

# Bank Enforcement Actions and Bank Behavior ( Terms of Lending)

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# Key Issues

Market regulation to prevent failures has been a central theme in economic research since at least the time of Pigou, but the effective enforcement of law on the books has received less attention.

In the banking industry, macro-prudential regulation is the *sine qua non* of the effort to contain and smooth out the harmful real effects of banking crises. However, regulations would be void without enforcement. Enforcement actions enacted on banks are the single most important tool to implement regulatory policy on the books.

Do these actions have real welfare effects on banks' customers? In this paper we investigate *for the first time* the effects of these actions on the main terms (price and non-price) of corporate lending.

# Subprime crisis

- Markets failed to safeguard themselves from a deep turmoil
- Regulators failed to safeguard the stability of the banking system, despite this being one of the most regulated areas of economic activity

# History of the paper

- Effective supervision as the an essential condition of the regulation of the banking industry
- Is it the laws, or their implementation?
- What do we know about regulatory effectiveness?
- Can we find bank-level data?

# Motivation of Research in this field

- Improve our understanding of regulatory compliance
- Increase the efficiency of regulations
- Scarce empirical evidence about supervisory enforcement actions and bank behavior, earning quality and lending practices (terms of lending - real effect).

# On formal enforcement actions

- Formal enforcement actions against banks for
  - Violations of laws and regulations
  - Unsafe or unsound banking practices
  - Breaches of fiduciary duty
  - Violations of final orders and conditions imposed in written agreements
- Essential component of supervisory review

(Pillar II, Basel Committee 2006 )
- Formal enforcement actions provide meaning to “blank letter” of legal rules (Bhattacharya and Daouk, JF 2002, Delis and Staikouras, 2011, ROF )

# Formal enforcement actions' objectives

- Increase bank soundness
  - Higher risk-based capital ratios
- Impose more prudent bank behavior
  - Decrease total bank risk
  - Adjust the composition of bank's assets
- Improve stability of the banking system
- Yet, potential short-run repercussions, e.g.
  - Inferior performance

# Related literature

## ● Relationship between

### ● On-site audits and bank discipline: Positive

(Swindle, 1995; DeYoung et al., 2001)

### ● Enforcement actions and

- Loan growth: Negative

(Peek and Rosengren (1995, 1996)

- Bank risk: Negative

(Aggregate data, 17 countries) (Delis and Staikouras, 2011)

- Stock prices: Negative

(Brous and Leggett, 1996; Jordan et al., 1999; Slovin et al., 1999)

- Deposits' growth rates and yields: Absent


(Gilbert and Vaughan, 2000)



# These studies

- Look for the first time into all formal enforcement actions imposed on US banks by FDIC and OCC, one by one, for 2000-2010
- Categorize them according to their relevance for bank's safety and soundness
- Examine their impact on banks' regulatory capital, risk and performance, their timing and effectiveness
- Impact on Earning Quality
- **Impact on Lending Practices (Terms of Lending)**

# Classification of enforcement actions on a one-by-one basis

Relevance for banks' safety and soundness	Class	Reasons
	1	Capital adequacy and liquidity, asset quality, provisions and reserves, large exposures and exposures to related parties
	2	Internal control and audit systems, money laundering, bank secrecy, consumer protection and foreign assets control
	3	Breaches of the requirements concerning the fitness and propriety of banks' board members and senior management
	4	Typical infringements of specific laws (e.g., Home Mortgage Disclosure Act, Flood Insurance Act, Flood Disaster Protection Act, etc)

# Sample construction

Steps	Number of enforcement actions
Raw data collection <ul style="list-style-type: none"><li>➤ Sources: FDIC and OCC</li><li>➤ Sample period: 2000Q1 – 2010Q4</li></ul> Classification	3,642
Matching of involved FIs to call reports' name, city and state Call Reports data availability Matching of effective dates to quarters- e.g., all sanctions effective from 1/1 to 3/31 matched to Q1, One sanction per quarter, Higher class outshines lower one	2,458
Class 1 enforcement actions	1,049
Class 1 enforcement actions with a clean (-4, +4) quart event window i.e., no other enforcement action of any type (1 to 4) imposed within (-4, +4) quarter frame	<b>859</b>
<b># of distinct commercial banks</b>	<b>797</b>

**Panel A. Number of Formal Enforcement Actions  
in the Sample per Class**

**Panel B. Number of Class 1  
Enforcement Actions per  
Supervisory Agency**

**Panel C. Class 1 Enforcement  
Actions with a Clean Event  
Window for  
FDIC and OCC**

	Class 1	Class 2	Class 3	Class 4	Total	FDIC	OCC	
2000	34	9	32	4	79	18	16	29
2001	47	12	26	40	125	22	25	37
2002	66	16	29	34	145	26	40	57
2003	50	11	45	21	127	20	30	38
2004	52	10	53	31	146	19	33	37
2005	33	12	91	29	165	6	27	27
2006	30	16	91	43	180	9	21	24
2007	31	22	55	76	184	18	13	22
2008	91	26	52	75	244	36	55	71
2009	253	30	47	105	435	160	93	198
2010	362	31	90	145	628	253	109	319
Total	1,049	195	611	603	2,458	587	462	859

## ● First Sets of Questions

- The impact of enforcement actions targeting the core of the banks' financial safety and soundness on the regulatory capital, risk, and performance of punished banks
- The timing and effectiveness of these enforcement actions

# Past Work II

- Second Sets of Question
- *Banks' earnings quality improves after Class 1 enforcement actions.*
- *Banks' earnings quality does not improve after Class 3 enforcement actions.*
- *The improvement in earnings quality after Class 1 enforcement actions comes from those actions that have effectively decreased the excessive risks of the punished banks.*

# Bank response variables – 1<sup>st</sup> sets of Questions

## ● Ratios

- Risk-based capital ratio (total risk-based capital to risk-weighted assets)
- Ratio of risk-weighted assets to total assets
- Non-performing loans to total loans
- ROA and standard deviation of ROA (rolling 12 quarters estimate)
- Liquidity ratio (liquid assets to total assets)

## ● Levels of variables

- Risk-based capital
- Risk-weighted assets (total and different risk categories, i.e., 20%; 50%; 100% risk category)
- Total loans

# Results for the first sets of Questions – Bank ratios

Dependent Variable (Change from t to t+4):	Risk-Based Capital Ratio	Risk-Weighted Assets Ratio	ROA	$\sigma$ ROA	Non-Performing Loans Ratio	Liquidity Ratio
Class 1 Enforcement Action	0.067*** (7.43)	-0.032*** (-3.49)	0.001 (0.26)	0.009*** (10.53)	-0.018*** (-8.46)	0.024*** (4.11)
<u>First-Stage</u>						
Gender of Supervisor's Bank Examiners	1.377*** (5.83)	1.377*** (5.83)	1.377*** (5.83)	1.377*** (5.83)	1.365*** (5.77)	1.377*** (5.83)
First Stage Pseudo-Rsq	0.174	0.174	0.174	0.174	0.172	0.174
Observations	263,170	263,164	263,176	263,176	262,937	263,177

- Increase in risk-based capital ratio
- Corrective effect in risk-weighted assets ratio
  - Portfolio shrinkage, asset restructuring, and most notably, write-offs
- Volatility of profits increases
- NPL ratio drops, liquidity increases



