



EUROPEAN CENTRAL BANK

EUROSYSTEM

Monetary policy shocks and firms' bank loans expectations

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The presentation contains the views of the authors and not necessarily those of the European Central Bank or the Eurosystem

- **Research on how firms form expectations and whether monetary policy can influence them is receiving increasing attention**

Central banks' goal to maintain price stability → (also) depends on firms' decisions → (also) depend on firms' expectations about economic conditions → (also) depend on MP and variables directly affected by CBs

- **Very limited empirical literature relating MP to firms' expectations**

Enders et al., 2019; Bottone and Rosolia, 2019; Ferrando et al., 2020; Zachariadis, 2022

- **Even less papers focusing on MP and credit access expectations**

Dunkelberg and Scott, 2009; Ferrando et al., 2022

We look at the impact of MP shocks on firms' bank loan expectations

- Euro area firm level survey data on availability of finance gathered from the ECB/EC Survey on the access to finance of enterprises (**SAFE**). April 2009- April 2022, 11 countries
- We use **daily information** on the exact day in which firms reply to the survey **to identify the impact of MP**
- MP shocks constructed using a high frequency identification technique (Nakamura and Steinsson 2018, Altavilla et. al 2019)

Main results

- MP has a significant effect on expectations. This impact:
 - Non-linear, asymmetric
 - Depends on the type of MP shock
 - Heterogeneous along firms' characteristics

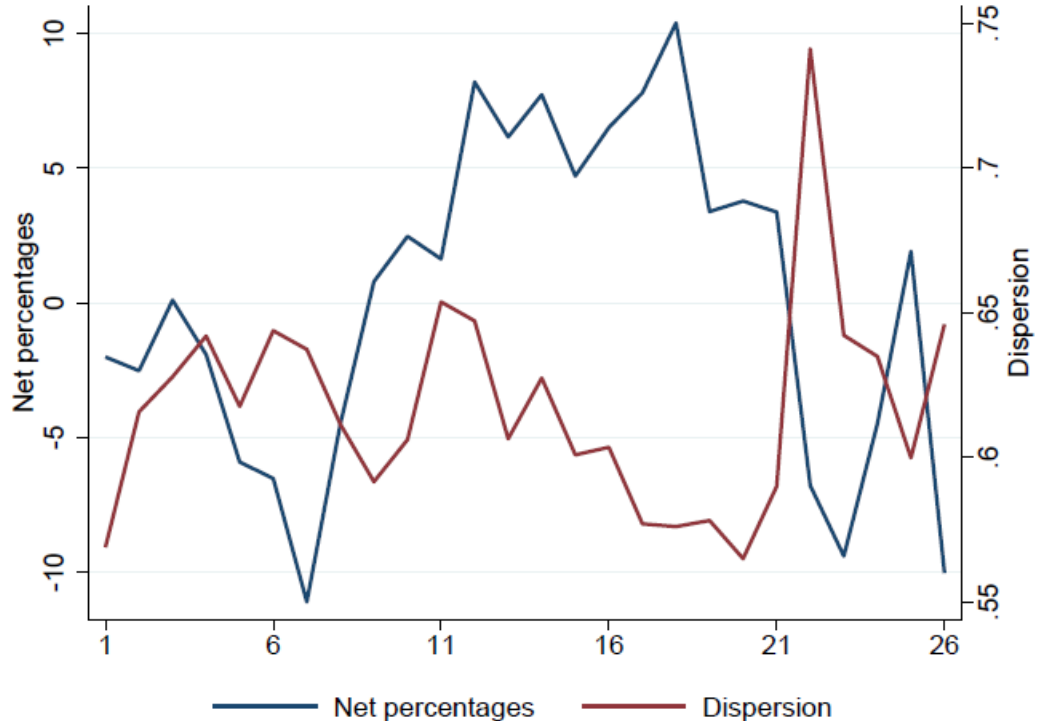
Structural characteristics:

