From banks to nonbanks: macroprudential and monetary policy effects on corporate lending

Bruno Albuquerque[1] Eugenio Cerutti[1] Nanyu Chen[2] Melih Firat[1]

[1]International Monetary Fund [2]Columbia Business School

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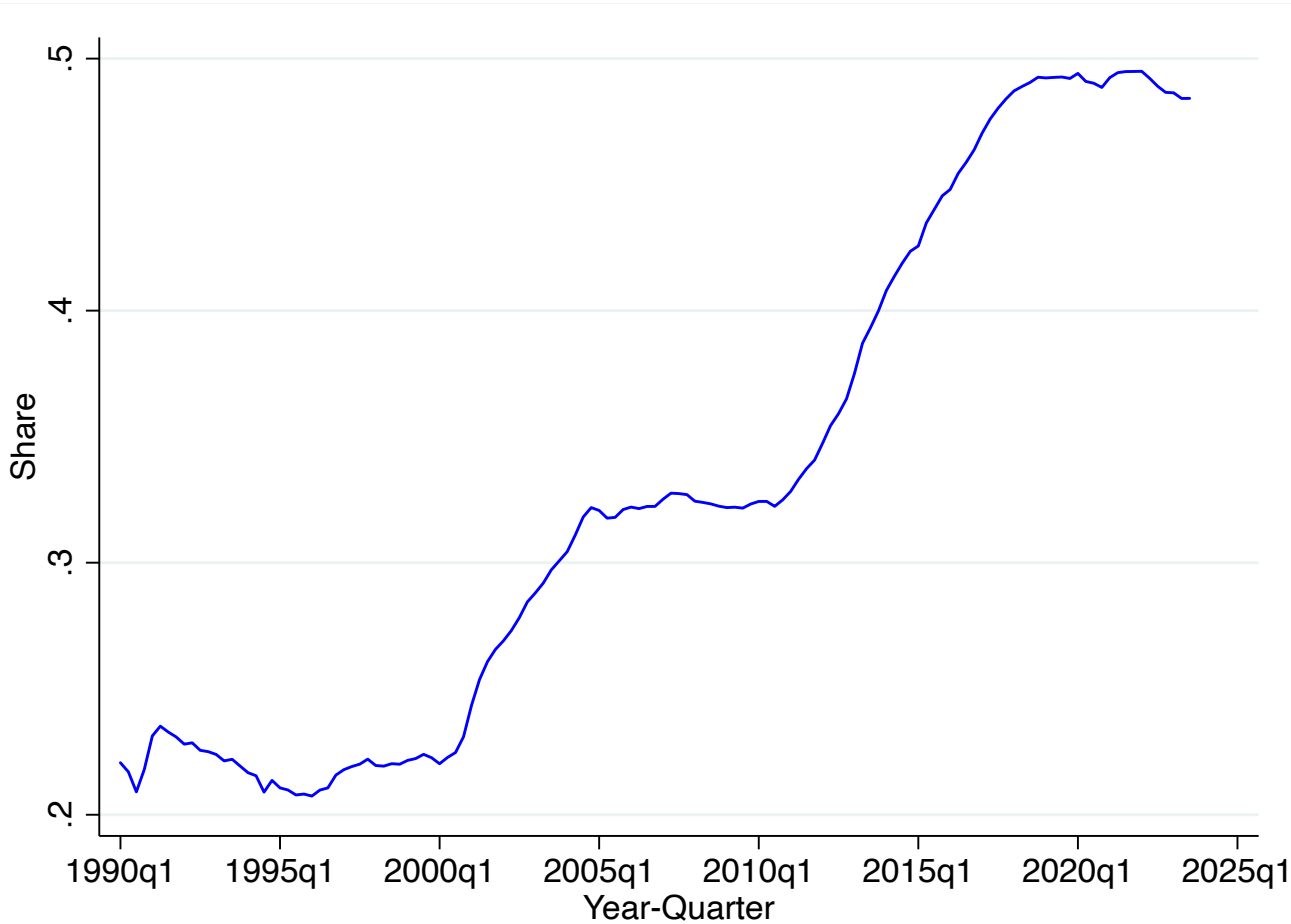
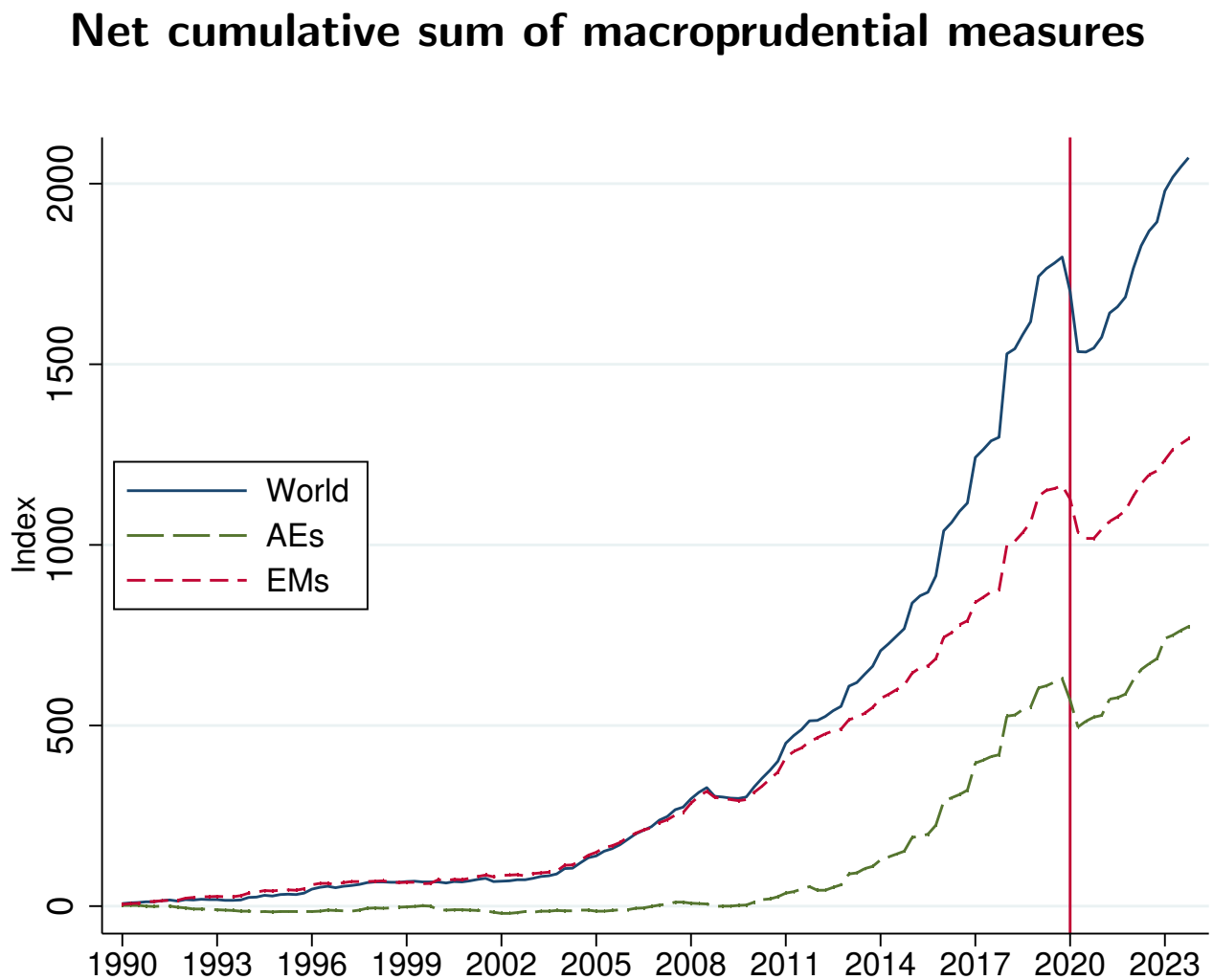
Fact 1: Nonbank corporate credit intermediation has been rising since the GFC

Nonbank share in the global corporate syndicated loan market



Notes: Nonbank share is the loan amount outstanding intermediated by nonbanks relative to the total loan amount. Nonbanks include investment banks, broker-dealers, finance companies, insurance companies, pension funds, private equity firms, venture capital firms, hedge funds, and other non-depository-taking financial intermediaries.

Fact 2: Increasing use of macroprudential measures



Notes: Alam et al. (2025) iMaPP database and authors' calculations. The red vertical line marks the start of the Covid-19 pandemic in 2020Q1.

Fact 3: Contractionary monetary policy stimulates nonbank lending

- Nonbanks in the U.S. and Denmark partially mitigate the transmission of MP to the real economy (Elliott et al., 2022, 2024; Cucic and Gorea, 2024).
- **Mechanism**: widening spread between the policy rate and deposit rates, prompting deposit outflows from the banking sector, and constraining banks' lending capacity (Drechsler et al., 2017).

What we do

Research question

Implication of nonbanks' rising role in corporate credit intermediation for the transmission of macroprudential policy (MaPP) and monetary policy (MP).

- Syndicated loan data for 22 lender countries (20 AEs and 2 EMDEs), and 153 borrower countries (38 AEs and 115 EMDEs) over 2000q1–2019q4. Data
- 48,373 nonfinancial firms.
- 5,904 lenders (48% nonbanks).
- **MP shocks**: Country-specific HF identified shocks (Choi et al., 2024). Shocks
- **MaPP shocks**: construct our own cross-country shocks series based on the iMaPP database (Alam et al., 2025)
- **Focus on the differential response of nonbank lending relative to bank lending following MP and MaPP shocks.**

Contributions

1. Role of nonbanks in the transmission of MaPP to corporate lending (Kim et al., 2018; Cizel et al., 2019; Irani et al., 2021).
   - **Contribution**: micro-level data for a large sample of countries and not restricted to specific U.S. regulatory episodes.