# Post-crisis analysis

Dependent Variable (Change from t to t+4):	Risk-Based Capital Ratio	Risk-Weighted Assets Ratio	ROA	$\sigma$ ROA	Non-Performing Loans Ratio	Liquidity Ratio
Class 1 Enforcement Action * After Crisis Dummy	-0.023***	0.016***	0.001	-0.002***	0.005***	0.002
	(-5.53)	(3.58)	(0.60)	(-4.51)	(6.75)	(0.67)
Dependent Variable (Change from t to t+4):	Risk-Based Capital	Risk-Weighted Assets	Risk-Weighted Assets 20	Risk-Weighted Assets 50	Risk-Weighted Assets 100	Total loans
Class 1 Enforcement Action * After Crisis Dummy	-0.131***	0.025**	-0.117***	0.007	0.053***	0.032**
	(-11.52)	(1.99)	(-3.57)	(0.23)	(3.26)	(2.31)

**In the post-crisis period, the latitude of the punished banks' management is severely constrained, especially in areas beyond the bank management's direct control (e.g., in raising new capital and managing problem loans)**

<u>Full sample</u>		
Dependent Variable:	Inactive	Inactive One Year
Class 1 Enforcement Action	0.434***	0.293***
	(39.64)	(37.98)
<b><u>Including Only Bank-Quarters during which the <i>Capital Quarter Fall</i> and the <i>Risk-Weighted Assets Quarter Rise</i> is less than two</u></b>		
Class 1 Enforcement Action	0.253***	0.144***
	(24.81)	(22.69)

- The imposition of Class 1 enforcement actions after a relatively prolonged period of continuous deterioration in a bank's financial condition is significantly and positively associated with the probability that the punished bank enters serious distress

## ● Class 1 enforcement actions:

- **Curtail the punished banks' risk-taking incentives**
- **Constrain their risk-weighted assets through portfolio shrinkage and asset restructuring, most notably write-offs**
- **Reduce the non-performing loans ratio, thereby also assisting in the recovery of the punished banks' credit risk profiles**
- **Increase volatility of ROA, which implies an increased risk of insolvency**

# Conclusions / Implications

- Post-crisis period drives our baseline results
- **Class 1 enforcement actions caused punished banks' capital to fall disproportionately to the decline in risk-weighted assets and punished banks faced severe difficulty in reducing their non-performing loans ratio**
- Our findings provide credible justification for reconsidering banking authorities' enforcement policy during periods of economy-wide turmoil
- **The timing of the Class 1 enforcement actions affects the disciplinary impact of such actions on bank behavior**

- **Second Sets of Questions**
- *Banks' earnings quality improves after Class 1 enforcement actions.*
- *Banks' earnings quality does not improve after Class 3 enforcement actions.*
- *The improvement in earnings quality after Class 1 enforcement actions comes from those actions that have effectively decreased the excessive risks of the punished banks.*

## Group 1 and Group 3:

- **The first group directly targets bank risk issues (e.g. capital adequacy, liquidity, asset quality, adequacy of reserves, large risk exposures, and exposures to related parties).**
- **The second group does not target risk issues and concerns infringements of specific laws, such as the Home Mortgage Disclosure Act, National Flood Insurance Act, Flood Disaster Protection Act, and others.**
- **Our final samples include 1,469 Class 1 actions and 623 Class 3 actions.**

● We use the following five bank earnings quality measures:

1. Earnings smoothing

2. “Big-bath” accounting

3. Timely recognition of future loan losses

4. Loss avoidance (using discretionary LLP to avoid reporting a loss)

5. The association between loan loss provisions and future charge-offs

6. Cash flow predictability and earnings persistence

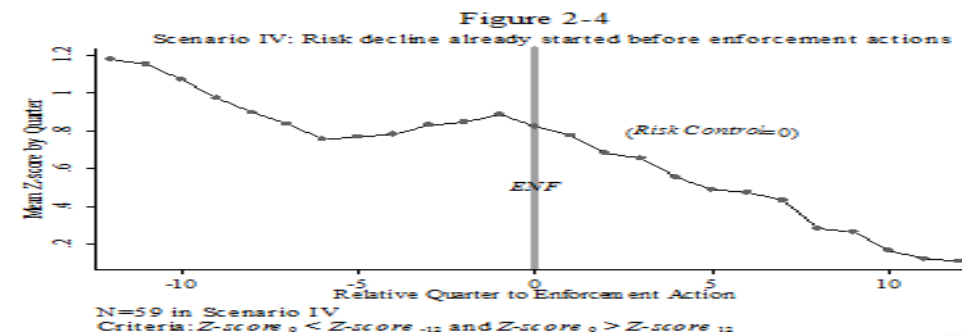
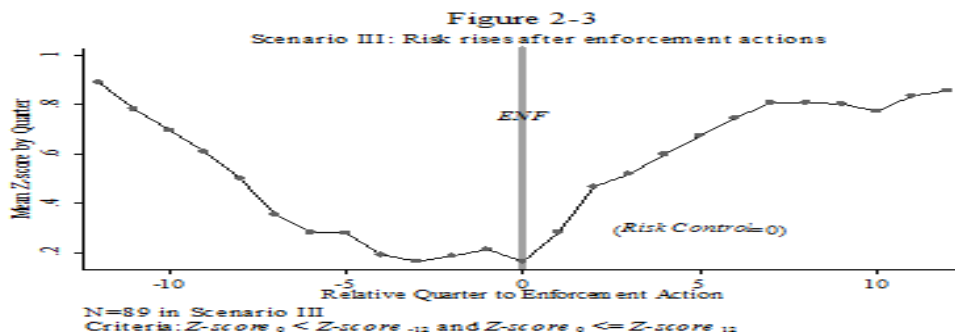
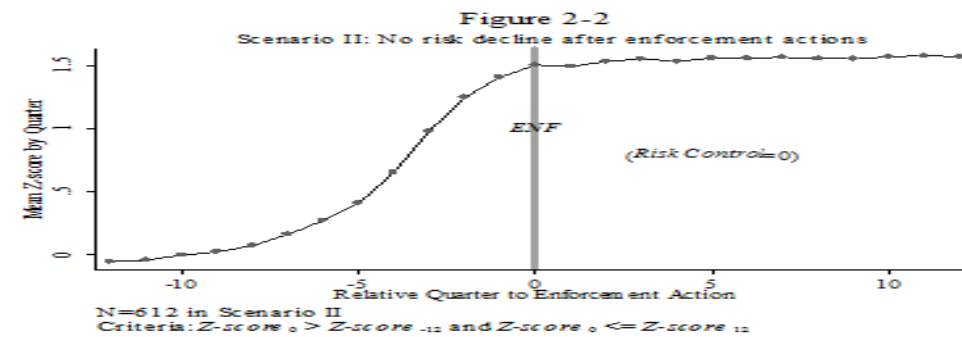
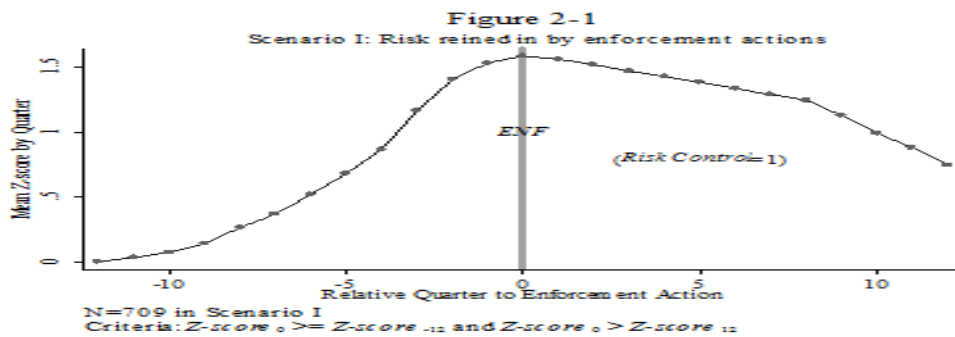
# Research Design and EQ measures (Cont'd)