- Ownership structure, age, size

Qualitative information:

- **Bank loan expectations**
- **Financial position** (changes in debt/asset, turnover, profit, bank loan availability)
- **Perceived factors affecting credit** (changes in capital, outlook, credit history, financial constraints, economic outlook)

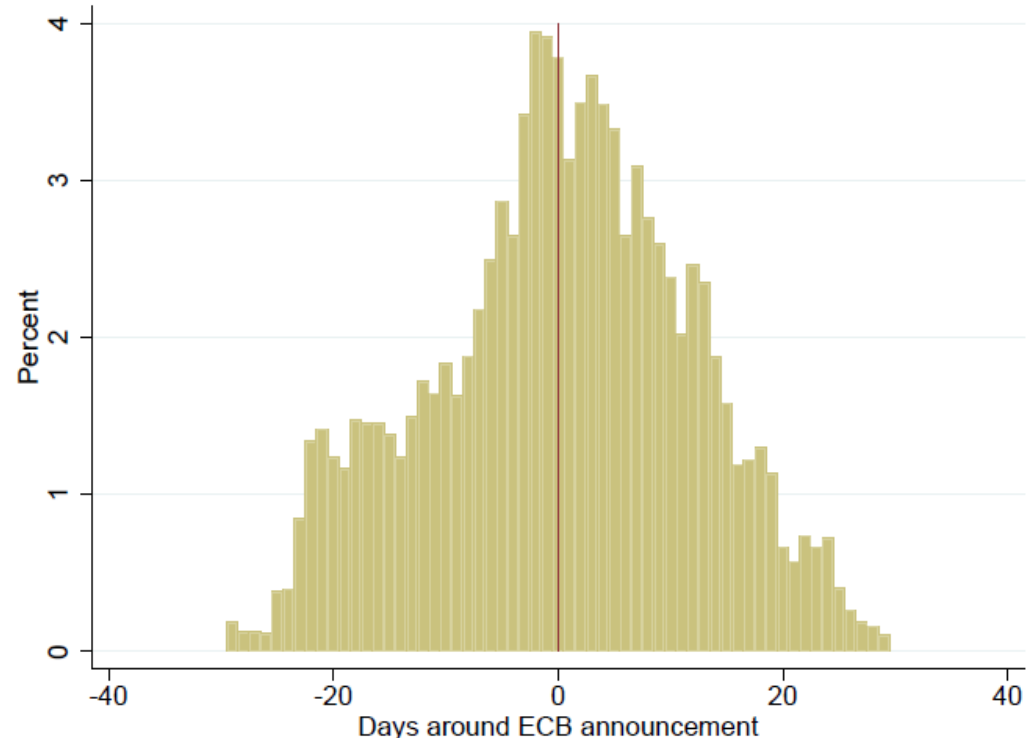
Firms' bank loan expectations – net percentages and dispersion over time



Notes: net percentages as the difference between the percentage of enterprises reporting an increase and the percentage reporting a decrease of bank loans expectations. Dispersion index as cross-sectional weighted standard deviation of the survey responses

- We compare firms' expectations **in a narrow window around ECB announcements** (± 4 working days)
- MP shocks constructed as **first principal component** of the change in 7 OIS rates around ECB GovC scheduled announcements (Nakamura and Steinsson, 2018; Altavilla et al., 2019)

Distribution of daily responses to the SAFE around ECB's announcement days



Notes: distribution of daily responses of firms around ECB's monetary policy announcements across survey rounds. Sample period from 2009 to 2022. Source: ECB and European Commission SAFE.

