already approved the disbursement and those banks were legally obliged to disburse them to shareholders. This latter group forms one of our control groups together with the 35 banks that did not plan to distribute any dividends and hence were not affected by the recommendation.[11]

Bank-level balance sheet data as well as common equity capital requirements are gathered from ECB Supervisory Statistics, TLTRO take-up information is drawn from the ECB market operations database. Bank-level data is matched with loan-level information from *Anacredit*, the euro area credit register of the European System of Central Banks which contains information on all individual bank loans to firms with an outstanding amount above €25,000.[12] *AnaCredit* encompasses information on key bank and borrower characteristics such as credit volumes, loan rates, firm location, firm size and firm sector. Importantly, *AnaCredit* collects unique data on the collateral received for each loan contract which allows us to identify whether the loan is subject to a public guarantee.[13] Furthermore, by using information on loan maturity dates at origination and checking whether these are extended following the pandemic outbreak, we are also able to identify which loan is benefiting from a payment moratoria. The data are collected by the ECB

[11] In our dataset, this variation of compliance implies that around 60% of observations are linked to banks that deviated from their initial distribution plans and are thus assigned to the treated group of observations.

[12] *AnaCredit* is the analytical credit register of the Eurosystem and additional documentation can be found here: https://www.ecb.europa.eu/stats/money_credit_banking/anacredit/html/index.en.html

[13] COVID guaranteed loans have been identified by using registry information (e.g. LEIs and RIAD codes) of the promotional lenders charged with this task in each country (for example, ICO in Spain, KFW in Germany, BPI in France and SACE/Fondo di Garanzia in Italy). In addition to the registry information of the guarantor, the starting date of the public guarantee scheme has also been used as an identifying device.

from the national central banks of the Eurosystem in a harmonised manner to ensure consistency across countries.

2.2 Descriptive Statistics

Our sample covers quarterly data from 2019 Q1 to 2021 Q1, it encompasses five quarters prior to the ECB recommendation from March 2020, and four quarters following it. After we match the different data sources we obtain an estimation sample of 6,360,304 observations in the multiple firm-bank relationship sample, and 11,363,790 when single firm-bank relationships are added in the ILS specification. In total the matched estimation sample covers 99 banks directly supervised by the SSM.

In Figure 2 we report the distribution of our variable of interest (Dividends/RWA) for the merged bank-firm estimation sample. Almost 40% of observations are banks without any dividend distribution plans for 2020 or banks that distributed the whole amount of planned dividend payouts for 2020 (control group). The remaining 60% of observations refer to banks that had planned to distribute dividends prior to the pandemic but followed the ECB recommendation suspending or cancelling dividend distributions in 2020 (treated group). The unconditional average of Dividends/RWA is 0.14%; conditional on being treated the average is 0.47% of RWA which ranges from -0.05% (one bank that distributed more than planned) to 2.34% of RWA with a 5th-95th percentile range of 0.15%-1.05%.

Table 1 reports descriptive statistics of the variables employed in the analysis with multiple firm-bank relationships. Specifically, Panel A reports information on the matched bank-loan dataset, while Panel B reveals descriptive statistics for the bank-level variables. It is interesting to note that the take-up of guaranteed loans has been significantly higher than for loans under moratoria. The share of bank-firm credit relationships benefiting from a government guarantee amounts to 10.3% on average versus 0.3% of the share of debt under moratoria. Furthermore, the standard deviation for government guarantees is high, suggesting that the cross-sectional heterogeneity in this regards is large. In addition, the TLTROs III uptake is not negligible as shown by its average ratio over total assets (6.7%) and standard deviation (12.3%) reported in Panel B of Table 1. A more dynamic picture is provided in Figure 3 illustrating the evolution of the variables capturing monetary and fiscal policy stimulus measures.

We look also at the descriptive statistics of our endogenous variable (lending growth) to control for the validity of our DiD econometric identification strategy. Figure 5 show the co-movement of credit growth and the planned but non-distributed dividends scaled by RWA. It is noticeable that lending increased immediately after the pandemic outbreak by an unconditional average of 18.1% for then declining monotonically in the following quarters. As expected, the amount of non distributed dividends over RWA also spikes immediately after the ECB recommendation to stay persistent until the end of 2020. It is useful to recall that these descriptive charts do not represent the impact of the dividend recommendation and only shows unconditional lending developments. The surge in lending growth is likely also driven by he heterogeneity in credit demand across firms and a combination of monetary and fiscal policy measures that ameliorated the worst economic effects of the pandemic by ensuring accommodating financing condition overall, as shown in Figure 3. Therefore the need to rely on granular data and loan-level econometric analysis to disentangle the effect of the ECB recommendation from others support measures.

3 Empirical Design

This paper exploits differences in the compliance with the ECB dividend recommendation to investigate whether and to what extent banks adjust their balance sheets during the pandemic. We employ credit registry data aggregated at the bank-firm relationship and control for heterogeneity in credit demand at firm level with firm-time fixed effects to investigate whether bank lending is affected by the policy recommendation. The exogeneity of the Covid shock coupled with the variation in compliance with the ECB dividend recommendation allows a Difference-in-Difference (DiD) research design based on the intensity of the treatment variable. Importantly, the timing of the policy, announced on 27 March 2020 by the ECB, just four days before the first quarter 2020 reporting date, helps to mitigate confounding effects on reported figures by policies that are activated in between two reporting quarters. Throughout our analysis, all variables are winsorised at 1%-99% levels to avoid potential issues with outliers.

The DiD approach requires that several assumptions hold. First, assignment of the treatment has to be exogenous. Plausibly, in our empirical setting, meeting this assumption is reasonable as the Covid-19 pandemic is widely recognised as an unanticipated exogenous shock to the economy. Second, the DiD approach is only valid under the parallel trend assumption whereby, in absence of treatment, changes in the outcome variable prior to the shock would be the same in both the treatment (banks that planned to distribute dividends in 2019 but followed the ECB recommendation in 2020 suspending dividend distributions) and the control (banks that either planned to distributed dividends in 2019 but did not follow the ECB recommendation in 2020 distributing their dividends to shareholders or banks that already distributed their dividends to shareholders prior to the spread of the virus) groups, Bertrand et al. (2004) and Imbens and Wooldridge (2009).

Figure 6 shows the normalised trends of the average bank-firm level growth in lending for the treatment and the control group over time (2019 Q2 - 2020 Q1). We group, for this exercise, the treatment group independently on the intensity of their dividend distribution plans. Figure 6 illustrates that the two trends were virtually the same before the Covid outbreak, suggesting that the parallel trend assumption is satisfied, therefore, our DiD econometric identification strategy is a viable research method.

3.1 Bank-firm level analysis

To shed light on bank lending behaviour in response to the ECB recommendation we start by examining whether banks that planned to distribute dividends prior to the pandemic but then followed the recommendation adjust their lending behaviour during the shock.

Our baseline specification follows Khwaja and Mian (2008) and includes firms with multiple bank relationships to control for firm credit demand with borrower-time fixed effects. In a robustness check in Section 4.4, we provide variation of our baseline specification by replacing borrower-time fixed effects with industry-location-size fixed effects. As such, our within firm estimates compare how much credit a given firm received from multiple banks that either:

- planned to distribute dividends in 2019 but followed the ECB recommendation in 2020 suspending dividend distributions (treated group of banks), or

- did not follow the ECB recommendation in 2020 distributing their dividends to shareholders, or have already distributed their dividends prior to the spread of the virus, or were not affected by the recommendation since were not planning to distributed dividends at all (control group of banks).

Our main variable of interest is the ratio of dividends planned in 2019 but not distributed in 2020 over RWAs. This measure is a risk-based measure that is akin to risk-based regulatory common equity capital. Formally, the baseline specification relies on the following regression:

$$Y_{f,b,t} = \beta Dividends/RWA_{b,t} + \Phi\Sigma X_{b,t-1} + \Psi\Sigma Z_{f,b,t-1} + \eta_{f,t} + \rho_b + \epsilon_{f,b,t} \tag{1}$$

where $Y_{f,b,t}$ is $CreditGrowth_{f,b,t}$, i.e. the growth of the credit stock granted by bank b to firm f in quarter t. Our main variable is the $Dividends/RWA$ and β is our coefficient of interest as it indicates whether banks that planned but did not distribute dividends lend more following the recommendation in comparison to the control group of banks. In addition, being $Dividends/RWA$ a continuous variable, it allows us to capture the intensity of the effect. To control for possible heterogeneity among banks that can affect lending behaviour, we employ a large set of bank-level variables ($X_{b,t}$). Following Fama and French (2001) we start by including characteristics for size (the logarithm of total assets); and profitability (annualised net interest margin on a rolling quarterly basis). We also include the ratio of debt securities to total assets (Mkt debt funding/TA) to capture differences in bank funding structure; the risk weight density (RWA/TA), defined as the ratio between risk weighted assets and total original exposures, to account for the riskiness of banks' assets; the non-performing loans ratio (NPL ratio), computed as the ratio of non-performing loans to gross loans, to condition on the asset quality of the loan portfolio; the CET1 ratio distance to the Maximum Distributable Amount (MDA)[14] to control for bank solvency and to capture

[14]The MDA is the Maximum Distributable Amount which is a linearly decreasing dividend distribution limit when a the capital level of a bank falls below the regulatory minimum capital requirement. i..e the MDA trigger. In other words, distance from MDA explains the capital space a bank has for expanding its assets.

capital buffer usability constraints (CET1 MDA Distance); the ratio of cash (including cash held at the central bank) to total assets (Cash at CB/TA) to measure bank liquidity conditions and the take-up of quantitative easing, and the ratio of off-balance sheet activities to total assets (Off balance sheet/TA) to account mostly for credit lines drawdowns that were prominent during the outbreak of the pandemic and that affected bank lending, see for instance Greenwald et al. (2021) and Kapan and Minoiu (2021). All the bank-specific control variables are lagged by one quarter to limit endogeneity issues.

