Measuring the Impact and Effectiveness of Supervision

Discussion by:

Philip E. Strahan
Boston College

Questions

- How can we measure the inputs and outputs of bank supervision?
- How can we evaluate the effectiveness of bank supervision?
- Two important questions about which academics have had little to say…

Measurement

- From *The Impact of Supervision on Bank Performance* "Impact"
  - Inputs: Supervisors' hours
  - Missing dimensions: Quality, skills, experience, etc.
- From *Requiring Attention: Decomposing Supervisory Issues* to Banks "Attention"
  - Outputs: formal (ratings) and informal (MRIAs, MRAs) actions

What have we learned about **Measurement**?

- Resource allocation is not optimal: Top 5 banks receive ‘too many’ resources
  - Large effect (“Impact” Table 2)
- Supervisory output jumped after the Crisis
  - “Attention” Figure 3
- Supervisory focus has shifted sharply toward stress testing process
  - “Attention” Figure 4

Table 2: Regression of Supervisory Hours on Top Five Indicator and Bank Controls

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Top Five		3.277***	0.606**	0.632**	0.636***	0.539***	0.548***	0.537***	0.537***
		(0.199)	(0.248)	(0.246)	(0.241)	(0.180)	(0.180)	(0.180)	(0.181)
log(Assets)			1.053***	1.761**	2.128***	1.210*	1.231*	1.186*	1.072
			(0.081)	(0.792)	(0.776)	(0.704)	(0.698)	(0.701)	(0.726)
log(Assets) Squared				-0.023	-0.043*	-0.013	-0.014	-0.012	-0.009
				(0.024)	(0.024)	(0.023)	(0.023)	(0.023)	(0.024)
log(Entities)					0.402***	0.416***	0.407***	0.420***	0.415***
					(0.097)	(0.064)	(0.064)	(0.063)	(0.063)
% SMB (> $10B)						0.020***	0.020***	0.020***	0.020***
						(0.002)	(0.002)	(0.002)	(0.002)
% SMB (≤ $10B)						0.035***	0.035***	0.035***	0.035***
						(0.001)	(0.001)	(0.001)	(0.001)
% National Banks						0.001	0.001	0.001	0.001
						(0.001)	(0.001)	(0.001)	(0.001)
% Loans/Assets							0.001	0.000	-0.000
							(0.003)	(0.003)	(0.003)
% Deposits/Liabilities							-0.005	-0.004	-0.004
							(0.005)	(0.005)	(0.005)
HHI of Assets								0.965**	0.944**
								(0.407)	(0.407)
Public Indicator									0.074
									(0.085)
Observations	14,836	14,836	14,836	14,836	14,783	14,783	14,783	14,783	14,783
District-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.0679	0.218	0.297	0.297	0.306	0.522	0.522	0.523	0.523

Note: Contains results from regressions of log of supervisory hours on a dummy indicating Top 5 size-rank in a district and controls. Size rank is determined by book asset size within a district-quarter. Log of assets based on consolidated book assets. Percent of assets at a State Member Bank (SMB) or National Bank determined using Call Report data. HHI of assets is based on asset shares for credit card loans, residential real estate loans, commercial real estate loans, commercial and industrial loans, investment securities, and trading assets. Each regression includes district-quarter fixed effects. Observations are BHC-quarters from 2006Q1 to 2014Q4. Standard errors are clustered by BHC. *** p<0.01, ** p<0.05, * p<0.1.

Figure 3: **Quarterly total topic stock by bank type.** This graph plots the total number issues of each topic outstanding per quarter, across each type of bank supervised by the Fed. SMB denotes State Member Bank, BHC denotes Bank Holding Companies. The methodology for how topics are defined and labeled is outlined in Section 3.