**To test Hypothesis 3, we need to measure the overall riskiness of individual banks.** We favor the measure Z-score, which has been widely used as a proxy for bank risk in the literature (Laeven and Levine, 2009; Houston et al., 2010; Kanagaretnam et al., 2014b) and is formally defined as follows:

$$Z = (\text{ROA} + E/A) / \sigma(\text{ROA})$$

**Figure 2: Scenarios of risk changes around  $ENF_{risk}$  actions**

The following charts illustrate our identification of *risk-effective* and *risk-ineffective* Class 1 enforcement actions, separated by the group indicator *Risk Control*.





# Research Design and EQ measures (Cont'd)

As expected, banks subject to **Class 1 enforcement actions display significantly higher risk** (evidenced by *Risk, Volatility, Cash Earnings, and Capital* levels in the figures) than those in the general sample and those subject to **Class 3** enforcement actions. These results provide validation to our enforcement classification process.

**Figure 1. Bank risk and enforcement actions**

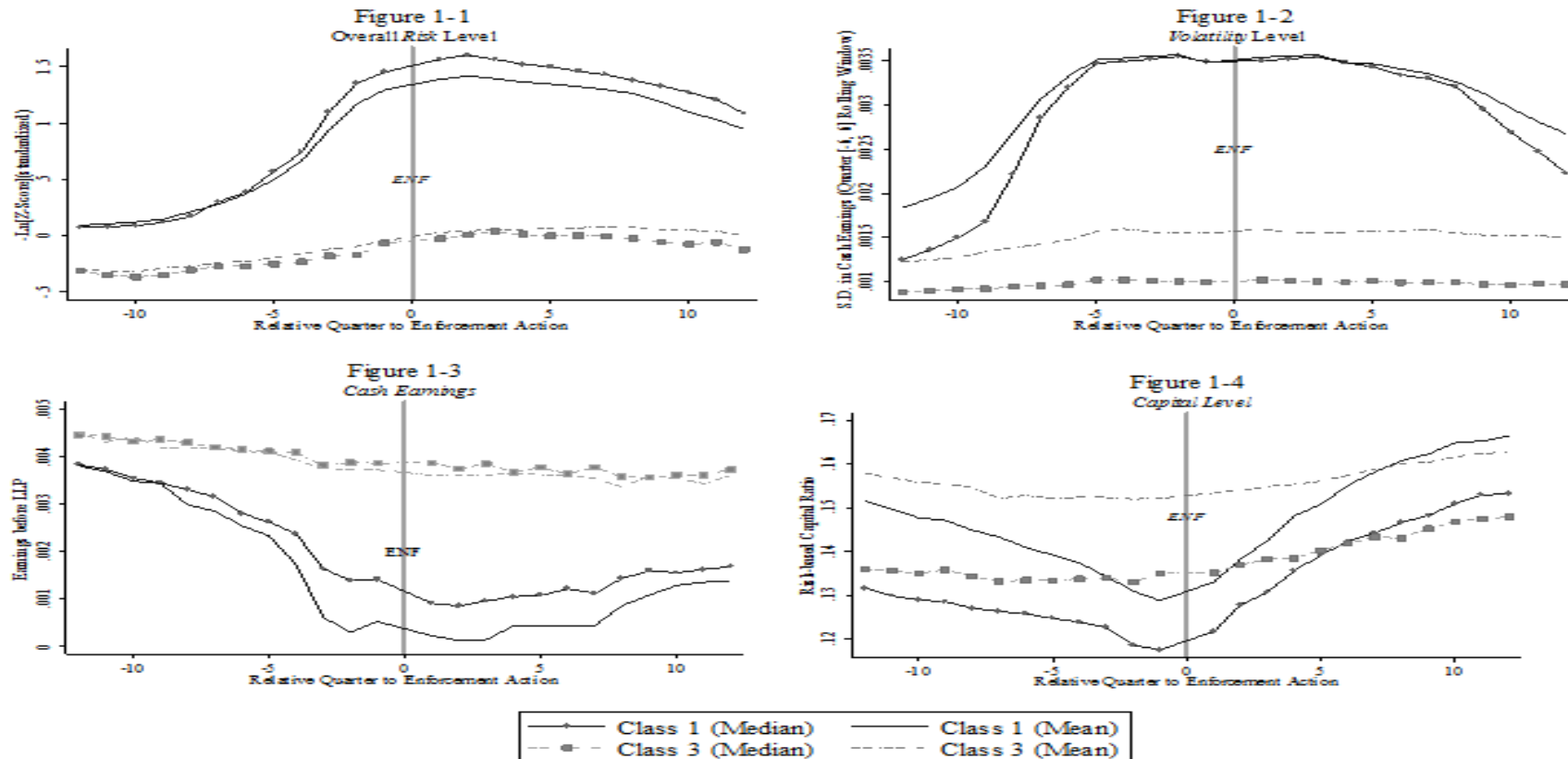


Table 3. Earnings smoothing, big-bath accounting, and timely recognition of expected future loan losses