A crucial aspects of our estimates is that we control at the bank-firm level for the wide range of policy interventions introduced in the course of 2020. The vecto $\Sigma Z_{f,b,t-1}$ captures the measures of the share of loans under moratoria (Share of Debt Repayment Moratoria) and guarantees (Share of Loan Guarantees) to control for the impact that these fiscal policies had on firms' creditworthiness and on banks' lending incentives. Further, to control for the impact of "unconventional" monetary policy actions, we include the ratio of TLTRO III uptake over total assets at the bank level (TLTRO).

We progressively saturate the model with borrower-time and bank fixed effects. Borrower-time fixed-effect ($\eta_{f,t}$) is introduced to capture the heterogeneity in credit demand across firms, whilst bank fixed effects (ρ_b) capture all unobservable time-invariant bank characteristics. More importantly, with bank fixed effects we capture average pre-shock differences in credit growth across banks. All standard errors are clustered at the bank-firm level.

In a complementary set of specifications, we investigate whether the supervisory dividend stimulus is directed to micro, small and medium enterprises (MSMEs) or towards Covid-affected sectors. Here, our econometric specifications take the following form:

$$\begin{aligned} Y_{f,b,t} = &+ \beta Dividends/RWA_{b,t} + \gamma Dividends/RWA_{b,t} \times Micro_{f,t} + \delta Dividends/RWA_{b,t} \\ &\times Small_{f,t} + \delta Dividends/RWA_{b,t} \times Medium_{f,t} + \Phi \Sigma X_{b,t-1} + \Psi \Sigma Z_{f,b,t-1} + \eta_{f,t} + \\ &\rho_b + \epsilon_{f,b,t} \end{aligned} \tag{2}$$

$$
\begin{aligned}
Y_{f,b,t} =& \beta Dividends/RWA_{b,t} + \theta Dividends/RWA_{b,t} \times Vulnerable\ Sectors_f + \Phi\Sigma X_{b,t-1} \\
&+ \Psi\Sigma Z_{f,b,t-1} + \eta_{f,t} + \rho_b + \epsilon_{f,b,t}
\end{aligned} \tag{3}
$$

For firm size in Equation 2, we take the definition given in the credit registry which distinguishes between large, medium, small and micro enterprises and follows the EU Commission standard classification.[15] Therefore, *Micro* is a dummy variable that is equal to 1 for firms that employ fewer than 10 employees and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million, and 0 otherwise. *Small* is a dummy variable that takes the value 1 for firms that employ fewer than 50 employees and have an annual turnover and/or annual balance sheet total that does not exceed EUR 10 million, and 0 otherwise. *Medium* is a dummy variable that is equal to 1 for firms that employ less than 250 but more than 50 employees, have an annual turnover not exceeding EUR 50 million and/or an annual balance sheet total not exceeding EUR 43 million, and 0 otherwise. It follows that our reference group are the *large* firms, i.e. firms that employ more than 250 employees, have an annual turnover greater than EUR 50 million and annual balance sheet greater than EUR 43 million.

To classify the industrial sectors in Equation 3, we follow the Statistical Classification of Economic Activities in the European Community (NACE Rev.2) code.[16] The vulnerable industry sectors are therefore based on 2-digit NACE codes. Specifically, the *Vulnerable Sectors* dummy takes the value 1 for Section F (Construction), Section G (Wholesale and retail trade, repair of motor vehicles and motorcycles), Section H (Transportation and storage), Section I (Accommodation and food services activities), Section R (Arts, entertainment and recreation) and Section C (Manufacturing) of the NACE Rev. 2 classification, and 0 otherwise.

[15] See the SME definition of the EU Commission at this link `https://ec.europa.eu/growth/smes/sme-definition_en`.

[16] NACE Rev. 2 classification is based on a hierarchical structure, which consists of first level sections (alphabetical code), second level divisions (2-digit numerical code), third level groups (3-digit numerical code), and fourth level classes (4-digit numerical code). Refer to `EU Commission NACE classification`.

4 Empirical Results

Table 2 reports the baseline results. Specifically, in columns 1 and 2, we report the estimates from equation 1 while the results from estimating equations 2 and 3 are reported in columns 3 and 4 and columns 5 and 6, respectively. Columns 1, 3 and 5 report the results with the inclusion of firm-time fixed effects whilst in columns 2, 4 and 6 we further saturate our econometric identification strategy by adding bank fixed effects. Standard errors are clustered at the bank-firm level in each econometric specification.

We find a positive and statistically significant (at the 1% level across specifications) relationship between $Dividends/RWA$ and credit growth indicating that the recommendation has been effective in supporting bank lending supply to non-financial corporations and, therefore, the real economy amid the COVID-19 crisis. *Ceteris paribus*, a 1 p.p. increase of non-distributed but planned dividends over RWAs ratio resulted in additional lending growth of 4.3-4.7 p.p.

It is worth noting that the these are seemingly large point estimates.[17] Similar studies on bank capital *releases* have however found larger effects: +9 p.p. Jiménez et al. (2017), +11 p.p. Sivec and Volk (2022) and 11.9 - 14.5% Martínez-Miera and Vegas (2021). With this in mind our estimates seem conservative. In addition, a closer look at our data allows to see that they are determined by the distribution of our dividend variable which has an average of 0.14% and a standard deviation of 0.27%. In other words, a 1 pp increase in Dividend/RWA means more than 4 standard deviations from the mean. A back of the envelope calculation for the average *Dividends/RWA* ratio of the treated group of bank banks in our sample (+0.47%) suggests that the effect is approximately halved. If we consider that the ratio of RWA over total assets is approximately 0.5 the impact would be further reduced by half. Finally, few contextual features can allow for somewhat large effects than in the previous literature: cancelled dividends are new fresh capital, we are considering a crisis period which can show higher multipliers. Overall, we conclude that the dividend recommendation measure seems effective in sustaining the credit flow to the real economy.

[17]From existing studies on the capital ratio *increases*, a 1 percentage point hike in the *non risk-based* capital over total assets determines a drop of 0.65% of lending, see Gambacorta et al. (2020).

We propose three reasons to explain why supervisory policies aimed at restricting dividend distributions facilitate bank lending supply in a downturn. First, dividends retention adds an additional layer of CET1 capital allowing banks to expand their loan portfolios without breaching regulatory requirements. Couaillier et al. (2022a) shows that banks with little capital headroom above regulatory capital requirements curtail their lending by about 3.5% during the pandemic to avoid dipping into regulatory requirements which triggers limitations on distributions, market stigma and market pressure. Therefore, by adding additional CET1 capital above requirements, suspending dividend distributions in crisis times enlarges banks' distance from capital requirements, limiting forms of pro-cyclical behaviour to preserve capital ratios by those banks closer to requirements. Second, it refrains banks to increase their earnings distribution during a downturn, in line with the dividend smoothing and signalling theories. Several studies (Acharya et al. (2012); Forti and Schiozer (2015); Muñoz (2021)) document that, during the global financial crisis, costly signalling in combination with accumulating losses eroded banks' capital and impaired their lending capacity. Third, it may strengthen the effectiveness of other prudential measure: most notably capital requirement releases. Since banks may opt to use the additional capital generated by releasing requirements to disburse dividends to shareholders, restricting dividend distributions may entail that the additional CET1 capital is employed only at strengthening banks' capacity to absorb losses and at supporting lending to the real economy.