2. Effects of both MP and MaPP on corporate lending using granular lender-borrower data within a unified framework (Altavilla et al., 2020; Imbierowicz et al., 2021).
   - **Contribution**: cleaner identification compared to studies that consider one shock. Also, available empirical evidence limited to banks, not nonbanks.

3. Role of nonbanks in the transmission of MP shocks (Elliott et al., 2022, 2024; Cucic and Gorea, 2024).
   - **Contribution**: external validity for a large sample of countries, and novel contribution stressing credit migration from weaker banks.

4. Bank lending and the nonbank expansion (Krainer et al., 2024; Haque et al., 2025).
   - **Contribution**: available evidence on regulatory changes restricted to a single episode (e.g., Basel III implementation, or pandemic shock)

Preview of results

1. Nonbanks mitigate the effect of MP and MaPP shocks on corporate lending.
2. Relationship lending with nonbanks offer additional protection to firms after contractionary shocks: firms invest and hire more relative to other firms.
3. Evidence of credit migration from weak banks to nonbanks.
4. Nonbank lending does not seem to disproportionately flow towards riskier borrowers in response to tighter MP or MaPP shocks.
5. Banks, especially low-capitalized banks, reallocate credit away from nonfinancial firms and toward nonbanks during MaPP tightening shocks.

Macroprudential policy shocks

Recent progress on using HF methods to identify MaPP for the U.S., U.K., and Canada (Bluwstein and Patozi, 2024; Drechsel and Miura, 2025; Duprey and Tuzcuoglu, 2025).

This paper: Use Alam et al. (2025) iMaPP database to select measures that affect loan supply:

- limits to credit growth, loan loss provisions, loan restrictions, limits to the loan to deposit ratio, limits to FX loans
- stress testing
- restrictions on profit distribution
- other structural measures (e.g., limits on exposures between financial institutions)

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- stress testing
- restrictions on profit distribution
- other structural measures (e.g., limits on exposures between financial institutions)

1. Construct stringency indices by summing up cumulative policy actions.
2. Purge the macroprudential index from the state of the economy.

$$MaPP_{c,t} = \beta_1 Macro_{c,t-1} + \beta_2 Financial_{c,t-1} + \alpha_c + \epsilon_{c,t}$$

Controls: real GDP growth, REER growth, yoy CPI inflation, 5-year ahead real GDP forecast, yoy real house price growth, yoy private sector credit-to-GDP growth, 10-year government bond yield, bond yield gap, Chinn-Ito index of financial openness, banks' average Z-score. Shocks MP-MaPP corr IRFs

Main specification

Lender-borrower-quarter aggregation:

$$\begin{aligned} Log(Loans)_{l,i,t} &= \gamma_l + \mu_{i,t} + \beta_1 MP_{l,t-1} + \beta_2 MaPP_{l,t-1} \\ &+ \beta_3 MP_{l,t-1} \times Nonbank_l + \beta_4 MaPP_{l,t-1} \times Nonbank_l + \epsilon_{l,i,t}, \end{aligned}$$

γ_l: lender FE
$\mu_{i,t}$: time-varying borrower-demand FE (Firm$\times$Time)
Shock: lender-country monetary or macroprudential policy shocks
Standard errors: clustered by firm

Nonbanks mitigate the effects of contractionary MP and MaPP shocks on corporate lending

	(1)	(2)	(3)	(4)	(5)
	Loans				
MP shock	-0.071***				
	(0.004)				
MaPP shock	-0.032***				
	(0.003)				
MP shock × Nonbank					
MaPP shock × Nonbank					
Firm FE	✓				
Lender FE	✓				
Country × Sector × Time FE					
ILST FE					
Firm × Time FE					
Observations	756,531				
R^2	0.689				

Notes: Dependent variable is the log of new syndicated loans with exception of column (5) referring to the spread expressed in bps. Standard errors clustered by firm.

Major lenders | Funding source | Loan type | Alt. MaPP | Alt. lags | Split-sample | Alt. clustering | Regulation shocks | MP X MaPP | Relation | Std. shock

Nonbanks mitigate the effects of contractionary MP and MaPP shocks on corporate lending

	(1) Loans	(2) Loans	(3)	(4)	(5)
MP shock	-0.071***	-0.021***			
	(0.004)	(0.003)			
MaPP shock	-0.032***	-0.019***			
	(0.003)	(0.002)			
MP shock × Nonbank		0.056***			
		(0.004)			
MaPP shock × Nonbank		0.015***			
		(0.003)			
Firm FE	✓	✓			
Lender FE	✓	✓			
Country × Sector × Time FE		✓			
ILST FE					
Firm × Time FE					
Observations	756,531	749,629			
R^2	0.689	0.727			

Notes: Dependent variable is the log of new syndicated loans with exception of column (5) referring to the spread expressed in bps. Standard errors clustered by firm.

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	(1) Loans	(2) Loans	(3) Loans	(4)	(5)
MP shock	-0.071***	-0.021***	-0.023***		
	(0.004)	(0.003)	(0.003)		
MaPP shock	-0.032***	-0.019***	-0.019***		
	(0.003)	(0.002)	(0.002)		
MP shock × Nonbank		0.056***	0.057***		
		(0.004)	(0.004)		
MaPP shock × Nonbank		0.015***	0.017***		
		(0.003)	(0.003)		
Firm FE	✓	✓	✓		
Lender FE	✓	✓	✓		
Country × Sector × Time FE		✓			
ILST FE			✓		
Firm × Time FE					
Observations	756,531	749,629	748,453		
R^2	0.689	0.727	0.795		

Notes: Dependent variable is the log of new syndicated loans with exception of column (5) referring to the spread expressed in bps. Standard errors clustered by firm.

Major lenders | Funding source | Loan type | Alt. MaPP | Alt. lags | Split-sample | Alt. clustering | Regulation shocks | MP X MaPP | Relation | Std. shock

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	(1) Loans	(2) Loans	(3) Loans	(4) Loans	(5)
MP shock	-0.071***	-0.021***	-0.023***	-0.021***	
	(0.004)	(0.003)	(0.003)	(0.002)	
MaPP shock	-0.032***	-0.019***	-0.019***	-0.019***	
	(0.003)	(0.002)	(0.002)	(0.002)	
MP shock × Nonbank		0.056***	0.057***	0.046***	
		(0.004)	(0.004)	(0.003)	
MaPP shock × Nonbank		0.015***	0.017***	0.016***	
		(0.003)	(0.003)	(0.002)	
Firm FE	✓	✓	✓		
Lender FE	✓	✓	✓	✓	
Country × Sector × Time FE		✓			
ILST FE			✓		
Firm × Time FE				✓	
Observations	756,531	749,629	748,453	739,866	
R^2	0.689	0.727	0.795	0.877	

Notes: Dependent variable is the log of new syndicated loans with exception of column (5) referring to the spread expressed in bps. Standard errors clustered by firm.

Major lenders | Funding source | Loan type | Alt. MaPP | Alt. lags | Split-sample | Alt. clustering | Regulation shocks | MP X MaPP | Relation | Std. shock

Nonbanks mitigate the effects of contractionary MP and MaPP shocks on corporate lending

	(1) Loans	(2) Loans	(3) Loans	(4) Loans	(5) Spread
MP shock	-0.071***	-0.021***	-0.023***	-0.021***	0.166*
	(0.004)	(0.003)	(0.003)	(0.002)	(0.089)
MaPP shock	-0.032***	-0.019***	-0.019***	-0.019***	0.124*
	(0.003)	(0.002)	(0.002)	(0.002)	(0.065)
MP shock × Nonbank		0.056***	0.057***	0.046***	-0.474***
		(0.004)	(0.004)	(0.003)	(0.157)
MaPP shock × Nonbank		0.015***	0.017***	0.016***	-0.058
		(0.003)	(0.003)	(0.002)	(0.140)
Firm FE	✓	✓	✓		
Lender FE	✓	✓	✓	✓	✓
Country × Sector × Time FE		✓			
ILST FE			✓		
Firm × Time FE				✓	✓
Observations	756,531	749,629	748,453	739,866	386,185
R^2	0.689	0.727	0.795	0.877	0.988

Notes: Dependent variable is the log of new syndicated loans with exception of column (5) referring to the spread expressed in bps. Standard errors clustered by firm.

Major lenders | Funding source | Loan type | Alt. MaPP | Alt. lags | Split-sample | Alt. clustering | Regulation shocks | MP X MaPP | Relation | Std. shock

ROLE OF BANK CHARACTERISTICS AND CREDIT MIGRATION

Empirical specification

Deal-quarter aggregation:

$$\begin{aligned} NB\ shr_{d,t} &= \beta_1 MP_{d,t-1} + \beta_2 MaPP_{d,t-1} + \alpha_i + \text{ILST FE} \\ &+ Weak\ bank_{d,t-1} \times (\beta_3 + \beta_4 MP_{d,t-1} + \beta_5 MaPP_{d,t-1}) + \epsilon_{d,t} \end{aligned}$$

$NB\ shr_{d,t}$: nonbank loan share in each syndicated loan deal d at time t.