Panel A. Effect of Class 1 enforcement actions—Hypothesis 1

		(1)			(2)			(3)		
		Pooled sample			Pooled sample (DID)			Punished banks only		
Dependent variable: LLP		Pred.	Coef.	t-stat	Pred.	Coef.	t-stat	Pred.	Coef.	t-stat
Class 1	$\beta 1$				?	-0.0002	(-1.737)			
After	$\beta 2$				?	-0.0000	(-0.408)	+	0.0003	(4.374)
<i>Earnings smoothing</i>										
EBTLLP	$\beta 3$	+	0.0897	(6.804)	+	0.0878	(7.410)	\	Absorbed	
EBTLLP * After	$\beta 4$				?	0.0050	(0.341)	-	-0.0521	(-3.982)
Class 1 * After	$\beta 5$				?	0.0003	(2.572)			
EBTLLP * Class 1	$\beta 6$				?	0.0286	(1.549)			
EBTLLP * Class 1 * After	$\beta 7$				-	-0.0582	(-2.312)			
EBTLLP * Loss	$\beta 8$	-	-	(-4.321)	-	-0.0443	(-2.271)	-	-0.1164	(-5.380)
			0.0753							
EBTLLP * After * Loss	$\beta 9$				?	-0.0396	(-1.304)			
EBTLLP * Class 1 * Loss	$\beta 10$				?	-0.0487	(-2.217)			
EBTLLP * Class 1 * After * Loss	$\beta 11$				+	0.0397	(1.205)			
<i>Big-bath accounting</i>										
Loss	$\beta 12$	+	0.0022	(17.578)	+	0.0022	(14.647)	+	0.0028	(18.461)
Loss * Class 1	$\beta 13$				+	0.0005	(4.182)			
Loss * After	$\beta 14$				?	-0.0001	(-0.697)	-	-0.0009	(-7.792)
Loss * Class 1 * After	$\beta 15$				-	-0.0008	(-5.050)			
<i>Timely recognition of future loan loss</i>										
$\Delta NPL_{t+1}$	$\beta 16$	+	0.0066	(7.213)	+	0.0042	(3.334)	\	Absorbed	
$\Delta NPL_{t+1}$ * After	$\beta 17$				?	-0.0024	(-1.277)	+	0.0051	(2.693)
$\Delta NPL_{t+1}$ * Class 1	$\beta 18$				?	0.0012	(0.905)			
$\Delta NPL_{t+1}$ * Class 1 * After	$\beta 19$				+	0.0075	(3.414)			
<i>Control variables</i>										
LLP <sub>t-1</sub>	$\beta 20$	+	0.1060	(8.179)	+	0.1025	(7.961)	+	0.1003	(6.877)
LLA <sub>t-1</sub>	$\beta 21$	-	-	(-10.291)	-	-0.0348	(-9.347)	-	-0.0375	(-8.304)
			0.0383							
Loan charge-offs	$\beta 22$	+	0.1659	(12.882)	+	0.1647	(13.087)	+	0.1418	(11.388)
Z-score	$\beta 23$	+	0.0002	(7.407)	+	0.0002	(7.449)	+	0.0002	(6.577)
$\Delta NPL_{t-2}$	$\beta 24$	+	0.0065	(6.036)	+	0.0068	(6.325)	+	0.0051	(3.293)
$\Delta NPL_{t-1}$	$\beta 25$	+	0.0138	(9.071)	+	0.0135	(8.953)	+	0.0129	(8.254)
$\Delta NPL_t$	$\beta 26$	+	0.0223	(11.400)	+	0.0209	(11.203)	+	0.0197	(10.382)
Bank size	$\beta 27$	+	0.0002	(9.792)	+	0.0002	(9.730)	+	0.0002	(9.032)
Capital	$\beta 28$	-	-	(-2.025)	-	-0.0006	(-1.596)	-	-0.0008	(-1.527)
			0.0008							
Total loans	$\beta 29$	+	0.0010	(1.554)	+	0.0008	(1.262)	+	0.0006	(0.873)
Controls for loan type			YES			YES			YES	
Quarter-year dummies			YES			YES			YES	
Year dummies * EBTLLP			NO			NO			YES	
Year dummies * $\Delta NPL_{t+1}$			NO			NO			YES	
Observations			54,412			54,412			27,206	
Adjusted R <sup>2</sup>			58.6%			59.1%			57.5%	

- Testing **H1** Using **EQ 1**: Earnings smoothing drops after Class 1 Enforcement.

Testing **H1** Using **EQ 2**: Big-bath accounting is less severe after Class 1 Enforcement.

Testing **H1** Using **EQ 3**: Recognition of future loan losses becomes more timely after Class 1 Enforcement.

**Table 5. The relationship between loan loss provisions and future loan charge-offs**

Dependent variable: <i>CHGOFF<sub>t+1</sub></i>		Panel A. Effect of Class 1 enforcement actions—Hypothesis 1								
		(1)			(2)			(3)		
		Pooled sample			Pooled sample (DID)			Punished banks only		
	Pred.	Coef.	<i>t</i> -stat	Pred.	Coef.	<i>t</i> -stat	Pred.	Coef.	<i>t</i> -stat	
LLP	β1	+	0.2614	(16.021)	+	0.284	(21.942)	\	Absorbed	
Class 1	β2				?	0.0004	(12.167)			
After	β3				?	0.000	(-1.471)	?	-0.0006 (-12.009)	
LLP * After	β4				?	-0.0825	(-5.105)	+	0.0634 (3.393)	
Class 1 * After	β5				?	-0.0005	(-10.839)			
LLP * Class 1	β6				?	-0.019	(-1.446)			
LLP * Class 1 * After	β7				+	0.0684	(3.466)			
Size	β8	?	0.0002	(9.986)	?	0.0002	(12.264)	?	0.0002 (9.997)	
Internal control reporting	β9	?	0.000	(-0.112)	?	-0.0003	(-3.834)	?	-0.0002 (-2.122)	
NPL	β10	+	0.0258	(19.595)	+	0.0275	(22.641)	+	0.0255 (16.868)	
Total loans	β11	+	0.0022	(6.466)	+	0.0015	(4.305)	+	0.0016 (4.201)	
Z-score	β12	+	0.0001	(3.972)	+	0.0001	(4.513)	+	0.0001 (2.700)	
LLA <sub>t-1</sub>	β13	+	0.0521	(12.880)	+	0.0551	(17.281)	+	0.0617 (15.596)	
LLP * Internal control reporting	β14				+	0.1187	(7.482)	+	0.0895 (4.161)	
LLP * NPL	β15				-	-1.4734	(-4.045)	-	-1.5659 (-3.393)	
LLP * Total loans	β16				+	0.1752	(3.208)	+	0.031 (0.469)	
Controls for loan type			YES			YES			YES	
Quarter-year dummies			YES			YES			YES	
Year dummies * LLP			NO			NO			YES	
Observations			54,412			54,412			27,206	
Adjusted R <sup>2</sup>			32.20%			33.10%			30.40%	

Testing **H1** Using **EQ 4**: **The association between LLP and Future Charge-offs strengthens after Class 1 Enforcement.**

**Table 7. Loss avoidance using the income-increasing discretionary LLP**

**Panel A. Effect of Class 1 enforcement actions—Hypothesis 1**

<i>Dependent variable:</i> <i>Loss avoidance</i>		(1)				(2)			
		Pooled sample (DID)				Punished banks only			
		Pred.	Coef.	z-stat	Marg. eff.	Pred.	Coef.	z-stat	Marg. eff.
Class 1	$\beta_1$	+	0.2910	(4.270)	0.85%				
After	$\beta_2$	?	-0.2241	(-2.591)	-0.64%	-	-0.4613	(-4.672)	-1.56%
Class 1 * After	$\beta_3$	-	-0.3226	(-3.321)	-0.86%				
Internal control reporting	$\beta_4$	-	-0.3595	(-2.207)	-0.91%	-	-0.4951	(-2.398)	-1.44%
Bank size	$\beta_5$	?	-0.1313	(-3.735)	-0.47%	?	-0.0678	(-1.615)	-0.28%
Growth	$\beta_6$	?	-1.4005	(-2.887)	-0.26%	?	-1.5378	(-2.817)	-0.36%
Capital	$\beta_7$	-	-3.5100	(-3.892)	-0.53%	-	-3.2317	(-3.080)	-0.64%
$\Delta$ Cash	$\beta_8$	?	84.4458	(17.135)	0.92%	?	79.9403	(14.495)	1.20%
NPL	$\beta_9$	+	21.1733	(11.763)	1.07%	+	18.7845	(8.778)	1.20%
Total loans	$\beta_{10}$	?	-0.4782	(-0.809)	-0.0019	?	-1.0866	(-1.620)	-0.54%
Controls for loan type			YES				YES		
Quarter-year dummies			YES				YES		
Observations			54,412				27,206		
Pseudo R <sup>2</sup>			8.2%				7.1%		