MP has a significant impact on firms' bank loan expectations...

$$Y_{i,t} = \beta_0 + \beta_1 D_{i,m} \varepsilon_{m,t} + \beta_2 X_{i,t} + \alpha_{c,t} + \gamma_{s,t} + u_{i,t}$$

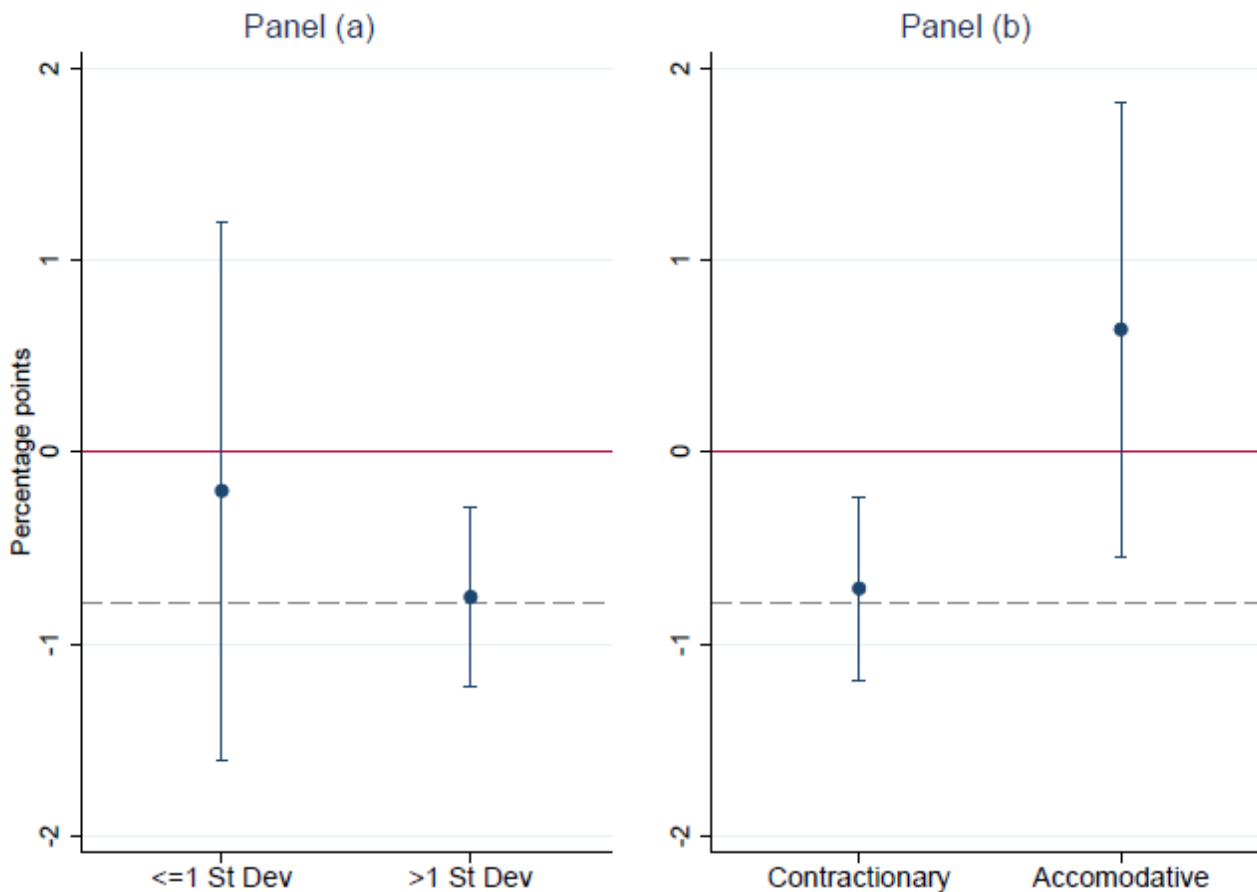
- $Y_{i,t}$: Firms' bank loan expectations
- $D_{i,m}$: dummy equal to 1/0 if firm i responded within +4/-4 days from the MP announcement
- $\varepsilon_{m,t}$: MP shock
- $X_{i,t}$: firm-level controls - *loan availability, turnover, profit, debt/asset, capital, credit history, general economic outlook, financially constrained, family, young, and SMEs*
- $\alpha_{c,t}, \gamma_{s,t}$: country-wave, sector-wave FEs

