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"Private deposit insurance, enforcement actions and deposit flows "

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PRIVATE SECTOR DEPOSIT INSURANCE AND DEPOSIT FLOWS DURING THE CRISIS

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Overview

We study whether banks with unlimited deposit insurance provided by a private deposit insurance fund:

- **Receive additional deposit inflows** during the recent financial crisis.

- **Create more liquidity/loans** during the recent financial crisis.

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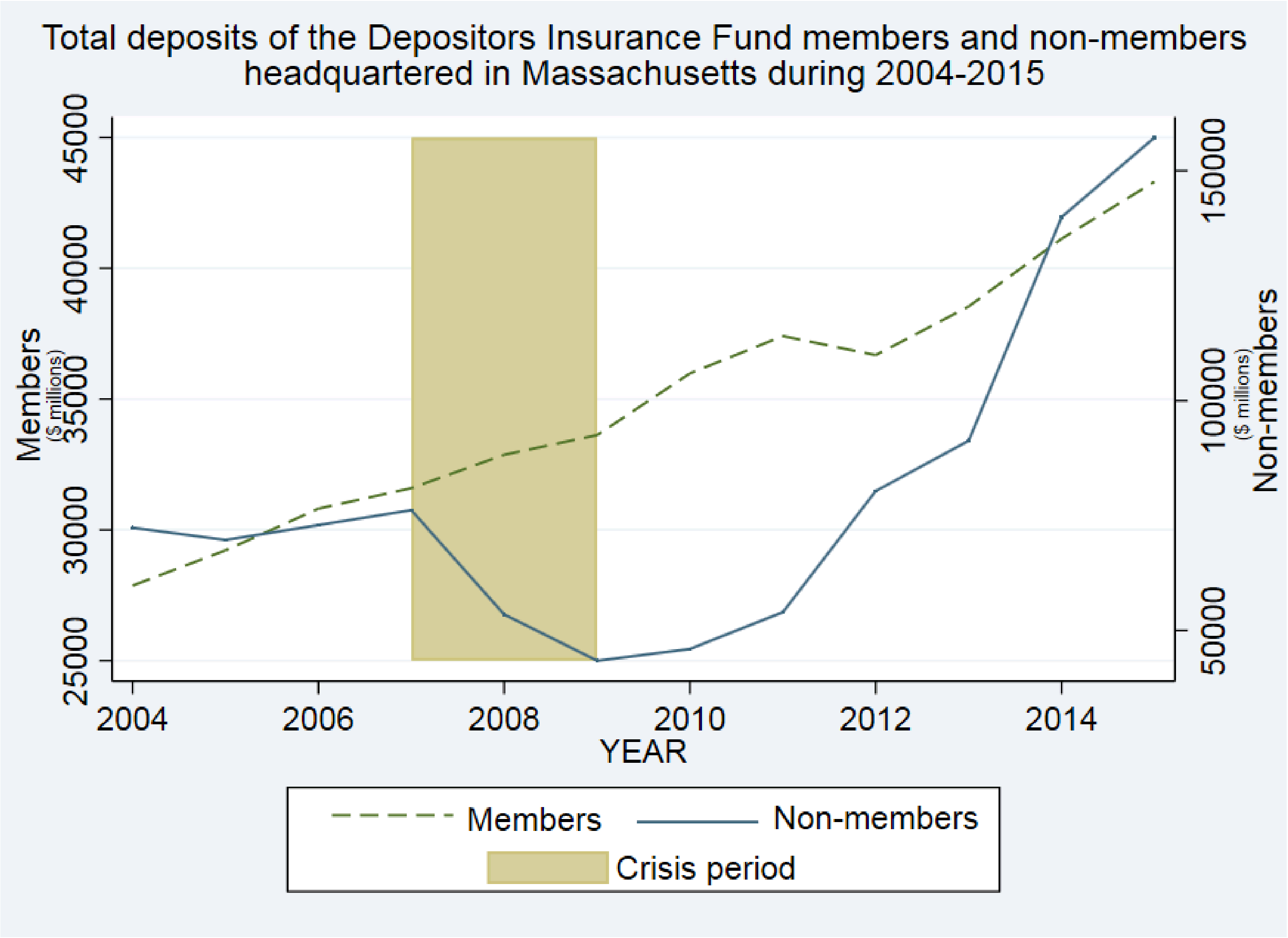
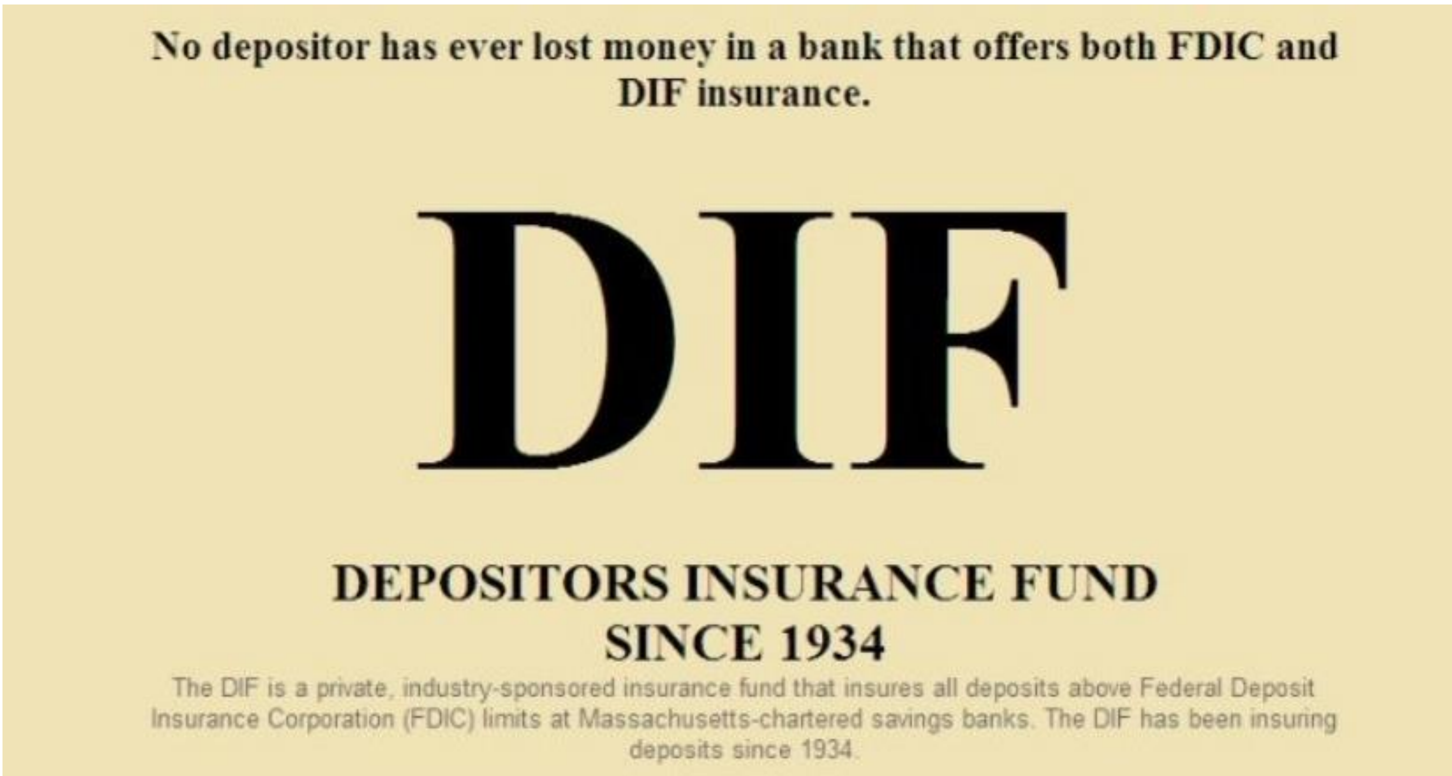
Bank deposits 2004-2015