$Weak\ bank_{d,t-1}$: value of 1 if the loan-weighted Tier 1 capital ratio (NPL) across all banks participating in a given syndicated loan deal falls in the bottom (top) quartile in each quarter.

$MP_{d,t-1}$ and $MaPP_{d,t-1}$: weighted shocks based on the country lender's share in each loan deal.

Credit migrates from weak banks to nonbanks following contractionary policy shocks, but...

	(1) Low Capital	(2) Low Capital	(3) High NPL	(4) High NPL
MP shock	0.013**	0.017**	0.011*	0.020***
	(0.006)	(0.007)	(0.006)	(0.008)
MaPP shock	0.021***	0.031***	0.025***	0.037***
	(0.005)	(0.005)	(0.005)	(0.005)
Bank charact.	0.005	0.011**	0.021***	0.014***
	(0.004)	(0.004)	(0.003)	(0.004)
MP shock × Bank charact.	0.011**	0.013*	0.018***	0.004
	(0.006)	(0.007)	(0.006)	(0.007)
MaPP shock × Bank charact.	0.016***	0.017***	0.002	0.001
	(0.004)	(0.005)	(0.004)	(0.005)
Firm FE	✓	✓	✓	✓
Country × Sector × Time FE	✓		✓	
ILST FE		✓		✓
Observations	47,615	42,387	47,615	42,387
R^2	0.657	0.678	0.658	0.678

Notes: Data aggregated at the syndicated loan deal level. Dependent variable is the nonbank share. Bank charact. refers to a dummy variable for syndicates with low-capitalized banks (columns 1-2), and to a dummy variable for syndicates with high-NPL banks (columns 3-4). Standard errors clustered by firm.

...no evidence that nonbanks disproportionally shift lending to riskier firms

	(1) 5y avg.	(2) 5y avg.	(3) Lev. loans	(4) Lev. loans	(5) High PD	(6) High PD	(7) Junk rtg.	(8) Junk rtg.
MP shock	0.007	0.009	0.011	0.010	-0.002	0.003	-0.024	-0.013
	(0.010)	(0.011)	(0.011)	(0.012)	(0.018)	(0.021)	(0.025)	(0.026)
MaPP shock	0.053***	0.062***	0.055***	0.065***	0.031***	0.043***	0.074***	0.084***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.012)	(0.014)	(0.016)	(0.017)
Risky	0.011*	0.007	0.016***	0.015**	0.013**	0.021**	0.061***	0.050***
	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)	(0.008)	(0.015)	(0.018)
MP shock × Risky	0.007	0.005	-0.003	0.001	0.009	0.021	-0.021	-0.026
	(0.010)	(0.010)	(0.008)	(0.009)	(0.012)	(0.014)	(0.018)	(0.020)
MaPP shock × Risky	-0.004	-0.008	-0.004	-0.008	-0.004	-0.004	-0.013	-0.013
	(0.007)	(0.008)	(0.006)	(0.007)	(0.006)	(0.007)	(0.013)	(0.014)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Sector × Time FE	✓		✓		✓		✓	
ILST FE		✓		✓		✓		✓
Observations	36,356	34,409	36,356	34,409	18,213	16,276	8,936	7,941
R^2	0.635	0.655	0.635	0.656	0.781	0.817	0.672	0.727

Notes: Data aggregated at the syndicated loan deal level. The dependent variable is the share of loans from nonbanks in each syndicated loan deal. Risky is a dummy variable taking the value of one for Risky borrowers. Each column refers to alternative proxies for Risky borrowers: *5y avg.* refers to borrowers with an average loan spread over the past five years in the top quartile of the sample distribution in each quarter; *Lev. loans* refers to leveraged loans; *High PD* captures high-PD borrowers, i.e., firms with a PD in the top quartile of the country-time distribution; *Junk rtg.* refers to borrowers with a credit rating below BBB$^-$. Standard errors clustered by firm.

REAL EFFECTS

Empirical specification

Firm-quarter aggregation:

$$\begin{aligned} Y_{i,t} &= \beta_1 MP_{c,t-1} + \beta_2 MaPP_{c,t-1} + \textit{NB relation}_{i,t-1} \times (\beta_3 + \beta_4 MP_{c,t-1} + \beta_5 MaPP_{c,t-1}) \\ &+ \alpha_i + \mu_{c,s,t} + \epsilon_{i,t}, \end{aligned}$$

$\textit{NB relation}_{i,t-1}$: value of 1 if a firm has borrowed from nonbanks in the previous five years.

$MP_{c,t-1}$ and $MaPP_{c,t-1}$: loan-weighted average of country shocks, with weights based on the firm's loan exposure to each country lender.

Firms reliant on nonbanks invest and hire more relative to other firms following contractionary policy shocks

	(1) Total debt	(2) Liquid assets	(3) Capital exp.	(4) Intangibles	(5) Employment	(6) PD
MP shock	0.055	-0.002	0.021	0.056**	-0.010	0.014
	(0.045)	(0.050)	(0.027)	(0.028)	(0.026)	(0.061)
MaPP shock	-0.070**	-0.079**	-0.079***	-0.067***	-0.074***	-0.029
	(0.032)	(0.035)	(0.019)	(0.021)	(0.018)	(0.035)
NB relation	0.166***	0.004	0.105***	0.071***	0.060***	0.111***
	(0.024)	(0.027)	(0.013)	(0.015)	(0.010)	(0.026)
MP shock × NB relation	0.022	0.024	0.039*	-0.004	0.053***	0.035
	(0.037)	(0.042)	(0.022)	(0.023)	(0.019)	(0.041)
MaPP shock × NB relation	0.015	0.033	0.033**	0.040**	0.034***	0.049**
	(0.026)	(0.030)	(0.013)	(0.018)	(0.010)	(0.022)
Firm FE	✓	✓	✓	✓	✓	✓
Country × Sector × Time FE	✓	✓	✓	✓	✓	✓
Observations	23987	17057	24538	14455	23039	19400
R^2	0.916	0.898	0.974	0.963	0.982	0.611

Notes: Data aggregated at the firm-quarter level. *NB relation* dummy equals 1 if the firm borrowed from a nonbank in the syndicate loan market in the past two years, and zero otherwise. Standard errors clustered by firm.

2-year relation

HIGH-FREQUENCY IDENTIFICATION OF MAPP ANNOUNCEMENTS

MaPP shocks: HF identification

- Draw on MP literature to estimate MaPP shocks for six countries: U.S., Japan, the U.K., Canada, Germany, and France (Albuquerque et al., 2025).

MaPP shocks: HF identification

- Draw on MP literature to estimate MaPP shocks for six countries: U.S., Japan, the U.K., Canada, Germany, and France (Albuquerque et al., 2025).

1. Extensive collection of 105 lender-based MaPP announcements from iMaPP and from Cerutti et al. (2017) prudential database. Table
2. Manually date the announcement date for each event.
3. Compute two-day surprises of bank stock prices around MaPP *announcements*:

$$s_{a,c} = \log p_{t+1_{a,c}} - \log p_{t-1_{a,c}}$$

$p_{t+1_{a,c}}$: bank stock price of country c at $t+1$ following MaPP announcement a

Results robust to using HF shocks

	(1) Base	(2) Base: 6 countries	(3) U.S.	(4) HF: 6 countries	(5) HF: U.S.
MP shock	-0.025***	-0.027***		-0.001	
	(0.003)	(0.003)		(0.006)	
MaPP shock	-0.019***	-0.021***		-0.010***	
	(0.002)	(0.002)		(0.003)	
MP shock × Nonbank	0.057***	0.062***	0.156***	0.011*	0.159***
	(0.004)	(0.005)	(0.011)	(0.007)	(0.037)
MaPP shock × Nonbank	0.016***	0.017***	0.028***	0.009**	0.010*
	(0.002)	(0.003)	(0.005)	(0.004)	(0.006)
Lender FE	✓	✓	✓	✓	✓
Firm × Time FE	✓	✓	✓	✓	✓
Observations	739,818	634,142	287,195	342,285	131,610
R^2	0.877	0.878	0.842	0.909	0.848

Notes: Dependent variable is the log of new syndicated loans. Baseline shocks in columns (1)-(3), and high-frequency MaPP surprises in columns (4)-(5). Standard errors clustered by firm.

BANK LENDING TO NONBANKS

Empirical specification

Lender-borrower-quarter aggregation (sample restricted to bank lenders):

$$\begin{aligned} Log(Loans)_{l,j,t} &= \beta_1 MP_{l,t-1} + \beta_2 MaPP_{l,t-1} + \gamma_l + \mu_{j,t} \\ &+ NB\ borrower_j \times (\beta_3 MP_{l,t-1} + \beta_4 MaPP_{l,t-1}) + \epsilon_{l,j,t} \end{aligned}$$

$NB\ borrower_j$: value of 1 for nonbank borrowers, and zero for nonfinancial corporate borrowers.

