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MACROPRUDENTIAL POLICY AND CORPORATE LOANS

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Abstract

We analyze the impact of macroprudential policies on corporate loans. We utilize a dataset of over 4,800 syndicated loans from 1999-2017, matched with detailed macroprudential policy data from the European Central Bank. We investigate how overall policy stance and specific tools influence key loan terms at origination, including the amount, maturity, collateral, and covenants. Drawing upon hypotheses related to credit growth, risk-taking, and efficiency transmission channels, we show that a tighter macroprudential policy leads to an increase in loan amounts and collateralization. These effects are most prominent for tools that tighten lending standards and capital buffers, particularly in domestic credit markets. Additionally, we provide insights into the influence of loan, borrower, and lender characteristics on the impact of macroprudential policy on loan terms. Our findings offer novel empirical evidence of macroprudential transmission occurring through risk-shifting and compensating behaviors in private debt markets.

JEL Codes: G21, G28, G32.

Keywords: macroprudential policy, bank loans, financial contracting, Europe.

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Abstract

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1. Introduction

The aim of macroprudential policy is to promote stability in the financial system (Ebrahimi Kahou and Lehar (2017), Galati and Moessner (2013), (2018)). Both the operationalization and assessment of macroprudential policies have expanded considerably in the wake of the global financial crisis. These policies are widely viewed as critical instruments to monitor and address unstable patterns of credit growth, asset price inflation, and leverage on a system-wide scale (Lim et al. (2011)).

Despite a growing body of literature, mostly examining the effects of macroprudential policy on credit cycles¹, bank risks², and bank efficiency and profitability³, there has been no empirical investigation on how macroprudential policies shape financial contracts, specifically bank loans to corporate borrowers. This is surprising considering that macroprudential policy ultimately shapes bank lending and therefore should have a significant impact on bank loan contracting. Therefore, the main question we aim to answer in this paper is: *What are the consequences of macroprudential policy on financial contracting?*

Existing empirical evidence supports the effectiveness of macroprudential policies in reducing financial procyclicality and curbing bank risk-taking. Therefore, we can expect that these outcomes are achieved notably through the financial contracting channel, where various bank loan characteristics (such as amount, maturity, or collateral and covenants requirements)

¹ Akinci and Olmstead-Rumsey (2018), Apergis, Aysan, and Bakkar (2022), Behncke (2023), Calem, Correa, and Lee (2020), Cerutti, Claessens, and Laeven (2017), Claessens, Ghosh, and Mihet (2013), De Schryder and Opitz (2021), Gambacorta and Murcia (2020), Jiménez et al. (2017).

² Altunbas, Binici, and Gambacorta (2018), Davis, Karim, and Noel (2022), Ely, Tabak, and Teixeira (2021), Gonzalez (2005), Meuleman and Vander Vennet (2020), Olszak, Roszkowska, and Kowalska (2018).

³ Čehajić and Košak (2021), Chen et al. (2022), Davis, Karim, and Noel (2022), Gaganis et al. (2021).

are determined based on the stance of the macroprudential policy around the time of loan origination, influencing banking credit policy and financial contracting. In other words, macroprudential policies should have an impact on how financial institutions structure credit agreements, which arrangements are of paramount importance for both lenders and borrowers.

Indeed, bank loan terms such as loan amount and maturity are related to information asymmetry and uncertainty (Berger et al. (2005), Mosebach (1999)). Collateral and covenants serve as signaling and screening devices to mitigate adverse selection and moral hazard problems (Besanko and Thakor (1987), Bester (1985)). Lenders use the structure of a credit agreements for risk mitigation associated with adverse selection and moral hazard and to assess the creditworthiness of potential borrowers. The loan terms directly affect a bank's revenue and profitability, notably via the costs of loan loss provisions, non-performing loans, and capital requirements. The terms of a bank loan can significantly influence a borrower's financial and investment policies, and directly impact borrower's profitability⁴. Moreover, covenants in loan agreements can restrict a company's ability to make certain investments or undertake other business activities without the lender's consent.

These issues are even more important on the largest private debt market – the syndicated loans market - representing the major source of external financing for firms worldwide (4.3 trillion USD and 9,222 deals, according to LSEG Data & Analytics (2023)). Furthermore, the design and structure of credit agreements are even more relevant in Europe because of the bank-

⁴ For instance, the cost of borrowing can affect a company's capital structure, influencing decisions about whether to finance operations or investments through debt or equity.

based nature of its financial system, in which firms mostly rely on credit for their external corporate financing (de Haan, Oosterloo, and Schoenmaker (2012), Gomes and Phillips (2012))⁵.

We hypothesize that the effects of macroprudential policies on bank loan contracting are tied to the various channels through which these policies impact banking: the credit growth / bank-lending channel, the risk-taking channel, and the efficiency / profitability channel.

Firstly, macroprudential policies have consistently been shown to influence bank lending and credit growth dynamics (Calem, Correa, and Lee (2020), Claessens, Ghosh, and Mihet (2013), Gambacorta and Murcia (2020), Jiménez et al. (2017)). Consequently, we expect a negative impact of macroprudential policy on loan amounts, reflecting the dampening effect on credit expansion.

Secondly, macroprudential policies are designed to mitigate excessive risk-taking behavior within the banking sector (Altunbas, Binici, and Gambacorta (2018), Ely, Tabak, and Teixeira (2021), Gaganis et al. (2021), Meuleman and Vander Vennet (2020)). Therefore, we anticipate a dual effect on loan terms: a positive impact on loan amount and maturity, as banks may seek to allocate more resources to safer, longer-term lending activities, and a positive impact on collateral and covenants, as lenders aim to enhance the security of their loan portfolios.

⁵ For instance, in 2022 the domestic credit to private sector by banks (as a % of GDP) equals 84% in EU while it is below 52% in US (source: World Development Indicators).

Thirdly, while macroprudential policies may reduce the cost of bank funding, they also tend to compress bank profitability (Davis, Karim, and Noel (2022), Čehajić and Košak (2021), Chen et al. (2022)). Consequently, we posit that the overall effect on loan terms may be mixed. While reduced funding costs may incentivize banks to extend larger and longer-term loans, the concomitant decline in profitability may temper this effect. Thus, we expect nuanced adjustments in loan terms that reflect the trade-off between increased lending activity and reduced profitability.

Moreover, macroprudential policy interventions may inadvertently induce risk-taking behavior as banks seek to compensate for tightened regulatory constraints (Jiménez et al. (2017)). In response to these policies, banks may adopt strategies such as consolidating their loan portfolios, issuing larger loans to fewer borrowers, or imposing stricter collateral requirements. Additionally, stricter capital requirements, typically applied to riskier loans, may prompt banks to increase loan sizes to maintain profitability. Furthermore, stricter lending standards may result in a pool of lower-risk borrowers who are more likely to be approved for larger, secured loans.

To conduct our analysis, we use detailed qualitative information from the MaPPED (Macroprudential Policies Evaluation Database) database compiled by the European Central Bank experts and the national central banks (Budnik and Kleibl (2018)). This database contains information on more than 1,900 policy actions taken in 28 member states of the European Union between 1995 and 2017. We rely on Bloomberg for loan, syndicate, borrower and (lead) lender characteristics at origination and the World Bank for country-level information. Our base sample contains detailed information on 4,857 loans to 2,423 borrowing firms from 19 countries over the 1999-2017 period.

Our findings provide empirical evidence that macroprudential policies can significantly influence private debt contracting through channels of risk-shifting and compensating behavior, in line with our hypotheses. Firstly, we observe that a more restrictive macroprudential policy stance is associated with an increase in loan amount and the likelihood of collateral pledged at origination. This suggests that banks may compensate for tighter credit conditions and capital buffers by issuing larger secured loans, supporting the risk-shifting channel. Secondly, our results indicate that these effects are predominantly driven by the tightening of borrower-related and capital-related macroprudential policy instruments. Specifically, tools directly impacting lending standards and capital requirements appear to exert the most influence on loan terms, reinforcing the importance of these channels in the transmission of macroprudential policies to private debt markets. Thirdly, we find that the positive impact of tighter macroprudential policy on loan size and collateral is primarily observed in domestic lending within countries, underscoring the relevance of domestic regulatory environments in shaping lending behavior. Additionally, we provide numerous supplementary and robustness check results by examining the influence of various loan, borrower, lender, and other characteristics on our main findings. Overall, our results contribute to a deeper understanding of the mechanisms through which macroprudential policies influence private debt contracting and have implications for policymakers, practitioners, and researchers seeking to enhance financial stability and risk management strategies.

Our research mainly contributes to two strands of literature. The literature on macroprudential policy effectiveness has shown its effectiveness on bank behavior (Akinci and Olmstead-Rumsey (2018), Altunbas, Binici, and Gambacorta (2018), Calem, Correa, and Lee (2020), Cerutti, Claessens, and Laeven (2017), De Schryder and Opitz (2021), Gambacorta and

Murcia (2020)) but from an aggregated macroeconomic perspective. In this paper we provide a more precise view by examining the impact of macroprudential policy on bank loan terms.

The literature on the determinants of private debt financial contracting and loan characteristics has shown the influence of legal (Qian and Strahan (2007), Bae and Goyal (2009)) and economic determinants, notably monetary policy (Delis, Hasan, and Mylonidis (2017), Paligorova and Santos (2017)). We offer additional empirical evidence on the influence of an important component – the macroprudential policy - on loan characteristics.

The closest study to ours is by He et al. (2021) who examine the relation between bank regulators' supervisory power and loan terms. They find that stronger supervisory power of bank regulators increases loan spreads, decrease loan size and maturity, and the loans are more often secured and have covenants attached. The authors conclude that stronger supervisory power mitigates lenders' risk taking. However, they do not analyze the influence of macroprudential policy on loan terms, which is a gap our study addresses. Another related paper is by Burietz, Ongena, and Picault (2023) who analyze the effects of a tax levy on banks' liabilities on banks' activity on the syndicated loan market. They show that a tax levy increases bank lending but has no significant impact on loan spreads. We extend their analysis by considering the full range of macroprudential policy instruments and their influence on bank loan terms. Additionally Čehajić and Košak (2022) examine the impact of macroprudential regulatory changes on the credit access of SMEs in EU. Using the MaPPED database, they show that macroprudential policy

tightening decreases SMEs access to bank finance. We augment their analysis by considering the impact of macroprudential policy on bank loan terms⁶.

The remainder of the paper is structured as follows. We present and discuss our empirical design in section 2. We provide and comment our results in section 3. We draw our conclusions in section 4.

2. Empirical Design

2.1. Data

We use detailed qualitative information from the Macroprudential Policies Evaluation Database (MaPPED)⁷ collected via carefully designed surveys conducted by the European Central Bank in cooperation with experts from national central banks and supervisory authorities of all European Union member states (Budnik and Kleibl (2018)). The database contains information on 1,925 macroprudential policy actions in all European Union member states between 1995 and 2017. These actions are recorded for each country and over time, capturing the direction (or stance) of various macroprudential instruments: tightening; loosening; or other / ambiguous impact.

We extract all loans to European borrowers (excluding Financial and Government entities) with effective dates between January 1999 and December 2017 from Bloomberg. This provides information on loan facility amount, spread, maturity, covenants, collateral, date, type (revolver, term...), purpose (corporate, refinance, acquisition...), currency, etc. We also extract

⁶ Another related paper is by Yang and Suh (2023) who investigate the effect of macroprudential policies on firms leverage. They find that macroprudential policy tightening (loosening) decreases (increases) firms' leverage.

⁷ Available at: <https://www.ecb.europa.eu/pub/research/working-papers/html/mapped.en.html>.

data on lenders, including their identities (names and tickers when available), nationalities (country of incorporation), roles (or titles), and number (within the banking pool). We identify the lead lender of each banking pool using the “*Loan Agent*” variable provided by Bloomberg and retain only loans with a uniquely identified loan agent⁸. Loan agents are the pivotal lenders in a syndicate because they establish relationships with borrowers, perform due diligence, negotiate contract terms and monitor borrowers (Bushman and Wittenberg-Moerman (2012), Ross (2010)). Using borrower and loan agent identifiers we complete the sample with data from their respective financial statements where available⁹.

Finally, we gather country-level variables using data from the World Bank to control for economic growth, credit and stock markets development, banking system risk and concentration, rule of law, and legal origin.

We merge macroprudential policy and loan data based on the lead lender’s country, as macroprudential policy applies to lenders. We then add country data via borrower country.

Our base sample contains 4,857 loans provided by 144 lead lenders to 2,423 borrowers across 19 countries¹⁰ over the 1999-2017 period. Figure 1 depicts the evolution of loan numbers over time, consistent with European credit cycles. Figure 2 shows the number of loans by (borrower) country; France, Germany, and Spain account for nearly 57% of loans, and the top

⁸ The sample size is reduced partly due to missing lead lender information.