In columns 3 and 4 of Table 2, we assess whether the supervisory dividend stimulus is directed to micro, small and medium enterprises (MSMEs) or to large firms. From a policy-makers' perspective, it is relatively more important to ensure the provision of credit to MSMEs during downturns as, contrarily to large corporations, MSMEs do not rely on debt security issuance as a substitute for bank credit during time of tighten lending standards, Becker and Ivashina (2014); Becker and Ivashina (2018). We find that banks following the recommendation on dividends distribution lent more to small and medium firms than to large firms. Specifically, a 1p.p. increase in $Dividends/RWA$ resulted in about 1.7-2 p.p. and 1.9-2.6 p.p. more lending to medium and small firms, respectively. However, lending to micro firms grew less in comparison to large firms by a factor of 1-1.4 p.p. for each p.p. increase in $Dividends/RWA$, although the coefficient is not statistically significant in column 3 and only marginally significant in column 4 (at the 10% level). This suggest that micro firms are perceived as riskier and more vulnerable during periods of systemic shock such as the pandemic.

Finally, we look at the impact of the ECB recommendation to Covid-affected vis-à-via less affected economic sectors. Altavilla et al. (2021a) document that guaranteed loans were mostly extended to firms in sectors severely affected by the pandemic. Here, instead of focusing on fiscal policies, we look at whether also prudential policies helped vulnerable sectors during the pandemic. Columns 5 and 6 of Table 2 report the results where, as in Equation 3, we interact our variable of interest ($Dividends/RWA$) with a dummy variable identifying Covid-affected sectors. As displayed, bank lending growth increased more to covid-affected sectors in relative terms during the pandemic outbreak. *Ceteris paribus*, a 1p.p. increase of non distributed but planned dividends over RWAs ratio resulted in additional lending growth to vulnerable sectors of about 2.3-2.8 p.p. It appears that also prudential policies, in the form of restricting dividend distributions, can support lending to sectors severely affected by systemic shocks.

Among the bank-specific controls, we find a positive and statistically significant (at the 1% level across specifications) relationship between the CET1 ratio distance to the MDA and bank lending growth. Greater capital headroom on top of capital requirements is conducive in supporting lending by banks, Gambacorta and Shin (2018); Couaillier et al. (2022a). Specifically, a 1 p.p. increase in the CET1 distance to the MDA leads, *ceteris paribus*, to about 0.4-1.3 p.p. greater credit growth. In line with the findings by Altavilla et al. (2021a), we find a positive and statistically significant (at the 1% level across specifications) relationship between the share of loans under government guaranteed schemes (*Share of Loan Guarantees*) and bank lending growth. A 1 p.p. increase in the share of guaranteed loans results in about 0.36 p.p. increase in bank lending supply. Finally, a positive and statistically significant (at the 1% level across specifications) link is also displayed between $TLTRO$ and lending growth, Altavilla et al. (2020). A 1 p.p. increase in the ratio of TLTRO uptake to total assets is associated to a 0.18-0.20 p.p. higher growth of credit.

4.1 Interaction with government guarantees

A growing body of research (see Altavilla et al. (2021a), amongst others) documents that credit guarantee schemes supported firms' liquidity needs by preserving banks' incentives to lend as the credit risk is transferred to a guarantor (the public sector). Moreover, credit benefiting from public guarantees have typically very low risk weights, thus a negligible impact on banks' capital ratio. It follows that banks might have opted for extending guarantees on loans in order to meet credit demand and, at the same time, saving the non distributed dividends for future times when the ECB would lift the dividend ban. If this is the case, we should observe no effect of the dividends suspension on lending to those firms that did not receive guaranteed loans. Therefore, in this section we answer two distinct questions: 1) Did banks following the ECB recommendation meet credit demand by granting guaranteed credit and saving the non distributed dividends? and, 2) Do restricting dividend distributions and government guarantees act as complement, stimulating credit supply to the real economy? To answer these questions, we use the following econometric identification strategy:

$$
\begin{aligned}
Y_{f,b,t} =& \beta Dividends/RWA_{b,t} + \theta Dividends/RWA_{b,t} \times ShareofLoanGuarantees > 0_{f,b,t} + \\
\Phi\Sigma X_{b,t-1} &+ \Psi\Sigma Z_{f,b,t-1} + \eta_{f,t} + \rho_b + \epsilon_{f,b,t} \qquad (4)
\end{aligned}
$$

where Share of Loan Guarantees > 0 is a binary variable computed at the bank-firm level that takes the value 1 if a bank b has granted a loan to firm f at time t which is partially or fully pledged by government guarantees, and 0 otherwise. Our interest in this specification lies in the single coefficient β and the interaction term θ. The single coefficient β answers our first question by capturing whether banks that follow the ECB recommendation suspending dividends distribution expand their lending supply to those firms not benefiting/needing guaranteed credit. The interaction coefficient θ provides indication on whether the two measures acted as complement in supporting bank lending to non-financial corporations.

The results reported in columns 1 and 2 of Table 3 are important for two reasons. First, the single coefficient *Dividends/RWA* is positive, sizeable and statistically significant (at the 10% level) indicating that lending grew by 1.4-2 p.p. for each p.p. increase of non distributed but planned dividends over RWAs ratio independently on the extension of guaranteed credit. Second, we find complementary between prudential policies, in the form restricting dividend distributions, and fiscal policies as the interaction term of our dividend variable and the share of government guarantees shows a coefficient of 5.42 p.p..

4.2 Interaction with firm riskiness

In this section, we look at whether banks that refrain from distributing dividends increase their risk-taking behaviour by lending to ex-ante fragile firms. Specifically, we aim to understand whether the increase in lending observed in Table **??** has been directed to firms that, already prior to the pandemic, had substantial accumulated impairments. This has important implication for financial stability in view of the considerable uncertainty about the future path of the Covid-19 crisis in March 20202. An excessive risk taking by banks under the form of gambling for resurrection could results in additional unforeseen losses. For this exercise, we use the following econometric specification:

$$
\begin{aligned}
Y_{f,b,t} = {} & \alpha Dividends/RWA_{b,t} + \beta Accumulated\ Impairments_{f,b} + \theta Dividends/RWA_{b,t} \\
& \times Accumulated\ Impairments_{f,b} + \mu Zombie_{f,b} + \omega Dividends/RWA_{b,t} \times Zombie_{f,b} + \\
& \Phi \Sigma X_{b,t-1} + \Psi \Sigma Z_{f,b,t-1} + \eta_{f,t} + \rho_b + \epsilon_{f,b,t} \qquad (5)
\end{aligned}
$$

where *Accumulated Impairments* is a dummy taking the value 1 if, pre-pandemic (as of 2019Q4), bank$_b$ has identified and recognised loan impairments for firm$_f$ that is within the p25-p95 range of impaired loans per bank-firm relationship. *Zombie* is a dummy taking the value 1 if, pre-pandemic (as of 2019Q4), bank$_b$ has identified and recognised loan impairments for firm$_f$ that is above the 95th percentile of impaired loans. These dummies are benchmarked against impaired loans below the first quartile (p25) per bank-firm relationship.[18] Again, we employ the same set of bank- and policy-specific control variables as in equation 1 and we saturate the model with the same combination of fixed effects. Our interest lies on the two double interaction terms which may point to heighten bank risk-taking behaviour during the pandemic coming from banks following the recommendation.

The results reported in columns 1 and 2 of Table 4 shows that lending growth is 1.76 p.p. lower for bank-firm relationships with accumulated impairments (those within the p25-p95 range of impaired loans per bank-firm relationship), while the point estimates of more problematic zombie borrowers, those above the 95th percentile of impaired loans with a specific bank, fail to reject the null hypothesis of the absence of credit growth originating from non distributed dividends. Hence, we do not find evidence of lending to riskier borrowers or zombie firms or increased risk-taking following the recommendation. On the contrary, most of the increase in lending supply found in Table 1 is directed to pre-pandemic sound firms, as shown by the single coefficient $Dividends/RWA$ in Table 4.

4.3 Interaction with time dummies

We also investigate the time dimension of the dividends restriction. From a policymaker perspective, it is relevant to appreciate whether the effect of restricting dividend distributions is short- or long-lasting. To do so, we interact our treatment variable of interest ($Dividends/RWA$) with quarterly dummies to study in more detail the dynamics of the effect. Columns 1 and 2 of Table 5 report the results by interacting $Dividends/RWA$ with three quarters: 2020Q2, 2020Q3 and 2020Q4, where the benchmark dummy is represented by the period prior to Covid. We find that the impact of the ECB dividend recommendation is mostly short lived with absence of significant persistent effects, the beneficial impact vanishes in 2020Q4 and it is mostly concentrated in 2020Q3.[19] We propose an explanation for this result. Restrictions on personal mobility and

[18] Arguably, this dummy does not capture new loans granted to riskier firms without pre-pandemic bank relationships. However, they represent a tiny fraction of the sample.

[19] The interaction with 2021Q1 is included in the specification, although not reported as statistically insignificant and of similar magnitude as for the interaction with 2020Q4.

nonessential business operations caused a surge in firms' liquidity needs that is mostly concentrated around the first and second quarter of 2020, i.e. during the most acute phase of the pandemic and lockdown measures. Therefore, it is reasonable to expect that banks having retained more capital via undistributed dividends being able to meet credit demand, extending more credit when most needed in comparison to banks that either were not affected by the recommendation or did not follow it.

