

# Deposit Insurance and Bank Risk-Taking

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**How does deposit insurance affect bank risk-taking?**

# The Literature

- ▶ **Theory of Deposit Insurance:**

Diamond & Dybvig (1983), Freixas & Rochet (1998), Dávila & Goldstein (2015)

- ▶ **Deposit Insurance, Moral Hazard and Limited Commitment:**

Kareken & Wallace (1978), Cooper & Ross (2002), Cooper & Kempf (2016)

- ▶ **Deposit Insurance and Risk-Taking:**

Demirgüç-Kunt and Detragiache (2005), Ioannidou and Penas (2010), Anginer, Demirgüç-Kunt and Min (2014), Gropp et al. (2014)

# Contribution

The literature:

- ▶ Cross-country analysis: Comparing different financial systems
- ▶ Reverse causality
- ▶ Measuring risk taking through balance sheet data

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- ▶ Cross-country analysis: Comparing different financial systems
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This paper:

- ▶ Cleaner identification through a change in regulation
- ▶ Measure risk-taking through loan application data



## DI in the US

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- ▶ FDIC was set up in 1933 and covers deposits in banks in the US up to a certain limit.
- ▶ In addition, state chartered savings banks in Massachusetts are covered by a private deposit insurance company, the DIF, which offers **unlimited** deposit insurance above the FDIC limit.
- ▶ Membership to this unlimited insurance is **mandatory**

## Identification

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- ▶ October 2008: The FDIC increased statutory coverage limit from \$100,000 to \$250,000 temporarily
- ▶ July 2010: The increase was made permanent
- ▶ Since banks in MA had unlimited coverage, they are immune to this change
- ▶ Set-up:
  - ▶ Use MA banks as control group
  - ▶ Matching on observables

# Data

- ▶ FDIC
  - ▶ Quarterly balance sheet data
  - ▶ Dates: 2000q1-2016q4



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## ▶ HMDA

- ▶ Properties of the applicant (race, gender, income)
- ▶ Loan properties (amount, type, purpose, rate spread, occupancy)
- ▶ Properties of the property (type, census tract, etc.)
- ▶ Properties of the census tract (income relative to the relevant Metropolitan Statistical Area, minority population, number of housing units, etc.)
- ▶ Action taken (origination, denial and its reason, purchase, etc.)
- ▶ Dates: 2002-2015 yearly

## A Measure of Risk-Taking

We estimate a propensity to originate the loan given the loan risk characteristics ( $LtI$ ).

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$$Origin_{t,i,j} = \gamma_t^0 + \gamma_{t,i}^1 Ltl_{t,i,j} + \epsilon_{t,i,j} \quad (1)$$

where

$Origin_{t,i,j} = 1$  if loan is originated

$Origin_{t,i,j} = 0$  if the application is rejected

## Difference in Differences

$$\hat{\gamma}_{t,i}^1 = \beta_0 + \beta_1 D_T + \beta_2 D_{after} + \beta_3 D_T D_{after} + \epsilon_{t,i} \quad (2)$$

$D_T=1$  if treated

$D_{after}=1$  if  $t \geq 2007$

# The Crisis

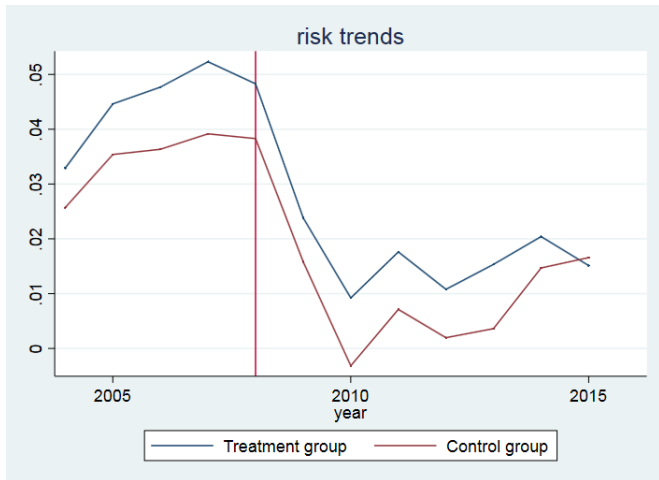
Response to DI may be different during the crisis. Anginer et al. (2014).

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$$\begin{aligned}\hat{\gamma}_{t,i}^1 = & \beta_0 + \beta_1 D_T + \beta_2 D_{after} + \beta_3 D_T D_{after} \\ & + \beta_4 D_{crisis} + \beta_5 D_T D_{crisis} + \epsilon_{t,i}\end{aligned}$$

# Parallel Trends



# Results

VARIABLES	(1) $\gamma_{t,i}^1$	(2) $\gamma_{t,i}^1$
$D_T$	0.0104*** (0.00304)	0.0104*** (0.00304)
$D_{after}$	-0.0223*** (0.00334)	-0.0256*** (0.00350)
$D_T D_{after}$	-0.00172 (0.00441)	-0.00309 (0.00467)
$D_{crisis}$		0.00813 (0.00574)
$D_T D_{crisis}$		0.00343 (0.00687)
Constant	0.0342*** (0.00205)	0.0342*** (0.00205)
Observations	1,451	1,451
R-squared	0.073	0.082

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$



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## Robustness - Different Treatment Dates

VARIABLES	(1) Treatment in 2007	(2) Treatment in 2010
$D_T$	0.00936*** (0.00334)	0.00989*** (0.00270)
$D_{after}$	-0.0175*** (0.00332)	-0.0254*** (0.00375)
$D_T D_{after}$	-4.93e-05 (0.00448)	-0.00160 (0.00466)
Constant	0.0325*** (0.00227)	0.0318*** (0.00187)
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The result:

- ▶ DI does not increase risk-taking, at least on the intensive margin

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## Policy implication:

- ▶ Policy trade off: Eliminate bank runs vs increase systemic risk due to moral hazard

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## Robustness:

- ▶ Split treatment period between crisis and normal times
- ▶ Use 2007 as treatment date in case of anticipation
- ▶ Use 2010 as treatment date in case the lack of significance is driven by the temporary nature of the initial treatment

## Policy implication:

- ▶ Policy trade off: Eliminate bank runs vs increase systemic risk due to moral hazard
- ▶ Not the case for increases in DI coverage