Banks' increased lending to nonbank borrowers following MaPP shocks helps explain the rise of nonbanks

	(1)	(2)	(3)	(4)
MP shock	0.002	0.001	0.001	
	(0.004)	(0.003)	(0.003)	
MaPP shock	-0.020***	-0.018***	-0.015***	
	(0.002)	(0.002)	(0.002)	
MP shock × NB Borrower	-0.013	-0.011	-0.010	
	(0.009)	(0.008)	(0.006)	
MaPP shock × NB Borrower	0.015**	0.011**	0.008	
	(0.007)	(0.006)	(0.005)	
MP shock × LC bank				
MaPP shock × LC bank				
MP shock × NB Borrower × LC bank				
MaPP shock × NB Borrower × LC bank				
Firm FE	✓	✓		
Bank FE	✓	✓	✓	
Bank parent FE				
Bank controls				
Country × Sector × Time FE	✓			
ILST FE		✓		
Firm × Time FE			✓	
Observations	547,476	545,765	533,115	
R^2	0.757	0.815	0.889	

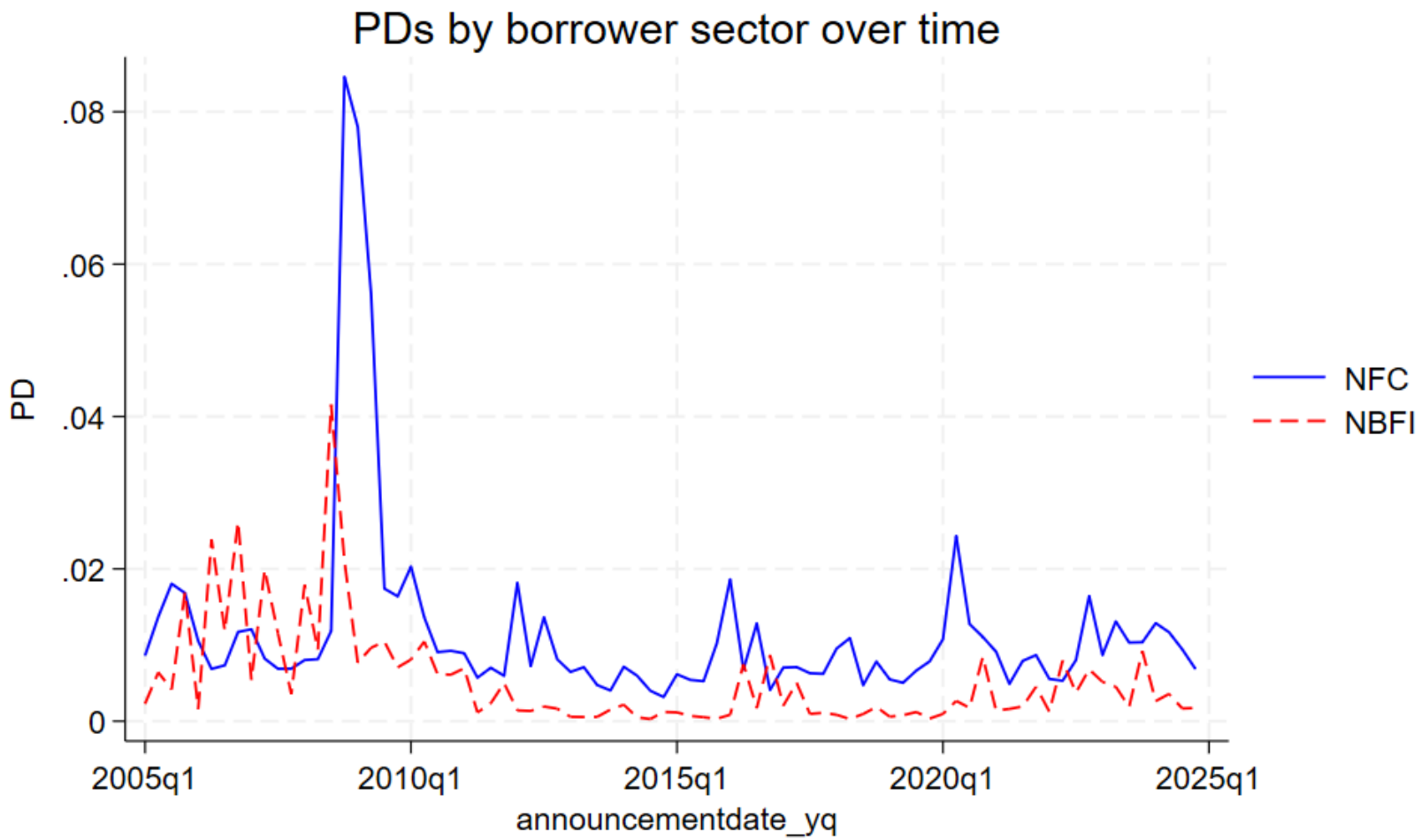
Notes: Sample restricted to bank lenders. Standard errors clustered by firm.

Banks' increased lending to nonbank borrowers following MaPP shocks helps explain the rise of nonbanks

	(1)	(2)	(3)	(4)
MP shock	0.002	0.001	0.001	0.016***
	(0.004)	(0.003)	(0.003)	(0.005)
MaPP shock	-0.020***	-0.018***	-0.015***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.003)
MP shock × NB Borrower	-0.013	-0.011	-0.010	-0.006
	(0.009)	(0.008)	(0.006)	(0.016)
MaPP shock × NB Borrower	0.015**	0.011**	0.008	-0.012
	(0.007)	(0.006)	(0.005)	(0.011)
MP shock × LC bank				-0.015***
				(0.005)
MaPP shock × LC bank				-0.007*
				(0.004)
MP shock × NB Borrower × LC bank				0.012
				(0.014)
MaPP shock × NB Borrower × LC bank				0.029**
				(0.013)
Firm FE	✓	✓		
Bank FE	✓	✓	✓	
Bank parent FE				✓
Bank controls				✓
Country × Sector × Time FE	✓			
ILST FE		✓		
Firm × Time FE			✓	✓
Observations	547,476	545,765	533,115	218,587
R^2	0.757	0.815	0.889	0.877

Notes: Sample restricted to bank lenders. Standard errors clustered by firm.

Lower risk weights may explain banks' lending to nonbanks



Notes: Two-year probability of default for each sector, with credit amounts issued per firm used as weights.

Conclusion

- **Side effects of tighter MP and MaPP**: increased credit intermediation by nonbanks, a sector that remains broadly outside of the regulatory perimeter.
- Banks, especially LC banks, reallocate credit from NFCs toward nonbanks when MaPP tightens.
- **MaPP policies may not reduce banks' risks as their exposure to nonbanks increase** $\Rightarrow$ bank-nonbank interconnectedness risks may ultimately amplify systemic vulnerabilities in the system (Acharya et al., 2024).
- Expansion of nonbanks is even larger in **private credit markets** (IMF, 2024).
- **Need for continued efforts to close data gaps and expand the regulatory perimeter to nonbanks.** Helps curb credit leakages to nonbanks, improve MP transmission, and bolster the resilience of the financial system.

THANK YOU

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Datasets

Nonbanks: non-depository-taking financial intermediaries

- Most of SIC codes 61 to 67.
- Text-based classification for lenders without assigned SIC codes (e.g.,'investment').
- Drop development banks and international financial institutions (e.g., World Bank).

Compustat: NFC's balance sheet information (leverage, investment, liquid assets, employment).

Fitch Ratings PRO: Banks' balance sheet and income statement (Tier 1 capital, NPLs, ROA).

Sample: Summary Stats Country list

- 22 lender countries (20 AEs and 2 EMDEs), 153 borrower countries (38 AEs and 115 EMDEs) over 2000q1–2019q4.
- 48,373 nonfinancial firms.
- 5,904 lenders (48% nonbanks).

Monetary policy shocks: Country-specific HF identified shocks (Choi et al., 2024). Shocks Back

List of lender countries

Lender country	Income	Loan share
Austria	AE	0.35%
Belgium	AE	0.74%
Brazil	EMDE	0.49%
Canada	AE	6.70%
Cyprus	AE	0.004%
Finland	AE	0.12%
France	AE	7.71%
Germany	AE	6.98%
Greece	AE	0.12%
India	EMDE	1.54%
Ireland	AE	0.44%
Italy	AE	1.95%
Japan	AE	11.13%
Lithuania	AE	0.03%
Netherlands	AE	3.71%
Norway	AE	0.70%
Portugal	AE	0.18%
Slovenia	AE	0.01%
Spain	AE	2.74%
Sweden	AE	1.02%
United Kingdom	AE	11.35%
United States	AE	43.68%

Notes: Loan share is the average loan share for each lender country.

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Summary Statistics

Table: Loan characteristics: nonbanks versus banks

	Mean	STD	P25	P50	P75
Nonbanks					
Term length (years)	5.13	3.48	3.00	5.00	6.00
Tranche value ($ million)	311.46	524.41	40.73	121.84	338.30
Syndicate members	7.32	6.74	3.00	5.00	9.00
Participation share	0.18	0.19	0.06	0.10	0.25
All-in-pricing (BPs)	266.86	162.66	150.00	250.00	350.00
Margin pricing (BPs)	266.57	161.38	150.00	250.00	350.00
Banks					
Term length (years)	5.00	3.92	3.00	5.00	6.00
Tranche value ($ million)	252.40	472.00	26.10	86.30	257.51
Syndicate members	6.44	6.19	3.00	5.00	8.00
Participation share	0.17	0.19	0.05	0.10	0.25
All-in-pricing (BPs)	208.32	139.42	102.50	187.50	275.00
Margin pricing (BPs)	204.62	135.67	100.00	175.00	275.00

Notes: Summary statistics of loan-level characteristics, restricted to nonfinancial borrowers based on their SIC code classification.