⁹ We can pull this additional information for listed firms only, which reduces the sample size when including financial information.

¹⁰ We keep only borrower countries for which MaPPED data is available (hence excluding Iceland, Norway, and Switzerland) and for which a non-residual number of loans (i.e. above 10) is available (hence excluding Estonia, Lithuanian, and Romania).

five countries represent three-quarters of loans, consistent with syndicated lending geography in Europe.

2.2. Methodology

Following Akinci and Olmstead-Rumsey (2018), Altunbas, Binici, and Gambacorta (2018), Čehajić and Košak (2022), De Schryder and Opitz (2021), we begin by coding macroprudential policy actions using indicator variables: +1 for tightening measures, -1 for loosening measures, and 0 for “other and ambiguous”. We then sum these policy indicators by country and year which means that policy actions with different signs can eventually sum to zero and cancel each other out.

First, we compute an aggregate index – Macprudential Policy Index (*MPI*) that captures all macroprudential instruments. A higher index value indicates a restrictive macroprudential policy stance, while lower values indicate a more relaxed macroprudential stance. Second, we compute indicators based on the direction of the measures by summing by country and year the tightening (*MPI Tightening*) and the loosening (*MPI Loosening*) actions separately¹¹.

Figures 3 and 4 provide graphical insight into the macroprudential policy variables. The average *MPI* is predominantly positive over time, suggesting that the overall stance of the *MPI* is primarily restrictive. There is a notable spike in 1999, reaching an average of 6 tightening actions (cf. figure 3). The average stance is also restrictive by country, with Greece standing out at an average of 7 tightening actions (cf. figure 4).

¹¹ The definitions of all variables are provided in table A1.

We consider four bank loan contracting main dependent variables¹²: loan *amount* (in millions of USD) and *maturity* (in years), the collateral pledging requirement (*secured*) and of *covenants*. These loan characteristics represent the fundamental terms of a private debt financial contract (Bharath et al. (2007), (2011)).

We incorporate a wide range of control variables related to loan, syndicate, country, borrower, and lender characteristics¹³. *Loan & syndicate control variables* include the size of the syndicate, the presence of reputable lead lenders (i.e. league table members) and relationship lead lenders, loan currency (EUR, GBP, USD), type (term or revolver), and purpose (acquisition, general corporate, LBO, project finance, debt refinancing). *Country control variables* include economic (GDP growth) and financial (private credit and stock market) development, legal environment (rule of law and legal origin), and banking health and structure (z-score and concentration). In subsequent regressions we also consider *borrower* (rating, size, capitalization, liquidity, and profitability) and/or *lead lender* (size, loans, capitalization, efficiency, and profitability) characteristics¹⁴.

Table 1 provides descriptive statistics for all variables¹⁵. In panel A¹⁶ we observe that the macroprudential policy indicator vary from -7 to +26 in terms of action changes. On average, the

¹² We cannot consider the loan spread as this variable is unfortunately frequently missing in the database and implies a reduction of the sample size by more than half. Nevertheless, we also analyze this loan characteristic in the robustness check sub-section of the results (cf. section 3.4.).

¹³ We follow notably Bae and Goyal (2009), Giannetti and Yafeh (2012), Qian and Strahan (2007). Additionally, we also control for borrower industry sector and loan origination year in all regressions.

¹⁴ All borrower and (lead) lender financial variables are symmetrically winsorized at 1% and 5% levels respectively.

¹⁵ A correlation matrix for main variables of interest is provided in table A2.

¹⁶ We consider macroprudential policy indicators with a 1-year lag with respect to the loan origination year for proper causal identification.

stance is mildly restrictive with +1 action change. Panel B describes all other variables¹⁷. We briefly comment on the loan and syndicate variables. The average loan is large (1.4 billion USD, with a significant variance) with a maturity of 6 ½ years, is secured in 4 out of 10 cases but rarely has covenants attached (<5%). Naturally, the banking pools funding such loans are large (9 lenders) with reputable lead lenders belonging to league tables in 15% of the cases and with established relationships in 12% of the cases. A typical loan is a term loan (63% of the sample), originated in euros (85% of the sample) for refinancing purpose (34% of the sample).

We regress the main bank loan characteristics on the macroprudential policy indicators controlling for industry sector, loan origination year, loan & syndicate, and (borrower) country variables in every specification. Loan amount and maturity are introduced in log forms. Macroprudential policy indicators are lagged by 1 year with respect to the year of loan origination for proper causal identification¹⁸. We use OLS and probit regressions for amount and maturity, and secured and covenants respectively, due to the underlying nature of each variable¹⁹.

3. Results

3.1. The effect of macroprudential policy on bank loan terms

Table 2 provides the regression results for our main specifications analyzing the effect of aggregate macroprudential policy indices on four bank loan terms: amount, maturity, secured, and covenants. The significant coefficients indicate that the loan terms affected are *Secured*

¹⁷ The industry sector distribution of the borrowing firms is the following (descending order of importance): industrial (27%), consumer, non-cyclical (22%), consumer, cyclical (17%), communications (9%), basic materials (7%), energy (7%), utilities (5%), technology (3%), diversified (2%).

¹⁸ We also consider the current year MPI in subsequent robustness checks in section 3.4.

¹⁹ The initial unit of analysis is the loan facility level.

when the overall *MPI* variable is used, and *Amount* and *Secured* when the *MPI Tightening* variable is used.

From these results, we can conclude that a more restrictive macroprudential policy stance on the (lead) lender leads to an increase in both the loan amount and the collateral pledge at the time of origination. This finding does not support the bank-lending channel hypothesis, which suggests that macroprudential policy should reduce loan amount by decreasing bank lending and credit growth. Instead, it rather supports the bank risk-taking and the efficiency channels, which suggests that macroprudential policy can mitigate bank-risk taking and decrease the cost of bank funding, potentially increasing loan amounts. The positive effect of macroprudential policy on loan collateral aligns with the bank risk-taking channel, which suggests that macroprudential policy helps to mitigate risk-taking and may increase the likelihood of collateral pledging.

Moreover, when considering these results altogether, the increase in loan amount and collateral can be interpreted as a form of compensation for bank risk-taking, following notably Jiménez et al. (2017). Tightening actions, which often involve raising capital requirements and stricter lending standards, typically apply to riskier loans. To maintain profitability while meeting these requirements, banks may increase the size of their loans, particularly for lower-risk borrowers. Stricter lending standards may deter riskier borrowers, leaving a pool of higher-quality borrowers who are more likely to be approved for larger, secured loans. Finally, banks may respond to macroprudential tightening by consolidating their loan portfolios and issuing larger loans to fewer borrowers, and/or by increasing collateral requirements.

3.2. The effect of macroprudential policy on bank loan terms: domestic vs cross-border loans

We analyze how the geographical location of loan origination influences our main results. Our sample primarily consists of loans originated by (lead) lenders who are from the same country as the borrower (domestic loans), accounting for 71% of the sample. We have cross-border loans where the lender and borrower are from different countries (non-domestic loans), which make up 29% of the sample. In the case of non-domestic loans, the macroprudential policy in the borrower's country may differ from that in the lender's country.

Table 3 presents the regression results for these two sub-samples. The findings indicate that the impact of macroprudential policy on loan characteristics varies between domestic and non-domestic loans. We observe that the results for domestic loans in panel A are very similar to the main results presented in table 2. Specifically, when the stance of macroprudential policy is restrictive, it tends to increase the loan amount and collateral requirements. Additionally, the *MPI* variable becomes significant (and positive) in the loan amount regression²⁰. However, this is not the case in panel B for cross-border lending; the macroprudential policy of the (lead) lender's country only has a significant and negative effect on loan amount. This finding suggests that the policy impact on lenders results in a different outcome when the loan is originated for a borrower from a different country. These results lend support to the bank-lending channel hypothesis, which suggest that macroprudential policy should reduce loan amount by decreasing bank lending and credit growth. The negative relationship could also suggest foreign banks are

²⁰ We can conclude that our main results (cf. table 2) are primarily driven by the subsample of loans originated by lead lenders from the same country as the borrowers. These types of loans represent a significant portion of the sample (71%), which may also mechanically influence the results.

less able to engage into risk-compensating behavior than domestic banks. It's also possible that other factors such as international market conditions, exchange rate risk, and differences in legal and regulatory frameworks (e.g., regulatory arbitrage) in national financial systems may play a more prominent role in the impact of macroprudential policy on bank loan characteristics, particularly in the case of non-domestic loans.

3.3. The effect of macroprudential policy components on bank loan terms

We delve into the different components of the macroprudential policy index to analyze which types of instruments have the greatest influence on our main results. This will help us identify the most important tools that shape banking credit policy and financial contracting.

Methodologically²¹, we distinguish between macroprudential instruments with the same objective and compute indices by objective by summing by country and year. These objectives include capital-related instruments (*MP: Capital*) (minimum capital requirements, capital buffers, risk weights, provisioning); borrower-related instruments (*MP: Borrower*) (lending ceilings, reserve requirements); liquidity-related instruments (*MP: Liquidity*) (loan/deposit ratios, funding requirements, liquidity coverage ratios); and other measures (*MP: Other*) (taxes, exposures, other). We also compute tightening and loosening indices for each of these 4 macroprudential policy indices by objective.

From table 1, we notice that the bulk of changes in macroprudential policy stance are driven by capital-related instruments. In figures 5 and 6 we remark that the 1999 spike as well as

²¹ We follow Akinci and Olmstead-Rumsey (2018), Altunbas, Binici, and Gambacorta (2018), Čehajić and Košak (2022), De Schryder and Opitz (2021).

the Greek spike in macroprudential policy index are mostly driven by borrower-related instruments.

Table 4 presents the regression results using the four components of the macroprudential policy index related to capital, borrower, liquidity, and other instruments. When considering the overall components (first four lines of the table), we find that the borrower-related component has the most significant impact, with a positive effect on loan amount and collateral, and a negative effect on loan maturity. The capital-related component has a significant and positive effect only on secured loans. These results are mainly driven by the tightening of the macroprudential policy components, except for the effect of the borrower-related component which is not significant but becomes positive and significant when considering its loosening. Additionally, the tightening of the other-related component has a significant and positive effect on loan amount, while the loosening of the capital-related component has a significant and positive effect on loan covenants.

Overall, these findings suggest that the influence of macroprudential policies on loan characteristics can vary depending on the specific category of policy instrument. Policies related to capital and borrower requirements appear to have a more significant impact, leading banks to issue larger and more secured loans. These results confirm our previous findings based on the aggregate macroprudential policy index. Therefore, the capital and borrower components of macroprudential policy are the most important factors influencing bank credit policy and financial contracting. Tightening capital-related instruments such as Capital Buffer, Minimum Capital Requirement, Risk Weights, and Loan Loss Provisioning, as well as borrower-related instruments such as Lending Standards and Credit Growth Limits, encourage banks to issue

larger loans that are more often secured, which helps mitigate risks while maintaining profitability.

3.4. Additional analysis

The influence of loan characteristics

We analyze how specific loan characteristics influence our main results. We consider factors such as loan size and maturity²², loan type (term vs revolver), non-relationship loans, and loan currency (euro).

In table 5 we observe that the impact of macroprudential policies on bank loan terms can vary depending on the characteristics of the loans. We remark that our main results are primarily driven by smaller loans, while the impact of macroprudential policy is largely absent when examining larger loans (except for a negative effect on loan amount). In terms of maturity, we find that it does not seem to have a significant effect, as the overall results are similar to those in table 2. However, we do notice that for longer maturities, the positive effect of macroprudential policy on loan collateral is significant, while loan amount is affected (positively and negatively when considering tightening and loosening, respectively) for shorter maturities. In these instances, macroprudential policy also increases the likelihood of covenants. Lenders may utilize financial covenants more frequently to mitigate risks when issuing shorter maturity loans. Additionally, we find that the type of loan does not significantly influence our main results. This is also true for non-relationship loans and loans denominated in euros.

²² We split the sample according to amount and maturity medians.

The influence of borrower and lender characteristics

We first examine how borrower characteristics may impact our main findings. Then, we explore how lender characteristics may influence our main results.

Table 6 presents the results including borrower variables (panel A, with standard errors clustered at the firm level). Additionally, we provide the results of regressions on sub-samples split according to medians of borrower variables (see table 1): larger vs smaller firms based on total assets, higher vs lower leverage based on equity/assets ratio, and higher vs lower profitability based on *RoA* (panel B)²³.

