

# Causal effects of interest rate expectations on firm decisions and their macroeconomic implications

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25 April 2025

*The views expressed here are those of the author, and not necessarily those of the Bank of England or its committees.*

# Recap of Paper – Methodology & Data

- **Research Question:** How do (exogenous) changes in interest rate expectations affect firm borrowing behaviour and investment decisions?
- **Data:** RCT implemented in Bundesbank Online Panel of Firms (BOP-F) in 4 waves: 21Q2, 21Q4, 22Q1, and 22Q4
  - **Information Treatments:** (1) Current ECB policy rate; (2) Current ECB policy rate + one-year ahead market expectations; (3) control group
  - **Key:** Firms in survey matched with credit registry data (AnaCredit) and balance sheet data (Janis)
- **Main Outcome Variables:** Interest rate expectations; Loan amounts, Share fixed-rate loans; Share long-term loans; Interest rate on loans; Investment

# Information Treatment

Figure A.1: Screenshot of the survey experiment

**Question 4** We would now like to ask you some questions about macroeconomic developments. How likely do you think the policy rate of the European Central Bank (ECB) <sup>86</sup> is to fluctuate within the following bands at the **end of September 2022**?

*[Randomly selected companies are shown either no info, info 1 or info 2 following question 4.]*

**Info 1** The ECB's policy rate currently stands at -0.5%.

**Info 2** The ECB's policy rate currently stands at -0.5% and the financial markets are expecting a policy rate of -0.5% at the end of September 2022.

*Note: The aim of this question is to determine how likely you think it is that something specific will happen in the future. You can rate the likelihood on a scale from 0 to 100, with 0 meaning that an event is completely unlikely and 100 meaning that you are absolutely certain it will happen. Use values between the two extremes to moderate the strength of your opinion. Please note that your answers to the categories have to add up to 100. Input fields left blank will be filled with a value of 0.*

a = Below -2.00%:	[Input field]
b = Between -2.00% and -1.51%:	[Input field]
c = Between -1.50% and -1.01%:	[Input field]
d = Between -1.00% and -0.51%:	[Input field]
e = Between -0.50% and -0.01%:	[Input field]
f = Between 0.00% and 0.50%:	[Input field]
g = Between 0.51% and 1.00%:	[Input field]
h = Between 1.01% and 1.50%:	[Input field]
i = Between 1.51% and 2.00%:	[Input field]
j = Above 2.00%:	[Input field]

Notes: The graph shows a screenshot of the survey experiment in BOP-F wave 7 (Q4 2021).

# Recap of Paper – Main Results

1. Information treatment leads to a **significant decrease in interest rate expectations** relative to control group
  - Treatment lowers expectations by around 15 basis points on average
  - Effects are stronger for firms with higher *past* rate expectations
2. Information treatment leads to **significant changes in borrowing behaviour**
  - Treated firms increase borrowing by 6-7%; Shift towards fixed rate and longer-term loans; Pay lower average interest rate on their loans
  - Higher borrowing driven by smaller firms and firms with lower leverage (i.e. lower borrowing constraints)

# Comment #1: Heterogeneities in expectations and borrowing/investment behaviour

- Firms with higher *prior* expectations revise expectations down by more ✓
- Smaller firms and those with lower leverage increase borrowing by more ✓
- Do smaller firms and those with lower leverage lower expectations by more following treatment? (**Table A9** – maybe for firm size, not clear for leverage)
- Do firms with higher *prior* expectations increase borrowing/investment by more?
- **Hypothesis 1:** Smaller firms revise expectations by more  
→ Increase borrowing by more
- **Hypothesis 2:** Smaller firms and larger firms revise expectations by same amount → Smaller firms closer to borrowing constraints → Smaller firms increase borrowing by more
- **Hypothesis 3:** Some combination of 1 + 2

# Comment #1: Heterogeneities in expectations and borrowing/investment behaviour

- Are there any relevant heterogeneities by sector?
- **Suggestion:** Heterogeneous treatment effect exercise
  - For example, plotting coefficients on response of interest rate expectations by sector against coefficients on response of borrowing by sector
  - Can do something similar for size buckets, leverage buckets, etc.
- Other margins to consider (if data allow):
  - Cash flow ([Carpenter et al. 1998](#))
  - Age ([Cloyne et al. 2023](#))
  - Hurdle rates/Required rates of return