4.4 Industry-location-size analysis

In Section 4, we control for the heterogeneity in credit supply across firms by exploiting firm with multiple bank relationships and firm-time fixed effects, Khwaja and Mian (2008). However, one shortcoming of the Khwaja and Mian (2008) econometric identification strategy is the exclusion of single-bank relationships that are absorbed by firm fixed effects. Since the majority of single-bank relationships involve MSMEs which are predominant in some European countries, this may lead to sample selection biases. To control for this possibility, we follow the approach by Acharya et al. (2019) and Degryse et al. (2019) and construct firm ILS fixed effects. To classify the industrial sectors, we follow the NACE Rev.2 code. As in equation 3, the industry cluster are based on 2-digit NACE codes. The location clusters computation depends on the size of the country in the sample. For instance, for countries with more than 5 million inhabitants (Germany, France, Italy and Spain), we use the first two digits of postal code whilst we consider countries with less than 5 millions inhabitants as a single location. As in equation 2, we take the definition given in *AnaCredit* to define firms' size. The inclusion of ILS fixed effects instead of firm fixed effects allows us to retain more than 5 million additional single bank-relationships in the estimation.

The results of this exercise are reported in Table 6. As displayed, the results remain robust also when firm fixed effects are replaced by ILS fixed effects. This should reassure on the validity of our baseline findings, limiting also sample selection biases arising from the omission of firms with single-bank relationships. In addition, it extends the effectiveness of the recommendation to 5 million additional single bank-firm relationships. It is worth noting that the magnitude of the estimates are approximately thirty percent lower in the ILS specification suggesting that the bulk of the positive impact comes from firms with multiple bank-relationships.

4.5 Probing parallel trends: placebo shock event

In this section we try to eliminate the possibility that the impact on lending might have already emerged prior to the shock. In short, we need to ensure that bank lending growth in the treatment group had not already diverged prior to the pandemic. Although the inclusion of bank fixed effects along with borrower-time should control for the differences in credit growth, moving the treatment date prior to 2020Q1 can serve as a falsification placebo exercise. If the estimated coefficients on the 'false' Covid shock are not statistically significant, we can be more confident that our baseline coefficient is capturing genuine effects.

5 Concluding remarks and policy considerations

In this paper we inspect the bank-lending and the risk-taking channels of the ECB dividend recommendation. To disentangle loan demand and loan supply effects, we rely on granular credit registry data and a direct measure that capture the variation in the compliance with the recommendation across banks in the euro area. We find that dividend restrictions have been an effective policy in supporting the financially constrained firms. The effects are significant on lending to small and medium enterprises and to Covid-19 vulnerable sectors. At the same time, we do not find evidence of a significant increase in lending to riskier borrowers or zombie firms or increased risk-taking by banks with structurally high NPLs.

The efficacy of dividend recommendation policies needs to evaluated with other elements of the capital regulation framework. Basel III regulation introduced automatic and increasing dividend distribution constraints when capital levels fall below a buffer threshold. For banks, in a crisis context when authorities release the use of regulatory capital buffers accumulated in good times to support the real economy, a trade-off arises: preserving corporate franchise value by not breaching the threshold, or supporting the financial intermediation process and the real economy. Specific policies aimed at restricting dividend distribution can optimally interact with the countercyclical capital buffer release and can help address the disincentives to increase loan supply. In other words, stigma effects stemming from distribution constraints would be removed: banks would no longer have disincentives to use capital buffers, Svoronos and Vrbaski (2020). Further and importantly, an additional advantage of supervisory policies aimed at restricting dividend distributions in a downturn when combined with a capital buffer release, is that dividend restriction would eliminate the risk that bank managers opt for allocating released capital buffers to dividend distributions.

It is useful to note that from a welfare perspective, restricting dividend distributions to generate additional lending can be superior to easing of capital requirements which reduces banks' loss absorption capacity that can be of fundamental importance in a downturn.

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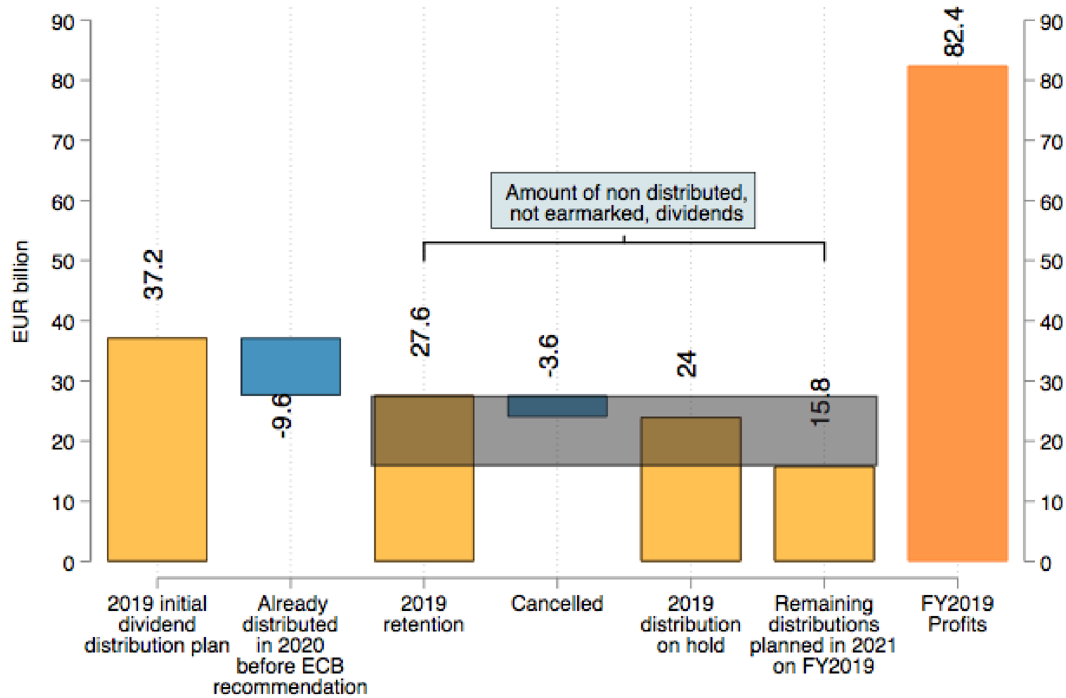
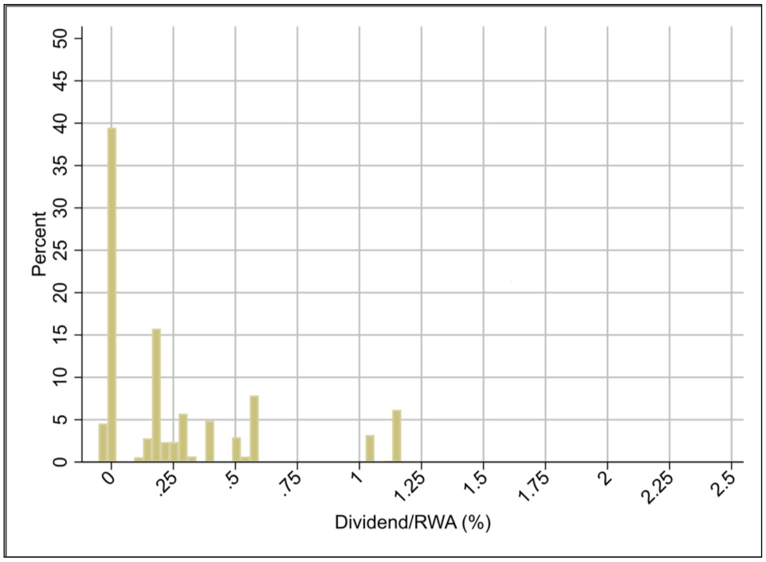
Figure 1: ECB Survey on dividend distribution plans by significant institutions



Note: The graph plots the aggregate evolution of dividend distribution plans by significant banks in the euro area as of March 2020. From the initial plan to distribute EUR 37.2 billion, banks already distributed in the three months of 2020 EUR 9.6 billion forming one of our treated groups. The already cancelled dividend distributions amounted at EUR 3.6 billion with a potential for total cancellations of EUR 11.8 billions. As of march 2020 this was the amount of surplus capital that can be employed to support the real economy. Source: ECB banking supervision survey on dividend distribution plans.

