

Monetary Policy, Firm Exit and Productivity

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The views expressed in this paper are those of the authors and do not necessarily coincide with the views of the Deutsche Bundesbank or the Eurosystem.

Introduction

Motivation

- Firms' entry and exit decision shape business cycles (Ghironi and Melitz, 2005; Bilbiie, Ghironi, and Melitz, 2012)
- Decisions depend on expected profitability over the cycle
⇒ Potentially crucial for monetary transmission mechanism

What do we know?

- Monetary policy and entry of homogeneous firms (Bergin and Corsetti, 2008; Lewis and Poilly, 2012; Bilbiie, Fujiwara, and Ghironi, 2014)
- But little discussion of exit and heterogeneity of firms

Research aim:

- Investigate importance of firm exit and heterogeneity in productivity for transmission of monetary policy

Empirical Analysis

Data set and sample ranges from 1993Q2 to 2017Q4

- Entry and exit proxied by establishment series (BLS)
- After tax real corporate profits (BEA)
- TFP, util. adj. TFP, and labor prod. from Fernald (2014)
- Update on intra-daily asset price changes from Gürkaynak
- Controls: one-year govt, real GDP, GDP (defl), EBP, S&P500

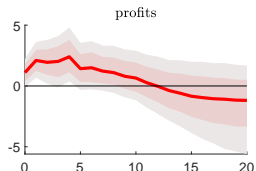
Model and identification in spirit of Jarociński and Karadi (2020)

- VAR with FOMC announcement surprises (FF4 & S&P500)
 - Frequency conversion from monthly to quarterly obscures relationship between high and low frequency variables
- ⇒ Monetary policy shock identified as a negative co-movement shock between interest rate and stock price changes of both high-frequency and low-frequency variables

Effects of expansionary monetary policy (I)

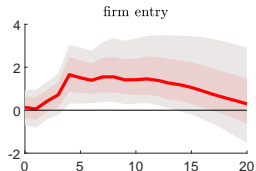
Corporate profits

- increases after a monetary easing
- consistent with Lewis and Poilly (2012)



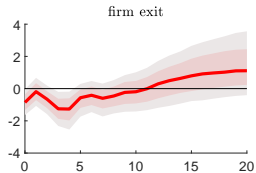
Firm entry

- increases persistently and last 3–4 years
- consistent with Lewis (2009); Lewis and Poilly (2012); Bergin and Corsetti (2008); Hamano and Zanetti (2020)

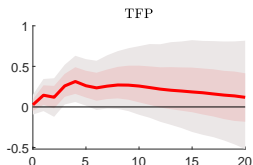


Firm exit

- declines but overshoots after 2 years
- firms remain active as profits increase, but exit as soon as stimulus fades
- technology shock similar in Rossi (2019)

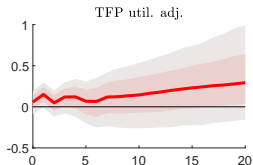


Effects of expansionary monetary policy (II)



Aggregate TFP

- persistent increase and lasts for 2 years
- resource utilization increases as number of active firms surge, while average firm productivity declines (model)



TFP util. adjusted and labor productivity

- insignificant, monetary neutrality
- util. adj. drives pro-cyclicality of TFP
- inconsistent with Moran and Queralto (2018); Christiano, Eichenbaum, and Evans (2005); Meier and Reinelt (2020); who document significant booms but use different identification strategies



Theoretical Analysis

The Model

- DSGE model with endogenous entry and exit à la Hopenhayn (1992), Melitz (2003), Gironi and Melitz (2005)
 - + nominal price and wage rigidities (Rotemberg, 1982)
 - + working capital channel (Ravenna and Walsh, 2006)

Firm entry and exit depend on real expected profitability

- Response of firm profits depends on nominal and real frictions

$$\tilde{d}_t = \underbrace{Y_t^C}_{(1)} - \underbrace{\frac{\tau}{2} \left(\frac{\tilde{p}_t}{\tilde{p}_{t-1}} - 1 \right)^2 Y_t^C}_{(2)} - \underbrace{w_t \tilde{L}_t^C}_{(3)} - \underbrace{f \frac{w_t R_t^\vartheta}{A_t} S_t}_{(4)}$$

① direct demand (revenues)

② price adjustment cost

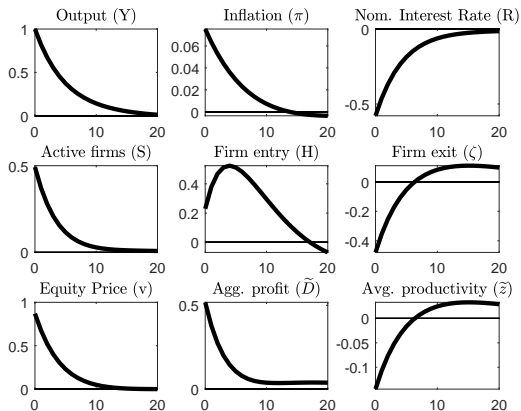
③ labor cost

④ fixed cost

Transmission of a Monetary Policy Shock

Revenue channel dominates cost channels (only wage-stickiness)

- profits increase
- more firms enter
- less exit, more unproductive firms remain in the economy
- drags average productivity down
- though aggregate productivity increases



Exit Channel of Monetary Policy

- Exit channel flattens the aggregate supply curve
⇒ Stronger output effects, weaker inflation effects

Policy Implications

- Easy monetary conditions reduce *cleansing* of unproductive firms
⇒ *sclerosis* or *zombification*?
- Exit important for optimal monetary policy
- Long-term effects on productivity?