By including borrower variables in panel A, the sample size is reduced by almost half due to the unavailability of financial information for private companies. However, despite this reduction, half of our main results remain statistically significant. Specifically, we find that the overall macroprudential policy index (*MPI*) increases the loan amount, primarily driven by tightening, whereas loosening the *MPI* reduces the loan amount. Although the effect of *MPI* on loan collateral is no longer significant, the coefficient remains positive. Furthermore, only three borrower variables show significance in the loan amount regressions. Larger firms (measured by *total assets*), more profitable firms (measured by *RoA*), and less opaque firms (measured by *Rating*) tend to obtain larger loans, aligning with expectations.

Panel B presents the results that shed light on the typical borrower that drives our findings. These results suggest that the impact of macroprudential policies on bank loan terms can vary depending on the characteristics of the borrowers. Notably, the positive impact of macroprudential policy on loan amount predominantly stems from larger and riskier firms

²³ Unfortunately, due to convergence problems we are unable to provide the results for the liquidity variable (*current ratio*).

(higher leverage). Profitability doesn't appear to affect this effect. Therefore, the tightening of macroprudential policy primarily affects borrowers that are larger and riskier in terms of leverage.

Table 7 displays the results including lender variables (panel A, with standard errors clustered at the (lead) lender level). Panel B provides the results of regressions on sub-samples split according to medians of (lead) lender variables (see table 1): larger vs smaller lenders based on total assets, higher vs lower TCE (*TCE ratio*), higher vs lower efficiency (*efficiency ratio*), larger vs smaller loan portfolio (*loans/assets ratio*), and higher vs lower profitability based on *RoA*.

In Panel A, the inclusion of (lead) lender variables slightly reduces the sample size, but most of lenders are listed financial institutions with their financial information readily available. Our main results are mostly robust: *MPI* increases loan collateral requirements, particularly when they are tightened, and it also increases or decreases the loan amount depending on whether the policy stance is restrictive or relaxed, respectively. Notably, more lender variables are significant compared to borrower variables (see table 7, panel A), although only one coefficient is significant in each regression. Essentially, larger lenders naturally produce larger loans, better capitalized lenders offer loans with shorter maturities, and more profitable lenders often issue secured loans with covenants. Moreover, lenders with larger loan portfolios tend to secure loans more often but with a lower likelihood of attaching covenants.

From the results in panel B, we remark that the impact of macroprudential policies on bank loan terms can vary depending on the characteristics of the lenders. We can also identify the characteristics of a typical (lead) lender that drives our findings: predominantly smaller lenders with higher common equity and larger loan portfolios, but lower efficiency. These types of

financial institutions typically respond to macroprudential policy by primarily increasing the loan amount and collateral requirements.

Taken together, these additional results allow us to further refine our findings and conclusions. Macroprudential policy leads to an increase in loan amount and collateral requirements for the typical borrower, who is larger and riskier, as well as for the typical lender, who is smaller and less efficient but well capitalized with a larger loan portfolio. The main policy instruments influencing these results are lending standards and capital requirements (see subsection 3.3.). Thus, well-capitalized lenders with higher loans to asset ratios respond to stricter lending standards and capital-related measures by providing larger loans with higher collateral requirements to larger and riskier borrowers in their domestic credit markets. Consequently, these findings reinforce our previous main conclusions. The response to macroprudential policy that we uncovered in the terms of bank loans can indeed be interpreted as a form of compensation for bank risk-taking under efficiency constraints.

Additional regressions' results

We perform several additional robustness checks and provide the results in table 8. Our focus is on examining the role of (top) lenders, as loans from these lenders may have the greatest impact on our results. In addition, we examine the "outliers" in terms of the *MPI*, specifically the year 1999 and loans originating from Greece (see figures 3 and 4). We also take into consideration the credit cycle and assessed the sensitivity of our main findings to the pre and post Global Financial Crisis (GFC) periods. Furthermore, we test our model by excluding key loan variables (*Amount*, *Maturity*, *Secured*, *Covenants*) from the explanatory variables, and we

substitute the current year with respect to the loan origination year variable *MPI (Y)* instead of the 1-year lag variable *MPI (Y-1)*.

All these additional regressions confirm the robustness of our main results. When considering the GFC, we observe that our main findings are primarily driven by the post-GFC period, with an additional negative effect of *MPI* on loan covenants. However, we find no significant effect of *MPI* in the pre-GFC period, except for the *MPI Tightening* coefficient, which is significant at 10% in the *Covenants* regression. This particular finding emphasizes the expanding role of macroprudential policy operationalization during the post-GFC environment.

Loan spread

We have chosen to exclude loan spread from our analysis due to a high frequency of missing data in our sample. Nevertheless, we perform one final robustness check by examining the impact of macroprudential policy on loan spread in table 9²⁴. This analysis reduces our sample size to 1,921 loans, which represents a reduction of nearly 57%. We observe that the *MPI (Y-1)* variables are never statistically significant in the regressions, although the signs of the coefficients are negative when macroprudential policy is tightened and positive when it is loosened. We can conclude that, probably because of scarce data availability, macroprudential policy doesn't have any statistically significant effect on loan spread. However, this result reinforces our confidence that analyzing the impact of macroprudential policy on the other main loan terms remain pertinent to provide valid conclusions regarding its effects on bank loan contracting.

²⁴ The average loan spread equals 235.75 bps, with a median equal to 225 bps and a standard deviation equal to 156.44 bps.

4. Conclusion

We conducted an empirical analysis of the impact of macroprudential policies on bank loan contracts for corporate borrowers in Europe. Specifically, we focused on key loan characteristics such as the loan amount, maturity, collateral, and covenants at the time of origination.

Based on the relevant literature, we developed hypotheses that link these effects to the credit growth/bank-lending channel, the risk-taking channel, and the efficiency/profitability channel. These channels represent the mechanisms through which macroprudential policies affect bank behavior and financial contracting.

Our findings demonstrate that macroprudential policies can propagate through the banking system and influence private debt contracting. We observed this through mechanisms such as risk-shifting and compensating behavior. Specifically, we found that tighter macroprudential policies can prompt banks to compensate for stricter credit conditions by issuing larger secured loans. These effects were primarily driven by macroprudential policy tools that directly impact lending standards and capital requirements and were mainly observed in domestic credit markets. We also confirmed the robustness of our results through various additional regression analyses, which considered the influence of loan, borrower, lender, and other characteristics.

In terms of policy implications for lenders, we can remark that tightening macroprudential policy, in particular borrower and capital related instruments, targets smaller and less cost-efficient banks (which are well capitalized with main activity being credit

origination). Such lenders can respond to the policy stance adopting a risk-compensating or risk-shifting behavior and increase the amount of secured loans to specific borrowers in order to maintain (or hopefully increase) profitability.

In terms of policy implications for firms external financing and capital structure, we can notice that tightening macroprudential policy does not seem to reduce borrowing firms' credit availability, especially for large and leveraged firms. However, as lenders increase collateral requirements following macroprudential policy tightening, such constraint might be a vector of credit rationing for firms with less available collateral.

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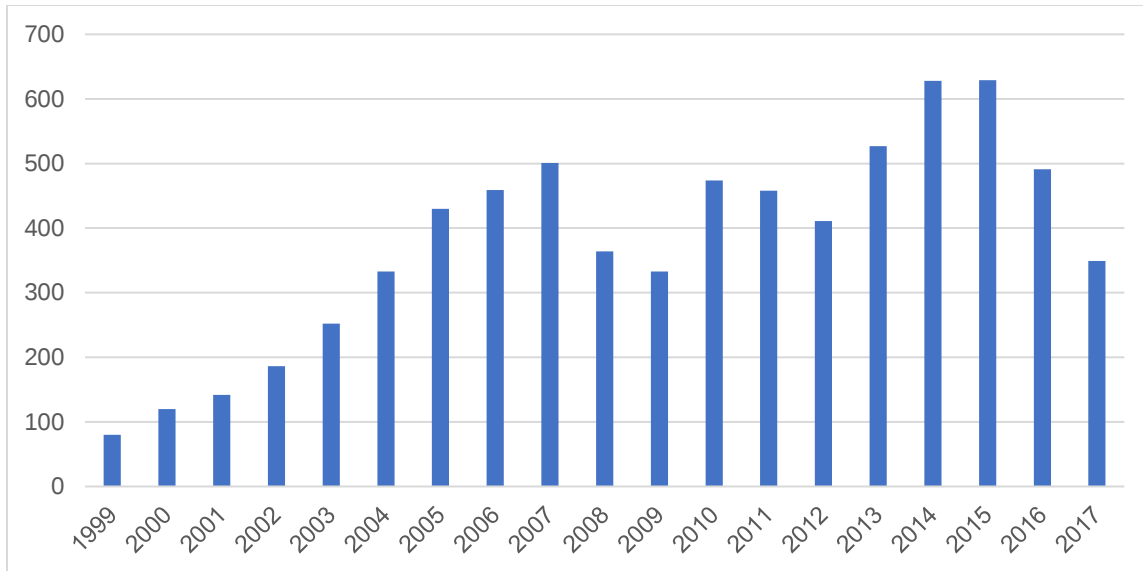


FIGURE 1 LOANS BY YEAR

This figure shows the total number of loans by year.

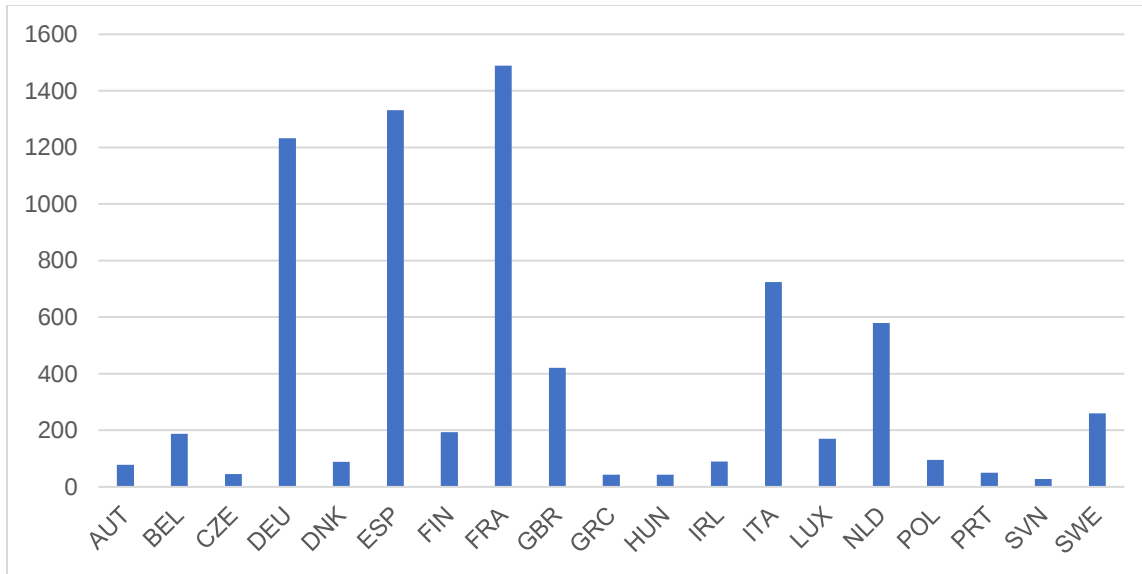


FIGURE 2 LOANS BY COUNTRY

This figure shows the total number of loans by country (borrower).

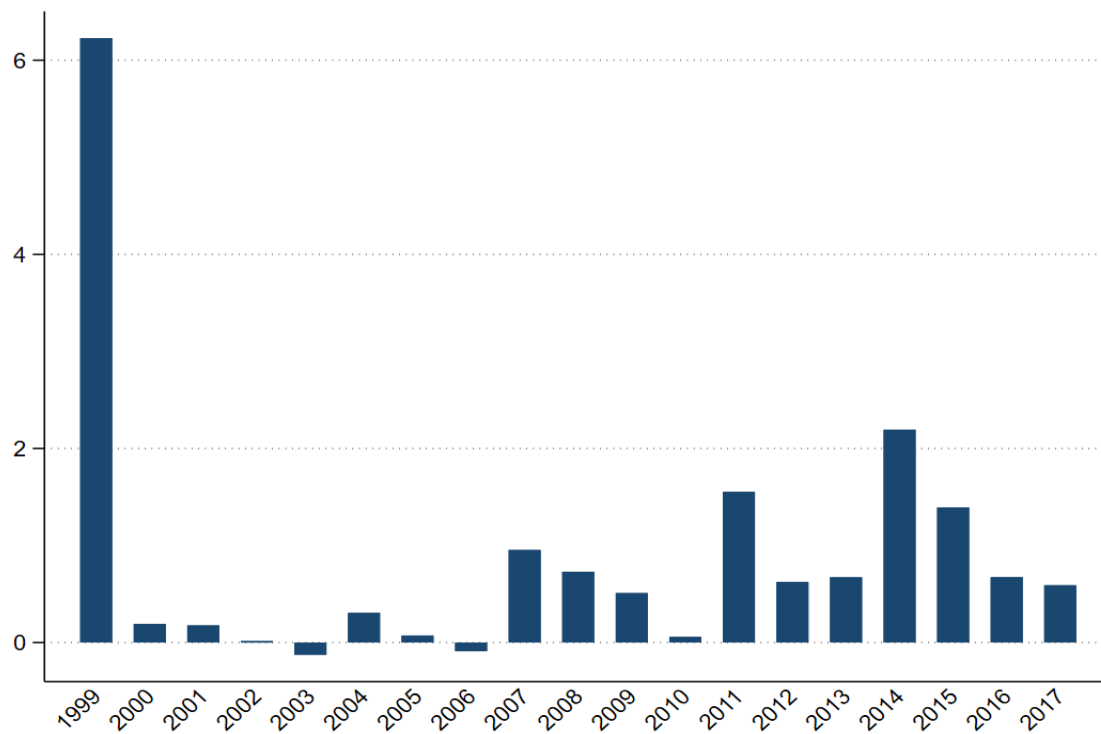


FIGURE 3 MACROPRUDENTIAL INDEX BY YEAR

This figure shows the average macroprudential index by year.