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Monetary policy shocks: sources

Country	Identification	Source	Start Date	End Date
United States	High-Frequency	Jarocinski and Karadi (2020)	1990Q1	2024Q1
Euro Area (14 countries)	High-Frequency	Jarocinski and Karadi (2020)	1999Q1	2023Q4
United Kingdom	High-Frequency	Cesa-Bianchi et al. (2020)	1997Q1	2015Q4
Sweden	High-Frequency	Amberg et al. (2022)	1999Q1	2018Q4
Japan	High-Frequency	Kubota and Shintani (2022)	1992Q1	2020Q4
India	High-Frequency	Lakdawala and Sengupta (2021)	2003Q1	2020Q4
Canada	CBFD (a la R&R 2004)	Champagne and Sekkel (2018)	1974Q1	2015Q4
Brazil	CBFD (a la R&R 2004)	Alberola et al. (2021)	1974Q1	2015Q4
Norway	CBFD (a la R&R 2004)	Holm et al. (2021)	1990Q1	2018Q4

Notes: CBFD refers to Central Bank Forecasts Deviations.

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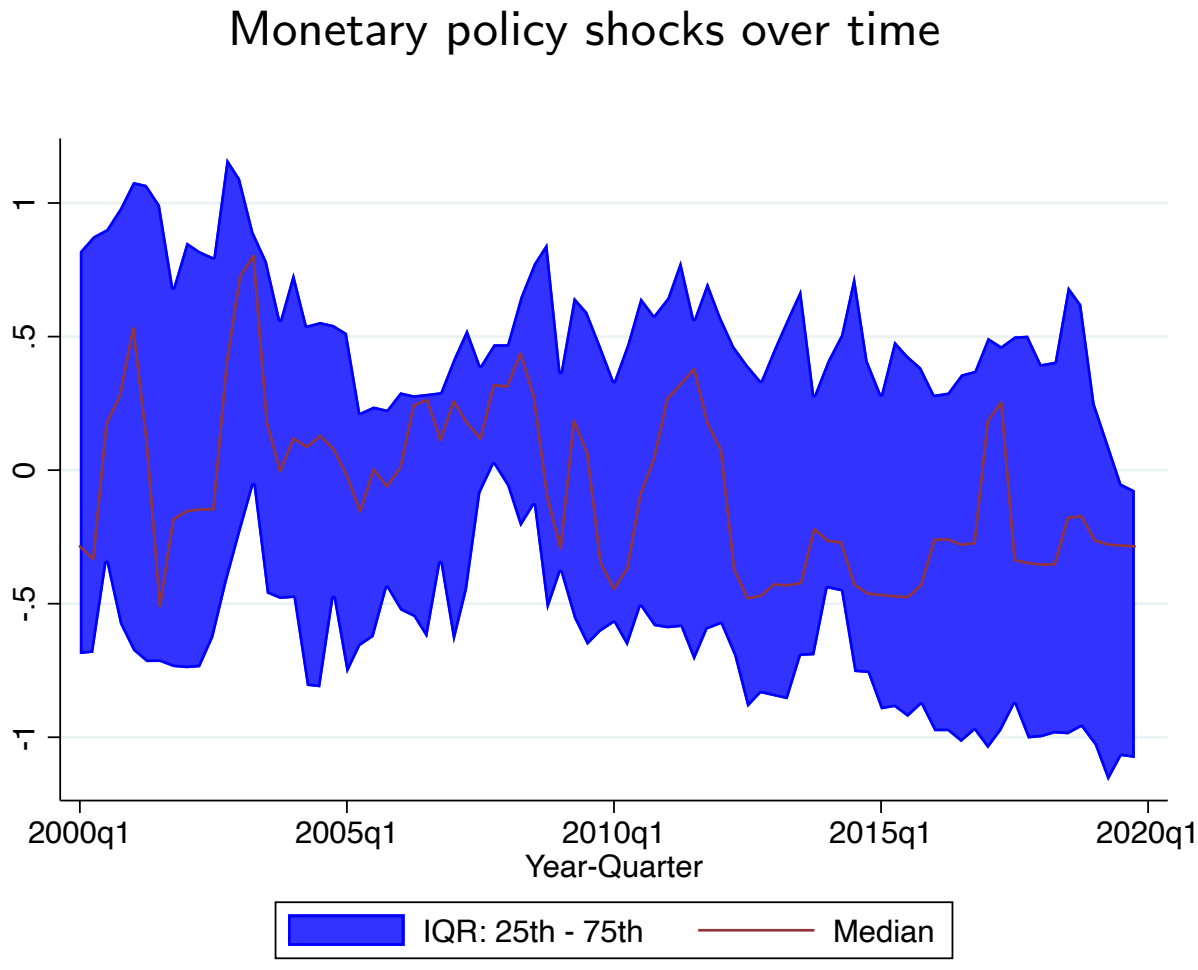
Monetary policy shocks



Notes: Red line is the median sample values, and the blue area the interquartile range.

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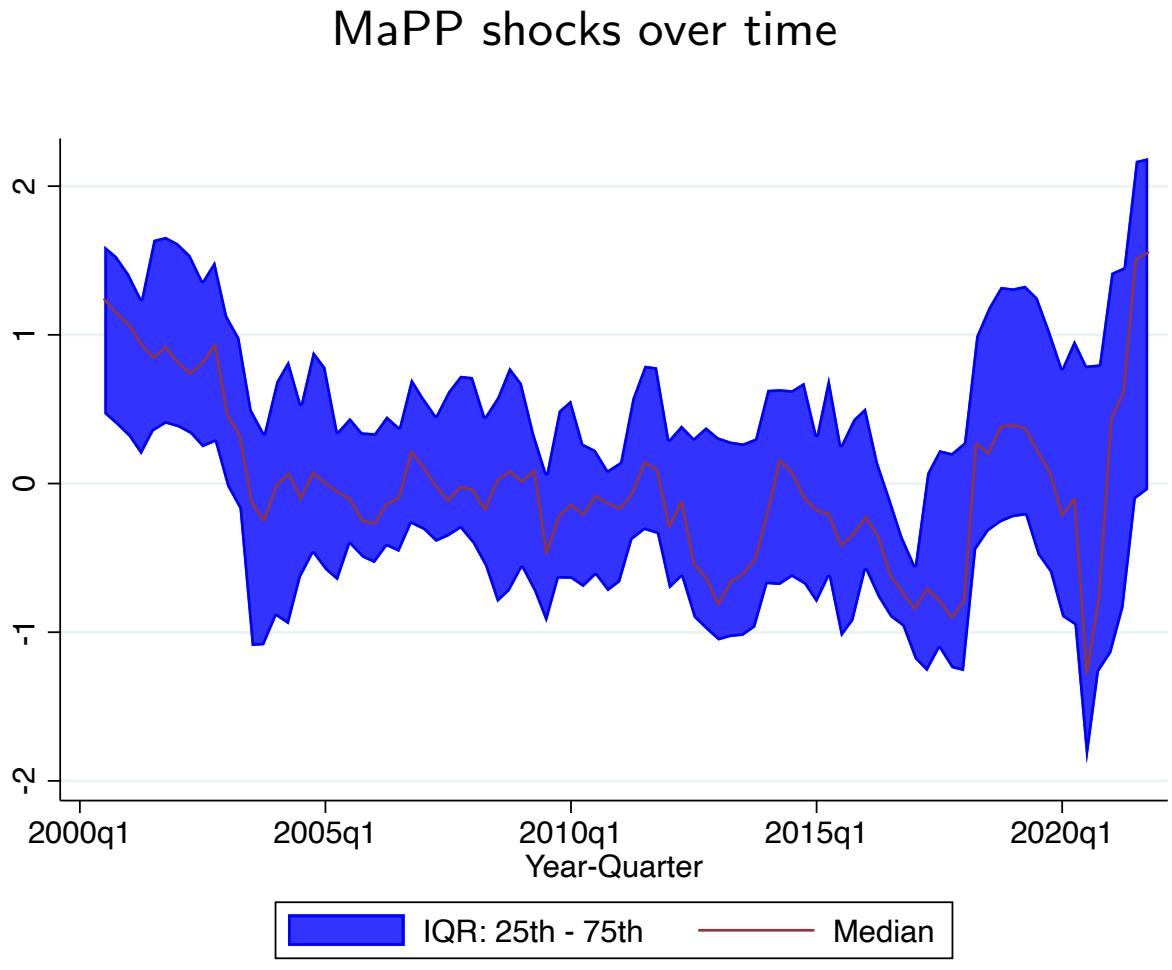
Macroprudential policy shocks



Notes: Red line is the median sample values, and the blue area the interquartile range.

