Risk-shifting, Regulation and Government Assistance

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Disclaimer

This presentation reflects the views of the speaker and not necessarily the views of the Federal Reserve Bank of Kansas City or the Federal Reserve System.
Overview

- Impact of bailouts on risk-taking of ongoing institutions.
- Natural experiment - discontinuation of bailouts in 1989.
- Change in de facto resolution method during a crisis.

Findings:
- Evidence of moral hazard effects of bailout expectations.
- Risk-shifting from equity to debt holders as a mechanism.

Implications for provisions of OLA under Dodd-Frank Act.
- Internalization of “no-bailout” expectations by shareholders is important in curbing moral hazard.
Background: The S&L Crisis

Figure: *Distribution of failed thrifts across time and by resolution type*
Process following failure of a thrift institution

- FSLIC both insurer and resolution authority
- Resolution under FSLIC:
  - Assistance \(\rightarrow\) bailout
  - Purchase and Assumptions \(\rightarrow\) acquisition by healthy thrift
  - Deposit Payout \(\rightarrow\) liquidation
- FSLIC declared insolvent in 1986 - attempts to rebuild its funds.
- Feb. 6th, 1989: Proposal for replacement of FSLIC with RTC
- Resolution under RTC:
  - Assistance
  - Purchase and Assumptions
  - Deposit Payout
Failures by Resolution Type

Resolution categories of S&L failures

Figure: Distribution of failed thrifts across time and by resolution type
Roadmap for analysis

1. Did bailouts to thrifts induce moral hazard effects?
   - Did thrifts that are already distressed increase or decrease risk-taking relative to healthier thrifts?

2. Is there evidence of risk-shifting from equity-holders to debt-holders?
   - Did stock thrifts change their risk-taking differently from mutual thrifts?
Did bailouts to thrifts induce moral hazard effects?
Empirical Strategy

- Ideal experiment: Measure balance sheet changes across
  - Thrifts at High vs. Low probability of failure
  - Pre-1989 vs. post-1989

- Limitations of standard methods
  - No unique definition of “high” and “low” failure probability.
  - Level of distress is not independent of balance sheet decisions.
  - Assumption of parallel trend in balance sheet composition is restrictive

- Develop Bayesian estimation method to address issues
  - Generate clusters of thrifts that respond differently to policy.
  - Identify group that responds to change as “treated”, other as “control”.
  - Is grouping based on pre-existing, intrinsic risk?
  - If yes, how does response differ?
Outcome of interest

Observed outcome: Year-over-Year Change in Balance sheet components

\[ \% \Delta B_{it} = \frac{\text{Balance of Asset type } j_{it}}{\text{Total Assets}_{it}} - \frac{\text{Balance of Asset type } j_{it-4}}{\text{Total Assets}_{it-4}} \]

\[ j = 1, 2, \ldots, J \]
\[ t = 1, 2, \ldots, T \]
Model Flow

Active Thrifts

- Group 1 "Treated"
  - Pre-treatment risk-taking
    - Previous period fin. variables, state, county effects, thrift fixed effects
  - Post-treatment risk-taking
  - Long-term averages of fin. ratios

- Group 2 "Control"
  - Pre-treatment risk-taking
    - Previous period fin. variables, state, county effects, thrift fixed effects
  - Post-treatment risk-taking

1-p

p
Model Flow

Active Thrifts

- p
  - Group 1 "Treated"
    - Pre-treatment risk-taking
      - Previous period fin. variables, state, county effects, thrift fixed effects
    - Post-treatment risk-taking

- 1-p
  - Group 2 "Control"
    - Pre-treatment risk-taking
      - Previous period fin. variables, state, county effects, thrift fixed effects
    - Post-treatment risk-taking

Is grouping based on pre-existing levels of risk?
Model Flow

Active Thrifts

- **Group 1** "Treated"
  - Pre-treatment risk-taking ($A_0$)
    - Long-term averages of fin. ratios
    - Previous period fin. variables, state, county effects, thrift fixed effects
  - Post-treatment risk-taking ($A_1$)
  - Pre-treatment risk-taking ($B_0$)
  - Post-treatment risk-taking ($B_1$)

- **Group 2** "Control"

<table>
<thead>
<tr>
<th>Is grouping based on pre-existing levels of risk?</th>
<th>Results: Yes.</th>
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Treatment Effect = ($A_1 - A_0) - (B_1 - B_0)$
A Priori Hypotheses

▶ Moral Hazard - thrifts close to failure reduce risk-taking after 1989.

▶ Franchise value - thrifts close to failure increase risk-taking after 1989.
Which Institutions Respond and How?

Moral hazard effects dominate franchise value effects

Thrifts with
- concentrated credit risk,
- higher proportion of volatile liabilities,
- lower securities and
- larger size,
respond with
- Increase in composition of safe assets (cash and securities),
- Decline in composition of “high-risk” assets (CLD loans)
- Decline in composition of “high-risk” liabilities (Brokered deposits)
Riskier thrifts decrease composition of CLD loans
Average Treatment Effect of -0.2%

Figure: Average values of covariates across the two classes
Riskier thrifts increase composition of Securities
Average Treatment Effect of 5.2%

Figure: Average values of covariates across the two classes
Is there evidence of risk-shifting from equity-holders to debt-holders?
Risk-shifting
Differences across stock and mutual thrifts

- Equity-holders of stock thrifts hold leveraged investments
  - Potential to shift risk to debt-holders.
- Depositor-owners in mutual thrifts bear all risks
  - Risks cannot be shifted.
- Ownership structure pre-determined, exogenous to change in balance sheet.
- Measure balance sheet changes across
  - Stock vs. Mutual thrifts
  - Pre-1989 vs. post-1989
Model Flow

Stock Thrifts "Treated"

- Pre-treatment risk-taking ($A_0$)
  - Previous period fin. variables, state, county effects, thrift fixed effects
- Post-treatment risk-taking ($A_1$)

Mutual Thrifts "Control"

- Pre-treatment risk-taking ($B_0$)
  - Previous period fin. variables, state, county effects, thrift fixed effects
- Post-treatment risk-taking ($B_1$)

Treatment Effect = ($A_1 - A_0) - (B_1 - B_0$)
Stock vs. Mutual Thrifts: Assets

Figure: Box plot of the posterior distribution of Average Treatment Effects for balance sheet components
Figure: Box plot of the posterior distribution of Average Treatment Effects for balance sheet components
Counterfactual Analysis

$2.14$ billion foregone high-risk lending and $4.5$ billion in additional Securities
Conclusion

- Expectations of bailouts influence risk-taking.
  - Following end of assistance programs, thrifts at high probability of failure
    - Reduced share of high-risk loans,
    - Increased share of securities.

- Shareholder expectations of future bailouts important in addressing moral hazard.
  - Stock thrifts reduced risk-taking relative to mutual thrifts following change in policy.

- Development of new, flexible method to study policy changes.