# 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:
  - $\blacksquare Assistance \rightarrow bailout$
  - $\blacksquare$  Purchase and Assumptions  $\rightarrow$  acquisition by healthy thrift
  - $\blacksquare \text{ Deposit Payout} \rightarrow \text{liquidation}$
- ▶ FSLIC declared insolvent in 1986 attempts to rebuild its funds.
- $\blacktriangleright$  Feb.  $6^{th}$ , 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

$$\label{eq:alphabeta} \% \Delta \mathsf{B}_{it} = \frac{\mathsf{Balance of Asset type } \mathsf{j}_{it}}{\mathsf{Total Assets}_{it}} - \frac{\mathsf{Balance of Asset type } \mathsf{j}_{it-4}}{\mathsf{Total Assets}_{it-4}}$$
$$j = 1, 2, ..., J$$
$$t = 1, 2, ..., T$$







Treatment Effect =  $(A_1 - A_0) - (B_1 - B_0)$ 

# A Priori Hypotheses

- Moral Hazard thrifts close to failure reduce risk-taking after 1989.
  - Dam and Koetter (2012), Duchin and Sosyura (2014).
- Franchise value thrifts close to failure increase risk-taking after 1989.
  - Keeley (1990), Cordella and Yeyati (2003).

# Which Institutions Respond and How?

Moral hazard effects dominate franchise value effects

#### Thrifts with

- concentrated credit risk,
- higher proportion of volatile liabilities,
- Iower 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



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

# Stock vs. Mutual Thrifts: Liabilities



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.