Impact of 1 bp contractionary shock on firms' bank loan expectations

Dependent variable: firms' bank loan expectations				
	Trichotomous			Binary
	Baseline (1)	Pre-Covid 19 (2)	Covid 19 (3)	Baseline (4)
MP shock	-0.784*** (0.248)	-0.587** (0.275)	-1.418** (0.565)	-0.702*** (0.269)
Controls	yes	yes	yes	yes
Country-Wave FE	yes	yes	yes	yes
Sector-Wave FE	yes	yes	yes	yes
Adjusted R^2	0.199	0.204	0.172	0.358
Observations	29,819	23,232	6,587	11,711

... and the effect is non linear and asymmetric (sign and size matter!)

Impact of 1 bp contractionary shock on firms' bank loan expectations



Notes: Panel (a) compares the impact on firms' bank loan expectations of a contractionary shock smaller/larger than 1 standard deviation (corresponding to 2.3 basis points). Panel (b) compares the impact on firms' bank loan expectations of a contractionary versus accommodative monetary policy shock. Grey dotted horizontal lines represents estimate based on linear specification. Blue vertical lines indicate 90% confidence bounds. Coefficients are multiplied by 100.

Effect of 1 bp contractionary shock on firms’ bank loan expectations

Dependent variable: firms’ bank loan expectations						
	<u>Trichot.</u>	Binary	<u>Trichot.</u>	Binary	<u>Trichot.</u>	Binary
	(1)	(2)	(3)	(4)	(5)	(6)
Pure MP shock	-0.973*** (0.261)	-0.887*** (0.277)			-0.975*** (0.261)	-0.890*** (0.277)
CB information shock			1.454* (0.827)	2.043* (1.078)	1.474* (0.827)	2.057* (1.078)
Controls	yes	yes	yes	yes	yes	yes
Country-Wave FE	yes	yes	yes	yes	yes	yes
Sector-Wave FE	yes	yes	yes	yes	yes	yes
Observations	29,819	11,711	29,819	11,711	29,819	11,711
Adjusted R^2	0.199	0.358	0.198	0.358	0.199	0.358

- **Pure MP shock** → *negative coefficient*
- **CB information shock** → *only marginally significant*
 - *Difficult for firms to disentangle the different components of the ECB announcements: two effects partially offset each other*
 - *Firms register the information component, but are not able to capture to what extent this new information will affect bank loan availability*

