

Firm Heterogeneity, Capital Misallocation and Optimal Monetary Policy

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- Summary
- Mechanism
- Extensive margin
- Medium-run dynamics
- Empirics: validation of the main mechanism

- ① **How does monetary policy affect capital misallocation?**
- ② **What is the optimal monetary policy in this context?**
 - Standard New Keynesian model
 - Heterogeneous firms (Moll 2014)
 - Heterogeneous productivity
 - Heterogeneous net worth
 - Borrowing constraint

- Productivity threshold: z_t^*
- Firms with productivity $\geq z_t^*$:
 - active
 - borrow from hh and inactive firms
 - financially constrained
- Firms with productivity $< z_t^*$
 - inactive
 - lend to active firms

- Expansionary monetary policy: $r_t \downarrow$
 - Borrowing costs $\downarrow \rightarrow$ constraint firms increase their investment \rightarrow misallocation \downarrow (net-worth channel)
 - Discount rate on profits $\downarrow \rightarrow z_t^* \downarrow \rightarrow$ less productive firms become active \rightarrow misallocation \uparrow (productivity threshold channel)
 - The first dominates the second: misallocation \downarrow
- Demand shock: $\rho^h \downarrow \rightarrow \uparrow$ misallocation
- **Under what conditions the first effect dominates the second?**
 - How likely is the result?
 - How to design optimal monetary policy?

Mechanism: Excess Investment Rate

- **Under what conditions the model predicts a reduction in capital misallocation?**
- Excess investment rate: $\tilde{\Phi} = f(q_t, m_t, w_t, z_t, z_t^*)$
- $f'(\tilde{\Phi}) \uparrow \rightarrow$ high-productivity firms invest more than low-productivity firms
- Expansionary monetary policy $\rightarrow f'(\tilde{\Phi}) \uparrow \rightarrow$ misallocation \downarrow
- Demand shock: $\rho^h \downarrow \rightarrow f'(\tilde{\Phi}) \downarrow$

Mechanism: Extensive Margin

- Large literature on firm entry/exit over the business cycle: Bilbiie, Ghironi and Melitz (2007, 2013)
- How should we think about entry/exit in this model?
 - 1 active/inactive firms
 - 2 retired entrepreneurs replaced by entrepreneurs with the same productivity
- How important quantitatively is extensive versus intensive margin in the model?

Mechanism: Competition

- What is the medium-run impact of monetary policy on TFP and misallocation?
- Colciago and Silvestrini (2022):
 $r_t \downarrow \rightarrow z_t^* \downarrow \rightarrow \text{TFP} \downarrow \rightarrow$
net entry $\uparrow \rightarrow$ competition $\uparrow \rightarrow$ exit of the least productive firms \rightarrow
TFP $\uparrow \rightarrow$ market concentration \uparrow
- What is the medium-run impact of the competition on TFP?
- What is the impact of monetary policy on TFP given the initial level of competition?
 - High concentration \rightarrow larger impact on TFP
 - Low concentration \rightarrow smaller impact on TFP

Empirics: Validation of the Main Mechanism

- In response to the monetary shock, more productive firms increase their investment by more than less productive firms = decline in misallocation
- Consistent with:
 - More productive firms = low-risk firms face flatter marginal cost for financing (Ottonello and Winberry 2020)
 - Demand for high productivity firms goods increases by more
- Model: No financial constraint → the most productive firm is the only producer
- **Are those firms financially constraint in the data?**

- What are the characteristics of those firms: distribution plots
 - Financially constraint
 - Productivity
 - Size

Conclusion

- Great paper: 2 papers?
- Pin down the main mechanism
- Exploit more the micro data