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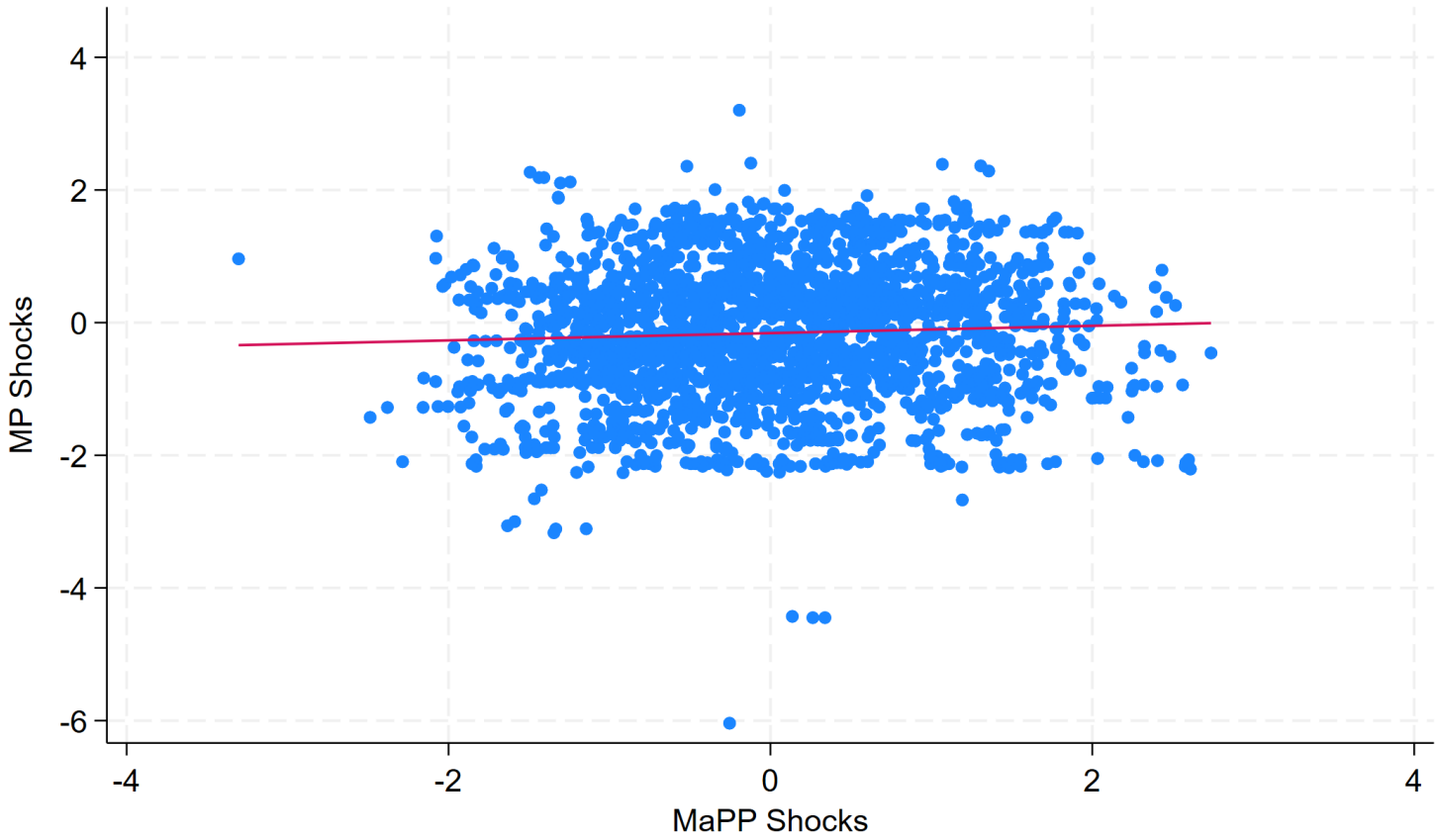
Correlation of MP and MaPP shocks



Notes: Red line is the linear regression line between the two series (correlation of 0.0804).

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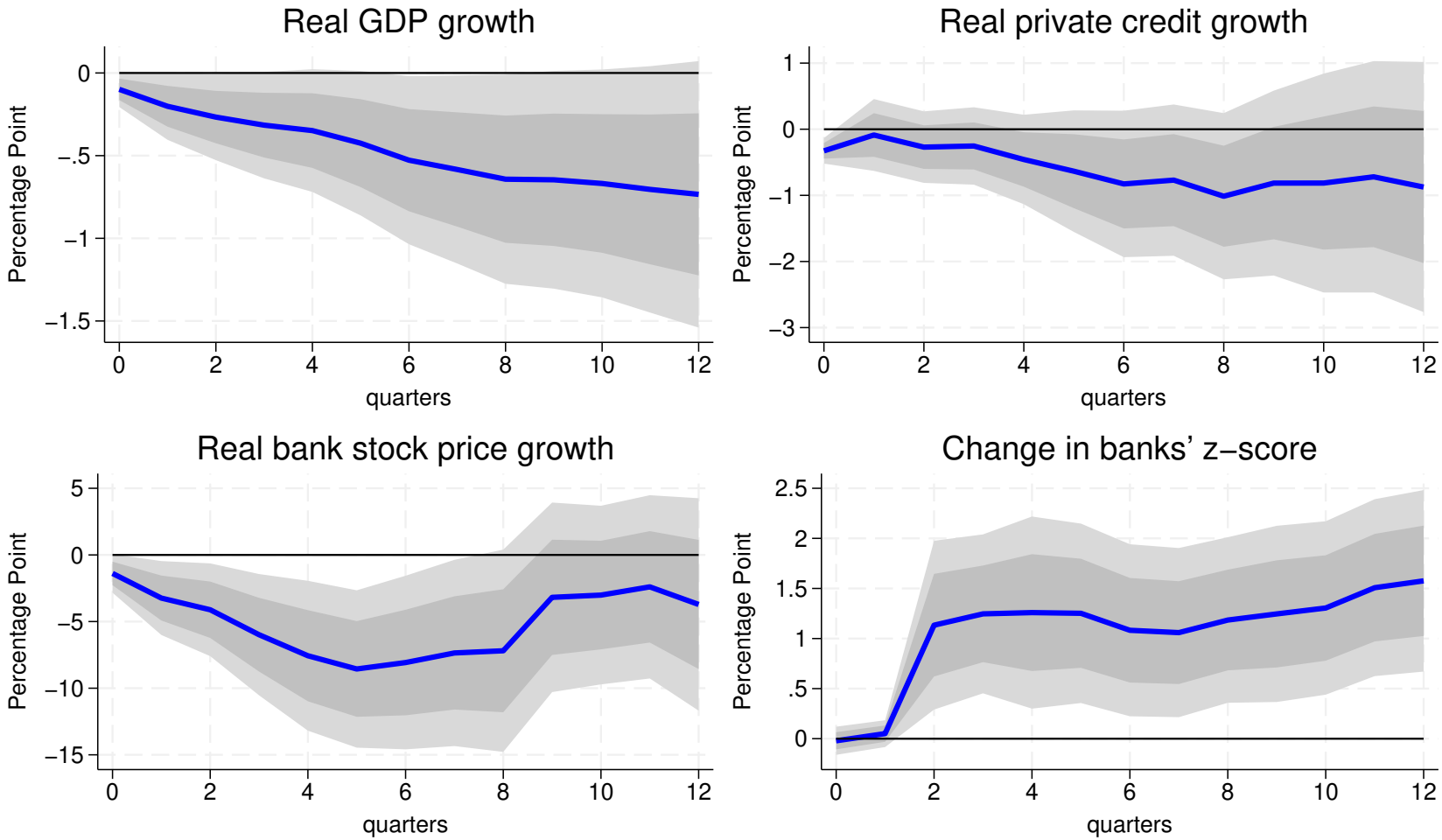
Country-level responses to MaPP shocks



Notes: Cumulative impulse responses over 12 quarters following a one-standard deviation increase in MaPP shocks. Blue line is the point estimate, and dark (light) grey areas refer to the associated 68% (90%) confidence bands. Standard errors clustered by country.

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Major country lenders

	Baseline	US	UK	FR	EA	US+UK+JP+EA
MP shock	-0.021***	-	-	-	-0.309	-0.028***
	(0.002)				(0.319)	(0.003)
MaPP shock	-0.019***	-	-	-	-0.002	-0.017***
	(0.002)				(0.003)	(0.002)
MP shock × Nonbank	0.046***	0.128***	0.078***	0.040***	0.038***	0.059***
	(0.003)	(0.009)	(0.020)	(0.007)	(0.004)	(0.004)
MaPP shock × Nonbank	0.016***	0.028***	0.013	0.015**	0.009**	0.028***
	(0.002)	(0.005)	(0.010)	(0.007)	(0.004)	(0.003)
Lender FE	✓	✓	✓	✓	✓	✓
Firm FE × Time	✓	✓	✓	✓	✓	✓
Observations	739,866	287,195	37,690	36,275	159,575	668,573
R^2	0.877	0.842	0.821	0.871	0.868	0.881

Notes: Dependent variable is the log of new syndicated loans. Column (1) refers to the baseline specification, column (2) includes only US lenders, column (3) only UK lenders, column (4) only French lenders, column (5) only euro area lenders, and column (6) includes lenders from all these previous countries. Standard errors clustered by firm.

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Funding model of nonbanks

	(1)	(2)	(3)
MP shock	-0.021***	-0.023***	-0.021***
	(0.003)	(0.003)	(0.002)
MaPP shock	-0.020***	-0.020***	-0.019***
	(0.002)	(0.002)	(0.002)
MP shock × Stable Nonbank	-0.119***	-0.109***	-0.097***
	(0.027)	(0.025)	(0.020)
MP shock × Unstable Nonbank	0.060***	0.061***	0.049***
	(0.004)	(0.004)	(0.003)
MaPP shock × Stable Nonbank	-0.047***	-0.030*	-0.017
	(0.018)	(0.015)	(0.013)
MaPP shock × Unstable Nonbank	0.017***	0.019***	0.018***
	(0.003)	(0.003)	(0.002)
Firm FE	✓	✓	
Lender FE	✓	✓	✓
Country × Sector × Time FE	✓		
ILST FE		✓	
Firm × Time FE			✓
Observations	740,206	739,026	730,335
R^2	0.726	0.794	0.877

Notes: *Stable nonbanks* refer to nonbanks with stable funding, namely pension funds and insurance companies. *Unstable nonbanks* are all the other nonbanks. Standard errors clustered by firm.