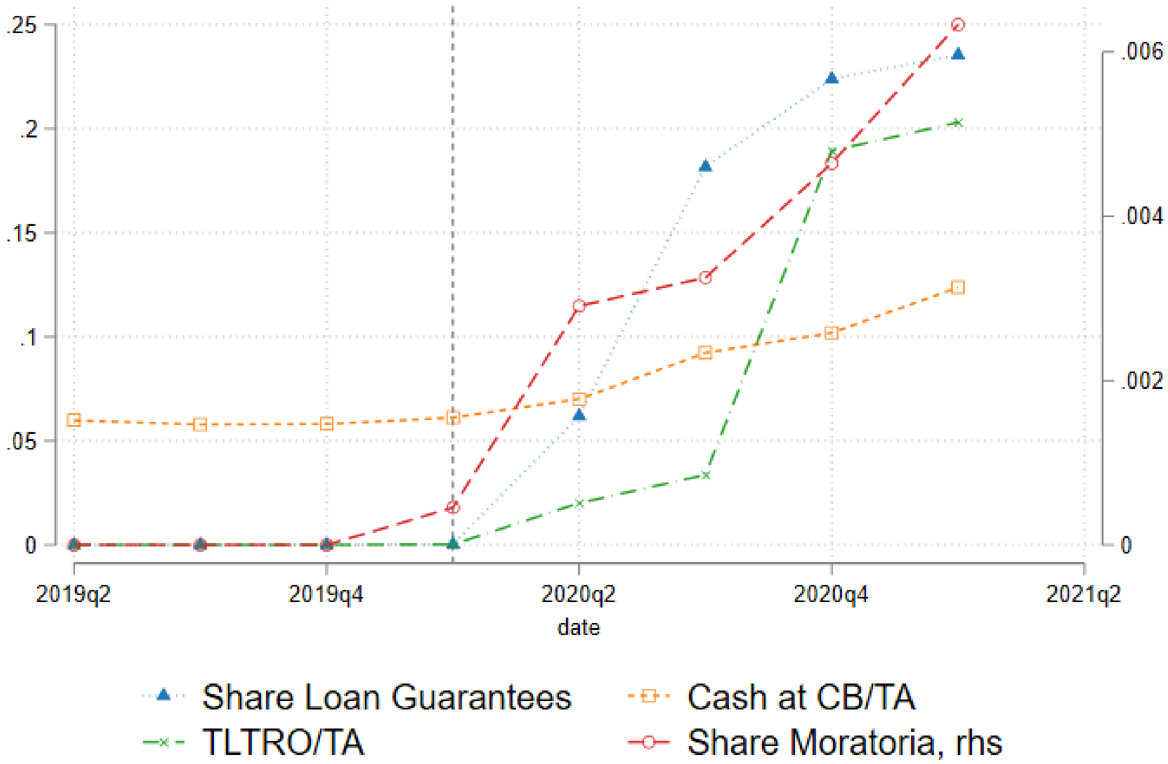
Figure 2: Distribution of Dividends/RWA



Source: ECB, authors' calculation

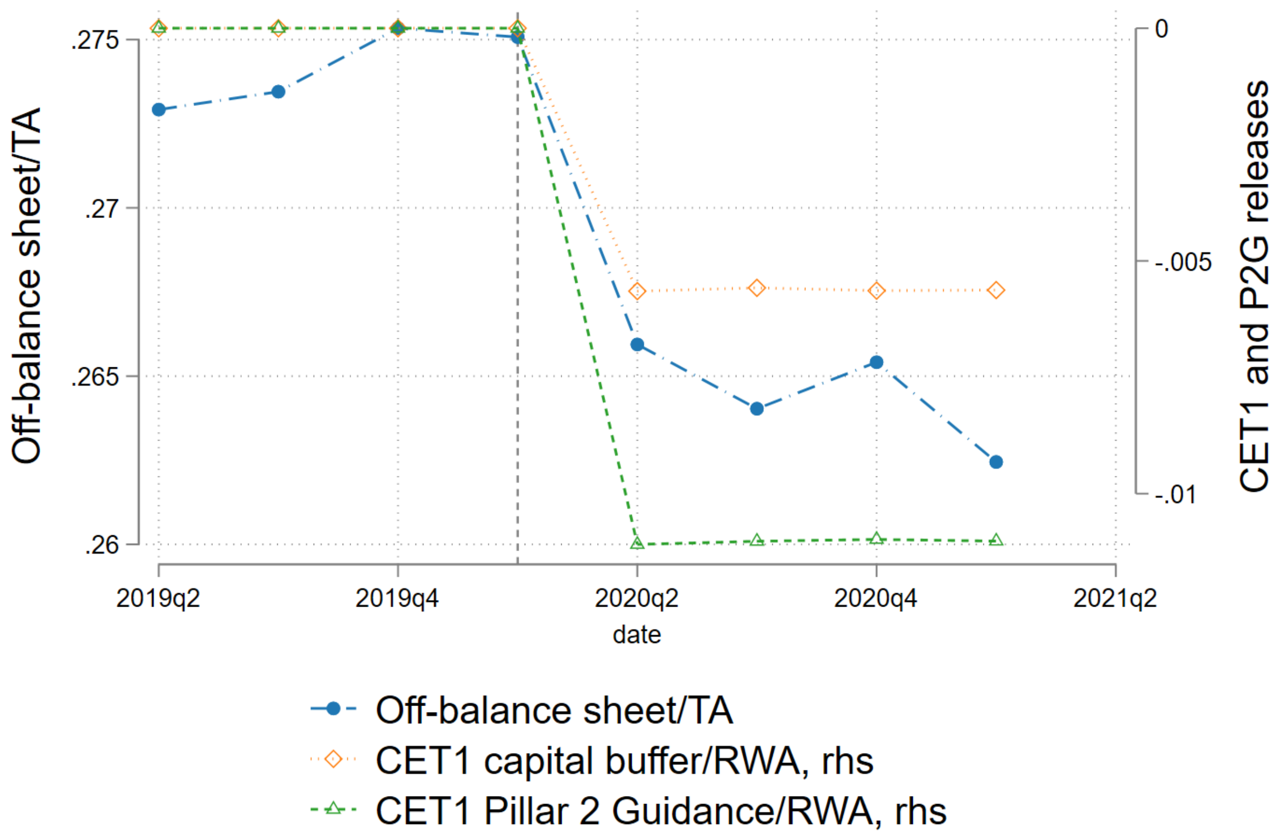
Note: This graph plots the distribution of Dividends/RWA for the sample 99 banks employed throughout the analysis. Dividend/RWA is the ratio of dividend planned in 2019 but not distributed in 2020 divided by risk weighted assets. Source: ECB banking supervision survey on dividend distribution plans.

Figure 3: The evolution of monetary and fiscal policy stimulus measures



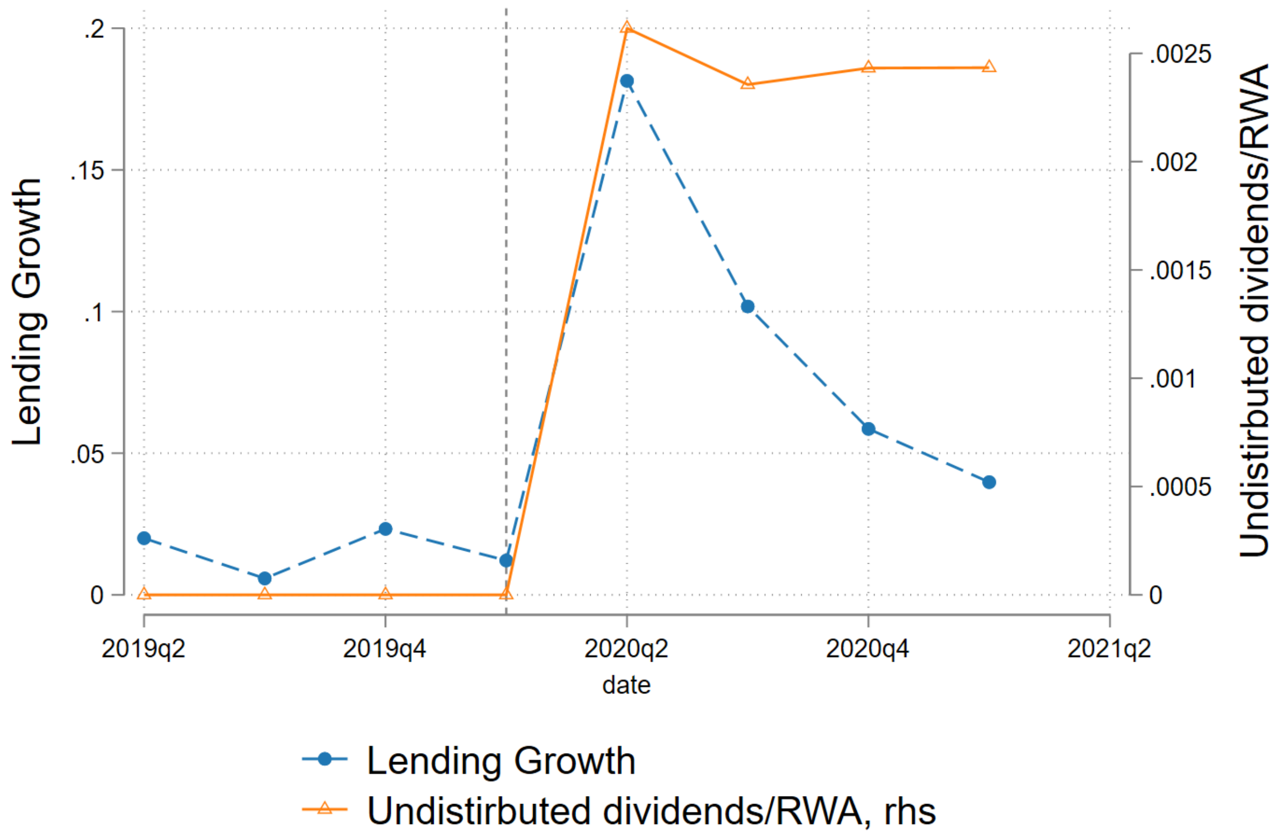
Note: The chart shows the timeline of the main variables capturing the variation stemming from monetary and fiscal policy measures aimed at sustaining credit growth. The dashed vertical line is at 2020Q1. The share of debt repayment moratoria (rhs) and loan guarantees are the shares in total loans aggregate at bank-firm level. Cash at CB/TA is the ratio of cash and cash held at the central bank to total asset and is a proxy for ECB asset purchases. TLTRO is the ratio of TLTRO III uptake over total assets at bank level. Source: Anacredit, ECB supervisory and monetary policy reporting. Authors calculations.