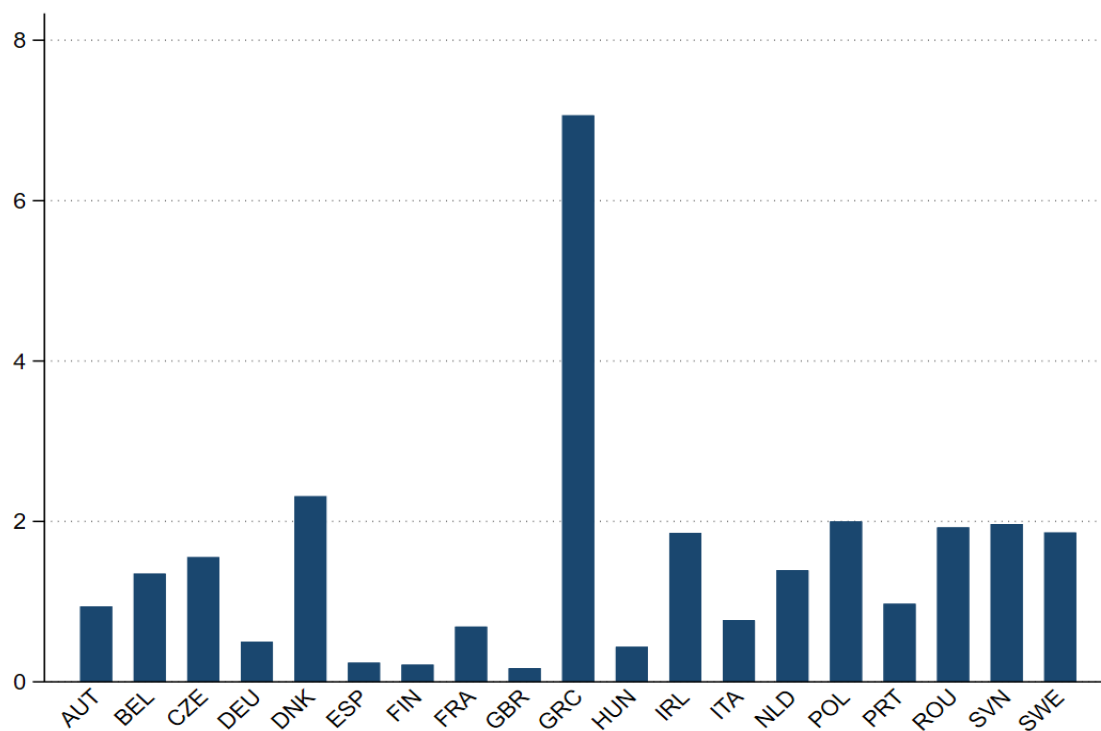


FIGURE 4 MACROPRUDENTIAL INDEX BY COUNTRY

This figure shows the average macroprudential index by country (lead lender).

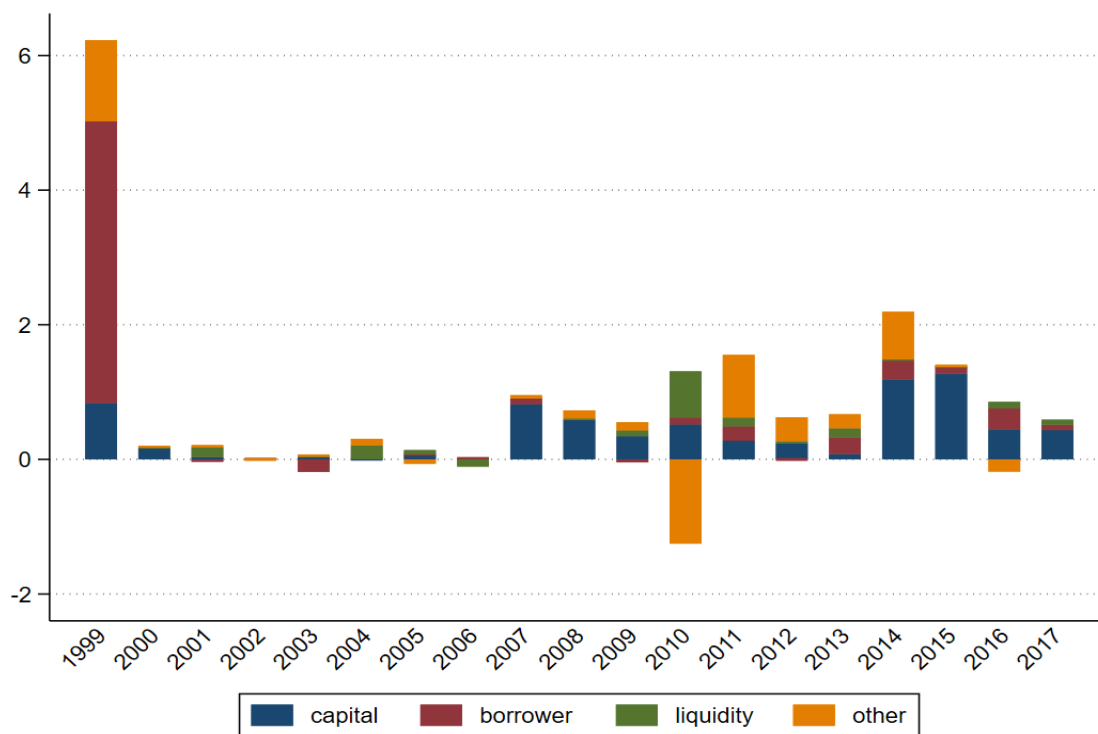


FIGURE 5 MACROPRUDENTIAL INDEX DECOMPOSITION BY YEAR

This figure shows the average macroprudential index components by year.

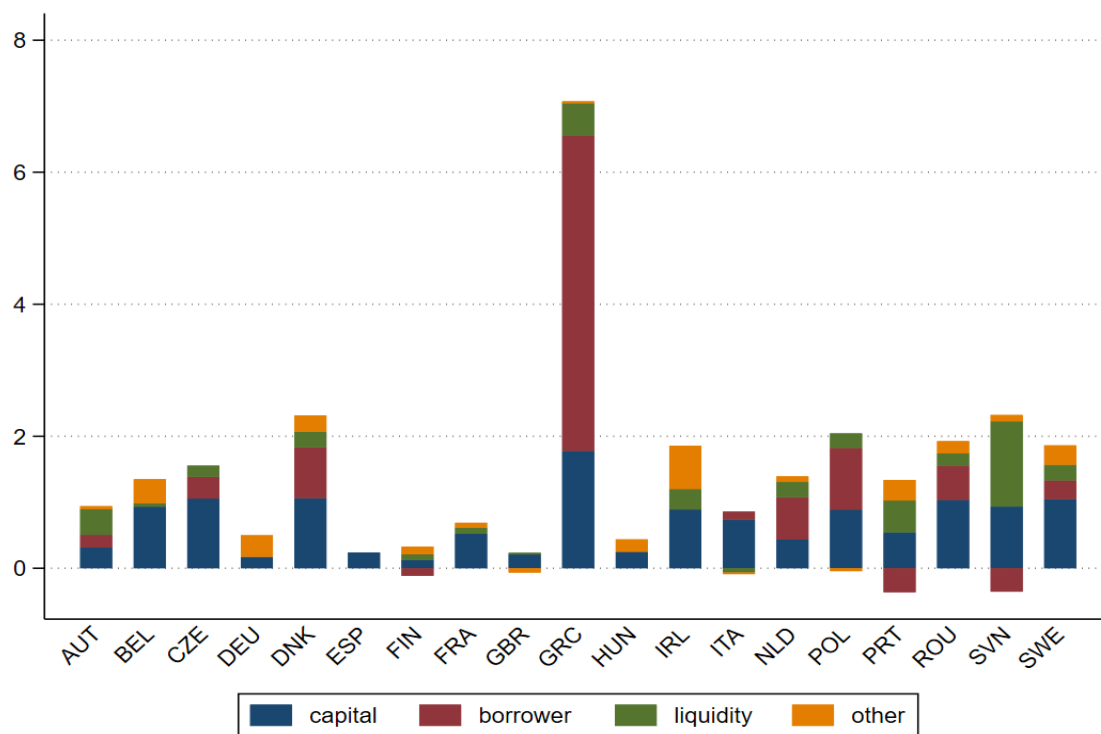


FIGURE 6 MACROPRUDENTIAL INDEX DECOMPOSITION BY COUNTRY

This figure shows the average macroprudential index components by country (lead lender).

TABLE 1 DESCRIPTIVE STATISTICS*Panel A*

This table provides descriptive statistics for all macroprudential variables (definitions of all variables are provided in table A1).

Variable	Mean	SD	Min.	Max.
MPI (Y-1)	1.02	1.81	-7.00	26.00
MPI Tightening (Y-1)	1.05	1.76	0.00	26.00
MPI Loosening (Y-1)	-0.04	0.29	-7.00	0.00
MP: Capital (Y-1)	0.62	0.99	-2.00	4.00
MP: Borrower (Y-1)	0.16	1.06	-9.00	20.00
MP: Liquidity (Y-1)	0.12	0.52	-2.00	6.00
MP: Other (Y-1)	0.11	0.81	-4.00	5.00
MP: Capital Tight. (Y-1)	0.63	0.98	0.00	4.00
MP: Borrower Tight. (Y-1)	0.18	1.02	0.00	20.00
MP: Liquidity Tight. (Y-1)	0.13	0.50	0.00	6.00
MP: Other Tight. (Y-1)	0.22	0.56	0.00	5.00
MP: Capital Loose. (Y-1)	-0.01	0.10	-2.00	0.00
MP: Borrower Loose. (Y-1)	-0.02	0.28	-9.00	0.00
MP: Liquidity Loose. (Y-1)	-0.01	0.11	-2.00	0.00
MP: Other Loose. (Y-1)	-0.11	0.53	-4.00	0.00

Panel B

This table provides descriptive statistics for all loan, syndicate, country, borrower, and (lead) lender variables (definitions of all variables are provided in table A1).