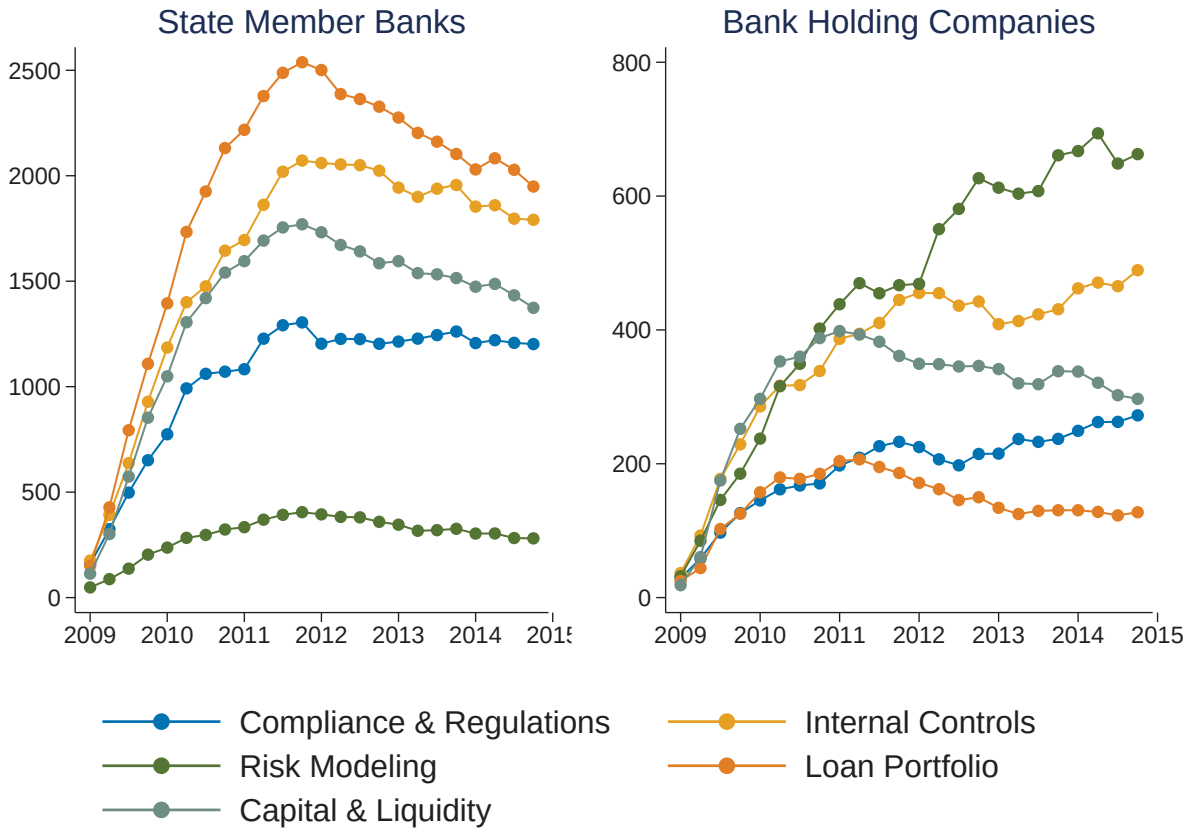
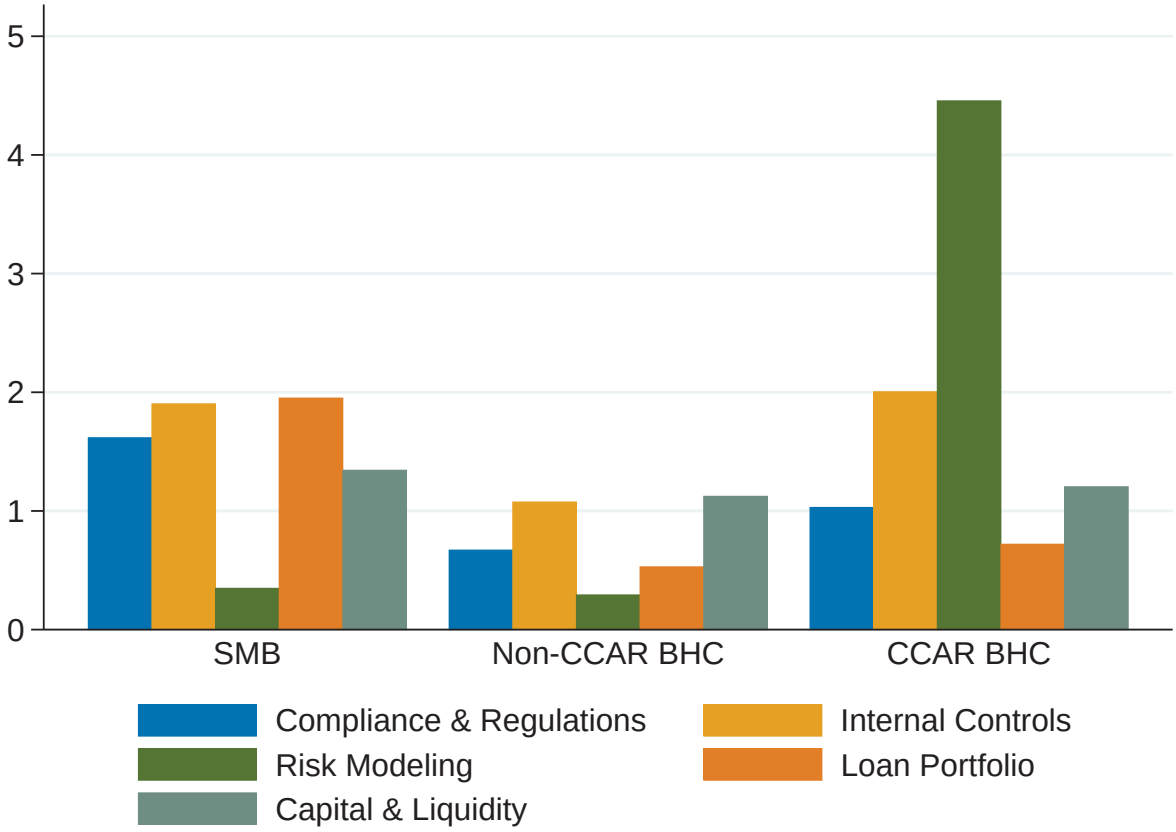


