Discussion of

by Berger, Himmelberg, Roman, and Tsyplakov

Paul Glasserman
Columbia Business School

Atlanta Fed Day-Ahead Conference
January 3, 2019
Summary

• Paper develops a dynamic model of capital structure choice for a bank, sufficiently rich to capture key features of alternative regulatory policies and compare their effects

• Model predicts that
  – Bail-ins and bailouts result in lower social costs than no intervention
  – A bail-in regime leads banks to choose higher capital levels and leads regulators to intervene sooner than with bailouts

• Paper finds empirical support in changes in bank capital in transition from 2000-2007 (bailout regime) to 2010-2017 (bail-in regime)
Main Findings and Questions

- Model predicts that
  - Bail-ins and bailouts result in lower social costs than no intervention
  - A bail-in regime leads banks to choose higher capital levels and leads regulators to intervene sooner than with bailouts

- How does the paper model these policy choices?
- What drives the conclusions?
- What features of a dynamic formulation are important?
Modeling Policy Tools

- All interventions are triggered by capital ratios
- **Bailouts**
  - Regulator takes a 2% stake in the bank at market value – no subsidy
  - Could private mandatory equity issuance work?
- **Bail-ins**
  - Shareholders wiped out, sub debt converted to equity
  - “higher-trigger” bail in: capital ratios of 2% to 5.5%
- **No regulatory intervention**
  - Bankruptcy when book value of equity becomes zero or negative
- **Stress test**
  - Bank blocked from paying dividends
  - Used in bail-in and no-intervention regimes
Optimal Triggers

• In each regime, regulator sets triggers to maximize
  Value of bank minus social costs of bank’s default

• Bank chooses level of senior and sub debt to maximize value of bank

• Bank shareholders choose recapitalization strategy to maximize value of equity
  – Creating incentives for the bank to issue equity is key
Main Drivers of Conclusions: My Thoughts

• Bail-ins and bailouts have lower social costs than no-intervention because they avoid default costs
  – This is the promise of orderly resolution through bail-ins
  – Implicit skepticism of “living wills” for orderly bankruptcy

• Punitive treatment of shareholders at bail-in leads them to raise equity to avoid a bail-in

• Jump risk? In the bail-in regime, shareholders may prefer to fail big through a jump than diffuse to the trigger and thus inject equity to survive until the next jump
  – We find something similar in Chen, Glasserman, Nouri, and Pelger (2017), dynamic capital structure model with CoCos
Importance of a Dynamic Model

- Paper emphasizes importance of a dynamic model, and I agree
  - We made some related points in CGNP (2017)

- In a static model, shareholders “never” inject additional equity
- There is always debt overhang: as long as creditors get some benefit, shareholders get less than what they would put in

- In a Merton model, the delta of the equity option is always < 1
  - Efforts to incentivize equity issuance are doomed in this framework
Importance of a Dynamic Model – II

- In a dynamic model, shareholders benefit from higher capital when they issue debt – they issue at a higher price
- Key feature needed in a dynamic model: debt rollover
- Paper studies rollover rate
  - Higher rollover rate leads to less aggressive bail-in
Importance of a Dynamic Model – II

- In a dynamic model, shareholders benefit from higher capital when they issue debt – they issue at a higher price
- Key feature needed in a dynamic model: debt rollover
- Paper studies rollover rate
  - Higher rollover rate leads to less aggressive bail-in

- Three mechanisms contributing to capital injections
  - Debt rollover
  - Wipe-out at bail-in
  - Jump risk(?)

- It would be interesting to unpack these effects to see how they contribute to optimal equity issuance by bank (and bank’s optimal policy)
- Also, what is impact of stress test (dividend stopper)?
How to Interpret Shareholder Wipe Out at Bail-In?

• Is it punitive expropriation? Or the result of previously unrealized losses?
• Best places to look
  – Bank Recovery and Resolution Directive (BRRD) in Europe
  – Title II resolution and TLAC rules in the U.S.
How to Interpret Shareholder Wipe Out at Bail-In?

• Is it punitive expropriation? Or the result of previously unrealized losses?
• Best places to look
  – Bank Recovery and Resolution Directive (BRRD) in Europe
  – Title II resolution and TLAC rules in the U.S.
• Both have “no creditor worse off” principle: no creditor or shareholder shall incur greater losses than they would have incurred if the institution had been wound up under normal insolvency proceedings (BRRD)
• Under Title II FDIC rules, shareholders are issued call options, warrants or other contingent value rights for their claims, which would not have any value until the unsecured claimants had been paid in full.

• So equity wipe out may be de facto rather than de jure
• How sensitive are conclusions to the wipe-out assumption? Perhaps it can be motivated through unrealized loss rather than regulatory action
Have We Transitioned From Bailouts to Bail-Ins?

• According to the paper, large banks had
  – bailout expectations in 2000:Q3 to 2007:Q2
  – bail-in expectations in 2010:Q3 to 2017:Q2

• Transition associated with higher capital ratios, loss of ratings uplift

• How firm are the new expectations?
Have We Transitioned From Bailouts to Bail-Ins?

- In joint OFR work with Kay, Neuberg, and Rajan, we exploit a change in CDS definitions for European banks (“government intervention” event) to develop a market-based measure of the credibility of no-bailout reforms, average over 19 banks.

- By this measure, credibility improved up to 2016.

- Trend reversed following partial bail-outs of Italian banks.

- Unclear to what extent doubts in Europe apply in the U.S.
Summary

• A rich, dynamic model to study alternative regulatory policies and compare their effects

• Most important conclusion:
  – Bail-in regime leads banks to set higher capital levels and to pre-commit to raising equity in the future to stave off bail-in

• Main question: what are the roles of
  – Debt rollover
  – Equity wipe-out at bail-in
  – Jump risk and stress test in driving this conclusion