Variable	Mean	SD	P25	Median	P75
Amount	1400.37	2378.33	92.23	245.86	650.00
Maturity	6.56	3.97	5.00	6.00	7.13
Secured	0.40	0.49	0.00	0.00	1.00
Covenants	0.04	0.20	0.00	0.00	0.00
<i>Loan & Syndicate</i>					
Lenders	9.00	8.20	4.00	7.00	11.00
League	0.15	0.36	0.00	0.00	0.00
Relationship	0.12	0.32	0.00	0.00	0.00
EUR	0.85	0.35	1.00	1.00	1.00
GBP	0.04	0.20	0.00	0.00	0.00
USD	0.07	0.25	0.00	0.00	0.00
Term	0.63	0.48	0.00	1.00	1.00
Revolving	0.34	0.47	0.00	0.00	1.00
Acquisition	0.15	0.35	0.00	0.00	0.00
General corporate	0.17	0.38	0.00	0.00	0.00
LBO	0.16	0.36	0.00	0.00	0.00
Project finance	0.08	0.27	0.00	0.00	0.00
Debt refinancing	0.34	0.47	0.00	0.00	1.00
<i>Country (borrower)</i>					
GDP growth	1.61	2.09	0.60	1.74	2.96
Private credit	102.47	31.94	80.37	94.32	118.55
Stock market	70.34	29.73	47.12	72.40	88.80
Rule of law	1.37	0.47	1.06	1.47	1.75

French legal origin	0.65	0.48	0.00	1.00	1.00
Bank Z score	14.69	5.88	10.80	14.93	18.93
Bank concentration	67.55	14.33	60.55	68.60	76.55
<i>Borrower</i>					
Rating	0.09	0.29	0.00	0.00	0.00
Total assets	6.73	2.87	4.89	7.31	8.78
Equity / Assets	0.41	0.24	0.25	0.37	0.57
Current ratio	0.01	0.01	0.01	0.01	0.02
RoA	1.52	6.31	0.01	0.04	0.12
<i>Lender</i>					
Total assets	13.22	1.45	12.98	13.55	14.02
Loans to assets	0.43	0.15	0.30	0.44	0.57
TCE ratio	0.04	0.02	0.02	0.04	0.05
Efficiency ratio	0.66	0.12	0.57	0.64	0.74
RoA	0.00	0.00	0.00	0.00	0.01

TABLE 2 THE EFFECTS OF MPI ON BANK LOAN TERMS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MPI (Y-1)	0.0336 (0.0205)	-0.0050 (0.0080)	0.0666*** (0.0226)	0.0435 (0.0464)								
MPI Tightening (Y-1)					0.0497** (0.0220)	-0.0069 (0.0085)	0.0751*** (0.0237)	0.0591 (0.0493)				
MPI Loosening (Y-1)									-0.1498 (0.0999)	0.0217 (0.0315)	-0.0403 (0.1088)	-0.0274 (0.1564)
Amount		-0.0106 (0.0084)	0.0165 (0.0249)	0.3254*** (0.0438)		-0.0092 (0.0084)	0.0147 (0.0247)	0.3257*** (0.0438)		-0.0093 (0.0083)	0.0181 (0.0245)	0.3244*** (0.0439)
Maturity	-0.0459 (0.0359)		0.4197*** (0.0432)	0.0254 (0.0493)	-0.0397 (0.0361)		0.4235*** (0.0434)	0.0265 (0.0495)	-0.0402 (0.0358)		0.4220*** (0.0431)	0.0227 (0.0492)
Secured	0.0674 (0.0574)	0.2055*** (0.0188)		0.8323*** (0.1097)	0.0616 (0.0573)	0.2071*** (0.0189)		0.8321*** (0.1097)	0.0679 (0.0571)	0.2063*** (0.0188)		0.8335*** (0.1096)
Covenants	0.7551*** (0.1209)	0.0084 (0.0256)	0.8786*** (0.1175)		0.7611*** (0.1202)	0.0081 (0.0256)	0.8787*** (0.1174)		0.7607*** (0.1209)	0.0083 (0.0256)	0.8800*** (0.1167)	
Intercept	8.7930*** (1.8501)	0.8387** (0.3635)	-6.2745*** (0.7150)	-9.2615*** (0.8046)	7.4252*** (0.6913)	0.7845*** (0.2428)	-1.9667*** (0.6392)	-9.2489*** (0.8022)	7.4426*** (0.6944)	0.7832*** (0.2427)	-1.9058*** (0.6342)	-9.1265*** (0.7815)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Loans	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857
R2	0.41	0.22			0.41	0.22			0.41	0.22		
pseudo-R2			0.25	0.21			0.25	0.21			0.25	0.21

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms. The main explanatory variables are macroprudential policy indices (MPI). Significant coefficients are marked in bold. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 3 THE EFFECTS OF MPI ON BANK LOAN TERMS: DOMESTIC VS NON-DOMESTIC LOANS

Panel A: domestic loans sub-sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MPI (Y-1)	0.0621** (0.0250)	-0.0050 (0.0105)	0.0976*** (0.0286)	0.0409 (0.0575)								
MPI Tightening (Y-1)					0.0728*** (0.0262)	-0.0064 (0.0111)	0.1114*** (0.0299)	0.0762 (0.0584)				
MPI Loosening (Y-1)									-0.0739 (0.1116)	0.0010 (0.0360)	-0.0877 (0.1123)	-0.1024 (0.1558)
Main loan variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Loans	3448	3448	3448	3448	3448	3448	3448	3448	3448	3448	3448	3448
R2	0.44	0.22			0.44	0.22			0.44	0.22		
pseudo-R2			0.23	0.21			0.24	0.21			0.23	0.21

Panel B: non-domestic loans sub-sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MPI (Y-1)	-0.0798** (0.0343)	-0.0125 (0.0135)	-0.0178 (0.0419)	0.0416 (0.0636)								
MPI Tightening (Y-1)					-0.0553 (0.0380)	-0.0173 (0.0143)	-0.0285 (0.0446)	0.0080 (0.0720)				
MPI Loosening (Y-1)									-0.2877 (0.2230)	0.0611 (0.0648)	0.0856 (0.2256)	0.8913* (0.5067)
Main loan variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

#Loans	1409	1409	1409	1409	1409	1409	1409	1409	1409	1409	1409	1409
R2	0.44	0.24			0.43	0.24			0.43	0.24		
pseudo-R2			0.32	0.32			0.32	0.33			0.32	0.33

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms. Panel A presents the results for the domestic loans sub-sample (i.e. where the (lead) lender and the borrower are from the same country). Panel B presents the results for the non-domestic loans sub-sample (i.e. where the (lead) lender and the borrower are from a different country). The main explanatory variables are macroprudential policy indices (MPI). Significant coefficients are marked in bold. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 4 THE EFFECTS OF MPI COMPONENTS ON BANK LOAN TERMS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MP: Capital (Y-1)	0.0133 (0.0276)	-0.0041 (0.0117)	0.0781** (0.0322)	0.0796 (0.0637)								
MP: Borrower (Y-1)	0.0847* (0.0465)	-0.0348* (0.0189)	0.1871*** (0.0665)	0.0187 (0.1514)								
MP: Liquidity (Y-1)	0.0379 (0.0764)	-0.0043 (0.0211)	-0.0529 (0.0743)	0.0293 (0.1169)								
MP: Other (Y-1)	0.0534 (0.0457)	0.0085 (0.0148)	0.0092 (0.0438)	-0.0467 (0.1030)								
MP: Capital Tight. (Y-1)					0.0074 (0.0293)	-0.0048 (0.0122)	0.0838** (0.0336)	0.0835 (0.0709)				
MP: Borrower Tight. (Y-1)					0.1041 (0.0644)	-0.0465* (0.0241)	0.2235*** (0.0754)	0.1265 (0.1962)				
MP: Liquidity Tight. (Y-1)					0.0685 (0.0714)	-0.0084 (0.0191)	-0.0173 (0.0689)	0.0498 (0.1158)				
MP: Other Tight. (Y-1)					0.1304** (0.0576)	0.0001 (0.0173)	0.0367 (0.0576)	-0.0907 (0.1119)				
MP: Capital Loose. (Y-1)									-0.1463 (0.1671)	0.0772 (0.0817)	-0.1982 (0.2129)	0.7654** (0.3314)
MP: Borrower Loose. (Y-1)									0.1069* (0.0602)	-0.0151 (0.0285)	0.0023 (0.1071)	-0.1057 (0.1017)
MP: Liquidity Loose. (Y-1)									-0.4117 (0.2571)	-0.0187 (0.0587)	-0.4276 (0.2878)	-0.0173 (0.3176)
MP: Other Loose. (Y-1)									-0.0396 (0.0840)	0.0257 (0.0289)	0.0106 (0.0687)	-0.0153 (0.1923)
Main loan variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Loans	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857
R2	0.41	0.22			0.42	0.22			0.41	0.22		
pseudo-R2			0.25	0.21			0.25	0.21			0.25	0.22

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms. The main explanatory variables are the components of macroprudential policy (MP): capital, borrower, liquidity, and other related instruments. Significant coefficients are marked in bold. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 5 THE INFLUENCE OF LOAN CHARACTERISTICS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
<i>Larger loan</i>												
MPI (Y-1)	-0.0481** (0.0230)	-0.0038 (0.0096)	0.0230 (0.0325)	0.0455 (0.0582)								
MPI Tightening (Y-1)					-0.0402 (0.0248)	-0.0090 (0.0100)	0.0274 (0.0341)	0.0428 (0.0629)				
MPI Loosening (Y-1)									-0.1876 (0.1147)	0.0855 (0.0613)	-0.0588 (0.1938)	0.1737 (0.2573)
#Loans	2283	2283	2283	2283	2283	2283	2283	2283	2283	2283	2283	2283
R2	0.31	0.27			0.31	0.27			0.31	0.27		
pseudo-R2			0.30	0.30			0.30	0.30			0.30	0.30
<i>Smaller loan</i>												
MPI (Y-1)	0.0837*** (0.0170)	-0.0122 (0.0120)	0.1059*** (0.0311)	0.0538 (0.0799)								
MPI Tightening (Y-1)					0.0903*** (0.0186)	-0.0107 (0.0130)	0.1210*** (0.0331)	0.1052 (0.0830)				
MPI Loosening (Y-1)									0.0411 (0.0418)	-0.0270 (0.0276)	-0.0668 (0.1117)	-0.0739 (0.1357)
#Loans	2574	2574	2574	2574	2574	2574	2574	2574	2574	2574	2574	2574
R2	0.24	0.21			0.24	0.21			0.23	0.21		
pseudo-R2			0.25	0.37			0.25	0.37			0.24	0.37
<i>Longer maturity</i>												
MPI (Y-1)	0.0403 (0.0297)	0.0023 (0.0069)	0.0904*** (0.0329)	-0.0065 (0.0775)								
MPI Tightening (Y-1)					0.0450 (0.0319)	0.0012 (0.0076)	0.0954*** (0.0344)	0.0417 (0.0791)				
MPI Loosening (Y-1)									-0.0091 (0.1039)	0.0012 (0.0175)	0.0793 (0.1588)	-0.1960 (0.1601)
#Loans	2192	2192	2192	2192	2192	2192	2192	2192	2192	2192	2192	2192

R2	0.45	0.43			0.46	0.43			0.45	0.43		
pseudo-R2			0.23	0.34			0.23	0.34			0.23	0.34
<i>Shorter maturity</i>												
MPI (Y-1)	0.0288	0.0041	0.0627**	0.1018**								
	(0.0241)	(0.0096)	(0.0282)	(0.0516)								
MPI Tightening (Y-1)					0.0576**	0.0048	0.0768**	0.0813				
					(0.0261)	(0.0100)	(0.0299)	(0.0572)				
MPI Loosening (Y-1)									-0.3418*	-0.0059	-0.2301*	0.6357**
									(0.1917)	(0.0465)	(0.1266)	(0.2806)
#Loans	2665	2665	2665	2665	2665	2665	2665	2665	2665	2665	2665	2665
R2	0.43	0.12			0.42	0.12			0.42	0.12		
pseudo-R2			0.17	0.44			0.17	0.44			0.17	0.44
<i>Term loan only</i>												
MPI (Y-1)	0.0448*	0.0010	0.0836***	0.0451								
	(0.0243)	(0.0097)	(0.0265)	(0.0582)								
MPI Tightening (Y-1)					0.0639**	-0.0005	0.0946***	0.0835				
					(0.0259)	(0.0102)	(0.0279)	(0.0597)				
MPI Loosening (Y-1)									-0.1389	0.0258	-0.0246	-0.1255
									(0.1085)	(0.0400)	(0.1210)	(0.1471)
#Loans	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154	3154
R2	0.42	0.20			0.42	0.20			0.42	0.20		
pseudo-R2			0.23	0.34			0.23	0.34			0.22	0.34
<i>Revolving loan only</i>												
MPI (Y-1)	0.0253	-0.0134	0.0515*	0.0111								
	(0.0214)	(0.0096)	(0.0270)	(0.0455)								
MPI Tightening (Y-1)					0.0402*	-0.0156	0.0559**	-0.0071				
					(0.0231)	(0.0103)	(0.0285)	(0.0512)				
MPI Loosening (Y-1)									-0.1982	0.0122	-0.0432	0.2908
									(0.1284)	(0.0278)	(0.1304)	(0.2134)
#Loans	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858	2858
R2	0.42	0.16			0.43	0.16			0.43	0.16		

pseudo-R2			0.26	0.35			0.26	0.35			0.26	0.35
<i>Excluding relationship loans</i>												
MPI (Y-1)	0.0258 (0.0213)	-0.0034 (0.0083)	0.0768*** (0.0236)	0.0273 (0.0513)								
MPI Tightening (Y-1)					0.0430* (0.0230)	-0.0049 (0.0089)	0.0855*** (0.0249)	0.0429 (0.0559)				
MPI Loosening (Y-1)									-0.1539 (0.1027)	0.0173 (0.0316)	-0.0183 (0.1108)	-0.0436 (0.1492)
#Loans	3883	3883	3883	3883	3883	3883	3883	3883	3883	3883	3883	3883
R2	0.40	0.22			0.40	0.22			0.40	0.22		
pseudo-R2			0.25	0.33			0.25	0.33			0.25	0.33
<i>Loans in EUR only</i>												
MPI (Y-1)	0.0635*** (0.0218)	0.0050 (0.0087)	0.0823*** (0.0251)	0.0528 (0.0519)								
MPI Tightening (Y-1)					0.0774*** (0.0229)	0.0040 (0.0092)	0.0939*** (0.0264)	0.0784 (0.0552)				
MPI Loosening (Y-1)									-0.1242 (0.1016)	0.0235 (0.0327)	-0.0566 (0.1059)	-0.0425 (0.1381)
#Loans	3857	3857	3857	3857	3857	3857	3857	3857	3857	3857	3857	3857
R2	0.39	0.22			0.39	0.21			0.39	0.21		
pseudo-R2			0.24	0.33			0.24	0.33			0.24	0.33