Testing **H1** Using **EQ 5: Loss avoidance using LLP becomes less severe after Class 1 Enforcement.**

Table 8. Cash flow predictability and earnings persistence

Panel A. Effect of Class 1 enforcement actions—Hypothesis 1

		(1)			(2)		(3)			(4)	
		Dependent variable:			Dependent variable:		Dependent variable:			Dependent variable:	
		EBTLLP <sub>t+1</sub>			EBT <sub>t+1</sub>		EBTLLP <sub>t+1</sub>			EBT <sub>t+1</sub>	
Pooled sample (DID)						Punished banks only					
		Pred.	Coef.	t-stat	Coef.	t-stat	Pred.	Coef.	t-stat	Coef.	t-stat
EBT	β1	+	0.3552	(12.405)	0.4148	(12.491)	\	Absorbed		Absorbed	
Class 1	β2	?	0.0000	(0.408)	-0.0003	(-3.032)					
After	β3	?	0.0003	(4.419)	0.0005	(6.314)	?	-0.0000	(-0.017)	0.0006	(4.344)
EBT * After	β4	?	-0.0302	(-1.137)	-0.0437	(-1.289)	+	0.0814	(3.261)	0.1007	(3.899)
Class 1 * After	β5	?	-0.0004	(-3.297)	0.0001	(0.746)					
EBT * Class 1	β6	?	-0.0035	(-0.248)	-0.0221	(-1.527)					
EBT * Class 1 * After	β7	+	0.0877	(3.936)	0.1287	(5.011)					
Bank size	β8	?	0.0006	(13.038)	0.0004	(7.804)	?	0.0008	(12.133)	0.0005	(8.357)
Capital	β9	?	0.0035	(3.768)	0.0023	(2.525)	?	0.0049	(3.540)	0.0033	(2.988)
NPL	β10	?	-0.0335	(-7.959)	-0.0694	(-10.982)	?	-0.0343	(-8.238)	-0.0675	(-11.368)
Internal control reporting	β11	?	-0.0007	(-4.927)	-0.0008	(-5.390)	?	-0.0011	(-6.168)	-0.0013	(-6.542)
Volatility of earnings	β12	?	-0.0347	(-0.984)	-0.0748	(-2.021)	?	0.0040	(0.101)	-0.0551	(-1.291)
Total loans	β13	?	0.0084	(7.243)	0.0040	(3.630)	?	0.0090	(6.570)	0.0044	(3.369)
EBT * Bank size	β14	+	0.0014	(0.143)	0.0072	(0.718)	+	0.0031	(0.232)	0.0057	(0.457)
EBT * Capital	β15	+	1.0247	(6.391)	1.1030	(7.632)	+	0.9832	(4.794)	1.0341	(5.736)
EBT * NPL	β16	-	-2.4381	(-5.442)	-2.8268	(-5.092)	-	-1.5700	(-2.813)	-1.9415	(-2.993)
EBT * Internal control reporting	β17	+	0.0269	(0.875)	0.0749	(2.174)	+	0.0372	(0.933)	0.0770	(1.868)
EBT * Volatility of earnings	β18	-	-28.7757	(-4.844)	-37.5774	(-5.897)	-	-24.2656	(-4.286)	-30.6007	(-4.723)
EBT * Total loans	β19	?	0.1496	(2.723)	0.2040	(3.517)	?	0.2117	(2.881)	0.2818	(3.732)
Controls for loan type			YES		YES		YES		YES		
Quarter-year dummies			YES		YES		YES		YES		
Year dummies * EBT			NO		NO		YES		YES		
Observations			54,412		54,412		27,206		27,206		
Adjusted R <sup>2</sup>			36.7%		39.7%		36.2%		37.4%		

Testing H1 Using EQ 6: Cash flow predictability and earnings persistence increase after Class-1 enforcement actions.

# Additional Results

Panel B. Effect of Class 3 enforcement actions—Hypothesis 2										
<i>Dependent variable: LLP</i>										
		(1) Pooled sample			(2) Pooled sample (DID)			(3) Punished banks only		
		Pred.	Coef.	t-stat	Pred.	Coef.	t-stat	Pred.	Coef.	t-stat
EBTLLP	$\beta_3$	+	0.0823	(10.057)	+	0.0570	(7.520)	Absorbed		
EBTLLP * After	$\beta_4$				?	0.0237	(1.995)	0/+	0.0163	(1.351)
EBTLLP * Class 3 * After	$\beta_7$				0/+	0.0039	(0.222)			
Loss	$\beta_{12}$	+	0.0019	(15.287)	+	0.0017	(10.539)	+	0.0020	(12.640)
Loss * After	$\beta_{14}$				?	0.0002	(1.276)	0/+	0.0001	(1.001)
Loss * Class 3 * After	$\beta_{15}$				0/+	0.0001	(0.330)			
$\Delta NPL_{t+1}$	$\beta_{16}$	+	0.0059	(5.409)	+	0.0015	(0.949)	Absorbed		
$\Delta NPL_{t+1}$ * After	$\beta_{17}$				?	0.0060	(1.756)	0/-	-0.0008	(-0.300)
$\Delta NPL_{t+1}$ * Class 3 * After	$\beta_{19}$				0/-	-0.0072	(-1.758)			
Controls for loan type			YES			YES			YES	
Quarter-year dummies			YES			YES			YES	
Other control variables as in Panel A			YES			YES			YES	
Year dummies * EBTLLP			NO			NO			YES	
Year dummies * $\Delta NPL_{t+1}$			NO			NO			YES	
Observations			26,280			26,280			13,140	
Adjusted R <sup>2</sup>			63.2%			63.3%			62.7%	

Testing **H2** Using **EQ 1**: Earnings smoothing does NOT drop after Class 3 Enforcement.

Testing **H2** Using **EQ 2**: Big-bath accounting is NOT less severe after Class 3 Enforcement.

Testing **H2** Using **EQ 3**: Recognition of future loan losses is NOT more timely after Class 3 Enforcement.

Panel B. Effect of Class 3 enforcement actions—Hypothesis 2

Dependent variable: <i>CHGOFF<sub>t+1</sub></i>		(1)			(2)			(3)		
		Pooled sample			Pooled sample (DID)			Sanctioned banks only		
		Pred.	Coef.	t-stat	Pred.	Coef.	t-stat	Pred.	Coef.	t-stat
LLP	$\beta_1$	+	0.3077	(15.619)		0.2741	(11.604)	\	Absorbed	
LLP * After	$\beta_4$				?	-0.0129	(-0.423)	0/-	-0.0151	(-0.415)
LLP * Class 3 * After	$\beta_7$				0/-	-0.0307	(-0.703)			
Controls for loan type			YES			YES			YES	
Quarter-year dummies			YES			YES			YES	
Other control variables as in Panel A			YES			YES			YES	
Year dummies * LLP			NO			NO			YES	
Observations			26,280			26,280			13,140	
Adjusted R <sup>2</sup>			33.2%			33.8%			32.9%	

Testing **H2** Using **EQ 4**: The association between LLP and Future Charge-offs does not strength after Class 13 Enforcement.