Figure 4: Off-balance sheet exposures and capital releases after Covid



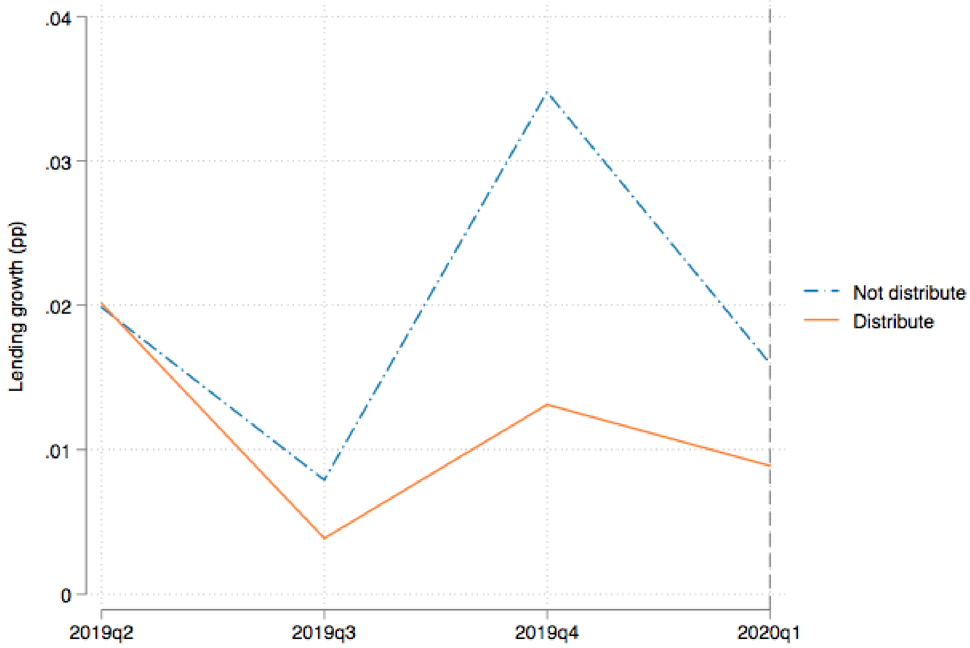
Note: The chart shows the drops in off-balance sheet exposures over total assets, CET1 regulatory capital buffer and CET1 Pillar 2 guidance over RWA releases, after the onset of the Covid pandemic. Off-balance sheet exposures such as drawn credit lines when they are moved to the balance sheet increase lending mechanically. Capital releases instead give regulatory space to banks to issue loans without breaching regulatory requirements. The dashed vertical line is at 2020Q1. Source: ECB supervisory reporting. Authors calculations.

Figure 5: Credit growth and undistributed dividends



Note: The chart illustrates the spike in planned but non-distributed dividends (rhs) and the spike in credit growth. The dashed vertical lines is at 2020Q1. Source: Anacredit and ECB banking supervision survey on dividend distribution plans.

Figure 6: Lending growth trend over 2019Q2-2020Q1



Source: Anacredit. authors' calculation

Note: This figure shows the trends of the average bank-firm level lending growth for the group of banks either did not follow the ECB recommendation on dividends distribution or where not affected by it (blue solid line) and banks that follow the recommendation suspending partly or in full their dividend distribution plans. .

Table 1: Descriptive Statistics

	N	Mean	Std.dev.	Min.	p25	p75	Max.
PANEL A: BANK-FIRM LEVEL							
Lending Growth	6'360'304	0.059	0.439	-1.000	-0.050	0.000	2.483
Share of Debt Repayment Moratoria	6'360'304	0.003	0.045	0.000	0.000	0.000	1.000
Share of Loan Guarantees	6'360'304	0.103	0.259	0.000	0.000	0.000	1.000
PANEL B: BANK-LEVEL							
Dividends/RWA	6'360'304	0.001	0.003	-0.001	0.000	0.002	0.023
Ln(TA)	6'360'304	26.701	1.210	21.836	25.743	27.561	28.256
Mkt debt funding/TA	6'360'304	0.109	0.062	0.000	0.080	0.125	0.806
RWA/TA	6'360'304	0.397	0.083	0.034	0.348	0.432	0.787
NIM (annualised)	6'360'304	0.015	0.006	0.001	0.012	0.016	0.031
NPL ratio	6'360'304	0.058	0.059	0.000	0.030	0.069	0.444
CET1 MDA Distance	6'360'304	0.041	0.024	0.004	0.025	0.055	0.489
Cash at CB/TA	6'360'304	0.082	0.042	0.003	0.049	0.104	0.484
TLTRO	6'360'304	0.067	0.123	0.000	0.000	0.080	0.476
Off-balance sheet/TA	6'360'304	0.269	0.094	0.027	0.194	0.357	0.634

Note: The table displays summary descriptive statistics of the variables used in the empirical framework from 2019Q2 to 2021Q1. The table is divided in two panels: Panel A reports the descriptive statistics for the bank-firm level variables whilst panel B reports the descriptive statistics for the bank-level variables. Lending growth is the growth in the stock of debt for firm-bank relationship. Share of Debt Repayment Moratoria is the share of loans under moratoria, and Share of Loan Guarantees is the share of loans under government guaranteed schemes for each bank-firm relationship. Dividend/RWA is the ratio of dividend planned in 2019 but not distributed in 2020 divided by risk weighted assets. Ln(TA) is the logarithm of bank total assets. Mkt debt funding is the ratio of debt securities to total assets. RWA/TA is the ratio of risk weighted assets to total assets. NIM (annualised) is the net interest margins computed on a rolling annualised base. NPL ratio is the ratio of non-performing loans to gross loans. CET1 MDA Distance is the CET1 ratio in excess of the maximum distributable amount. Cash at CB/TA is the ratio of cash and cash held at the central bank to total assets. TLTRO is the ratio of TLTRO III uptake to total assets. Off balance sheet is the ratio of off-balance sheet activities to total assets.

Table 2: Baseline Estimates: Dividends and Lending with firm size and vulnerable sectors