Back

Other robustness checks

	(1) Baseline	(2) Term loans	(3) Credit lines	(4) Reg. approach	(5) Ext. margin	(6) Exc. top 3 nonbanks
MP shock	-0.021***	-0.019***	-0.022***	-0.022***	-0.007***	-0.016***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.001)	(0.002)
MaPP shock	-0.019***	-0.019***	-0.020***	-0.016***	-0.007***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)
MP shock × Nonbank	0.046***	0.033***	0.056***	0.067***	0.016***	0.029***
	(0.003)	(0.004)	(0.003)	(0.004)	(0.002)	(0.003)
MaPP shock × Nonbank	0.016***	0.012***	0.021***	0.030***	0.007***	0.0005
	(0.002)	(0.003)	(0.002)	(0.003)	(0.001)	(0.002)
Lender FE	✓	✓	✓	✓	✓	✓
Firm × Time FE	✓	✓	✓	✓	✓	✓
Observations	739,866	348,427	522,995	739,866	2,014,048	689,635
R^2	0.877	0.899	0.896	0.816	0.933	0.879

Notes: Dependent variable is the log of new syndicated loans. Column 1 shows the benchmark specification, columns 2 and 3 restrict the sample to term loans and credit lines, column 4 takes a regression-based approach to estimating the missing loan shares, column 5 analyzes the extensive margin, and column 6 excludes the top three nonbanks.

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Alternative MaPP shocks

	(1)	(2)	(3)	(4)
MP shock	-0.021***	-0.023***	-0.019***	-0.022***
	(0.002)	(0.002)	(0.002)	(0.002)
MaPP shock	-0.019***	-0.027***	-0.020***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)
MP shock × Nonbank	0.046***	0.047***	0.046***	0.047***
	(0.003)	(0.003)	(0.003)	(0.003)
MaPP shock × Nonbank	0.016***	0.026***	0.016***	0.012***
	(0.002)	(0.003)	(0.002)	(0.002)
Lender FE	✓	✓	✓	✓
Firm × Time FE	✓	✓	✓	✓
Observations	739,866	739,866	739,866	739,866
R^2	0.877	0.877	0.877	0.877

Notes: Column (1) uses the baseline MaPP shocks; column (2) adds the loan-to-value ratio, and the debt-service-to-income ratio to that baseline set of MaPP; column (2) focuses on measures targeting loan supply; column (3) adds reserve requirements to the baseline; and column (4) adds capital requirements, conservation buffers, and countercyclical capital buffers to the baseline. Standard errors clustered by firm.

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Alternative lag structures

	(1) Lag 1	(2) Lag 2	(3) Lag 3	(4) Lag 4	(5) All Lags	(6) Time FE	(7) MP shocks
MP shock	-0.021***	-0.020***	-0.021***	-0.022***	-0.013***	-0.019***	-0.022***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)
MaPP shock	-0.019***	-0.018***	-0.019***	-0.019***	-0.015***	-0.020***	-0.016***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.001)
MP shock × Nonbank	0.046***	0.050***	0.054***	0.051***	0.016***	0.045***	0.049***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.003)	(0.003)
MaPP shock × Nonbank	0.016***	0.014***	0.014***	0.013***	0.016***	0.016***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.002)
Lender FE	✓	✓	✓	✓	✓	✓	✓
Firm × Time FE	✓	✓	✓	✓	✓	✓	✓
Observations	739,866	731,803	724,672	716,867	716,867	739,866	739866
R^2	0.877	0.878	0.879	0.879	0.880	0.877	0.877

Notes: Dependent variable is the log of new syndicated loans. Column (1) uses the baseline MP and MaPP shocks lagged one quarter. In columns (2), (3), and (4) we lag the MP and MaPP shocks by respectively two, three, and four quarters. Column (5) includes lags one to four of the MaPP shocks, along with their interactions with the nonbank dummy. Columns (6) and (7) make use of, respectively, MaPP shocks when controlling for time fixed effects and for MP shocks. Standard errors clustered by firm.

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Alternative samples

	(1) Base	(2) Pre-GFC	(3) Post-GFC	(4) USD	(5) Non-USD	(6) Cross-border	(7) Domestic	(8) AE	(9) EMDE
MP shock	-0.021***	-0.004	-0.006*	-0.024***	-0.014***	-0.017***	-	-0.022***	-0.015**
	(0.002)	(0.005)	(0.003)	(0.003)	(0.004)	(0.003)		(0.002)	(0.007)
MaPP shock	-0.019***	0.002	-0.009***	-0.018***	-0.015***	-0.012***	-	-0.020***	-0.007
	(0.002)	(0.005)	(0.002)	(0.002)	(0.003)	(0.002)		(0.002)	(0.006)
MP shock × Nonbank	0.046***	0.015*	0.007*	0.058***	0.030***	0.028***	0.073***	0.048***	0.032***
	(0.003)	(0.009)	(0.004)	(0.004)	(0.005)	(0.004)	(0.006)	(0.003)	(0.010)
MaPP shock × Nonbank	0.016***	0.016*	0.008***	0.023***	-0.002	0.013***	0.019***	0.016***	0.027***
	(0.002)	(0.010)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.002)	(0.009)
Lender FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm FE × Time	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	739,866	276,509	403,604	448,201	305,467	236,391	475,751	696,949	42,306
R^2	0.877	0.854	0.893	0.831	0.909	0.837	0.892	0.880	0.820

Notes: Dependent variable is the log of new syndicated loans. Column (1) is the baseline specification; column (2) includes the pre-GFC sample (up to 2007Q4); column (3) the post-GFC sample (after 2010Q1); column (4) includes only USD loans; column (5) only non-USD loans; column (6) refers to cross-border lending; column (7) to domestic lending (a loan is classified as cross-border if the borrower's country is different from the lender's country); column (8) restricts the sample to borrowers in advanced economies (AEs); column (9) restricts the sample to borrowers in emerging markets and developing economies (EMDEs). Standard errors clustered by firm.

Back

Alternative clustering

	(1)	(2)	(3)	(4)
MP shock	-0.021***	-0.021***	-0.021**	-0.021**
	(0.002)	(0.003)	(0.009)	(0.008)
MaPP shock	-0.019***	-0.019***	-0.019***	-0.019***
	(0.002)	(0.003)	(0.005)	(0.005)
MP shock × Nonbank	0.046***	0.046***	0.046**	0.046**
	(0.003)	(0.005)	(0.019)	(0.019)
MaPP shock × Nonbank	0.016***	0.016***	0.016*	0.016*
	(0.002)	(0.004)	(0.010)	(0.010)
Lender FE	✓	✓	✓	✓
Firm × Time FE	✓	✓	✓	✓
Observations	739,866	739,866	739,866	739,866
R^2	0.877	0.877	0.877	0.877

Notes: Dependent variable is the log of new syndicated loans. Standard errors clustered by firm (column 1), firm and country-time (column 2), lender and country-time (column 3), and by firm, lender and time (column 4).

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Results robust to bank regulation shocks (Drechsel and Miura, 2025)

Rescaling coefficients with bank stock prices

	(1) US baseline	(2) US: normalized	(3) US: bank regulation
MP shock × Nonbank	0.128***	0.068***	0.076***
	(0.009)	(0.005)	(0.005)
MaPP shock × Nonbank	0.028***	0.018***	0.007***
	(0.005)	(0.003)	(0.002)
Lender FE	✓	✓	✓
Firm × Time FE	✓	✓	✓
Observations	287,195	287,195	202,117
R^2	0.842	0.842	0.852

Notes: Dependent variable is the log of new syndicated loans. Column (1) is the preferred baseline for US lenders only, and column (2) normalizes the coefficients by bank stock prices, such that a 1-standard deviation increase in each shock is associated with a 1% decline in bank stock prices. Column (3) uses the bank regulation shocks for the U.S. from Drechsel and Miura (2025), with all coefficients normalized by bank stock prices. Standard errors clustered by firm.

Back

Interaction between MP and MaPP shocks

	(1)	(2)	(3)	(4)	(5)
MP shock	-0.007***	-0.021***	-0.027***	-0.028***	-0.022***
	(0.002)	(0.002)	(0.004)	(0.004)	(0.003)
MaPP shock	-0.012***	-0.018***	-0.017***	-0.017***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
MP shock × Nonbank		0.046***	0.067***	0.068***	0.053***
		(0.003)	(0.006)	(0.005)	(0.005)
MaPP shock × Nonbank		0.010***	0.012***	0.014***	0.012***
		(0.003)	(0.004)	(0.003)	(0.003)
MP shock × MaPP shock	-0.005***	0.003*			
	(0.001)	(0.002)			
MP shock × MaPP shock × Nonbank		-0.014***			
		(0.003)			
$MP^+ \times MaPP^+$			0.016***	0.011***	0.002
			(0.005)	(0.004)	(0.003)
$MP^+ \times MaPP^-$			-0.006	-0.004	-0.005
			(0.005)	(0.005)	(0.004)
$MP^- \times MaPP^+$			-0.014***	-0.012***	-0.007**
			(0.005)	(0.004)	(0.003)
$MP^- \times MaPP^-$			-0.001	-0.005	-0.003
			(0.005)	(0.004)	(0.004)
$MP^+ \times MaPP^+ \times$ Nonbank			-0.033***	-0.029***	-0.023***
			(0.008)	(0.007)	(0.006)
$MP^+ \times MaPP^- \times$ Nonbank			0.003	0.005	0.009*
			(0.007)	(0.006)	(0.005)
$MP^- \times MaPP^+ \times$ Nonbank			0.019**	0.020***	0.023***
			(0.007)	(0.006)	(0.006)
$MP^- \times MaPP^- \times$ Nonbank			0.002	0.007	-0.002
			(0.007)	(0.006)	(0.005)
Firm FE			✓	✓	
Lender FE	✓	✓	✓	✓	✓
Country × Sector × Time FE			✓		
ILST FE				✓	
Firm × Time FE	✓	✓			✓
Observations	745,029	739,866	749,629	748,453	739,866
R^2	0.877	0.877	0.727	0.795	0.877

Back

Can we compare the MP and MaPP coefficients?