**Panel B. The impact of Class 3 enforcement actions—Hypothesis 2**

<i>Dependent variable: Loss avoidance</i>		(1)				(2)		
		Pooled sample (DID)				Punished banks only		
		Pred.	Coef.	z-stat	Marg. eff.	Coef.	z-stat	Marg. eff.
Class 3	$\beta_1$	?	0.2153	(1.151)	0.21%			
After	$\beta_2$	?	0.1547	(0.780)	0.15%	0/+ 0.4371	(2.398)	0.49%
Class 3 * After	$\beta_3$	0/+	0.1276	(0.539)	0.13%			
Controls for loan type			YES			YES		
Quarter-year dummies			YES			YES		
Other control variables as in Panel A			YES			YES		
Observations			26,280			13,140		
Pseudo R <sup>2</sup>			11.5%			0.109		

Testing **H2** Using **EQ 5**: Loss avoidance using LLP does not decrease after Class 3 Enforcement.



Panel B. Effect of Class 3 enforcement actions—Hypothesis 2

		(1)					(2)					(3)					(4)				
		Dependent variable:					Dependent variable:					Dependent variable:					Dependent variable:				
		EBTLLP <sub>t+1</sub>					EBT <sub>t+1</sub>					EBTLLP <sub>t+1</sub>					EBT <sub>t+1</sub>				
Pooled sample (DID)											Punished banks only										
		Pred.	Coef.	t-stat		Coef.	t-stat		Pred.	Coef.	t-stat		Coef.	t-stat		Coef.	t-stat				
EBT * After	$\beta_4$	?	-0.0462	(-1.408)		-0.0525	(-1.324)		0/-	-0.0167	(-0.427)		-0.0267	(-0.578)							
EBT * Class 3 * After	$\beta_7$	0/-	0.0382	(0.838)		0.0465	(0.849)														
Controls for loan type			YES			YES				YES			YES			YES					
Quarter-year dummies			YES			YES				YES			YES			YES					
Other control variables as in Panel A			YES			YES				YES			YES			YES					
Year dummies * EBT			NO			NO				YES			YES			YES					
Observations			26,280			26,280				13,140			13,140			13,140					
Adjusted R <sup>2</sup>			33.9%			37.9%				30.5%			35.3%			35.3%					

Testing **H2** Using **EQ 6**: Cash flow predictability and Earnings persistence do not improve after Class 3 Enforcement.

Table 4. Earnings smoothing, big-bath accounting, and timely recognition of expected future loan losses—Hypothesis 3

<i>Dependent variable: LLP</i>		Punished banks (DID)		
		Pred.	Coef.	t-stat
Risk Control	$\beta_1$	?	-0.0001	(-0.882)
After	$\beta_2$	?	0.0002	(2.504)
<i>Earnings smoothing</i>				
EBTLLP	$\beta_3$	\	Absorbed	
EBTLLP * Loss	$\beta_4$	-	-0.1288	(-5.898)
EBTLLP * Risk Control	$\beta_5$	?	0.0098	(0.710)
After * Risk Control	$\beta_6$	?	0.0002	(2.175)
EBTLLP * After	$\beta_7$	?	-0.0288	(-1.989)
EBTLLP * After * Risk Control	$\beta_8$	-	-0.0431	(-2.765)
<i>Big-bath accounting</i>				
Loss	$\beta_9$	+	0.0026	(16.903)
Loss * Risk Control	$\beta_{10}$	?	0.0004	(3.839)
Loss * After	$\beta_{11}$	?	-0.0004	(-3.046)
Loss * After * Risk Control	$\beta_{12}$	-	-0.0010	(-6.295)
<i>Timely recognition of future loan losses</i>				
$\Delta NPL_{t+1}$	$\beta_{13}$	\	Absorbed	
$\Delta NPL_{t+1}$ * Risk Control	$\beta_{14}$	?	-0.0011	(-0.758)
$\Delta NPL_{t+1}$ * After	$\beta_{15}$	?	0.0015	(0.611)
$\Delta NPL_{t+1}$ * After * Risk Control	$\beta_{16}$	+	0.0056	(1.782)
Controls for loan type		YES		
Quarter-year dummies		YES		
Other control variables (as in Table 3)		YES		
Year dummies * EBTLLP		YES		
Year dummies * $\Delta NPL_{t+1}$		YES		
Observations		27,206		
Adjusted R <sup>2</sup>		57.8%		

Testing **H3** Using **EQ 1**: The drop in earnings smoothing after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.

Testing **H3** Using **EQ 2**: The drop in big-bath accounting after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.

Testing **H3** Using **EQ 3**: The more timely loan loss recognition after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.

**Table 6. Loan provisions and future loan charge-offs—Hypothesis 3**

		Punished banks (DID)		
		Pred.	Coef.	<i>t</i> -stat
LLP	$\beta_1$	\	Absorbed	
Risk Control	$\beta_2$	?	-0.0001	(-1.122)
After	$\beta_3$	?	-0.0005	(-8.257)
LLP * Risk Control	$\beta_4$	?	0.0130	(2.289)
After * Risk Control	$\beta_5$	?	-0.0002	(-2.458)
LLP * After	$\beta_6$	?	0.0257	(1.224)
LLP * After * Risk Control	$\beta_7$	+	0.0574	(2.532)
Controls for loan type			YES	
Quarter-year dummies			YES	
Other control variables (as in Table 5)			YES	
Year dummies * LLP			YES	
Observations			27,206	
Adjusted R <sup>2</sup>			30.3%	

Notes: The table reports the predicted signs, the OLS coefficient estimates, and the *t*-statistics from the estimation of the equivalent of equation (5). The standard errors are clustered by both quarter-year and bank to allow correlations among different banks in the same quarter and among different observations for the same bank. The dependent variable is loan charge-offs. The variables are defined in Table 1. The shaded areas highlight the predictions and results in line with Hypothesis 3.

Testing **H3** Using **EQ 4**: The improvement in LLP-CHGOFF association after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.

Panel C. Enforcement actions that effectively controlled bank risks—Hypothesis 3

Dependent variable: Loss avoidance

		Pred.	Coef.	z-stat	Marg. eff.
Risk Control	$\beta_1$	?	0.3841	(3.912)	4.99%
After	$\beta_2$	?	0.1212	(1.495)	1.53%
After * Risk Control	$\beta_3$	-	-0.7700	(-7.267)	-8.41%
Controls for loan type			YES		
Quarter-year dummies			YES		
Other control variables as in Panel A			YES		
Observations			27,206		
Pseudo R <sup>2</sup>			5.8%		

Testing H3 Using EQ 5: The drop in loss avoidance after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.