Dep.var.: Lending Growth$_{bft}$	Baseline		Interaction Firm Size		Interaction Vulnerable Sectors	
	(1)	(2)	(3)	(4)	(5)	(6)
(Dividends/RWA)$_{bt}$	4.322	4.740	4.198	4.565	2.245	3.011
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.009)***	(0.003)***
Medium ent. × (Dividends/RWA)$_{bt}$			2.051	1.715		
			(0.001)***	(0.000)***		
Small ent. × (Dividends/RWA)$_{bt}$			2.675	1.960		
			(0.001)***	(0.002)***		
Micro ent. × (Dividends/RWA)$_{bt}$			-1.009	-1.460		
			(0.293)	(0.086)*		
Vulnerable sectors × (Dividends/RWA)$_{bt}$					2.882	2.360
					(0.000)***	(0.000)***
Ln(TA)$_{bt-1}$	0.006	-0.155	0.006	-0.177	0.006	-0.157
	(0.040)**	(0.125)	(0.083)*	(0.098)*	(0.046)**	(0.121)
(Mkt debt funding/TA)$_{bt-1}$	-0.054	-0.203	-0.057	-0.115	-0.057	-0.202
	(0.194)	(0.470)	(0.216)	(0.707)	(0.161)	(0.474)
(RWA/TA)$_{bt-1}$	-0.015	-0.529	-0.021	-0.558	-0.020	-0.534
	(0.741)	(0.049)**	(0.672)	(0.042)**	(0.669)	(0.046)**
(NIM annualised)$_{bt-1}$	3.711	2.426	3.931	2.422	3.751	2.395
	(0.000)***	(0.185)	(0.000)***	(0.210)	(0.000)***	(0.190)
NPL ratio)$_{bt-1}$	0.171	0.066	0.164	0.048	0.173	0.065
	(0.019)**	(0.760)	(0.026)**	(0.825)	(0.017)**	(0.762)
CET1 MDA Distance)$_{bt-1}$	0.452	1.333	0.479	1.340	0.446	1.321
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
(Cash/TA)$_{bt-1}$	0.113	-0.021	0.110	-0.017	0.111	-0.020
	(0.068)*	(0.839)	(0.109)	(0.877)	(0.073)*	(0.843)
(Share Debt Moratoria)$_{bft}$	0.025	0.002	0.022	0.000	0.025	0.002
	(0.112)	(0.772)	(0.177)	(0.989)	(0.112)	(0.760)
(Share Loan Guarantees)$_{bft}$	0.369	0.370	0.374	0.375	0.369	0.370
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
(TLTRO/TA)$_{bt-1}$	0.187	0.206	0.195	0.218	0.187	0.206
	(0.000)***	(0.002)***	(0.000)***	(0.001)***	(0.000)***	(0.002)***
(Off balance sheet/TA)$_{bt-1}$	-0.037	0.110	-0.042	0.138	-0.037	0.109
	(0.079)*	(0.341)	(0.054)*	(0.281)	(0.082)*	(0.346)
Firm-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	No	Yes	No	Yes
Observations	6'360'304	6'360'304	5'806'988	5'806'988	6'360'304	6'360'304
N. Banks	99	99	99	99	99	99
N. Firms	541'183	541'183	483'069	483'069	541'183	541'183
R^2	0.471	0.473	0.470	0.471	0.471	0.473

Note: Signif. Codes: ***: 0.01, **: 0.05, *: 0.1. P-values in parenthesis derived from two-wayy clustered standard errors at bank and firm levels. The regression sample contains only multiple bank-firm relationships. The dependent variable is the growth in the stock of debt (Lending growth). The exogenous variables include the ratio of dividend planned in 2019 but not distributed in 2020 to risk weighted assets (Dividends/RWA); the logarithm of bank total assets (Ln(TA); the ratio of debt securities-to-total assets (Mkt debt funding/TA), the ratio of risk weighted assets to total assets (RWA/TA); the annualised rolling net interest margins (NIM annualised); the ratio of non-performing loans to gross loans (NPL ratio); the CET1 ratio in excess of the maximum distributable amount (CET1 MDA Distance); the ratio of cash and cash held at the central bank to total assets (Cash/TA); the share of loans under guarantee or moratoria (Share of Debt Repayment Moratoria and Share of Loan Guarantees, respectively); the TLTRO III to total assets ratio (TLTRO/TA); the ratio of off-balance sheet activities to total assets (Off balance sheet/TA).

Table 3: Results interaction with guarantee schemes

Dependent Variable:	Lending Growth	
Model:	(1)	(2)
Variables		
Dividends/RWA	1.4806*	2.0681*
	(0.844)	(1.111)
Share of Loan Guarantees > 0	0.3130***	0.3153***
	(0.013)	(0.014)
Share of Loan Guarantees > 0 $\times Dividends/RWA$	5.4363***	5.4190**
	(2.057)	(2.239)
Ln(TA)_{t-1}	0.0055*	-0.2050*
	(0.003)	(0.119)
$\text{(Mkt debt funding/TA)}_{t-1}$	-0.0600*	-0.2462
	(0.035)	(0.367)
(RWA/TA)_{t-1}	-0.0722*	-0.6274**
	(0.042)	(0.277)
$\text{NIM (rolling)}_{t-1}$	3.1581***	3.9850*
	(0.622)	(2.052)
(NPL ratio)_{t-1}	0.2167***	0.2558
	(0.070)	(0.235)
$\text{(CET1 MDA Distance)}_{t-1}$	0.4045***	1.2681***
	(0.117)	(0.241)
$\text{(Cash at CB/TA)}_{t-1}$	0.1754***	0.1263
	(0.060)	(0.093)
$\text{(Share of Debt Repayment Moratoria)}_{bft}$	0.0193	0.0025
	(0.017)	(0.010)
(TLTRO)_{t-1}	0.1791***	0.0.2082***
	(0.045)	(0.067)
$\text{(Off balance sheet/TA)}_{t-1}$	-0.0496**	0.1232
	(0.022)	(0.124)
Fixed-effects		
Firm-Quarter	Yes	Yes
Bank	No	Yes
Fit statistics		
Observations	6,360,304	6,360,304
S.E. cluster	Bank-firm	Bank-firm
Banks	99	99
Firms	541,183	541,183

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: The endogenous variable is the growth in the stock of debt (Lending growth). The exogenous variables include the ratio of dividend planned in 2019 but not distributed in 2020 to risk weighted assets (Dividends/RWA); a dummy variable that takes the value 1 if a bank has granted a loan that is partially or fully pledged by a government guaranteed scheme, and 0 otherwise (Share of Loan Guarantees > 0), the logarithm of bank total assets (Ln(TA); the ratio of the ratio of debt securities-to-total assets (Mkt debt funding/TA), the ratio of risk weighted assets to total assets (RWA/TA); the rolling net interest margins (NIM (rolling)); the ratio of non-performing loans to gross loans (NPL ratio); the CET1 ratio in excess of the maximum distributable amount (CET1 MDA Distance); the ratio of cash and cash held at the central bank to total assets (Cash at CB/TA); the share of loans under guarantee or moratoria (Share of Debt Repayment Moratoria and Share of Loan Guarantees, respectively); the TLTRO III to total assets ratio; the ratio of off-balance sheet activities to total assets (Off balance sheet/TA).

Table 4: Risk-taking: Impaired and Zombie Firms, NPLs

Dep.var.: Lending Growth$_{bft}$	Impaired Firms		Zombie Firms		Impaired, Zombie Firms		High NPL Banks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Dividends/RWA)$_{bt}$	2.554	2.874	3.125	3.197	3.067	3.870	3.924	3.546
	(0.001)***	(0.024)**	(0.000)***	(0.007)***	(0.000)***	(0.002)***	(0.000)***	(0.000)***
p25 < impaired$_f$(19Q4) < p95	-0.008	-0.009			-0.009	-0.009		
	(0.000)***	(0.000)***			(0.000)***	(0.000)***		
p25 < impaired$_f$(19Q4) < $p95 \times (Dividends/RWA)_{bt}$	0.672	0.146			0.154	-0.828		
	(0.166)	(0.801)			(0.750)	(0.093)*		
Zombie$_f$			0.004	0.006	-0.003	-0.002		
			(0.631)	(0.459)	(0.718)	(0.851)		
Zombie$_f$ $\times$ $(Dividends/RWA)_{bt}$			-2.542	-3.735	-2.503	-4.516		
			(0.062)*	(0.008)***	(0.075)*	(0.002)***		
NPL$_{bt}$ $< p50$							0.017	
							(0.015)**	
NPL$_{bt}$ $< p50 \times (Dividends/RWA)_{bt}$							2.410	7.073
							(0.348)	(0.009)***
Ln(TA)$_{bt-1}$	0.005	-0.201	0.005	-0.202	0.005	-0.202	0.006	-0.149
	(0.094)*	(0.108)	(0.085)*	(0.108)	(0.094)*	(0.108)	(0.064)*	(0.143)
(Mkt debt funding/TA)$_{bt-1}$	-0.068	-0.251	-0.071	-0.256	-0.067	-0.258	-0.102	-0.100
	(0.034)**	(0.474)	(0.029)**	(0.464)	(0.038)**	(0.459)	(0.005)***	(0.736)
(RWA/TA)$_{bt-1}$	-0.024	-0.563	-0.022	-0.564	-0.022	-0.562	0.029	-0.525
	(0.571)	(0.044)**	(0.591)	(0.044)**	(0.595)	(0.044)**	(0.553)	(0.051)*
(NIM annualised)$_{bt-1}$	3.567	2.007	3.554	1.989	3.562	1.992	3.265	2.605
	(0.000)***	(0.295)	(0.000)***	(0.298)	(0.000)***	(0.298)	(0.000)***	(0.150)
NPL ratio)$_{bt-1}$	0.175	0.189	0.182	0.188	0.173	0.188	0.191	0.075
	(0.012)**	(0.414)	(0.009)***	(0.418)	(0.012)**	(0.419)	(0.015)**	(0.728)
CET1 MDA Distance)$_{bt-1}$	0.399	1.168	0.402	1.174	0.402	1.177	0.461	1.320
	(0.001)***	(0.000)***	(0.001)***	(0.000)***	(0.001)***	(0.000)***	(0.000)***	(0.000)***
(Cash/TA)$_{bt-1}$	0.203	0.016	0.201	0.015	0.203	0.015	0.128	-0.033
	(0.002)***	(0.893)	(0.002)***	(0.899)	(0.002)***	(0.899)	(0.029)**	(0.750)
(Share Debt Moratoria)$_{bft}$	0.028	0.004	0.027	0.004	0.028	0.004	0.025	0.005
	(0.155)	(0.697)	(0.164)	(0.704)	(0.146)	(0.687)	(0.097)*	(0.529)
(Share Loan Guarantees)$_{bft}$	0.831	0.831	0.831	0.831	0.831	0.831	0.371	0.371
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
(TLTRO/TA)$_{bt-1}$	0.209	0.238	0.210	0.239	0.210	0.239	0.200	0.217
	(0.000)***	(0.002)***	(0.000)***	(0.002)***	(0.000)***	(0.002)***	(0.000)***	(0.002)***
(Off balance sheet/TA)$_{bt-1}$	-0.041	0.102	-0.047	0.102	-0.040	0.102	-0.023	0.128
	(0.026)**	(0.383)	(0.016)**	(0.384)	(0.036)**	(0.381)	(0.259)	(0.277)
Firm-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4943734	4943734	4943734	4943734	4943734	4943734	6360304	6360304
N. Banks	96	96	96	96	96	96	99	99
N. Firms	331113	331113	331113	331113	331113	331113	541183	541183
R^2	0.500	0.501	0.500	0.501	0.500	0.501	0.471	0.473