- MP and MaPP shocks are standardized, but still not directly comparable: **a 1 SD shock differs across policy types.**
- MP acts via interest rates, MaPP often operates through regulatory tools that do not affect policy rates or the yield curve directly.
- **Using interest rates as a common metric risks understating MaPP's impact.**

- **Bank stock prices offer a unified measure**, reflecting market expectations of risk, profitability, and regulation.
- Normalize shocks by their effect on real bank stock prices (1% drop). We can directly compare each shock's relative effects on new loans, holding constant the stock market impact.

MP leads to a larger nonbank credit expansion compared to MaPP

Rescaling coefficients with bank stock prices

Back

	(1) Baseline	(2) Base: normalized
MP shock	-0.021***	-0.025***
	(0.002)	(0.003)
MaPP shock	-0.019***	-0.046***
	(0.002)	(0.004)
MP shock × Nonbank	0.046***	0.055***
	(0.003)	(0.004)
MaPP shock × Nonbank	0.016***	0.040***
	(0.002)	(0.006)
Lender FE	✓	✓
Firm × Time FE	✓	✓
Observations	739,866	739,818
R^2	0.877	0.877

Notes: Dependent variable is the log of new syndicated loans. Column (1) is the baseline specification. Column (2) is the same specification but with all coefficients normalized by bank stock prices, such that a 1-standard deviation increase in each shock is associated with a 1% decline in bank stock prices. Standard errors clustered by firm.

Empirical specification

$$
\begin{aligned}
Log(Loans)_{l,i,t} &= \beta_1 MP_{l,t-1} + \beta_2 MaPP_{l,t-1} + \beta_3 MP_{l,t-1} \times Nonbank_l + \beta_4 MaPP_{l,t-1} \times Nonbank_l \\
&+ Relation_{l,i,t-1} \times (\beta_5 + \beta_6 Nonbank_l + \beta_7 MP_{l,t-1} + \beta_8 MaPP_{l,t-1} \\
&+ \beta_9 MP_{l,t-1} \times Nonbank_l + \beta_{10} MaPP_{l,t-1} \times Nonbank_l) \\
&+ \gamma_l + \mu_{i,t} + \epsilon_{l,i,t},
\end{aligned}
$$

$Relation_{l,i,t-1}$ takes the value of 1 if firm i has borrowed from a given lender l in the past 5 years.

Nonbank relationships offer additional protection during MP shocks

	(1) Pre-relation	(2) Pre-relation	(3) Pre-relation	(4) Duration	(5) Duration	(6) Duration
MP shock	-0.034***	-0.037***	-0.035***	-0.031***	-0.033***	-0.035***
	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
MaPP shock	-0.023***	-0.021***	-0.022***	-0.021***	-0.020***	-0.021***
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Relation	0.024***	0.062***	0.077***	0.020***	0.031***	0.031***
	(0.004)	(0.003)	(0.003)	(0.002)	(0.001)	(0.001)
Relation × Nonbank	-0.013**	-0.001	-0.002	-0.004	-0.000	-0.002
	(0.005)	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)
MP shock × Nonbank	0.037***	0.044***	0.034***	0.035***	0.041***	0.032***
	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
MaPP shock × Nonbank	0.006	0.013***	0.015***	0.005	0.013***	0.014***
	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
MP shock × Relation	0.030***	0.032***	0.033***	0.009***	0.009***	0.012***
	(0.004)	(0.004)	(0.003)	(0.001)	(0.001)	(0.001)
MaPP shock × Relation	0.006*	0.003	0.006**	0.001	0.000	0.002*
	(0.004)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
MP shock × Nonbank × Relation	0.045***	0.034***	0.032***	0.018***	0.016***	0.014***
	(0.006)	(0.005)	(0.005)	(0.002)	(0.002)	(0.002)
MaPP shock × Nonbank × Relation	0.012**	0.003	-0.003	0.004**	0.001	-0.001
	(0.006)	(0.005)	(0.004)	(0.002)	(0.002)	(0.001)
Firm FE	✓	✓		✓	✓	
Lender FE	✓	✓	✓	✓	✓	✓
Country × Sector × Time FE	✓			✓		
ILST FE		✓			✓	
Firm × Time FE			✓			✓
Observations	749,629	748,453	739,866	749,629	748,453	739,866
R^2	0.727	0.795	0.877	0.727	0.795	0.877

Notes: Dependent variable is the log of new syndicated loans. *Relation* in columns (1)-(3) refers to a dummy variable taking the value of one when a borrower has a previous lending relationship with a given lender over the past five years, and in columns (4)-(6) it refers to the logarithm of the number of years since the borrower got the first loan from a specific lender. Standard errors clustered by firm. Spreads

Back

Relationship lending and pricing

	(1) Pre-relation	(2) Pre-relation	(3) Pre-relation	(4) Duration	(5) Duration	(6) Duration
MP shock	0.244	0.084	0.210**	0.216	0.139	0.158
	(0.358)	(0.323)	(0.107)	(0.352)	(0.318)	(0.107)
MaPP shock	-0.358	-0.305	0.197**	-0.410	-0.352	0.150*
	(0.298)	(0.265)	(0.080)	(0.293)	(0.260)	(0.081)
Relation	-1.209**	-1.071**	-0.101	-0.906***	-0.858***	-0.027
	(0.526)	(0.487)	(0.111)	(0.204)	(0.182)	(0.036)
Relation × Nonbank	-1.900***	-1.716***	-0.292**	-0.660***	-0.524***	-0.077
	(0.534)	(0.486)	(0.141)	(0.202)	(0.182)	(0.052)
MP shock × Nonbank	-3.175***	-2.824***	-0.687***	-3.587***	-3.409***	-0.635***
	(0.612)	(0.553)	(0.194)	(0.622)	(0.567)	(0.198)
MaPP shock × Nonbank	2.274***	2.040***	-0.313	2.740***	2.598***	-0.219
	(0.506)	(0.468)	(0.204)	(0.501)	(0.466)	(0.198)
MP shock × Relation	-0.569	-0.250	-0.078	-0.156	-0.115	0.013
	(0.506)	(0.462)	(0.111)	(0.179)	(0.161)	(0.036)
MaPP shock × Relation	-0.596	-0.502	-0.152*	-0.158	-0.131	-0.018
	(0.388)	(0.349)	(0.085)	(0.135)	(0.122)	(0.030)
MP shock × Nonbank × Relation	1.777**	1.129*	0.447**	0.872***	0.805***	0.115*
	(0.690)	(0.627)	(0.193)	(0.259)	(0.237)	(0.068)
MaPP shock × Nonbank × Relation	0.016	0.205	0.456**	-0.492**	-0.487**	0.087
	(0.649)	(0.597)	(0.202)	(0.234)	(0.215)	(0.067)
Firm FE	✓	✓		✓	✓	
Lender FE	✓	✓	✓	✓	✓	✓
Country × Sector × Time FE	✓			✓		
ILST FE		✓			✓	
Firm × Time FE			✓			✓
Observations	388,592	388,439	386,185	388,592	388,439	386,185
R^2	0.840	0.855	0.988	0.840	0.855	0.988

Notes: Dependent variable is the spread expressed in bps. *Relation* in columns (1)-(3) refers to a dummy variable taking the value of one when a borrower has a previous lending relationship with a given lender over the past five years, and in columns (4)-(6) it refers to the logarithm of the number of years since the borrower got the first loan from a specific lender. Standard errors clustered by firm. Back

Firms reliant on nonbanks invest and hire more relative to other firms following contractionary policy shocks: 2-year relationship

	(1) Total Debt	(2) Liquid assets	(3) Capital exp.	(4) Intangibles	(5) Employment	(6) PD
MP shock	0.077*	0.011	0.023	0.056**	0.002	0.007
	(0.040)	(0.044)	(0.024)	(0.024)	(0.024)	(0.055)
MaPP shock	-0.074**	-0.082***	-0.074***	-0.059***	-0.061***	0.004
	(0.030)	(0.031)	(0.018)	(0.018)	(0.017)	(0.034)
NB relation	0.141***	-0.017	0.075***	0.033***	0.051***	0.087***
	(0.019)	(0.022)	(0.011)	(0.011)	(0.008)	(0.023)
MP shock × NB relation	-0.003	0.010	0.050***	0.000	0.047***	0.058*
	(0.031)	(0.034)	(0.017)	(0.018)	(0.014)	(0.035)
MaPP shock × NB relation	0.023	0.054**	0.034***	0.038***	0.022**	0.005
	(0.023)	(0.026)	(0.012)	(0.015)	(0.010)	(0.021)
Firm FE	✓	✓	✓	✓	✓	✓
Country × Sector × Time FE	✓	✓	✓	✓	✓	✓
Observations	23987	17057	24538	14455	23039	19400
R^2	0.916	0.898	0.974	0.963	0.982	0.610

Notes: Data aggregated at the firm-quarter level. *NB relation* dummy equals 1 if the firm borrowed from a nonbank in the syndicate loan market in the past two years, and zero otherwise. Standard errors clustered by firm.

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Number of MaPP announcements by country

Country	Total
CAN	13
DEU	21
FRA	20
GBR	22
JPN	8
USA	21
Total	105

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