Discussion of

“Bank Bailouts, Bail-ins, or No Regulatory Intervention? A Dynamic Model and Empirical Tests of Optimal Regulation”

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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?

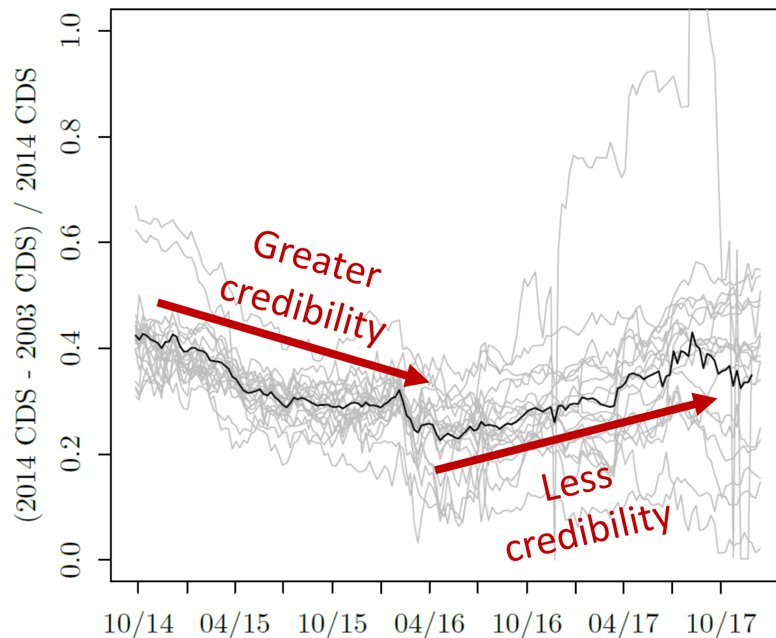
- According to the paper, large banks had
  - bailout expectations in 2000:Q3 to 2007:Q2
  - bail-in expectations in 2010:Q3 to 2017:Q2

- 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