Monetary Transmission under Heterogeneous Exchange Rate Exposure

Naoki Yago
The University of Cambridge, PhD Student in Economics

Outline

- Study the transmission of U.S. monetary shocks to firms in emerging market economies (EMEs) when firms have heterogeneous currency exposure.
- When the Fed tightens, firms change the currency composition of debt rather than deleverage.
- Firms with dollar debt reduce investment in capital as well as financial assets.
- These responses are driven by relatively large firms.

Introduction

- US monetary tightening increases corporate borrowing risk in EMEs due to currency mismatch on balance sheet.
- Large firms have better access to foreign currency debt (dollar debt) as they can tolerate default risk.
- Large firms play an important role in business cycles.

Data

- Sample firms: non-financial firms headquartered in 15 countries
- Period: 2009Q4-2019Q3, quarterly data
- Balance Sheets and Fundamentals:
  - S&P Capital IQ: currency composition of debt
  - Thomson Reuters Worldscope, OECD I-O Table

Summary Statistics

- 4,457 firms (total), 1,006 firms (23%) issue dollar debt
- Large firms have both high leverage and dollar debt share.

Regression

\[ y_{it} = \beta_{1} + \beta_{2} q_{it} + \beta_{3} Z_{it-1} + \beta_{4} Q_{it-1} + \beta_{5} Z_{it-1} + \gamma + \epsilon_{it} \]

- \( y_{it} \): leverage or share of dollar debt of firm \( i \) in quarter \( t \) (%)
- \( FFR_t \): Fed Funds Rate shock (bps)
- \( q_{it} \): firm size dummy (1 \( \leq \) 4 \( \leq \) 4, 1 = small, 4 = large)
- \( Z_{it-1} = (Z_{it-1}, Z_{it-1}, Z_{it-1}) \): controls
  - Firm-level \( f \): export, international sales, liquidity, age, sales growth
  - Industry-level \( i \): import content of production
  - Country-level \( c \): change in spot exchange rate, share of dollar asset / total asset cf. Beverina et al. (2020)
- Industry and country FEs, SE is clustered at firm and quarter-levels

Results

(a) Liability Side

- When FFR increases, firms reduce the share of dollar debt more than the leverage.
- Firms are switching currency composition of debt.
- The response is driven by relatively large firms.

(b) Asset Side

\[ \Delta \log Y_{it} = \alpha + \sum_{j=1}^{4} \beta_{1} q_{it} + \sum_{j=1}^{2} \gamma_{j} FFR_{it} + \sum_{j=1}^{4} \gamma_{j} Z_{it-1} + \epsilon_{it} \]

- \( \Delta \log Y_{it} \): investment in capital and financial assets cf. Bravo and Shin (2017), Duchin et al. (2017)
- When FFR increases, large firms reduce investment in capital as well as safe and risky financial assets.

(c) Cross-Country Heterogeneity

- The response of large firms can be observed in countries with relatively flexible exchange rate regimes. cf. Faria et al. (2020)
- 74% (26%) of firm-quarter observations are under flexible (fixed) regimes.

Conclusions

- In response to US monetary tightening, large firms reduce
  - The share of dollar debt over total debt
  - Investment in capital and financial assets
- Role of firm size heterogeneity and currency composition effects for transmission of monetary policy
- Future research: model with heterogeneous firm size, currency choice of debt, and nominal rigidity

Contact

Naoki Yago
The University of Cambridge
Email: ny270@cam.ac.uk
Website: https://sites.google.com/view/naokiyago/
Phone: (+44) 7463171651

References