The Firm Balance Sheet Channel of Uncertainty Shocks

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This Paper

- Spikes in aggregates uncertainty are followed by large output drops.
- Understanding the transmission mechanism of uncertainty shocks is key to explaining its real impact and to the design of stabilization policies.

Key idea: heightened uncertainty motivates firms to deleverage and build up liquid assets, thereby leading to capital investment cut.

New Empirical Patterns + New Quantitative Model + Policy Implications

Empirical Patterns

Two Key Empirical Patterns:
1. The spikes in aggregate uncertainty are followed by physical capital drop, liquidity buildup, and deleveraging.
2. Drop in physical capital and buildup of liquidity are more pronounced among ex-ante more indebted firms.

1. Baseline Panel Local Projection:
Baseline Local Projection: Firm-Level Responses to 1 S.D. Growth in Macro Uncertainty Index

Physical capital

Liquid assets holding

Outstanding debt

2. Extended Panel Local Projection:
Extended Local Projection: Heterogeneous Responses by Firm indebtedness

Physical capital

Liquid assets holding

Outstanding debt

Heterogeneous responses

- Firm panel: COMPSTAT non-financial firms [1990q1-2019q4]
- Indebtedness: Outstanding Debt - Liquid Assets/Total Assets
- Δlny, Changes in Macro Uncertainty Index by Jurado et al. (2015)
- Z_i,t - Indebtedness/Tobin’s Q/Firm Size/Growth/Cash Flows
- y_t - Real GDP Growth/Federal Funds Rate/Credit Spreads/Inflation Rate

1. Empirical-consistently heterogeneous in firm balance sheets

Cross-Sectional Means: Data versus Model

2. Generating empirically-consistent dynamic investment/financing behavior

Both in the data and in the model, high indebtedness is associated with low capital investment/high cash growth/low debt growth.

Model Validation

- In both data and in the model, firms use cash holding and debt to fund capital investment when a growth opportunity realizes.

Model-implied Firm-level Transmission of Uncertainty Shocks

- The economy is at the steady state and unexpectedly receives a jump in the dispersion of idiosyncratic productivity [mean-preserving spread] that reverts back to steady-state level according to \( \varepsilon_{u,t} = 0.5 \varepsilon_{t} \).
- Baseline model reproduces both average responses across firms and heterogeneous response driven by firm indebtedness.

Decomposing the Mechanism: Role of Model Ingredients

Uncertainty shocks create both larger downside risk and greater upside opportunity.

1. Model w/o liquidity penalty — no concern for downside risk — no deleveraging
2. Model w/o debt issuance frictions — no concern for upside opportunity — cash drops

Novel Policy Implication

- Strong state-dependent effects: debt relief programs that can stimulate aggregate output by 0.5% during normal times drive up aggregate output by 1.5% during uncertainty-driven recessions.
- The working of policy: debt relief programs mitigate both deleveraging and liquidity buildup in response to uncertainty shocks.

Uncertainty-Driven Recessions and Credit Interventions

(a) Output Responses to Uncertainty shocks

(b) Output Responses to debt relief

Conclusions

- A novel transmission mechanism of uncertainty shocks that works through firm balance sheets.
- The first model that reproduces joint capital/cash/debt dynamics following uncertainty shocks.
- Shed new light on stabilization policies during uncertainty-driven recessions.