Introduction: Depositors Insurance Fund



The DIF is a private, industry-sponsored insurance company providing deposit insurance to Massachusetts state-charted savings banks since 1934.

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Depositors Insurance Fund (DIF) details

DIF characteristics:

- Unlimited deposit insurance coverage.
  - *All deposits above FDIC insurance coverage in DIF member banks are insured by the DIF.*
- Risk adjusted premium.
  - *The DIF charges its members based on their risk categories without limit.*
  - *Discourage excessive risk-taking.*
- Privately-funded and privately-managed.
  - *Management of the DIF primarily comprises of member banks' management.*
  - *Minimize the information cost of monitoring and increase management's incentive of monitoring (skin in the game).*
- Abundant reserve to cover insured deposits.
  - *Gross coverage ratio is defined as total assets over insured deposits.*
  - *Higher gross coverage ratio, comparing with the federal deposit insurance.*
- Mutual liabilities among members.
  - *Encourage mutual monitoring and mutual support.*

Comparison of the characteristics of successful and failed deposit insurance funds in U.S. history with the DIF

Deposit insurance / Characteristics	Successful in the pre-FDIC period	Failed in the pre- FDIC period	The DIF
Mutual liabilities among member	Yes	No	Yes
Power to regulate and discipline banks	Yes	No	Yes
Reserve to cover insured deposits	Abundant	Limited	Abundant
Management primarily comprises of member banks' management	Yes	No	Yes
Risk adjusted premium	Yes	No	Yes

White (1981); Calomiris (1989); Calomiris (1990); English (1993).

