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

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Why Study Bank Supervision?

The Scale of Bank Supervision

- $Billions spent annually (Federal Reserve, OCC, FDIC) (CRS Report R46648 (2020))
- 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: Estimating Information Content of Supervision

1. **Identification Problem**
   - Must separate public from private supervisory information to measure incremental value
   - Raw information supervisors collect is not observable and hard to quantify
   - Observed outputs (ratings, actions) reflect both public and private information

2. **Overlapping Supervision**
   - Multiple regulators supervise the same entities (see next slide)
   - Attribution problem: which regulator's information drives outcomes?

3. **Other Selection & Measurement Issues**
   - Less public information available for opaque banks complicates comparisons
   - Examiner discretion: different examiners may produce different ratings from same information
   - Ratings may vary over time even with identical information sets

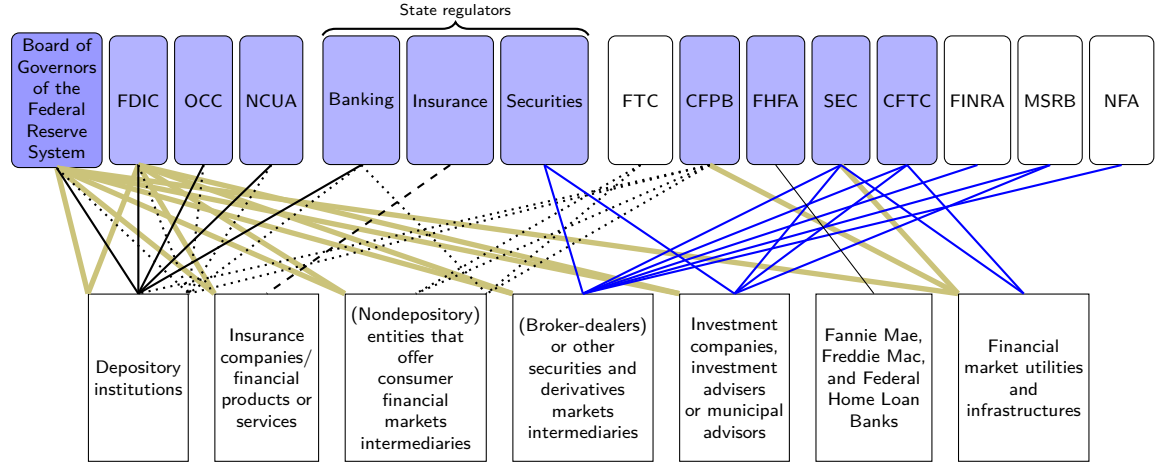
Multiple Supervisors for Banks - Which One to Focus On?

Three types of regulatory oversight that a banking organization might face:

- **Institution regulators** - specific financial entities
- **Activity regulators** - specific financial activities
- **Market regulators** - participation in financial markets

This complexity motivates our focus on a single regulator (Federal Reserve).

Financial Regulatory Landscape (Source: CRS Report R44918 (2023)/GAO-16-175)



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

$\Rightarrow$ **We analyze Fed's RFI Composite ratings from safety & soundness exams**

Information Production Process

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):

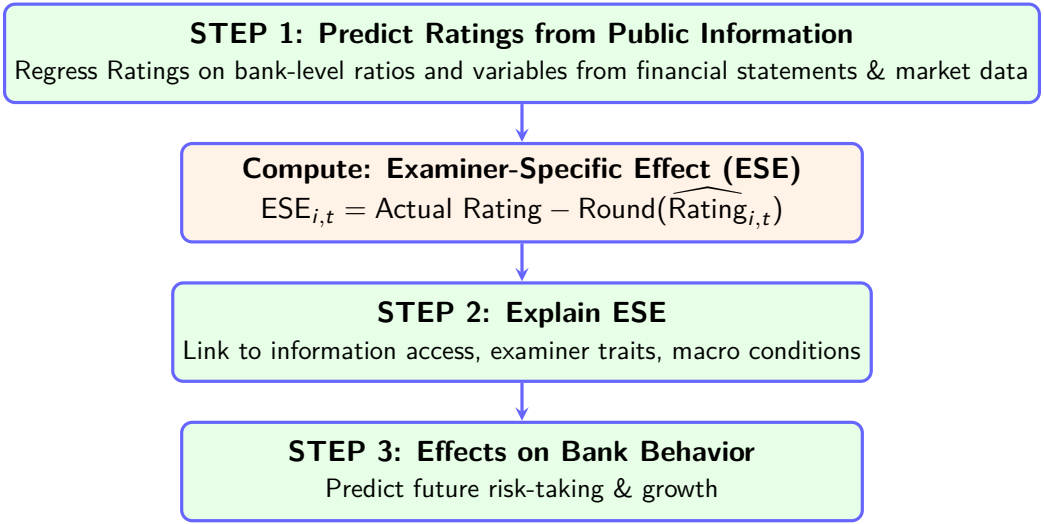
2. Examiner Traits Persist: Some examiners are consistently more stringent than others

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: How Well Can We Predict Ratings?