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms by considering various sub-samples according to specific loan characteristics. The classification of loans according to their amount (larger vs smaller loan) and their maturity (longer vs shorter maturity) is done using their sample medians (cf. table 1). The main explanatory variables are the macroprudential policy indices (MPI). Significant coefficients are marked in bold. All regressions include industry and year dummies, main loan, loan & syndicate, and country variables. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 6 THE INFLUENCE OF BORROWER CHARACTERISTICS

Panel A: Results including borrower characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MPI (Y-1)	0.0515** (0.0229)	-0.0117 (0.0096)	0.0133 (0.0267)	-0.0288 (0.0597)								
MPI Tightening (Y-1)					0.0620*** (0.0240)	-0.0161 (0.0103)	0.0140 (0.0272)	0.0171 (0.0537)				
MPI Loosening (Y-1)									-0.2434* (0.1263)	0.0352 (0.0417)	0.0098 (0.1681)	-0.3674* (0.1930)
Amount		-0.0174* (0.0094)	0.0061 (0.0302)	0.3382*** (0.0438)		-0.0161* (0.0094)	0.0060 (0.0302)	0.3391*** (0.0437)		-0.0166* (0.0095)	0.0070 (0.0299)	0.3377*** (0.0443)
Maturity	-0.0710* (0.0387)		0.4355*** (0.0546)	0.0542 (0.0737)	-0.0649* (0.0382)		0.4355*** (0.0545)	0.0614 (0.0740)	-0.0671* (0.0386)		0.4348*** (0.0546)	0.0613 (0.0756)
Secured	0.0136 (0.0587)	0.1984*** (0.0209)		0.9973*** (0.1434)	0.0110 (0.0585)	0.1993*** (0.0209)		0.9976*** (0.1438)	0.0126 (0.0579)	0.1989*** (0.0210)		0.9947*** (0.1429)
Covenants	0.5842*** (0.0844)	-0.0020 (0.0408)	0.9754*** (0.1383)		0.5832*** (0.0842)	-0.0007 (0.0409)	0.9744*** (0.1385)		0.5601*** (0.0858)	0.0036 (0.0414)	0.9740*** (0.1374)	
Rating	0.9514*** (0.0828)	-0.0374 (0.0363)	-0.0719 (0.1194)	-0.1468 (0.2048)	0.9541*** (0.0821)	-0.0353 (0.0363)	-0.0715 (0.1192)	-0.1512 (0.2044)	0.9535*** (0.0833)	-0.0344 (0.0366)	-0.0732 (0.1192)	-0.1265 (0.2041)
Equity / Assets	-0.0019 (0.1153)	0.0433 (0.0425)	0.0160 (0.1192)	-0.1015 (0.2106)	-0.0045 (0.1154)	0.0390 (0.0426)	0.0165 (0.1193)	-0.0978 (0.2120)	0.0098 (0.1152)	0.0363 (0.0429)	0.0178 (0.1194)	-0.0619 (0.2090)
RoA	0.0218*** (0.0055)	-0.0016 (0.0011)	0.0051 (0.0035)	0.0008 (0.0055)	0.0221*** (0.0055)	-0.0016 (0.0011)	0.0052 (0.0035)	0.0013 (0.0056)	0.0216*** (0.0056)	-0.0014 (0.0012)	0.0049 (0.0035)	0.0014 (0.0054)
Current ratio	-1.0454 (2.6667)	0.7175 (1.1019)	-2.8811 (4.8900)	-3.1718 (6.0254)	-0.8440 (2.6214)	0.9469 (1.1128)	-2.8748 (4.8905)	-3.2714 (5.9840)	-0.9563 (2.7951)	0.9882 (1.0670)	-2.9195 (4.9094)	-3.3573 (5.7190)
Total assets	0.0453*** (0.0096)	-0.0019 (0.0037)	-0.0070 (0.0114)	-0.0067 (0.0175)	0.0460*** (0.0096)	-0.0015 (0.0037)	-0.0070 (0.0114)	-0.0053 (0.0177)	0.0450*** (0.0098)	-0.0011 (0.0037)	-0.0073 (0.0114)	-0.0047 (0.0175)
Intercept	4.5858*** (0.8152)	0.4034** (0.1856)	-5.7036*** (0.4152)	-8.7565*** (0.7301)	4.8722*** (0.6145)	0.5298** (0.2401)	-6.1429*** (0.5519)	-8.6425*** (0.7246)	4.9550*** (0.6098)	0.5031** (0.2317)	-6.1357*** (0.5622)	-8.8309*** (0.7603)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Loans	2313	2313	2313	2313	2313	2313	2313	2313	2313	2313	2313	2313
#Firms	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503	1503
R2	0.49	0.24			0.49	0.24			0.49	0.24		
pseudo-R2			0.26	0.26			0.26	0.26			0.26	0.26

Panel B: Additional regressions for borrower characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
<i>Larger firms</i>												
MPI (Y-1)	0.0451 (0.0302)	-0.0030 (0.0137)	-0.0262 (0.0355)	0.0957 (0.0684)								
MPI Tightening (Y-1)					0.0568* (0.0313)	-0.0141 (0.0143)	-0.0247 (0.0361)	0.0797 (0.0751)				
MPI Loosening (Y-1)									-0.7633*** (0.2315)	0.1264 (0.0971)	-0.1185 (0.2828)	0.6184** (0.2927)
#Firms	691	691	691	691	691	691	691	691	691	691	691	691
R2	0.50	0.27			0.50	0.26			0.50	0.26		
pseudo-R2			0.29	0.46			0.29	0.46			0.29	0.46
<i>Smaller firms</i>												
MPI (Y-1)	0.0401 (0.0279)	-0.0160 (0.0122)	0.0213 (0.0331)	-0.0920 (0.0774)								
MPI Tightening (Y-1)					0.0465 (0.0296)	-0.0151 (0.0134)	0.0292 (0.0340)	-0.0085 (0.0709)				
MPI Loosening (Y-1)									-0.0547 (0.1295)	0.0060 (0.0356)	-0.0930 (0.1859)	-0.5912*** (0.1935)
#Firms	753	753	753	753	753	753	753	753	753	753	753	753
R2	0.52	0.22			0.52	0.22			0.52	0.22		
pseudo-R2			0.26	0.39			0.26	0.39			0.26	0.40
<i>Higher leverage</i>												
MPI (Y-1)	0.0665** (0.0286)	-0.0031 (0.0098)	-0.0066 (0.0319)	-0.1220 (0.0840)								
MPI Tightening (Y-1)					0.0724**	-0.0016	-0.0127	-0.1169				

					(0.0298)	(0.0102)	(0.0329)	(0.0940)				
MPI Loosening (Y-1)									-0.2916	-0.0030	0.2156	-0.3363
									(0.1895)	(0.0733)	(0.1878)	(0.2293)
#Firms	763	763	763	763	763	763	763	763	763	763	763	763
R2	0.49	0.28			0.49	0.28			0.49	0.28		
pseudo-R2			0.28	0.49			0.28	0.49			0.28	0.49
					Lower leverage							
MPI (Y-1)	0.0320	-0.0237*	0.0467	0.0259								
	(0.0313)	(0.0144)	(0.0336)	(0.0695)								
MPI Tightening (Y-1)					0.0411	-0.0350**	0.0600*	0.0863				
					(0.0336)	(0.0156)	(0.0343)	(0.0645)				
MPI Loosening (Y-1)									-0.2117	0.0437	-0.1280	-0.3684*
									(0.1378)	(0.0517)	(0.1905)	(0.2175)
#Firms	740	740	740	740	740	740	740	740	740	740	740	740
R2	0.51	0.22			0.51	0.22			0.51	0.21		
pseudo-R2			0.29	0.37			0.30	0.37			0.30	0.37
					Higher profitability							
MPI (Y-1)	0.0602*	-0.0212	0.0033	-0.0325								
	(0.0317)	(0.0170)	(0.0352)	(0.0755)								
MPI Tightening (Y-1)					0.0702**	-0.0228	0.0127	-0.0245				
					(0.0323)	(0.0184)	(0.0351)	(0.0751)				
MPI Loosening (Y-1)									-0.6694**	-0.0732	-0.3974	-0.2219
									(0.3103)	(0.0620)	(0.3743)	(0.4138)
#Firms	642	642	642	642	642	642	642	642	642	642	642	642
R2	0.46	0.24			0.47	0.23			0.47	0.23		
pseudo-R2			0.29	0.39			0.29	0.39			0.29	0.39
					Lower profitability							
MPI (Y-1)	0.0467*	-0.0115	0.0339	-0.0425								
	(0.0268)	(0.0109)	(0.0331)	(0.0971)								
MPI Tightening (Y-1)					0.0623**	-0.0168	0.0332	0.0571				
					(0.0283)	(0.0113)	(0.0354)	(0.0926)				
MPI Loosening (Y-1)									-0.2270*	0.0200	0.0739	-0.4081*
									(0.1158)	(0.0575)	(0.1785)	(0.2421)

#Firms	833	833	833	833	833	833	833	833	833	833	833	833
R2	0.53	0.26			0.53	0.25			0.53	0.25		
pseudo-R2			0.26	0.48			0.26	0.48			0.26	0.48

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms. Panel A presents the results for the regressions including borrower variables. Panel B presents the results for sub-samples split according to medians of borrower variables (cf. table 1): total assets, equity / assets, RoA. The main explanatory variables are macroprudential policy indices (MPI). All regressions include industry and year dummies, main loan, loan & syndicate, country, and borrower variables. Significant coefficients are marked in bold. Standard errors are clustered at the borrower level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 7 THE INFLUENCE OF LENDER CHARACTERISTICS

Panel A: Results including (lead) lender characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
MPI (Y-1)	0.0536 (0.0340)	-0.0104 (0.0064)	0.0793*** (0.0296)	-0.0424 (0.0493)								
MPI Tightening (Y-1)					0.0682* (0.0368)	-0.0134* (0.0077)	0.0787** (0.0308)	-0.0764 (0.0586)				
MPI Loosening (Y-1)									-0.3378* (0.1902)	-0.0092 (0.0254)	0.0946 (0.2180)	0.1553 (0.1684)
Amount		-0.0097 (0.0060)	0.0520 (0.0381)	0.2532*** (0.0487)		-0.0101* (0.0060)	0.0533 (0.0375)	0.2547*** (0.0492)		-0.0108* (0.0060)	0.0591 (0.0362)	0.2561*** (0.0484)
Maturity	-0.0428 (0.0260)		0.4577*** (0.0491)	0.0629 (0.0537)	-0.0442 (0.0267)		0.4654*** (0.0495)	0.0595 (0.0529)	-0.0472* (0.0267)		0.4627*** (0.0498)	0.0679 (0.0531)
Secured	0.1592* (0.0956)	0.2189*** (0.0236)		0.8633*** (0.1544)	0.1642* (0.0927)	0.2235*** (0.0232)		0.8655*** (0.1537)	0.1739* (0.0915)	0.2219*** (0.0234)		0.8625*** (0.1578)
Covenants	0.5057*** (0.1517)	0.0254 (0.0272)	0.9235*** (0.1414)		0.5108*** (0.1534)	0.0222 (0.0283)	0.9228*** (0.1401)		0.5008*** (0.1511)	0.0249 (0.0283)	0.9073*** (0.1419)	
Bank total asset	0.1738** (0.0771)	-0.0261 (0.0202)	0.0478 (0.0600)	0.0451 (0.0873)	0.1572** (0.0679)	-0.0264 (0.0204)	0.0413 (0.0601)	0.0447 (0.0865)	0.1571** (0.0694)	-0.0258 (0.0207)	0.0345 (0.0598)	0.0397 (0.0864)
TCE ratio	4.4957 (5.6330)	-2.3088* (1.1959)	-1.9347 (3.8684)	2.2850 (6.6462)	3.5839 (5.4985)	-2.3228* (1.1766)	-2.5315 (3.9093)	2.3714 (6.5477)	3.0743 (5.8092)	-2.2153* (1.1771)	-3.5228 (3.8950)	1.8204 (6.3322)
Efficiency ratio	0.6997 (0.4782)	-0.0759 (0.1012)	0.6049 (0.5160)	0.3862 (0.7386)	0.7335 (0.4756)	-0.0806 (0.1042)	0.5834 (0.5114)	0.3674 (0.7333)	0.6213 (0.4724)	-0.0708 (0.1048)	0.5332 (0.5020)	0.4800 (0.7140)
Loans to assets	-0.0949 (0.4124)	0.0761 (0.0817)	0.6042* (0.3449)	-1.3965*** (0.5186)	-0.0088 (0.3786)	0.0505 (0.0859)	0.6047* (0.3408)	-1.3781*** (0.5197)	-0.0683 (0.3788)	0.0491 (0.0877)	0.6281* (0.3689)	-1.3615*** (0.5192)
RoA	2.5702 (16.1368)	-4.3831 (5.5888)	31.2052** (12.9631)	46.6383* (26.0880)	-0.9277 (15.8902)	-3.4441 (5.5407)	30.5935** (13.0051)	47.5067* (25.5172)	1.3640 (16.1650)	-4.2033 (5.4676)	35.8449*** (13.2350)	48.9534* (26.0195)
Intercept	1.6793 (2.0128)	0.9630*** (0.3121)	-7.9646*** (1.0981)	-8.0975*** (1.5973)	2.6343* (1.3833)	1.1047*** (0.2790)	-4.1108*** (1.2038)	-8.3608*** (1.4599)	2.8625** (1.3586)	1.0616*** (0.2705)	-3.7730*** (1.2016)	-8.4216*** (1.4445)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Loan & syndicate variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
#Loans	3650	3650	3650	3650	3650	3650	3650	3650	3650	3650	3650	3650
#Lenders	144	144	144	144	144	144	144	144	144	144	144	144
R2	0.45	0.23			0.45	0.22			0.45	0.22		
pseudo-R2			0.28	0.21			0.28	0.21			0.28	0.21