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DIF media coverage

MONEY

Massachusetts Sets Standard on Deposits

By Jilian Mincer

Updated Aug. 5, 2008 12:01 a.m. ET

Turmoil in the banking industry has been a boon for state-chartered banks and some credit unions in Massachusetts. In recent weeks, they've been inundated with inquiries from new and existing clients.

Behind the sudden popularity: These institutions provide customers with unlimited coverage on bank accounts, no matter the size or structure. The coverage also applies to consumers who live out of state but bank in Massachusetts. Federal Deposit Insurance Corp., by contrast, typically guarantees deposits only up to $100,000.

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Unlimited deposit insurance? Yes, at some Mass banks.

Posted by Cheryl Costa August 5, 2008 10:00 AM

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I've written about this before, but I am still getting questions so it makes sense to re-visit the topic of Depositors Insurance Fund (DIF) and Share Insurance Fund (SIF) coverage -- especially since this unique-to-Massachusetts insurance is now receiving national attention in publications like the Wall Street Journal.

In the way of background information: savings banks in Massachusetts offer additional deposit insurance in the form of DIF coverage and co-operative banks offer additional deposit insurance in the form of SIF coverage. Both DIF and SIF coverage is provided in addition to FDIC insurance and banks providing this coverage advertise that they provide customers with unlimited coverage on their accounts -- with no limits on account size or titling. This coverage is also extended to people who bank, but do not live, in Massachusetts.

Research questions

We study whether banks with unlimited deposit insurance provided by a private deposit insurance fund:

- **Receive additional deposit inflows** during the recent financial crisis.
- **Create more liquidity/loans** during the recent financial crisis.

Hypothesis 1

We study whether banks with unlimited deposit insurance provided by a private deposit insurance fund:

- **Receive additional deposit inflows** during the recent financial crisis.

Deposit insurance is one of the most important government support to entitle banks as safe haven for wealth during financial crises (Pennacchi (2006); Acharya and Mora (2015)).

- **Hypothesis 1:** Following the onset of the financial crisis, deposits increase for DIF member banks.

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Research questions

We study whether banks with unlimited deposit insurance provided by a private deposit insurance fund:

- **Create more liquidity/loans** during the recent financial crisis.

Hypothesis 2

Liquidity creation is one of the most essential functions of banks, along with risk transformation (Bryant (1980); Diamond and Dybvig (1983)) .

Liquidity creation is particularly important to the real economy during financial crises (Gibson (1995); Ongena, Smith and Michalsen (2003); Dell'Ariccia, Detragiache and Rajan (2008)) .

- **Hypothesis 2**
  - **Hypothesis 2a**: Following the onset of the financial crisis, lending/liquidity creation increases for DIF member banks.
  - **Hypothesis 2b**: Following the onset of the financial crisis, lending/liquidity creation decreases or stays constant for DIF member banks.

We test Hypothesis 2 with the measure of liquidity creation developed by Berger and Bouwman (2009).

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Data

Branch level deposit data

- Annual data for the period 2004-2015 for branches of commercial and savings banks in the U.S from the Summary of Deposit.
- Information on membership is available from 2004 annually and the time span includes the recent financial crisis period (2007Q2-2009Q4).

Bank level data

- Quarterly data for commercial and savings banks from the Call Reports in Q1:2004- Q4:2015.
- Majority of tests are based on all branches in Massachusetts and banks headquartered in Massachusetts.
- Data are winsorized at 1% and 99% percentile.

Econometric model: Branch level

On the branch level, we estimate:

$$Deposit_{v,i,t} = \beta_0 + \beta_1 \, Membership_i \times Crisis_t + \delta X_{i,t} + \gamma_v + \gamma_t + \epsilon_{v,i,t}$$

- $Deposit_{v,i,t}$ is the logarithm of deposits for branch *v* operated by bank *i* at time *t*, capturing deposits of each branch.
- $Membership_i$ equals to one if a bank *i* is a member of the DIF (otherwise 0).
- $Crisis_t$ equals to 1 for the 2007:Q3 – 2009:Q4 crisis period (otherwise 0).
- $X_{i,t}$ is a vector of time-varying bank-level control variables, including the logarithm of total assets, interest expenses on deposits, charge off ratio and Tier 1 capital ratio.
- γ_v and γ_t capture branch and year effects respectively.
- Heteroskedasticity-adjusted standard errors are clustered on the branch level.