Figure 4: **Average quarterly total topics by bank type.** This graph plots the average number issues of each topic raised per quarter by the Federal Reserve, across each type of bank supervised by the Fed. If no issues are raised in that quarter, all 5 topics are set to missing for a given bank. SMB denotes State Member Bank, CCAR BHC and Non-CCAR BHC denotes Bank Holding Companies that do and do not fall under the provision of CCAR regulations. The methodology for how topics are defined and labeled is outlined in Section 3.



What have we learned about **Effectiveness**?

- Good news ("Impact")
  - Supervisory inputs lead to lower credit risk but not lower profits
  - Big caveat: NOT a paper about TBTF ("Impact" Table 1)
- Not-so-good news ("Attention")
  - Output of supervisors skewed toward stress testing (new approach)
  - But actions still focus on capital and credit risk (Table 8)
  - In contrast, investors ARE focusing on stress test results (Table 11)

TABLES

Table 1: Asset Size by Rank across Federal Reserve Districts

Fed	Assets by Size Rank ($bn)					Median	
District	1st	2nd	3rd	4th	5th	Assets	N
1	274.1	133.0	118.4	22.5	9.5	1.1	82
2	2573.1	1842.5	856.3	801.5	515.6	3.2	92
3	248.1	115.9	25.0	18.7	17.1	1.0	61
4	345.2	138.7	93.9	66.3	24.9	1.0	56
5	2106.8	309.1	186.8	30.1	12.3	1.0	89
6	190.4	119.9	27.1	24.3	21.6	0.9	136
7	151.8	109.9	83.1	26.8	20.0	1.0	157
8	25.7	24.0	15.0	13.3	11.6	0.9	98
9	402.5	19.4	9.2	8.6	8.3	0.9	63
10	29.1	24.0	17.5	17.5	14.5	0.9	89
11	130.4	83.2	69.5	28.3	21.5	1.2	100
12	1687.2	154.6	89.8	57.2	39.4	1.5	98

Note: Summarizes the size of the top five BHCs in each Federal Reserve district. The sample consists of FR Y-9C filers in 2014Q4. BHCs with assets greater than $500m must file an FR Y-9C. Dollars are in billions.

Table 8: **Supervisory actions and changes in the stock of outstanding issues.** This table reports estimates of the probability of a formal action and the rating change in the next four quarters on current bank characteristics and the net change in the stock of outstanding issues over the next four quarters:

$$Y_{it} = \alpha + \beta \Delta_{t,t+4} \text{Stock}_i + \epsilon_{it},$$

where $Y_{it} = \Delta_{t,t+4}\text{Rating}_i$ or $1(\sum_{t=0}^{t+4} \text{Formal} > 0)$, for the overall number of issues (column 1 and 3) or for the number of issues in within topics (columns 2 and 4). Topics are defined in Section 3. Unreported controls include the stock of total issues outstanding at the beginning of the quarter (column 1 and 3) and issues by topic (columns 2 and 4). Bank characteristics are measured as of the beginning of the quarter. Standard errors clustered by bank reported in parenthesis. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

	(1) $\Delta_{t,t+4}$ Rating	(2) $\Delta_{t,t+4}$ Rating	(3) Formal Action$_{t,t+4}$	(4) Formal Action$_{t,t+4}$
$\Delta_{t,t+4}$ Stock of Issues	0.013***		0.003***	
	(0.001)		(0.001)	
$\Delta_{t,t+4}$ Comp. & Regs		-0.003		0.006**
		(0.006)		(0.003)
$\Delta_{t,t+4}$ Internal Ctrls.		-0.004		0.001
		(0.004)		(0.002)
$\Delta_{t,t+4}$ Risk Model.		-0.005		0.003
		(0.005)		(0.005)
$\Delta_{t,t+4}$ Loan Port.		0.035***		-0.001
		(0.005)		(0.002)
$\Delta_{t,t+4}$ Cap. & Liq.		0.037***		0.008***
		(0.007)		(0.003)
R^2	0.639	0.644	0.406	0.408
Mean of Outcome	0.057	0.057	0.046	0.046
Firm FE?	Yes	Yes	Yes	Yes
Year-Quarter-BHC FE?	Yes	Yes	Yes	Yes
Ongoing-Exam FE?	Yes	Yes	Yes	Yes
Observations	30568	30568	30568	30568