Panel C. Class 1-induced risk reduction for banks with increasing risks—Hypothesis 3

		(1)			(2)	
		Dependent variable: EBTLLP <sub>t+1</sub>			Dependent variable: EBT <sub>t+1</sub>	
		Punished banks only (DID)				
	Pred.	Coef.	t-stat	Coef.	t-stat	
EBT	β1	\	Absorbed		Absorbed	
Risk Control	β2	?	0.0001	-0.808	0.0002	(1.638)
After	β3	?	0.0004	(2.349)	-0.0000	(-0.181)
EBT * After	β4	?	0.0150	(0.529)	0.0117	(0.408)
EBT * Risk Control	β5	?	-0.1055	(-4.809)	-0.0988	(-4.699)
After * Risk Control	β6	?	0.0005	(2.478)	0.0000	(0.018)
EBT * After * Risk Control	β7	+	0.1840	(4.931)	0.1565	(4.719)
Controls for loan type			YES		YES	
Quarter-year dummies			YES		YES	
Other control variables as in Panel A			YES		YES	
Year dummies * EBT			YES		YES	
Observations			27,206		27,206	
Adjusted R <sup>2</sup>			37.7%		36.5%	

Testing **H3** Using **EQ 6**: **The improvement in cash flow predictability and earnings persistence after Class 1 actions is provided by actions that have effectively decreased the excessive risks of the punished banks.**

# Summary

- We empirically examine the intuitive but untested idea that firms' risk-taking can result in managers' opportunistic financial reporting behaviors.
- We collect data on the enforcement actions from the three bank regulatory agencies. In support of our classification strategy, bank risk level on average displays a significant drop following Class 1 actions. Class 3 actions, on the other hand, have no such effect

# Summary

- We posit that empirically examining the effect of the exogenous-to-accounting-practices Class 1 and Class 3 enforcement actions on various aspects of earnings quality yields a quasi-natural experiment to study the effects of firm risk on financial reporting quality.
- Consistent with their effect on risk, the Class 1 actions strongly improve various earnings quality elements. Further, almost all of those improvements arise exclusively from those Class 1 actions that have effectively reduced banks' risk. In contrast, we find no improvement in earnings quality following Class 3 actions.

# Summary

- Our study provides empirical evidence on the nexus between firm risk and financial reporting behavior. Moreover, from a bank supervision perspective, our study enhances the viewpoint that **reliance on market discipline to deal with excessive bank risk does not work. Insofar as market discipline relies on publicly available information from financial reporting, such a disciplinary mechanism faces a fundamental deficiency: Banks with excessive risk are likely to intentionally create an opaque information environment to avoid discipline from the market.**
- **A potential solution here is to require higher external auditing standards on the financial reporting of banks that are already showing some signs of high risks.**



# Bank Enforcement Actions and the Terms of Lending

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(Deli, Delis, Hasan and Liu)

# On Pigou

- A role for **regulation** to prevent (fix?) market failures
- The **impact of law on the books** has been widely studied
- **BUT** what about the **enforcement** of law on the books?

*Enforcement actions enacted on banks are the **single most important tool** to implement regulatory policy* (Danisewicz et al., 2014; Delis et al., 2015)

# Purpose

What is the (welfare) **effect** of regulatory interventions / enforcement actions on banks' **terms of lending**?

*Banks are special for the **real economy** and the **pricing** of their loans has **REAL EFFECTS***

# Bank enforcement actions

- **Banking regulations** would be **void** without enforcement and relevant actions (penalties), which give law on the books the teeth to bite
- **Enforcement actions** are imposed on banks for violations of laws, rules, or regulations, unsafe or unsound practices, and violations of final orders
- They include money penalties, prompt corrective actions, safety and soundness orders, cease and desist orders, etc., and they can be formal or informal
- We use **ONLY** the formal related to safety and soundness

# Economic mechanisms: Controversial results

## Negative effects on terms of lending:

- Punished banks → **penalty cost** to borrowers → **worse** price and/or non-price **terms of lending** → real **cost** to the **economic activity** (e.g., Van De Heuvel, 2008, JME)
- This would imply a **tradeoff** between regulatory intervention and good terms of lending

## Positive effects on terms of lending:

- Revelation that a bank does not play by the rules → **vulnerable to competition**
- Perception that **punished banks** behave **anti-competitively** → **better terms of lending** can be found elsewhere?
- A **reputation-damaging effect**, especially when the punished bank is perceived as highly risky, → better terms of lending to attract borrowers?
- **Loss** in monopoly power...?

# An empirical question

$$\bullet L_{lbft} = a_0 + a_1 EA_{bt} + a_2 L_{lt} + a_3 B_{bt} + a_4 F_{ft} + u_{lbft}$$

**TL**: Price and non-price terms of lending of loan  $l$ , granted by bank  $b$  to firm  $f$  in year  $t$

**EA**: a binary variable, taking the value one in the first year after the year  $t$  of the enactment of the enforcement action and zero otherwise

**L**, **B**, and **F**: vectors of loan, bank, and firm characteristics

# Terms of lending

## ● Price terms

- Spread from risk-free rate
- Special loan fees
- Total cost of borrowing: Spread + fees

## ● Non-price terms

- Length (time to maturity)
- Loan size
- Financial covenants
- Collateral

# Identification

- **Simultaneity not an issue** due to the structure of the panel:

*The terms of a particular loan are unlikely to trigger an enforcement action*

- **Omitted variables** potentially a **serious** problem:

*Despite the rich set of controls, enforcement actions could capture other unobserved elements (especially bank characteristics) affecting the terms of lending*



# Identification

- A **multi-level pseudo-panel** around the **enforcement action** (three year period in total)
  - The **same bank** originates **many loans** in the **same year** allowing the inclusion of **bank fixed effects**
  - **Enforcement actions** are enacted at **different times for different banks** and *this prevents the enforcement actions from systematically capturing other events*
  - **Firm fixed effects** fully **control** for **unobserved firm characteristics** that potentially affect the terms of lending

# Data

- **Loan-level data** from DealScan (syndicated loans)
- Matched with *hand-collected data* on **bank enforcement actions**
- Matched with **firm-level accounting data** from Compustat
- Matched with **bank-level accounting data** from the Call Report
- **6,745** loan deals by *punished banks* over the period **2000-2010** for our *baseline specifications*

# Dependent variables

<b>AISD</b>	All-in-spread-drawn, defined as the sum of the spread over LIBOR plus the facility fee.
<b>Spread</b>	<b>Spread over LIBOR paid on drawn amounts on lines of credit.</b>
<b>Total cost of borrowing</b>	An algorithm to price AISD + fees
<b>AISU</b>	All-in-spread-undrawn, defined as the sum of the facility fee and the commitment fee.
<b>Facility fee</b>	Annual fee paid on the entire committed amount, regardless of usage.
<b>Commitment fee</b>	Commitment fee paid on the unused amount of loan commitments.
<b>Letter of credit fee</b>	Fee paid on drawn amounts on the letter of credit sub-limit.

<b>Maturity</b>	Facility duration in months.
<b>Loan size</b>	The natural log of the loan facility amount in millions of dollars.
<b>Financial covenants</b>	The total number of financial covenants in the loan contract.
<b>Collateral</b>	Dummy equal to 1 if the loan is secured, 0 otherwise.