Panel B: Additional regressions for (lead) lender characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
Larger lenders												
MPI (Y-1)	0.0491 (0.0378)	-0.0168** (0.0067)	0.0466 (0.0547)	-0.0687 (0.0864)								
MPI Tightening (Y-1)					0.0575 (0.0416)	-0.0143* (0.0072)	0.0516 (0.0508)	-0.1196 (0.1046)				
MPI Loosening (Y-1)									-0.6510** (0.2940)	-0.0106 (0.0579)	-0.0202 (0.4832)	0.2128 (0.2360)
#Banks	33	33	33	33	33	33	33	33	33	33	33	33
R2	0.50	0.23			0.49	0.23			0.49	0.23		
pseudo-R2			0.29	0.40			0.29	0.40			0.29	0.40
large lender												
Smaller lenders												
MPI (Y-1)	0.0253 (0.0376)	-0.0039 (0.0105)	0.0896*** (0.0303)	0.0180 (0.0617)								
MPI Tightening (Y-1)					0.0527 (0.0443)	-0.0055 (0.0121)	0.0929*** (0.0329)	0.0273 (0.0710)				
MPI Loosening (Y-1)									-0.0559 (0.1134)	-0.0156 (0.0261)	0.1226 (0.1447)	-0.0214 (0.1460)
#Banks	90	90	90	90	90	90	90	90	90	90	90	90
R2	0.48	0.24			0.48	0.24			0.48	0.24		
pseudo-R2			0.31	0.33			0.32	0.33			0.31	0.33
Higher TCE												
MPI (Y-1)	0.0585*	-0.0179*	0.1484***	-0.1732***								

	(0.0333)	(0.0091)	(0.0336)	(0.0656)								
MPI Tightening (Y-1)					0.0491 (0.0418)	-0.0265** (0.0110)	0.1577*** (0.0350)	-0.1865** (0.0796)				
MPI Loosening (Y-1)									-0.1136 (0.1482)	0.0125 (0.0398)	0.1639 (0.1354)	-0.1912 (0.1163)
#Banks	86	86	86	86	86	86	86	86	86	86	86	86
R2	0.51	0.28			0.49	0.27			0.49	0.27		
pseudo-R2			0.32	0.46			0.33	0.46			0.32	0.45
Lower TCE												
MPI (Y-1)	-0.0666 (0.0511)	0.0052 (0.0123)	-0.1135** (0.0495)	0.0168 (0.0712)								
MPI Tightening (Y-1)					0.0084 (0.0684)	0.0041 (0.0135)	-0.1276*** (0.0422)	-0.0154 (0.0797)				
MPI Loosening (Y-1)									-0.9103*** (0.2590)	-0.0500 (0.0546)	-0.1581 (0.4121)	0.4180 (0.3371)
#Banks	50	50	50	50	50	50	50	50	50	50	50	50
R2	0.46	0.21			0.45	0.21			0.46	0.21		
pseudo-R2			0.29	0.30			0.29	0.30			0.29	0.30
Higher efficiency												
MPI (Y-1)	-0.0048 (0.0446)	0.0027 (0.0129)	0.0075 (0.0410)	0.0646 (0.0678)								
MPI Tightening (Y-1)					0.0146 (0.0483)	0.0049 (0.0123)	-0.0111 (0.0387)	0.0718 (0.0667)				
MPI Loosening (Y-1)									-0.6080*** (0.2283)	-0.0591 (0.0507)	0.1220 (0.3077)	0.1447 (0.2557)
#Banks	66	66	66	66	66	66	66	66	66	66	66	66
R2	0.45	0.24			0.45	0.23			0.46	0.23		
pseudo-R2			0.28	0.45			0.28	0.45			0.28	0.44
Lower efficiency												
MPI (Y-1)	0.0782* (0.0467)	-0.0225** (0.0091)	0.1111*** (0.0345)	-0.0991* (0.0585)								
MPI Tightening (Y-1)					0.0904* (0.0518)	-0.0246** (0.0102)	0.1212*** (0.0357)	-0.1384* (0.0716)				
MPI Loosening (Y-1)									-0.0656	-0.0074	0.0396	0.0603

									(0.1055)	(0.0196)	(0.1574)	(0.1233)
#Banks	77	77	77	77	77	77	77	77	77	77	77	77
R2	0.50	0.24			0.51	0.25			0.50	0.24		
pseudo-R2			0.33	0.31			0.33	0.31			0.33	0.31
Larger loan portfolio												
MPI (Y-1)	0.0627	-0.0023	0.0901***	-0.0867								
	(0.0382)	(0.0083)	(0.0309)	(0.0723)								
MPI Tightening (Y-1)					0.0942**	-0.0040	0.1001***	-0.1218				
					(0.0418)	(0.0096)	(0.0299)	(0.0946)				
MPI Loosening (Y-1)									-0.2176	0.0191	0.0674	-0.0154
									(0.2093)	(0.0347)	(0.1695)	(0.1467)
#Banks	78	78	78	78	78	78	78	78	78	78	78	78
R2	0.47	0.24			0.47	0.24			0.47	0.24		
pseudo-R2			0.30	0.37			0.30	0.37			0.30	0.37
Smaller loan portfolio												
MPI (Y-1)	0.0423	-0.0182	0.0318	-0.0220								
	(0.0492)	(0.0139)	(0.0598)	(0.0906)								
MPI Tightening (Y-1)					0.0537	-0.0249	0.0164	-0.0523				
					(0.0519)	(0.0173)	(0.0570)	(0.0843)				
MPI Loosening (Y-1)									-0.6320*	-0.0763	0.0896	0.6875
									(0.3196)	(0.0517)	(0.2882)	(0.6141)
#Banks	39	39	39	39	39	39	39	39	39	39	39	39
R2	0.49	0.24			0.49	0.23			0.49	0.23		
pseudo-R2			0.31	0.38			0.30	0.38			0.30	0.38
Higher profitability												
MPI (Y-1)	0.0551	-0.0297**	0.1273***	-0.1250**								
	(0.0493)	(0.0115)	(0.0314)	(0.0597)								
MPI Tightening (Y-1)					0.0433	-0.0350**	0.1296***	-0.1500**				
					(0.0551)	(0.0134)	(0.0360)	(0.0743)				
MPI Loosening (Y-1)									-0.1534	-0.0557**	0.1122	-0.0916
									(0.1376)	(0.0226)	(0.1876)	(0.0996)
#Banks	75	75	75	75	76	76	76	75	76	76	76	75
R2	0.49	0.23			0.48	0.23			0.48	0.23		
pseudo-R2			0.37	0.30			0.37	0.30			0.37	0.30

<i>Lower profitability</i>												
MPI (Y-1)	0.0471 (0.0373)	0.0106 (0.0098)	0.0221 (0.0401)	0.0414 (0.0671)								
MPI Tightening (Y-1)					0.0879** (0.0399)	0.0123 (0.0106)	0.0257 (0.0405)	0.0161 (0.0724)				
MPI Loosening (Y-1)									-0.7349*** (0.1410)	0.0536 (0.0991)	-0.0435 (0.3766)	0.5766 (0.4525)
#Banks	69	69	69	68	69	69	69	68	69	69	69	68
R2	0.49	0.24			0.48	0.24			0.48	0.24		
pseudo-R2			0.25	0.45			0.25	0.45			0.25	0.45

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms. Panel A presents the results for the regressions including (lead) lender variables. Panel B presents the results for sub-samples split according to medians of lender variables (cf. table 1): total assets, TCE ratio, efficiency ratio, loans / assets, RoA. The main explanatory variables are macroprudential policy indices (MPI). All regressions include industry and year dummies, main loan, loan & syndicate, country, and (lead) lender variables. Significant coefficients are marked in bold. Standard errors are clustered at the (lead) lender level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 8 ADDITIONAL REGRESSIONS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants	Amount	Maturity	Secured	Covenants
<i>Excluding top lead lenders (BNP, DB, UC, SG)</i>												
MPI (Y-1)	0.0623***	0.0002	0.0628**	0.0723								
	(0.0221)	(0.0092)	(0.0249)	(0.0477)								
MPI Tightening (Y-1)					0.0699***	-0.0030	0.0814***	0.0997**				
					(0.0235)	(0.0099)	(0.0266)	(0.0485)				
MPI Loosening (Y-1)									0.0071	0.0542	-0.1737*	-0.0558
									(0.0892)	(0.0346)	(0.0963)	(0.1577)
#Loans	2901	2901	2901	2901	2901	2901	2901	2901	2901	2901	2901	2901
R2	0.42	0.25			0.43	0.24			0.42	0.24		
pseudo-R2			0.23	0.33			0.24	0.33			0.23	0.32
<i>Excluding loans originated in 1999</i>												
MPI (Y-1)	0.0346*	-0.0049	0.0666***	0.0435								
	(0.0205)	(0.0080)	(0.0226)	(0.0464)								
MPI Tightening (Y-1)					0.0470**	-0.0067	0.0759***	0.0591				
					(0.0216)	(0.0084)	(0.0238)	(0.0493)				
MPI Loosening (Y-1)									-0.1461	0.0211	-0.0431	-0.0274
									(0.0997)	(0.0313)	(0.1088)	(0.1564)
#Loans	4414	4414	4414	4414	4414	4414	4414	4414	4414	4414	4414	4414
R2	0.41	0.22			0.41	0.22			0.41	0.22		
pseudo-R2			0.25	0.21			0.25	0.21			0.24	0.21
<i>Excluding (lead) lenders from Greece</i>												
MPI (Y-1)	0.0357*	-0.0059	0.0677***	0.0637								
	(0.0208)	(0.0081)	(0.0230)	(0.0468)								
MPI Tightening (Y-1)					0.0521**	-0.0072	0.0773***	0.0667				
					(0.0219)	(0.0085)	(0.0238)	(0.0501)				
MPI Loosening (Y-1)									-0.3074**	0.0218	-0.1304	0.1366
									(0.1298)	(0.0394)	(0.1566)	(0.2278)

