ZOMBIE FIRM DYNAMICS AND CHINA'S MONETARY POLICY

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INTRODUCTION

Monetary policy shocks and firm dynamics

- ▶ leverage (Ottonello & Winberry 2018) / liquidity (Jeenas 2018) / age (Cloyne Ferreira Froemel & Surico 2019)

Low real interest rates and productivity

- ▶ increased forbearance after crises (Caballero Hoshi & Kashyap)
- ▶ financial frictions and consumption-boom induced misallocation (Gopinath Kalemli-Özcan Karabarbounis & Villegas-Sanchez 2018)

countercyclical policy and productivity

- ▶ mon pol alleviates financial headwinds to intangibles (Ahn Duval Sever 2019)
- ▶ policy constraints and endogenous growth (Benigno & Fornaro 2018, Garga & Singh 2016)
- ▶ can generate very persistent effects (Jordá Singh & Taylor 2019)
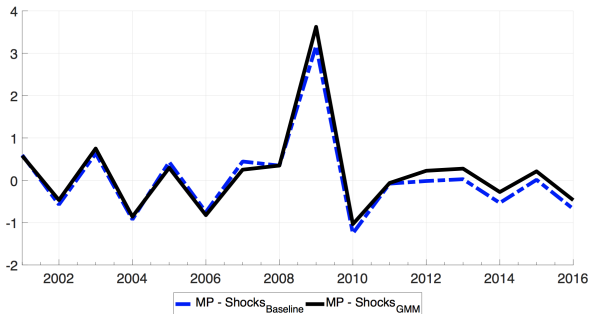
OVERVIEW OF DISCUSSION

- Brief overview

- Monetary policy in China

- Comments along the way

Monetary policy shocks in China

Take the Chen, Ren and Zha (2018) measure of monetary policy shocks for China (1999Q1 - 2016Q4)

$$\Delta M_t = a + \rho \Delta M_{t-1} + \phi_\pi (\pi_{t-1} - \pi^*) + \phi_{y,t}(\Delta Y_t - \Delta Y^*_{t-1}) + \epsilon_{m,t}$$

Figure 1: Identified China Monetary Policy Shocks (Quarterly)

Notes: Estimations based on quarterly data from 1999Q1 to 2016Q4. Shocks $\epsilon_{M,t} > 0$ denote monetary expansion in terms of M2 Growth. Blue dashed line and black solid line respectively denote the series of monetary policy shocks estimated based on Markov-Switching estimation and GMM estimation. Red-dotted line marks the year-over-year M2 growth rate.

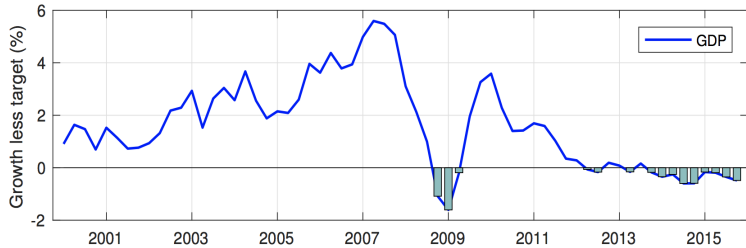# INSTITUTIONAL DETAILS: CHEN ET AL 2018

Central bank decisions

- ▶ The State Council sets targets for GDP and M2 growth in December every year

- ▶ Politburo (CPC, State Council and PBC governor) decide on M2 growth on quarterly basis

- ▶ GDP growth target is a lower bound for PBC

Instruments

- ▶ (annual) M2 growth rarely different from the last December target set

- ▶ OMOs, PBC base interest rates, PBC lending, reserve requirements: multi-dimensional

- ▶ OMOs since 1998: repo, reverse repo, spot trading,...

- ▶ RRR since 1984 used intermittently to meet M2 growth target

LOWER BOUND F

INSTITUTIONAL DETAILS: CHEN ET AL 2018

Bank lending channel: through two regulations

- ▶ M2 growth and bank loans move closely

- ▶ 75% ceiling on ratio of bank loans to deposits (LDR): banks offer higher deposit rates to recoup deposit shortfalls

- ▶ safe loan regulation: reduce bank credit to real estate since 2010 (2006)

Shadow Banking and monetary policy nexus in China

- ▶ Non-state owned banks face incentive to increase shadow banking activity

- ▶ construct a special investment vehicle ARI: accounts receivable investment

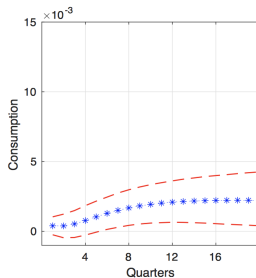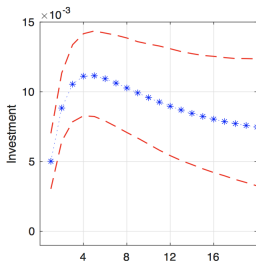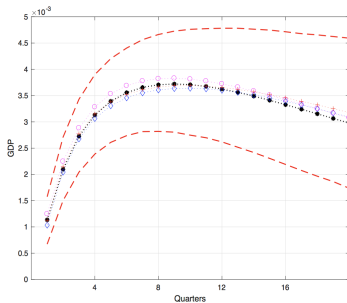- ▶ tight monetary policy increased shadow bank activity

PUTTING PIECES TOGETHER

What are these shocks?

- ▶ Within year variations in M2 growth rate

- ▶ Predictable over the full year

- ▶ state-dependent shocks

AGGREGATE IRFs

FIRM LEVEL DATA CONSTRUCTION

Panel data from China Annual Survey of Industrial Firms: 1998- 2013

Construct zombie firms indicator

- $Gap_{i,t} = (R_{i,t}^{Pay} - R_{i,t}^*)/B_{i,t-1}$ where
  $R_{i,t}^* = r_{t-1}^{ST} SD_{i,t-1} + r_{t-1}^{LT} LD_{i,t-1}$

- $(Gap < 0) + (Profits < 0) \rightarrow$ zombie firm

- Comment : definition of zombie firms likely to underestimate aggregate losses

- Comment : R&D intensive firms can have negative profitability and negative interest rate gaps

- Theoretical mapping: firms with low idiosyncratic low real interest rate and productivity

PANEL DATA REGRESSIONS

- Interestingly, they find firms with low leverage ratio associated with higher investment after an expansionary shock

- consistent with Ottonello Winberry results

$$Spec : y_{icst} = \delta_{cst} + \alpha_i + \beta Zombie_{icst} \times \epsilon_{M,t-1} + \gamma X_{icst} + \epsilon_{icst}$$

- why lag by one year?

- Would be useful to estimate the impulse responses. Do the responses look like the aggregate investment dynamics?

- State dependent effects ?

- TFP implications unclear from the main empirical estimates, but find significant dispersions in MRPFs associated with zombie shares at city industry year level.

SUMMARY

- Main concern: there may not be a causal monetary policy shock at the annual level
- micro to macro: delayed peak investment responses in aggregate, but focus on impact effect
- possible accounting for intangibles and productivity
- Q's about dimensions of monetary policy in China

Overall an exciting paper.