Table 11: **Analyst questions and firm characteristics.** This table reports estimates of the percentage of each topic in the analyst questions asked during earnings call on basic bank attributes. Coefficients sum to zero across columns, as topic fraction sum to 1. Topics are defined in Section 3 and information on its application to earnings analyst calls is provided in Section 5.2. Bank characteristics are measured as of the beginning of the quarter. Standard errors clustered by bank reported in parenthesis. Significance: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

	(1) Comp. & Regs	(2) Internal Ctrls.	(3) Risk Modeling	(4) Loan Port.	(5) Cap. & Liq.
Log Assets	-0.41***	-0.05	1.76***	-1.24***	-0.06
	(0.12)	(0.06)	(0.19)	(0.24)	(0.13)
Tier 1 Cap.	-0.15***	-0.00	0.23***	-0.29***	0.21***
	(0.04)	(0.02)	(0.07)	(0.07)	(0.05)
ROA	0.27*	0.14	0.46**	-1.00***	0.13
	(0.15)	(0.09)	(0.19)	(0.27)	(0.16)
NPL	-0.11	-0.08**	-0.32***	0.57***	-0.06
	(0.08)	(0.04)	(0.12)	(0.14)	(0.09)
Charge-Offs	0.02	-0.02	-0.12**	0.29***	-0.18***
	(0.04)	(0.02)	(0.05)	(0.07)	(0.04)
CCAR BHC	-0.83	-0.09	2.38***	-1.54	0.09
	(0.57)	(0.26)	(0.71)	(1.05)	(0.51)
Stressed Rating	-0.38	0.01	0.08	-1.14**	1.43***
	(0.42)	(0.16)	(0.58)	(0.57)	(0.45)
R^2	0.05	0.01	0.33	0.20	0.03
Mean of Outcome	18.35	5.65	32.21	21.96	21.83
Firm FE?	No	No	No	No	No
Year-Quarter FE?	No	No	No	No	No
Observations	3770	3770	3770	3770	3770

What is missing:
Crisis-motivated Questions

- Do supervisors focus more on large institutions post crisis?
  - "Impact": How do hours vary over time for different banks: treatment, control, and Mega (left out of the current analysis)
- Do supervisor inputs (hours) matter more now?
- Does supervisor attention cause 'regulatory arbitrage'?

How can **academics** participate in this debate?

- Much more academic research in **Monetary Policy** compared to **Supervisory Policy**.

- Monetary policy has become much more open over time
  - Target Fed Funds rate is announced
  - Forward guidance is provided
  - Minutes of FOMC are released (with lags)
  - Fed Chair holds post-FOMC press conference

No trend toward more **openness** in Supervisory policies

- Some research
  - But often limited by access to data
  - And in collaboration with insiders
- Regulatory and supervisory process is largely hidden from view
  - Supervisor hours: confidential
  - Supervisory ratings: confidential
  - Shared National Credits: confidential
  - Even the identity of executives and board members: confidential

Openness would spur research

- From "Impact"

  "Very little supervisory information is available publicly … it is thus extremely difficult to assess how and to what extent supervision affects individual bank risk-taking, performance or long-term viability."

- In 1990s, Chicago Fed put Call Reports on the web
  - This led to explosion in quality and quantity of bank research

Another benefit of **Openness:** Help Fed disarm critics

- Crisis damaged Fed reputation
  - Bailouts, emergency loans, TBTF…
- From 12/23/2015 NY Times Op-Ed:

  "To rein in Wall Street, we should begin by regulating the Federal Reserve … an institution .. ***hijacked by the very bankers that it regulates***." Bernie Sanders, Candidate for the Presidency
- From 2/22/2016, Twitter:

  "It is so important to ***audit*** The Federal Reserve.." Donald J. Trump, Candidate for the Presidency

How can confidential information be **safely shared**?

- Lagged release
  - Current standard for recipients of Fed Emergency Loans under Dodd-Frank
- Census model
  - Control use of data
  - Anonymize presentation of results

Conclusions

- Papers – and this conference - are good first step
  - Better understanding of supervision
  - Lay out simple measures of supervisory inputs and outputs
  - Provide some evidence on effectiveness
- More **openness** is needed
  - Allow ideas to emerge from academics and other outside researchers
  - And can help the Fed **disarm its critics**