

Bank Supervision as Information Production: Evidence from U.S. Bank Holding Companies

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“Simplifying banking regulation and supervision without sacrificing safety”

The views expressed are those of the authors and do not represent the views of the Federal Reserve Board, Federal Reserve Bank of Richmond/Philadelphia, or the Federal Reserve System.

Bank Opacity Trade-off

Dang, Gorton, Holmström, and Ordóñez, (AER 2017):

- Banks create deposits and short-term debt that people use like cash
- For this to work, depositors must *not worry* about the bank's underlying assets
- This requires banks to be **opaque**—not fully transparent about their loans

The Trade-off:

- **Benefits of Opacity:** Prevents depositors from constantly questioning safety
 - Deposits remain "information-insensitive"—function smoothly as money
 - Enables efficient liquidity creation
- **Cost of Opacity:** Investors and depositors cannot monitor bank risk
 - Market discipline breaks down
 - Banks could take excessive risks without detection

Why Supervision Becomes Necessary

The Solution: Replace Market Discipline with Regulatory Oversight

Since opacity is *necessary* but *prevents markets* from monitoring banks:

- Bank supervisors step in as specialized monitors
- Conduct confidential examinations with privileged access to bank information
- Take regulatory actions (capital requirements, restrictions) instead of relying on price signals

The Critical Condition:

- Supervision only adds value if examiners discover **information beyond what markets can observe**
- Otherwise, we're just duplicating what public data already reveals
- *Research question:* Do supervisors actually produce incremental information?

Why Study Bank Supervision?

The Scale of Bank Supervision

- **\$Billions** spent annually (Federal Reserve, OCC, FDIC)
- **7,000+** bank examiners nationwide
- **2,500+** bank holding companies examined each year

We Study Supervision as Information Production

Three core questions:

- ① How much information does supervision add beyond public data?
- ② What affects examiner judgment beyond private information?
- ③ Do these differences affect bank behavior?

Empirical Challenges

① Identification Problem

- Must separate public from private supervisory information
- Raw information supervisors collect is not observable
- Observed outputs reflect both public and private information

② Overlapping Supervision

- Multiple regulators supervise the same entities
- Attribution problem: which regulator's information drives outcomes?

③ Other Selection & Measurement Issues

- Less public information available for opaque banks
- Examiner discretion varies
- Ratings may vary over time with identical information

Our Focus: Federal Reserve Supervision of BHCs

Why study Bank Holding Companies?

- BHC subsidiaries face multiple regulators, but **Federal Reserve supervises all BHCs**
- Single regulatory framework: **RFI/C(D) rating system** (since 2005)
- Clean identification: No cross-agency or examiner rotation confounds

⇒ **We analyze Fed's RFI Composite ratings from safety & soundness exams**

Supervision translates private information into regulatory outcomes

- Examiners access confidential data unavailable to markets
- Make judgments based on private information
- Assign supervisory ratings (RFI/C(D) system)
- Trigger consequences: corrective actions, M&A restrictions, capital requirements

What This Study Does (1/2)

Our Approach

- Build a benchmark model predicting ratings from public data (**70-80% accuracy**)
- Study deviations between actual and predicted ratings (**Examiner-Specific Effects**)

Key Findings:

1. Information Access Matters

Ratings align more with predictions when examiners have *less* private information access:

- Greater distance from bank (>50 miles)
- Off-site (vs. on-site) examinations
- Publicly traded (vs. private) banks

What This Study Does (2/2)

Key Findings (continued):

2. Examiner Traits Persist

Some examiners are consistently more stringent than others

3. Cyclical Patterns

Supervision is lenient before crises, strict after

4. Real Effects on Banks

- Tough ratings $\Rightarrow$ Lower risk, higher capital, *but* slower growth
- Lenient ratings $\Rightarrow$ Higher future non-performing loans

Research Design: Two-Step Approach

STEP 1: Predict Ratings from Public Information
Regress ratings on financial ratios & market data



COMPUTE: Examiner-Specific Effect (ESE)
$$ESE_{i,t} = \text{Actual Rating} - \widehat{\text{Round(Rating}_{i,t})}$$



STEP 2: Explain ESE
Link to information access, examiner traits, macro conditions



STEP 3: Effects on Bank Behavior
Predict future risk-taking & growth

Step 1: How Well Can We Predict Ratings?