# Determinants of enforcement actions

**Table 2. Pre-analysis on the determinants of enforcement actions**

The table reports coefficients and t-statistics (in parentheses) from OLS regressions with *enforcement action* as the dependent variable, year dummies, and robust standard errors clustered by firm. Specification 2 additionally includes bank fixed effects,

	(1)	(2)
<b>Bank capital</b>	-2.894** [-2.355]	<b>3.332</b> [1.498]
<b>Bank's C&amp;I loans</b>	1.682*** [4.283]	<b>0.112</b> [0.209]
<b>Allowance for loan losses</b>	14.881*** [3.105]	<b>9.423</b> [1.625]
<b>Bank liquidity</b>	-1.637*** [-3.422]	<b>3.635</b> [1.206]
<b>Bank Z-score</b>	-0.202*** [-3.773]	<b>-0.090</b> [-1.365]
Observations	6,745	6,745
Adjusted R-squared	0.681	0.743
Year effects	Y	Y
<b>Bank effects</b>	N	<b>Y</b>

**CAMELS have no effect on the probability of being punished once we control for bank fixed effects**

# Price terms and actions: Baseline regressions

**Table 3. Price terms of lending and enforcement actions: Baseline regressions**

The table reports coefficients and t-statistics (in parentheses). The dependent variable of each specification is shown on the first line of the table. All regressions are estimated with OLS on the fixed effects model, with robust standard errors clustered by firm. The lower part of the table indicates the type of fixed effects included in the specifications.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable:	AISD	Spread	Total cost of borrowing	AISD	Facility fee	Commitment fee	Letter of credit fee
Enforcement action	<b>-20.333***</b> [-6.283]	-19.884*** [-6.152]	<b>-17.394***</b> [-6.460]	-2.329*** [-3.803]	0.449 [1.454]	-1.834*** [-3.071]	-6.603*** [-2.916]
Observations	6,745	6,745	6,471	6,745	6,745	6,745	6,745
Adjusted R-squared	0.956	0.960	0.954	0.941	0.975	0.964	0.959
Loan purpose	Y	Y	Y	Y	Y	Y	Y
Year effects	Y	Y	Y	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y	Y	Y	Y
Bank effects	Y	Y	Y	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm

The enforcement action lowers the AISD by approximately 20 basis points (mean is equal to 146 basis points) → 13.7%

The Total cost of borrowing is lowered by approximately 17.4 basis points (mean is equal to 113.6 basis points)

R-squared very large

# Price terms and actions: Intuition

- *Supervisory interventions* → significant **improvements in** the *pricing of large loan contracts* → improved *competitiveness*.
- The average bank (or the average bank syndicate) **before the enactment of the action** extracts **anti-competitive price terms of lending** from firms → *loss in allocative efficiency* and, thus, **economic welfare**.
- **No evidence** whatsoever *that punished banks pass the cost of enforcement actions to their corporate borrowers* → enhanced investment and growth opportunities for the borrowing firms.

# Sensitivity tests

- Lead banks only
- Including firm and/or bank characteristics
- Clustering SEs by firm and bank
- Using only actions related to Basel's principles
- Using a five-year window (two years before and after the enforcement action)

*The results remain more or less the same*

# Do bank characteristics play a role?

- We use **interaction terms** to capture the effects of:
  - **Intensity of relationship lending** (number of loans by the lead bank)
  - **Bank-level Herfindahl-Hirschman index** (concentration of specific types of loans)
  - **Bank's C&I loans** (ratio of commercial and industrial loans to total loans)
  - **Bank capital** (ratio of total equity to total assets)
- We find that:
  - The stronger the **bank-firm relationship** → the **more negative** the effect of enforcement actions
  - Even banks specializing in specific types of lending (corporate and industrial) **do not offset the negative effect** of enforcement actions on price terms
  - Banks with **high capital ratios** → **negative effect** still remains



# Non-price terms of lending: Baseline regressions

**Table 6. Non-price terms of lending and enforcement actions: Baseline regressions**

The table reports coefficients and t-statistics (in parentheses). The dependent variable of each specification is shown on the first line of the table. All regressions are estimated with OLS on the fixed effects model, with robust standard error clustered by firm. The lower part of the table indicates the type of fixed effects included in the specifications.

Dependent variable:	(1)	(2)	(3)	(4)
	Maturity	Loan size	Financial covenants	Collateral
Enforcement action	<b>0.077***</b> [3.266]	<b>0.123***</b> [4.522]	-0.018 [-0.536]	0.034** [2.035]
Observations	6,745	6,745	6,745	6,745
Adjusted R-squared	0.938	0.942	0.921	0.860
Loan purpose	Y	Y	Y	Y
Year effects	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y
Bank effects	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm

**Average loan is extended by 8%**

**The enforcement action increases loan size by approximately 12%**

# Sensitivity tests

- Same sensitivity tests as for price terms
- **Confirm** the positive effect on the loan length and on the loan size
- The probability of using collaterals **increases**
- **Do not confirm** a significant effect on the rest of the non-price terms

# Non-price terms of lending: Intuition

- *The effect of enforcement actions on the non-price terms of lending **still point to increased competitiveness**, but *are less potent* than the respective effects on the price terms*
- Banks have received enforcement actions **first and foremost** due *to safety and soundness reasons*
- Lowering *covenants, collateral* and the like → lower *screening* and *monitoring ability*

# A financial crisis effect?

**Table 5-8. Heterogeneity due to the subprime crisis**

This table reports coefficients and t-statistics (in parentheses). All regressions are estimated with a fixed effects model, with robust standard errors clustered by firm. The lower part of the table indicates the effects included in the specifications.

For the non-price terms, whenever significant, the effect completely reverse in the crisis years

	Total cost of borrowing	Loan maturity	Loan size	Financial covenants	Collateral
Enforcement action	<b>-19.318***</b> [-6.545]	<b>0.086***</b> [3.346]	<b>0.136***</b> [4.583]	-0.019 [-0.524]	<b>0.034*</b> [1.881]
Crisis	-51.204 [-1.420]	-0.084 [-0.360]	0.083 [0.201]	0.010 [0.021]	0.132 [0.527]
Enforcement action * Crisis	<b>20.483***</b> [4.958]	<b>-0.101***</b> [-3.321]	<b>-0.146***</b> [-3.794]	0.014 [0.314]	-0.004 [-0.167]
Observations	6,471	6,745	6,745	6,745	6,475
Adjusted R-squared	0.954	0.938	0.942	0.937	0.860
Loan purpose	Y	Y	Y	Y	Y
Year effects	Y	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y	Y
Bank effects	Y	Y	Y	Y	Y
Clustering	Firm	Firm	Firm	Firm	Firm

A half-full glass explanation: In the absence of enforcement actions, the cost of borrowing would have been much higher in the crisis period. Similar is the case for non-price terms

# In conclusion

- We inform policy, for the first time, on the ***real effects of regulatory intervention*** (evidence from corporate loans)
- We find that:
  1. ***Regulatory intervention*** clearly ***improves the terms of lending***: A pro-intervention finding
  2. The improvement is with the price terms of lending and ***there is no laxity in the monitoring efforts***
  3. ***Without enforcement actions***, the cost of borrowing would have been ***much higher in the subprime crisis period***
- Implementation is the *sine qua non* of regulatory effectiveness: ***Should we have more and more timely enforcement actions? What about other non-systemic industries?***