Monetary Policy, Firm Exit and Productivity

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October 6, 2020

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), Ghironi 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

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

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?