Approach: Predict supervisory ratings using only publicly observable information

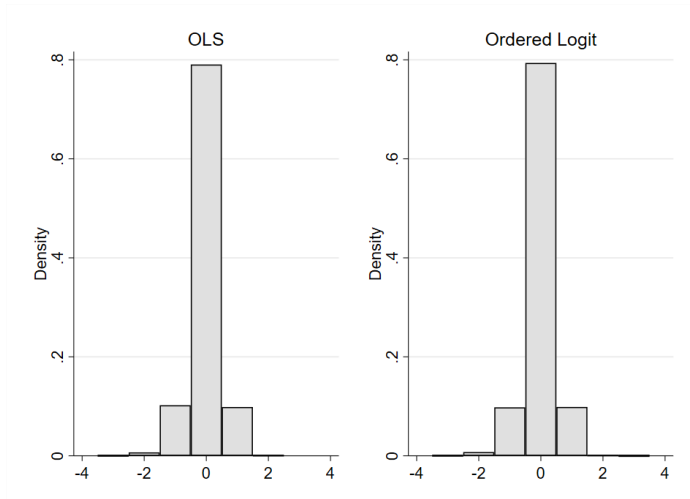
Model	# Variables	Observations	Adj. R ²
Baseline (financial ratios)	6	3,419	0.676
Saturated (all FR Y-9C data)	29	2,707	0.702
+ Market data (public banks)	34	2,684	0.710

Key Insight

- Public information explains about **70%** of rating variation
- Remaining **30%** reflects examiner-specific information + judgment
- This residual (ESE) is the focus of our analysis

Examiner-Specific Effect (ESE) Distribution

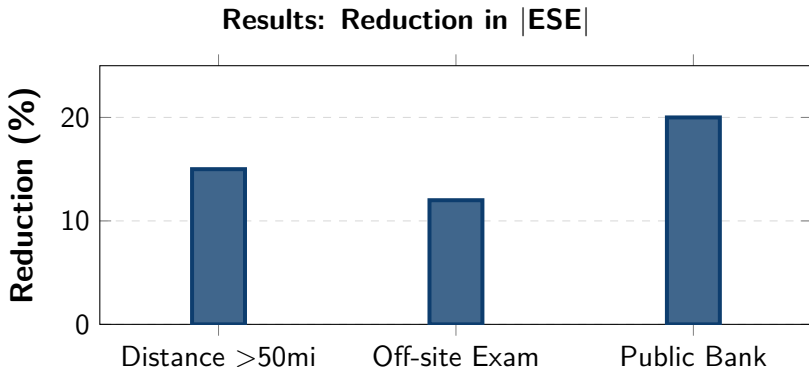
$$\text{ESE}_{i,t} = R_{i,t} - \text{Round}(\hat{R}_{i,t})$$



Result 1: Information Access Drives Rating Deviations

Proxies for Information Access:

- Geographic distance (bank HQ to Fed office)
- Examination type (on-site vs. off-site)
- Public status (publicly traded vs. private)



Result 2: Examiner “Types” Persist Over Time

Hypothesis: Individual examiners have persistent traits (toughness/leniency)

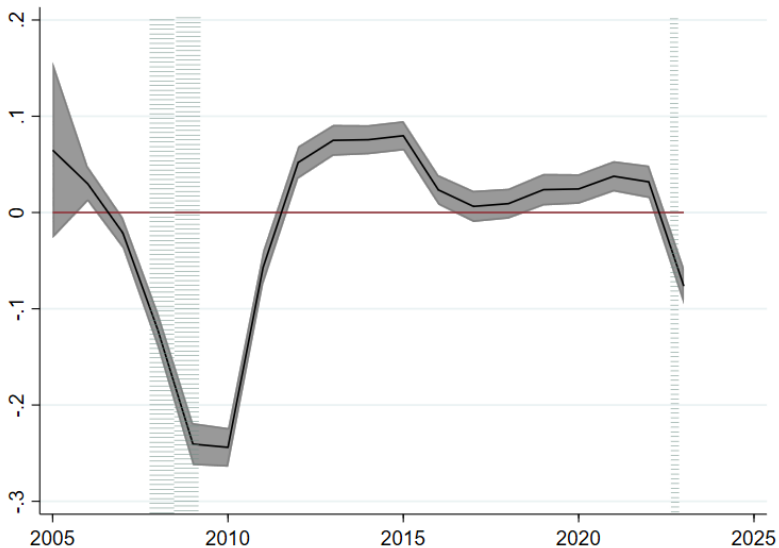
Test: Does examiner's historical stringency predict current ratings?