Econometric model: Bank level

On the bank level, we estimate

$$Y_{i,t} = \beta_0 + \beta_1 \, Membership_i \times Crisis_t + \delta X_{i,t} + \gamma_i + \gamma_t + \epsilon_{i,t}$$

- $Y_{i,t}$ is the logarithm of deposits/lending/liquidity creation for bank *i* at time *t* in the testing of Hypothesis 1.
- Other variables follow the branch level model, **except $\boldsymbol{\gamma_i}$, captures bank effect and $\boldsymbol{\gamma_t}$ captures quarter effects.**
- Heteroskedasticity-adjusted standard errors are clustered on the bank level.

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Endogeneity and counterfactual

Exogeneity assumption:

- DIF member banks are local savings banks, their contribution to systemic risk is limited.
- We define members of the DIF as banks that are consistently members of the DIF during 2004-2015.

Valid counterfactual?

- We compare the quarterly growth of various dependent variables over 4 quarters of DIF member banks to non-DIF banks headquartered in Massachusetts during the pre-crisis period.

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DIF membership and branch-level deposits

Table 4

Panel A: Sample period 2004-2015					
Dependent variable:			Branch deposits (ln)		
Sample:	Full sample	Full sample	All branches in MA	MA branches operated by MA banks	MA branches of Members & Non-MA banks
Membership*Crisis	0.018**	0.022**	0.093***	0.032**	0.083***
	(2.02)	(2.57)	(8.62)	(2.08)	(7.41)
Controls/Branch FE/Year FE	YES	YES	YES	YES	YES
Observations	69,157	69,157	13,209	7,118	10,369
SE Cluster	Branch	Branch	Branch	Branch	Branch
Panel B: Sample period 2006-2008					
Membership*Crisis	0.034**	0.064***	0.167***	0.061***	0.126***
	(2.78)	(5.24)	(11.14)	(3.43)	(8.81)

Inflow of deposits to DIF member branches during the crisis.

Inflows are particularly strong before the increase in federal deposit insurance limit.

The effect of the DIF on deposits is more pronounced when we only consider branches in Massachusetts.

The effect is economically significant: DIF member banks deposits increase by 17.7% during the first year of crisis.

DIF membership and branch-level deposits

Deposit inflows are stronger in comparison to branches of banks with higher pre-crisis uninsured deposits.

The findings are consistent with the hypothesis that depositors transfer uninsured deposits from non-DIF banks to DIF member banks.

Table 5

Panel A: Sample period 2004-2015		
Dependent variable: Branch deposits (ln)		
Sample:	All branches in MA	
Control group split:	Uninsured deposits	
	> Median	>= Median
Membership*Crisis	0.096***	0.047*
	8.77	1.93
Controls/Branch FE/Year FE	YES	YES
Observations	12,547	4,940
SE Cluster	Branch	Branch
Panel B: Sample period 2006-2008		
Membership*Crisis	0.173***	0.088**
	(11.60)	(2.47)

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DIF membership and branch-level deposits

Table 6

Panel A: Sample period 2004-2015				
Dependent variable: Branch deposits (ln)				
Sample:	All branches in MA			
Control group:	Subject to enforcement actions	Not subject to enforcement actions	Subject to Severe enforcement actions	Subject to Less severe enforcement actions
Membership*Crisis	0.108***	0.038**	0.131***	0.076***
	(9.24)	(2.22)	(8.43)	(6.76)
Controls/Branch FE/Year FE	YES	YES	YES	YES
Observations	11,817	5,670	9,645	7,712
SE Cluster	Branch	Branch	Branch	Branch
Panel B: Sample period 2006-2008				
Membership*Crisis	0.178***	0.090***	0.214***	0.132***
	(10.79)	(4.27)	(11.21)	(5.54)

Deposit inflows are stronger in comparison to branches of banks subject to enforcement actions.

Severe enforcement actions trigger deposit flows stronger in magnitude.

DIF membership and branch-level deposits

Additional analysis shows that the increase in deposits for DIF members is stronger when the control group only consists of:

- Multi Bank Holding Companies (MBHC) members.
- Banks benefiting from the Troubled Asset Relief Program (TARP).
- Banks holding lower level of Tier 1 capital and higher share of charged off loans.

Liquidity creation of DIF member banks

DIF member banks create more liquidity during the recent crisis.

The magnitude of this effect varies between 6-10% depending on the measure of liquidity creation.

DIF members create more liquidity through holding more assets in longer maturities.

- Assets include: Commercial and industrial loans, Real estate loans with maturities of 1 year and longer.
- The volume of illiquid assets increases by 5-8%.

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Concluding remarks

- Depositors consider the DIF to provide additional protection to their wealth during the financial crisis.
- Investors transfer deposits to DIF member banks during the crisis.
- DIF member banks create more liquidity during the recent financial crisis.
- Credibility of a deposit insurance does not entirely depend on government support.
- A well-designed private deposit insurance with an incentive compatible mechanism may serve as a complement of government-supported deposit insurance.

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