#Clusters	4404	4404	4404	4404	4404	4404	4404	4404	4404	4404	4404	4404
R2	0.42	0.22			0.42	0.22			0.42	0.22		
pseudo-R2			0.25	0.21			0.25	0.22			0.24	0.22
<i>Excluding loans originated in 1999 & (lead) lenders from Greece</i>												
MPI (Y-1)	0.0367* (0.0208)	-0.0059 (0.0081)	0.0677*** (0.0230)	0.0637 (0.0468)								
MPI Tightening (Y-1)					0.0494** (0.0215)	-0.0071 (0.0085)	0.0780*** (0.0239)	0.0667 (0.0501)				
MPI Loosening (Y-1)									-0.3033** (0.1291)	0.0219 (0.0394)	-0.1344 (0.1569)	0.1366 (0.2278)
#Clusters	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400
R2	0.42	0.22			0.42	0.22			0.42	0.22		
pseudo-R2			0.24	0.21			0.25	0.21			0.24	0.21
<i>Loans originated in the Pre-GFC period</i>												
MPI (Y-1)	-0.0365 (0.0362)	-0.0080 (0.0119)	-0.0458 (0.0377)	0.0630 (0.0510)								
MPI Tightening (Y-1)					-0.0176 (0.0420)	-0.0085 (0.0145)	-0.0524 (0.0428)	0.0890* (0.0539)				
MPI Loosening (Y-1)									-0.1024 (0.1010)	-0.0121 (0.0257)	-0.0464 (0.1107)	-0.0490 (0.1451)
#Loans	2095	2095	2095	2095	2095	2095	2095	2095	2095	2095	2095	2095
R2	0.41	0.20			0.41	0.20			0.41	0.20		
pseudo-R2			0.31	0.21			0.31	0.21			0.31	0.21
<i>Loans originated in the Post-GFC period</i>												
MPI (Y-1)	0.0542** (0.0236)	-0.0050 (0.0115)	0.0996*** (0.0302)	-0.2118* (0.1278)								
MPI Tightening (Y-1)					0.0649*** (0.0241)	-0.0079 (0.0116)	0.1015*** (0.0314)	-0.2699* (0.1493)				
MPI Loosening (Y-1)									-0.4517** (0.2279)	0.1506 (0.1159)	0.1859 (0.1911)	0.4018 (0.6285)
#Loans	2325	2325	2325	2325	2325	2325	2325	2325	2325	2325	2325	2325

R2	0.48	0.27			0.48	0.27			0.48	0.27		
pseudo-R2			0.23	0.73			0.23	0.73			0.23	0.73
<i>Excluding main loan variables from RHS</i>												
MPI (Y-1)	0.0358* (0.0213)	-0.0007 (0.0080)	0.0712*** (0.0220)	0.0296 (0.0439)								
MPI Tightening (Y-1)					0.0519** (0.0227)	-0.0021 (0.0085)	0.0798*** (0.0231)	0.0438 (0.0483)				
MPI Loosening (Y-1)									-0.1546 (0.0999)	0.0198 (0.0315)	-0.0463 (0.1025)	-0.0490 (0.1209)
#Loans	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857
R2	0.40	0.20			0.40	0.20			0.40	0.20		
pseudo-R2			0.21	0.24			0.21	0.24			0.21	0.24
<i>Using MPI (Y) instead of MPI (Y-1)</i>												
MPI (Y)	0.0556** (0.0258)	-0.0055 (0.0092)	0.0394 (0.0283)	0.0301 (0.0567)								
MPI Tightening (Y)					0.0711*** (0.0262)	-0.0090 (0.0099)	0.0581* (0.0301)	0.0618 (0.0588)				
MPI Loosening (Y)									-0.0931 (0.1444)	0.0353 (0.0383)	-0.1963* (0.1175)	-0.1208 (0.1682)
#Loans	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857	4857
R2	0.41	0.22			0.42	0.22			0.41	0.22		
pseudo-R2			0.25	0.21			0.25	0.21			0.25	0.21

This table presents estimated coefficients and standard errors (in parentheses) from OLS (Amount and Maturity) and Probit (Secured and Covenants) regressions examining the relationship between macroprudential policy and bank loan terms by considering various sub-samples. Top (lead) lenders are lenders who represent each more than 5% of the sample (BNP PARIBAS (FRA): 12.24%, DEUTSCHE BANK (GER): 7.84%, UNICREDIT (ITA): 6.74%, SOCIETE GENERALE (FRA): 6.17%). The pre and post GFC periods are based on the date of 15 September 2008. The main explanatory variables are the macroprudential policy indices (MPI). Significant coefficients are marked in bold. All regressions include industry and year dummies, main loan, loan & syndicate, and country variables, except for "Excluding main loan variables from RHS" where Amount, Maturity, Secured, and Covenants are not included on the RHS. MPI (Y) is the current year variable with respect to the loan year. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE 9 LOAN SPREAD

	(1)	(2)	(3)
MPI (Y-1)	-0.0019 (0.0149)		
MPI Tightening (Y-1)		-0.0058 (0.0162)	
MPI Loosening (Y-1)			0.1032 (0.0938)
Main loan variables	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan & syndicate variables	Yes	Yes	Yes
#Loans	1921	1921	1921
R2	0.50	0.50	0.50

This table presents estimated coefficients and standard errors (in parentheses) from OLS regressions examining the relationship between macroprudential policy and loan spread (in bps). The sample average (median) spread equals 235.75 bps (225 bps). The standard deviation equals 156.44. The dependent variable equals the log(Spread). The main explanatory variables are macroprudential policy indices (MPI). Significant coefficients are marked in bold. Standard errors are clustered at the loan facility level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. Definitions of all variables are provided in table A1.

TABLE A1

Variable name	Definition
<i>Macroprudential policy variables</i>	
MPI (Y-1)	Macroprudential Policy Index equal to the sum of all macroprudential policy changes
MPI Tightening (Y-1)	Macroprudential Policy Index equal to the sum of all macroprudential policy tightenings
MPI Loosening (Y-1)	Macroprudential Policy Index equal to the sum of all macroprudential policy loosening
MP: Capital (Y-1)	Macroprudential Policy Capital-related instruments index equal to the sum of all macroprudential policy changes related to capital buffers, minimum capital requirements, risk weights, and loan loss provisioning
MP: Borrower (Y-1)	Macroprudential Policy Borrower-related instruments index equal to the sum of all macroprudential policy changes related to lending standards and limits on credit growth
MP: Liquidity (Y-1)	Macroprudential Policy Liquidity-related instruments index equal to the sum of all macroprudential policy changes related to liquidity requirements
MP: Other (Y-1)	Macroprudential Policy Other-related instruments index equal to the sum of all macroprudential policy changes related to leverage ratio, levy tax, and limits on large exposure
<i>Main bank loan contracting variables</i>	
Amount	Size of the loan in millions of USD
Maturity	Maturity of the loan in years
Secured	=1 if the loan is secured by collateral
Covenants	=1 if the loan includes financial covenants
<i>Loan & Syndicate control variables</i>	
Lenders	Number of lenders in the syndicate
League	=1 if the lead lender is listed among the top 3 of the Bloomberg European League Table
Relationship	=1 if the borrower and the lead lender of the syndicate had lending relationship in the past 3 years
EUR	=1 if the loan currency is EUR
GBP	=1 if the loan currency is GBP
USD	=1 if the loan currency is USD
Term	=1 if the loan type is term loan
Revolving	=1 if the loan type is revolving
Acquisition	=1 if the loan purpose is acquisition
General corporate	=1 if the loan purpose is general corporate
LBO	=1 if the loan purpose is leverage buy out
Project finance	=1 if the loan purpose is project finance
Debt refinancing	=1 if the loan purpose is debt refinancing
<i>Country (borrower) control variables</i>	
GDP growth	GDP growth (% annual)
Private credit	Private credit by deposit money banks and other financial institutions to GDP
Stock market	Total value of all listed shares in a stock market as a percentage of GDP
Rule of law	This indicator refers to “the extent to which agents have confidence in and abide by the rules of society.” (ranging from -2.5 to 2.5)
French legal origin	=1 if country legal origin is French law
Bank Z score	Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns
Bank concentration	Assets of three largest commercial banks as a share of total commercial banking assets.
<i>Borrower control variables</i>	
Rating	= 1 if a borrowing firm has a rating (Moody's or S&P, Senior Unsecured Debt or LT Issuer Credit)
Total assets (B)	Total assets of the borrowing firm (in millions USD, in log)
Equity / Assets	Total common equity to total assets of the borrowing firm
Current ratio	Current assets to current liabilities of the borrowing firm

RoA (B)	Return on assets of the borrowing firm
<i>Lead lender control variables</i>	
Total assets (L)	Total assets of the lead lender (in millions USD, in log)
Loans to assets	Total loans to total assets of the lead lender
TCE ratio	Total Common Equity to total assets of the lead lender
Efficiency ratio	Non-interest expenses to total revenues of the lead lender
RoA (L)	Return on assets of the lead lender

This table provides the definitions of all variables. Macroprudential policy variables come from MaPPED. Country variables come from World Bank. All other variables come from Bloomberg. All MP are computed by year and by country. (T-1) refers to a 1-year lag of the MP variables with respect to the year of loan origination.

TABLE A2 CORRELATION MATRIX

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1.	MPI (Y-1)	1.00																		
2.	MPI Tightening (Y-1)	0.99	1.00																	
		(0.00)																		
3.	MPI Loosening (Y-1)	0.24	0.08	1.00																
		(0.00)	(0.00)																	
4.	MP: Capital (Y-1)	0.68	0.68	0.08	1.00															
		(0.00)	(0.00)	(0.00)																
5.	MP: Borrower (Y-1)	0.74	0.72	0.23	0.19	1.00														
		(0.00)	(0.00)	(0.00)	(0.00)															
6.	MP: Liquidity (Y-1)	0.13	0.12	0.11	0.07	0.03	1.00													
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)														
7.	MP: Other (Y-1)	0.36	0.36	0.07	-0.01	0.08	-0.46	1.00												
		(0.00)	(0.00)	(0.00)	(0.49)	(0.00)	(0.00)													
8.	MP: Capital Tight. (Y-1)	0.67	0.68	0.04	0.99	0.19	0.07	-0.01	1.00											
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.38)												
9.	MP: Borrower Tight. (Y-1)	0.73	0.74	0.02	0.20	0.96	0.04	0.08	0.21	1.00										
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)											
10.	MP: Liquidity Tight. (Y-1)	0.11	0.11	0.04	0.05	0.03	0.98	-0.48	0.05	0.03	1.00									
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)										
11.	MP: Other Tight. (Y-1)	0.40	0.40	0.05	0.07	0.08	-0.06	0.75	0.06	0.09	-0.07	1.00								
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)									
12.	MP: Capital Loose. (Y-1)	0.12	0.06	0.39	0.16	0.03	0.02	0.01	0.06	0.01	0.02	0.04	1.00							
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.08)	(0.00)	(0.10)	(0.00)	(0.00)								
13.	MP: Borrower Loose. (Y-1)	0.14	0.02	0.76	-0.02	0.28	-0.02	0.00	-0.03	0.01	-0.02	0.00	0.06	1.00						
		(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.93)	(0.00)	(0.23)	(0.00)	(0.79)	(0.00)							

14.	MP: Liquidity Loose. (Y-1)	0.12	0.06	0.37	0.07	0.02	0.24	0.01	0.07	0.02	0.03	0.04	-0.01	-0.01	1.00					
		(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)	(0.06)	(0.00)	(0.01)	(0.00)	(0.00)	(0.16)	(0.45)						
15.	MP: Other Loose. (Y-1)	0.11	0.11	0.05	-0.08	0.03	-0.64	0.72	-0.08	0.04	-0.65	0.08	-0.02	-0.00	-0.02	1.00				
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.87)	(0.00)					
16.	Amount	0.01	0.00	0.00	-0.01	-0.00	-0.01	0.04	-0.02	-0.01	-0.01	0.05	0.00	0.00	-0.00	0.01	1.00			
		(0.32)	(0.64)	(0.72)	(0.08)	(0.60)	(0.38)	(0.00)	(0.03)	(0.46)	(0.33)	(0.00)	(0.66)	(0.72)	(0.78)	(0.44)				
17.	Maturity	-0.04	-0.04	0.00	0.00	-0.03	-0.03	-0.02	0.00	-0.03	-0.03	-0.04	0.00	0.00	-0.01	0.02	-0.02	1.00		
		(0.00)	(0.00)	(0.81)	(0.96)	(0.00)	(0.00)	(0.02)	(0.84)	(0.00)	(0.00)	(0.00)	(0.97)	(0.93)	(0.33)	(0.03)	(0.00)			
18.	Secured	0.05	0.06	-0.00	0.11	0.01	-0.01	-0.02	0.11	0.00	-0.00	-0.01	-0.00	0.02	-0.04	-0.01	-0.02	0.26	1.00	
		(0.00)	(0.00)	(0.57)	(0.00)	(0.37)	(0.13)	(0.02)	(0.00)	(0.81)	(0.80)	(0.16)	(0.96)	(0.00)	(0.00)	(0.07)	(0.01)	(0.00)		
19.	Covenants	-0.05	-0.05	-0.03	-0.06	-0.02	-0.01	-0.01	-0.06	-0.02	0.00	-0.05	-0.01	0.00	-0.07	0.04	0.01	-0.00	0.09	1.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.13)	(0.28)	(0.00)	(0.00)	(0.64)	(0.00)	(0.42)	(0.94)	(0.00)	(0.00)	(0.07)	(0.87)	(0.00)	