

Business Inflation Exposure and Bank Lending

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Summary

- ▶ **Broad Research Question:** How does inflation affect real activity?
- ▶ Channels discussed in the recent literature:
 - ▶ Bank lending channel (Agarwal and Baron, JFE 2023)
 - ▶ Firm balance sheet channel (Brunnermeier et al., 2023)
- ▶ **This paper:** Inflation affects banks indirectly through their borrowers' exposures via their **ability to adjust output prices**
 - ▶ Firms with low pass-through become financially weaker, experience lower loan growth and higher spreads
 - ▶ Banks with high exposure to low pass-through firms curtail lending and increase spreads, especially to low pass-through firms
 - ▶ Real effects: Low pass-through firms invest less

Discussion

- ▶ Important topic
- ▶ Hard question to answer: inflation affects banks and firms through multiple channels
- ▶ Comments:
 - ▶ Pass-through channel at the firm level
 - ▶ Measurement of bank inflation exposure
 - ▶ Mechanisms
 - ▶ Real Effects

#1a Inflation pass-through channel: Cross-section heterogeneity

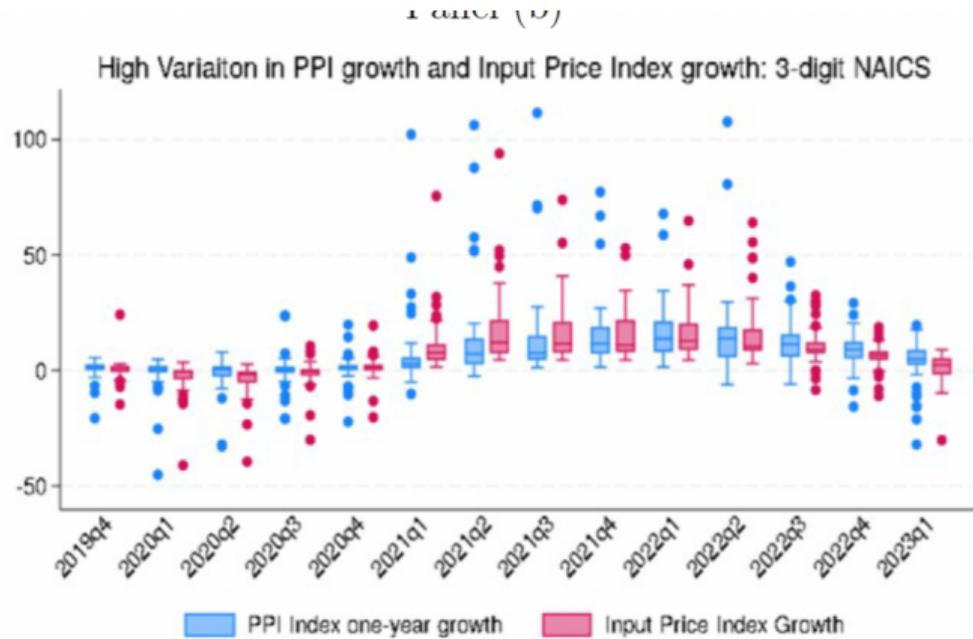
- Relationship between credit access and inflation pass-through depends on how damaging low inflation pass-through is
- Could use firm-level characteristics to assess sensitivity to low-inflation pass-through
- I suggest estimating the following regression:

$$Y_{f,t} = \alpha + \beta_1 \text{low pass through}_f \times \text{post}_t + \\ \beta_2 \text{low pass through}_f \times \text{post}_t \times X_{f,t-1} + \\ \gamma X_{f,t} + \mu_f + \theta_t + \epsilon_{f,t}$$

where $Y_{f,t}$ could either be a measure of profitability (preferably profit margins) or credit worthiness (z score); $X_{f,t-1}$ could be amplifying or mitigating factors, such as:

- High-levels of short-term debt
- Low cash holdings/liquidity buffers
- Ability to control expenses
- Helps address the concern that inflation can affect firms through other channels

#1b Inflation pass-through channel: Time series heterogeneity



- ▶ The degree of pass-through changes over time in the post period
- ▶ Could show dynamic effects on firm profitability and credit access **within industry**

#2a Measurement: Bank inflation exposure

$$Bank\ Inflation\ Exposure_b = - \sum_j \underbrace{\frac{Commitment_{bj}}{Commitment_b}}_{\text{Pre-inflation period 2018-19}} \underbrace{(PPI\ inflation_j - IPI\ inflation_j)}_{\text{Inflation period 2021-onward}},$$

- ▶ This exposure would be very high for a bank whose C&I loan portfolio is concentrated in low-pass through industries
- ▶ What if C&I lending is a very small fraction of total lending for such a bank?
- ▶ Why consider a bank-industry level measure and not a bank-level measure?
Importance of overall C&I lending should matter

#2b Measurement: Bank inflation exposure

- ▶ At the bank level, inflation may affect lending through other channels
- ▶ Other than exposure to securities and fixed rate loans, inflation could affect bank lending through
 - ▶ Duration mismatch
 - ▶ Default on consumer and mortgage loans
 - ▶ Deposit outflow
- ▶ Accounting for these other factors would be useful to get a better sense of how inflation affects banks' net worth and funding

#3 Mechanism: Effect on bank lending

- ▶ How does exposure to low pass-through industries affect bank profitability and capital?
- ▶ Frictions in protecting their balance sheet from inflation exposure
- ▶ Is the result on lending driven by current losses on bank portfolios or fear of future losses by lending to low pass-through firms?

#4 Real Effects

- ▶ To better understand the effects on investment, can add tests on whether the results depend on
 - ▶ Access to one vs multiple bank creditors
 - ▶ Access to bond markets
 - ▶ Importance of debt vs equity in financing capital expenditure
 - ▶ Availability of cash buffers

Other Comments

- ▶ Would be useful to show a balanced attributes test for firms with low- and high-inflation pass-through for important balance sheet characteristics such as size, leverage, profitability etc.
- ▶ Firm size should be included in the set of controls
- ▶ Slide 19: Is it right that more profitable and better capitalized banks reduce lending more in the post inflation period?
- ▶ Might be interesting to study the effect on loan maturity. Agarwal and Baron (2023) found that banks try to shorten the duration of loans in inflationary periods

Conclusion

- ▶ Important to understand how the recent inflation episode affected banks and firms
- ▶ This paper provides a first step in filling this gap
- ▶ Sharpening the identification of the channel and quantifying its importance can make the paper stronger