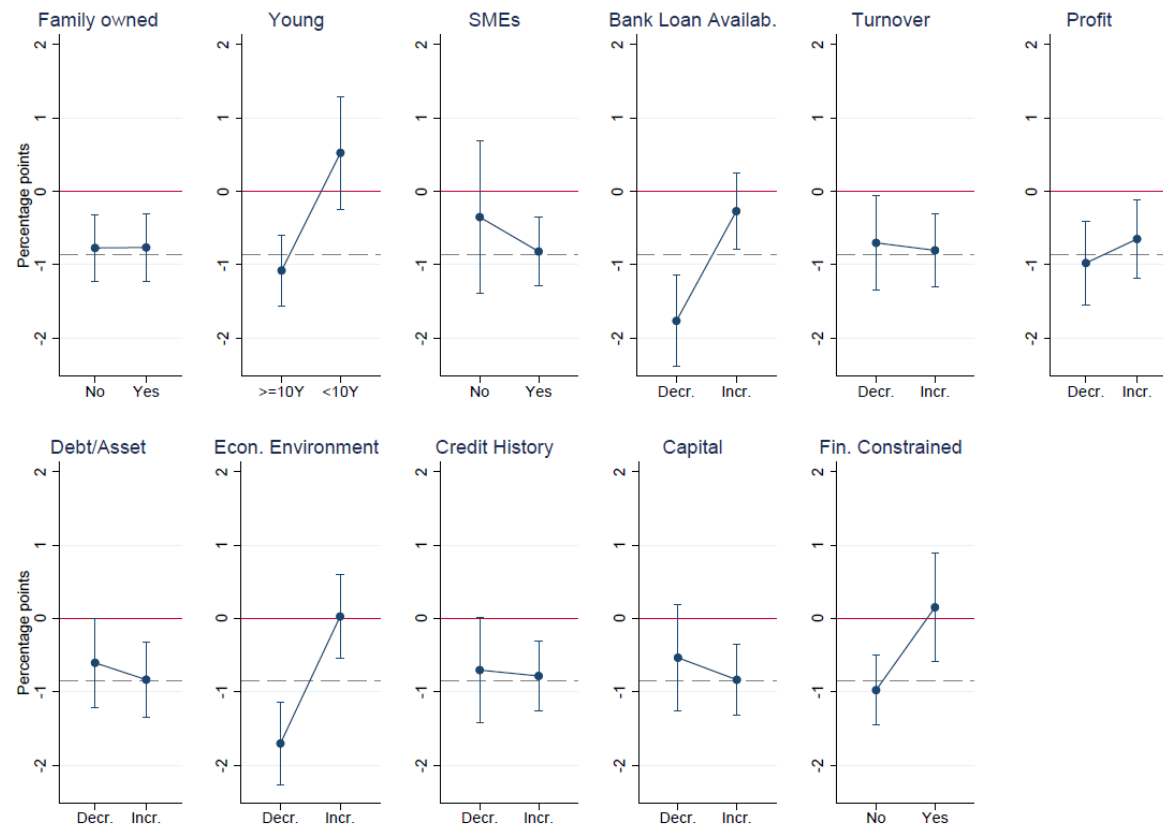
Effect of 1 bp contractionary shock on firms' bank loan expectations

	Dependent variable: firms' bank loan expectations						
	Trich. (1)	Binary (2)	Trich. (3)	Trich. (4)	Trich. (5)	Trich. (6)	Trich. (7)
Target shock	-0.709*** (0.224)	-0.413* (0.234)		-0.566** (0.275)			
QE shock			0.696* (0.364)	0.147 (0.415)			
QE pure MP shock					-1.907* (1.070)		1.871* (1.070)
QE CB info shock						0.992*** (0.383)	0.984*** (0.383)
Controls	yes	yes	yes	yes	yes	yes	yes
Country-Wave FE	yes	yes	yes	yes	yes	yes	yes
Sector-Wave FE	yes	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.199	0.358	0.211	0.220	0.211	0.211	0.211
Observations	29,819	11,711	16,114	16,114	16,114	16,114	16,114

- **Target shock** → *negative coefficient*
- **Quantitative easing shock (QE)** → *weak and positive estimated coefficient*
 - *mainly driven by information effects rather than pure shocks*

- **MP impact is heterogeneous** according to
 - age
 - size
 - bank loan availability
 - perceived economic environment
 - financial constraints