Approach: Predict supervisory ratings using only publicly observable information

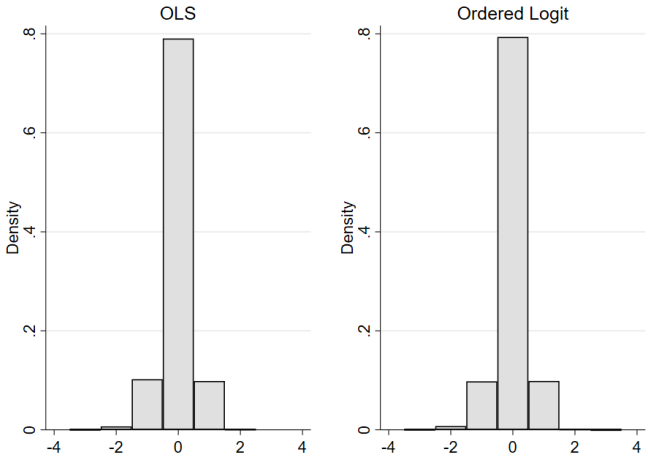
Model	# Variables	Observations	Adj. R^2
Baseline (financial ratios)	6	3,419	0.676
Saturated (all FR Y-9C data)	29	2,707	0.702
+ Market data (public banks)	34	2,684	**0.710**

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

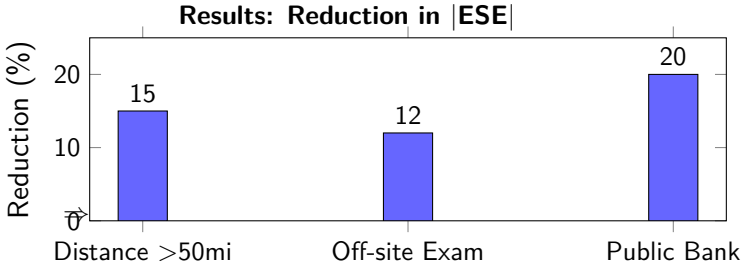
$$\text{ESE}_{i,t} = R_{i,t} - \text{Round}(\widehat{R}_{i,t})$$



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)



Reslt 2: Examiner "Types" Persist Over Time

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

Measurement: For each examiner k, compute historical average ESE across all banks examined, excluding the current bank

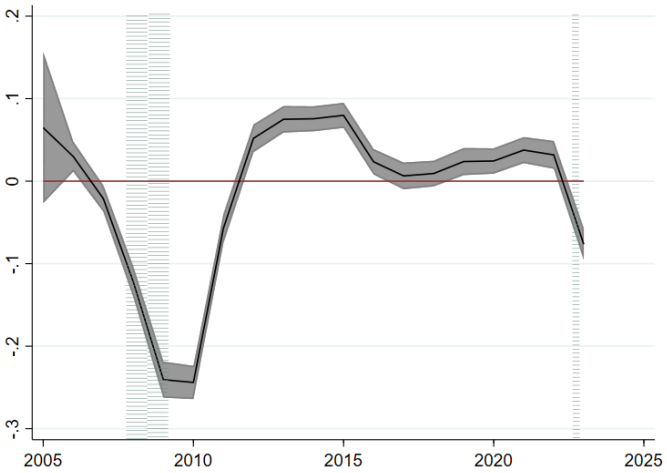
Test: Does this "examiner stringency" predict current ratings?

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

Interpretation: Examiner 1 grade tougher historically $\Rightarrow$ 0.25 grade tougher today (after controlling for bank FE and financials)

Result 3: Supervision is Procyclical

Average ESE over time (with 90% CI)



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 rating)
- **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 $t+1$										
	Log(Assets)			Loan/Assets		Equity/Assets		Tier1 Ratio		NPL/Assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ESE_t	−0.018***										
	(4.179)										
ESE_t^+		−0.059***		−0.021***		0.003***		0.004***		−0.000	
		(6.597)		(3.450)		(4.629)		(3.519)		(0.502)	
ESE_t^-			0.010		0.005		−0.001		0.001		0.001***
			(1.608)		(1.398)		(1.522)		(1.044)		(3.454)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs	20,206	15,603	19,751	15,602	19,750	15,603	19,751	7,503	8,828	7,686	9,067
Adj. R^2	0.972	0.975	0.975	0.734	0.723	0.769	0.766	0.756	0.752	0.694	0.669

$\Rightarrow$ **Trade-off: Stricter supervision lowers risk but restricts credit**

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

Thank You!

Questions?

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	• **R**isk management • **F**inancial condition • **I**mpact of non-dep. entities • **C**omposite condition • **D**epository 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