## Comment #2: How does the information treatment affect forecast accuracy?

	(1) interest rate expectation (in pp)	(2) interest rate expectation (in pp)
treated: ECB	-0.1231*** (0.0113)	
treated: ECB & markets	-0.1799*** (0.0111)	
treated		-0.1529*** (0.0099)
treated x prior expectation		
prior expectation		
sample with prior		
weight on treatment		
control mean	0.0283	0.0283
N	5895	5895
# firms	5895	5895

- Does the provision of information on ECB policy rate improve firm forecasts?
- Not obvious - if your expectations were higher in 2021, they are more likely to be 'correct' ex-post?
- It seems like the information treatment pushes your expectations closer to the current rate (even in 22Q4 sample period).
- More generally, how accurate are interest rate expectations over time? Do larger, more productive firms have smaller forecast errors?
- **Extension:** You could

# Comment #3: Symmetry and magnitude of the effects

- **Symmetry** of the effects
  - The main result in the draft is that *lower* interest rate expectations boost borrowing and investment
  - Would we expect the opposite (and with a similar magnitude) for *increases* in interest rate expectations?
  - Not sure if possible in current sample, but perhaps in certain sectors/for certain sub-samples expectations increased? Alternatively, using forecast errors?
- **Magnitude** of the effects
  - Main result suggests that a 15 basis point decline in interest rate expectations boosts borrowing by up to 7% and investment by up to 6% - big effect!
  - Does it scale up? For example, you could interact the treatment with the past interest rate expectations – do firms with higher rate expectations in the past (which have stronger declines in expectations) also have stronger responses in borrowing/investment?
  - Effects at different points of the distribution, using the distribution-based expectations question (e.g. [Di Pace, Mangiante, Masolo 2024](#))?



## Comment #4: Effects on other firm-level expectations

	(1) sales expectation	(2) 1-year inflation expectation	(3) 3-year inflation expectation	(4) 5-year inflation expectation
treated	0.0008 (0.1890)	0.0396 (0.0264)	0.0301 (0.0688)	0.0095 (0.0633)
control mean	17.4093	5.0181	4.2588	4.4589
N	5354	9261	1369	1391
# firms	5354	9261	1369	1391

- Is it to do with the sample period/Covid which is affecting expectations, or do firms not make the link between interest rates and inflation dynamics? Any difference in 2022Q4 sample?
- Potentially different 'subjective models' by different firms - some expect lower rates to increase prices, others expect lower rates to lower prices? ([Andre et al. 2022](#))
- (If possible) Effects on inflation uncertainty?
- Medium-term inflation expectations are quite high (e.g. 4.5% for five-year ahead expectations) - perhaps there may be some outliers<sup>9</sup> or a long right tail?

# Additional Comments/Suggestions

- Balance Tests
  - More comparisons of characteristics across the three groups
  - Does the information treatment affect variables not expected to affect, or realised outcomes at the time of the survey?
  - (If possible) Interest rate expectations from previous survey by treatment group
- Is it a one-off effect?
  - You currently keep the first time the firm participated in RCT as treatment date - what happens in subsequent months? Is there an additional effect if a firm gets treated a second time? Do expectations remain lower than control group?
- Personal preference, but showing equal pre- and post- windows in event study specifications
- **Extension:** How do changes in ECB policy rates

# Conclusions

- Great paper on a very important topic!
- Fantastic combination of survey data (incl. RCT) + credit registry data + balance sheet data → allows you to track how shifts in expectations affect borrowing/investment decisions over time.
- Robust evidence that changes in interest rate expectations do affect borrowing and investment behavior.
- **Next Steps:**
  - How do heterogeneities in expectations treatment relate to heterogeneities in borrowing/investment across firms?
  - Understanding better the firm forecast accuracy of interest rates, potentially using forecast errors as an additional exogenous shock.
  - Placing the magnitudes in the context of the literature on interest rates/monetary policy shocks