Table 5: Results interaction with quarterly dummies

Dependent Variable:	Lending Growth	
Model:	(1)	(2)
Variables		
Dividends/RWA $\times 2020Q2$	3.8041*	1.6172
	(2.132)	(2.006)
Dividends/RWA $\times 2020Q3$	12.9333***	11.3146***
	(3.729)	(3.335)
Dividends/RWA $\times 2020Q4$	1.9952	1.6735
	(1.627)	(1.768)
Ln(TA)$_{t-1}$	0.0056**	-0.0605*
	(0.003)	(0.083)
(Mkt debt funding/TA)$_{t-1}$	-0.0492	0.0198
	(0.042)	(0.276)
(RWA/TA)$_{t-1}$	-0.0105	-0.4566*
	(0.042)	(0.277)
NIM (rolling)$_{t-1}$	3.5931***	2.9809
	(0.716)	(1.950)
(NPL ratio)$_{t-1}$	0.1909**	0.0256
	(0.076)	(0.183)
(CET1 MDA Distance)$_{t-1}$	0.4248***	1.2786***
	(0.112)	(0.244)
(Cash at CB/TA)$_{t-1}$	0.1328**	0.0362
	(0.066)	(0.110)
(Share of Debt Repayment Moratoria)$_{bft}$	0.0234*	0.0022
	(0.014)	(0.007)
(Share of Loan Guarantees)$_{bft}$	0.3684***	0.3691***
	(0.032)	(0.031)
(TLTRO)$_{t-1}$	0.1545***	0.0.1575***
	(0.040)	(0.055)
(Off balance sheet/TA)$_{t-1}$	-0.0359*	0.0727
	(0.021)	(0.108)
Fixed-effects		
Firm-Quarter	Yes	Yes
Bank	No	Yes
Fit statistics		
Observations	6,360,304	6,360,304
S.E. cluster	Bank-firm	Bank-firm
Banks	99	99
Firms	541,183	541,183

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: The endogenous variable is the growth in the stock of debt (Lending growth). The exogenous variables include the ratio of dividend planned in 2019 but not distributed in 2020 to risk weighted assets (Dividends/RWA); a dummy variable that takes the value 1 for the quarters, the logarithm of bank total assets (Ln(TA); the ratio of the ratio of debt securities-to-total assets (Mkt debt funding/TA), the ratio of risk weighted assets to total assets (RWA/TA); the rolling net interest margins (NIM (rolling)); the ratio of non-performing loans to gross loans (NPL ratio); the CET1 ratio in excess of the maximum distributable amount (CET1 MDA Distance); the ratio of cash and cash held at the central bank to total assets (Cash at CB/TA); the share of loans under guarantee or moratoria (Share of Debt Repayment Moratoria and Share of Loan Guarantees, respectively); the TLTRO III to total assets ratio; the ratio of off-balance sheet activities to total assets (Off balance sheet/TA).

Table 6: Results with industry-location-size fixed effects

Dependent Variable:	Lending Growth					
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Dividends/RWA	2.9794***	2.7114*	3.7609***	3.6563***	2.5925**	2.4188
	(1.038)	(1.433)	(1.027)	(1.106)	(1.013)	(1.488)
Ln(TA)_{t-1}	0.0044	-0.1368	0.0042	-0.1344	0.0043	-0.1375
	(0.003)	(0.087)	(0.003)	(0.086)	(0.003)	(0.087)
$\text{(Mkt debt funding/TA)}_{t-1}$	-0.0374	0.1865	-0.0351	0.1793	-0.0378	0.1857
	(0.042)	(0.294)	(0.042)	(0.296)	(0.042)	(0.294)
(RWA/TA)_{t-1}	-0.0307	-0.3158	-0.0341	-0.3040	-0.0324	-0.3170
	(0.055)	(0.231)	(0.053)	(0.0232)	(0.054)	(0.230)
$\text{NIM (rolling)}_{t-1}$	3.3546***	3.3228	3.3376***	3.2555	3.3646***	3.3253
	(0.729)	(2.445)	(0.730)	(2.458)	(0.729)	(2.441)
(NPL ratio)_{t-1}	0.0710	-0.1329	0.0714	-0.1375	0.0717	-0.1332
	(0.057)	(0.220)	(0.056)	(0.219)	(0.057)	(0.220)
$\text{(CET1 MDA Distance)}_{t-1}$	0.3280***	1.0549***	0.3201**	1.0726***	0.3260**	1.0548***
	(0.124)	(0.273)	(0.123)	(0.279)	(0.124)	(0.273)
$\text{(Cash at CB/TA)}_{t-1}$	0.0481	-0.0103	0.0423	-0.0089	0.0465	-0.0102
	(0.073)	(0.117)	(0.073)	(0.118)	(0.073)	(0.117)
$\text{(Share of Debt Repayment Moratoria)}_{bft}$	0.0113	0.0054	0.0115	0.0055	0.0114	0.0054
	(0.008)	(0.005)	(0.008)	(0.005)	(0.008)	(0.005)
$\text{(Share of Loan Guarantees)}_{bft}$	0.2719***	0.2732***	0.2720***	0.2733***	0.2719***	0.2732***
	(0.026)	(0.025)	(0.026)	(0.025)	(0.026)	(0.025)
(TLTRO)_{t-1}	0.1551***	0.1458**	0.1555***	0.1463**	0.1552***	0.1459**
	(0.042)	(0.056)	(0.042)	(0.056)	(0.042)	(0.056)
$\text{(Off balance sheet/TA)}_{t-1}$	-0.0282	0.0777	-0.0275	0.0779	-0.0284	0.0776
	(0.024)	(0.118)	(0.023)	(0.119)	(0.024)	(0.118)
Medium firms $\times Dividends/RWA$			1.7249***	1.4947***		
			(0.564)	(0.456)		
Small firms $\times Dividends/RWA$			2.2922***	1.7424***		
			(0.842)	(0.646)		
Micro firms $\times Dividends/RWA$			-2.1109*	-2.4158*		
			(1.144)	(1.178)		
Vulnerable Sectors $\times Dividends/RWA$					0.8738***	0.6228*
					(0.299)	(0.346)
Fixed-effects						
ILS-Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Bank	No	Yes	No	Yes	No	Yes
Fit statistics						
Observations	11,363,790	11,363,790	11,363,790	11,363,790	11,363,790	11,363,790
S.E. cluster	Bank-firm	Bank-firm	Bank-firm	Bank-firm	Bank-firm	Bank-firm
Banks	99	99	99	99	99	99
Firms						

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: The endogenous variable is the growth in the stock of debt (Lending growth). The exogenous variables include the ratio of dividend planned in 2019 but not distributed in 2020 to risk weighted assets (Dividends/RWA); the logarithm of bank total assets (Ln(TA); the ratio of the ratio of debt securities-to-total assets (Mkt debt funding/TA), the ratio of risk weighted assets to total assets (RWA/TA); the rolling net interest margins (NIM (rolling)); the ratio of non-performing loans to gross loans (NPL ratio); the CET1 ratio in excess of the maximum distributable amount (CET1 MDA Distance); the ratio of cash and cash held at the central bank to total assets (Cash at CB/TA); the share of loans under guarantee or moratoria (Share of Debt Repayment Moratoria and Share of Loan Guarantees, respectively); the TLTRO III to total assets ratio; the ratio of off-balance sheet activities to total assets (Off balance sheet/TA).