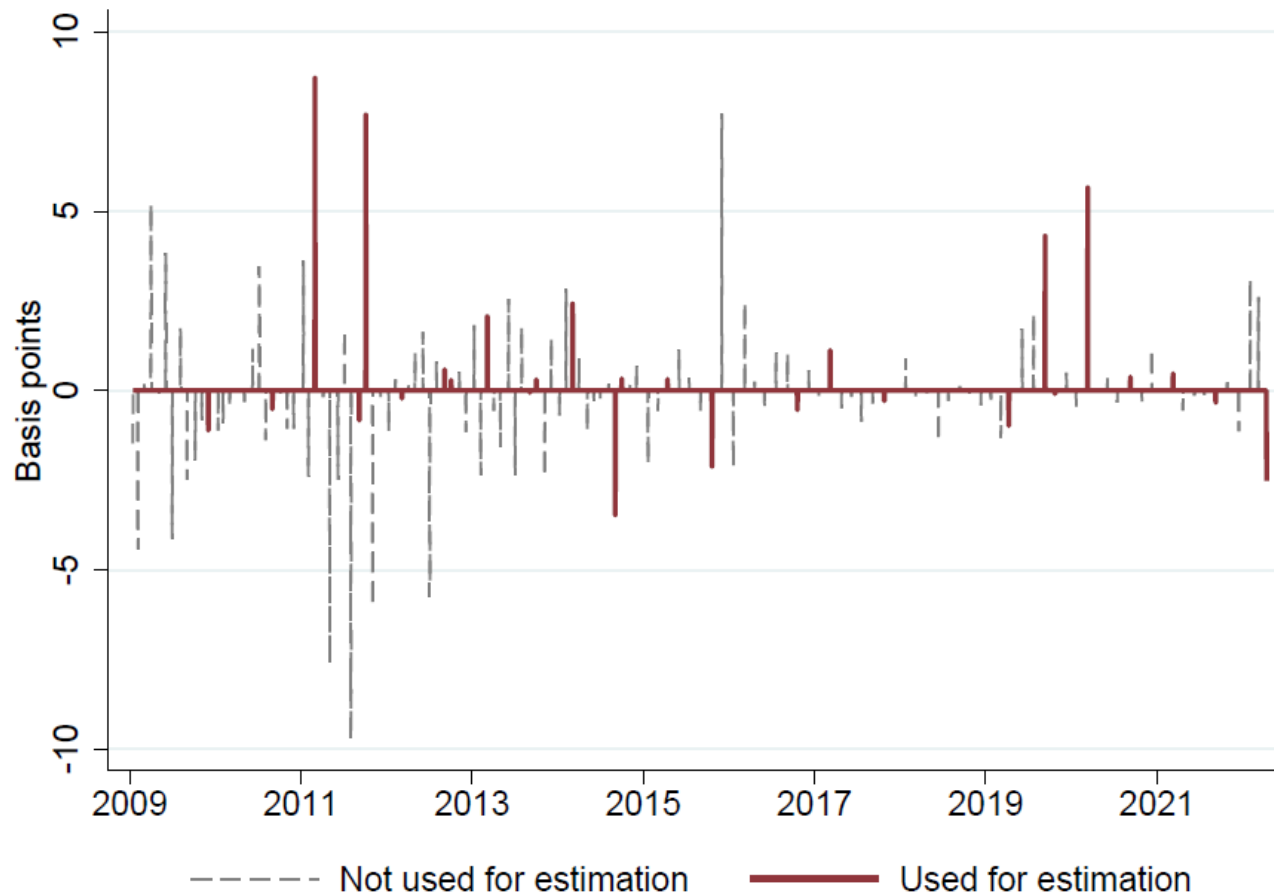
Effect of 1 bp contractionary shock on firms' bank loan expectations



Notes: The dependent variable is a dummy that takes value 1 or 0 if the firm believes that the availability of bank loans will improve or deteriorate over the next 6 months. Grey dotted horizontal line represents estimate based on linear specification. Blue vertical lines indicate 90% confidence bounds. Coefficients are multiplied by 100 .

- Monetary policy has a significant impact on firms' bank loan expectations
- Firms update expectations only after large and contractionary shocks
- Firms are able to disentangle the different information content of the shocks (pure vs news related to the economy)
- The response to conventional MP is significant, while this is not the case for QE
- Firms' characteristics matter
- Our results might shed additional light to understand the impact of MP on aggregate business cycle via changes in firms' expectations of future financing

Thank you!



- MP shocks constructed as **first principal component** of the change in 7 OIS rates (1m to 10y) around ECB GovC scheduled announcements (Nakamura and Steinsson, 2018; Altavilla et al., 2019)
- Shocks scaled to have unit impact on the 3-month OIS
- Positive values correspond to contractionary shocks