	Current ESE _{<i>i,t</i>}			
	Baseline	+ Year FE	+ Bank FE	+ Controls
Examiner Stringency	0.558*** (16.4)	0.380*** (11.4)	0.384*** (10.4)	0.246*** (5.1)
Observations	22,237	22,237	22,101	9,340

Interpretation

Examiner 1 grade tougher historically $\Rightarrow$ 0.25 grade tougher today

Result 3: Supervision is Procyclical



Do Rating Deviations Affect Bank Behavior?

Question: Do unexpected rating changes predict future bank outcomes?

Two Types of Deviations:

- **Tougher than expected** (actual rating $>$ predicted)
- **More lenient** (actual $<$ predicted)

Outcome variables: Asset growth, loan ratios, capital ratios, NPL ratios

Hypothesis

Expect asymmetric responses — banks react more to tough ratings

Result 4: Supervision Has Real Effects on Bank Behavior

Year $t + 1$ Outcomes											
	Log(Assets)			Loan/Assets		Equity/Assets		Tier1		NPL/Assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ESE_t	-0.018^{***} (4.18)										
ESE_t^+		-0.059^{***} (6.60)		-0.021^{***} (3.45)		0.003^{***} (4.63)		0.004^{***} (3.52)		-0.000 (0.50)	
ESE_t^-			0.010 (1.61)		0.005 (1.40)		-0.001 (1.52)		0.001 (1.04)		0.001^{***} (3.45)

⇒ Trade-off: Stricter supervision lowers risk but restricts credit

Result 4 (2): Controlling for Examiner Fixed Effects

Year $t + 1$ Outcomes (Controlling for Examiner Fixed Effects)											
	Log(Assets)			Loan/Assets		Equity/Assets		Tier1		NPL/Assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ESE _{<i>t</i>}	-0.017*** (4.33)										
ESE ⁺ _{<i>t</i>}		-0.056*** (6.64)		-0.013** (2.06)		0.003*** (5.23)		0.005*** (3.76)		0.000 (0.02)	
ESE ⁻ _{<i>t</i>}			0.012** (2.00)		0.002 (0.42)		-0.000 (0.91)		0.002 (1.55)		0.001 (2.33)

⇒ Effects persist with examiner FE: Private information drives bank responses

Robustness Tests: Addressing Key Identification Concerns

1. Endogeneity of Examiner Assignment

Concern: Are tough examiners systematically assigned to weak banks?

Tests Conducted:

- **Within-bank identification:** Exploit examiner switches—compare same bank examined by different examiners
 - Results strengthen, not weaken
- **Examiner office fixed effects:** Control for location-specific allocation strategies
 - Distance effects remain significant and increase in magnitude
- **Placebo tests:** Check if lagged/future exam characteristics predict current ratings
 - No evidence of anticipatory assignment (p -values = 0.29, 0.24)
 - Rules out forward-looking triage based on private concerns

2. Alternative Estimation Methods

Concern: Are results artifacts of the two-step procedure?

- Tested four parallel specifications:
 - ① One-step rating equation (all variables together)
 - ② Absolute deviation test (single-step residuals)
 - ③ Variance test (squared residuals)
 - ④ Two-step ESE (baseline approach)

3. Alternative Model Specifications

- Using uniform baseline model for all banks (vs. stratified approach)

4. Parameter Stability Over Time

Concern: Do results reflect model misspecification across different regimes?

- Split sample into four periods: Pre-Crisis, Crisis/Recovery, Post-Dodd-Frank, COVID
- Test if information access effects vary across macroeconomic conditions

5. Alternative Sample Definitions

- Excluding banks that transitioned to LFI framework post-2019
- Restricting to pre-2019 period only

Summary & Implications

Key Findings

- 20-30% of rating variation unexplained by public data
- Information access quality drives effectiveness
- Residual factors: examiner traits, cycles
- Trade-off: Stricter ratings $\Rightarrow$ lower risk, slower growth

Supervision adds value through private information, but shows systematic variation beyond fundamentals

Appendix

Comparison of Supervisory Rating Systems

Rating System	CAMELS	RFI/C(D)	LFI
Applicability	Depository institutions	BHCs	Large BHCs (since 2019)
Components	● Capital adequacy ● Asset quality ● Management ● Earnings ● Liquidity ● Sensitivity to risk ● Risk Management	● Risk management ● Financial condition ● Impact of non-dep. entities ● Composite condition ● Depository CAMELS	● Capital planning and positions ● Liquidity risk mgmt and positions ● Governance and controls
Possible rating	1 (best) to 5 (worst)	1 (best) to 5 (worst)	Non-numeric scale: ● Broadly Meets Expectations ● Conditionally Meets Expectations ● Deficient-1 ● Deficient-2
Rating Agencies	Fed, OCC, FDIC, States	Fed	Fed