Does the Capital Market Encourage Small Business Lending by U.S. Banks?

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3/15/2019

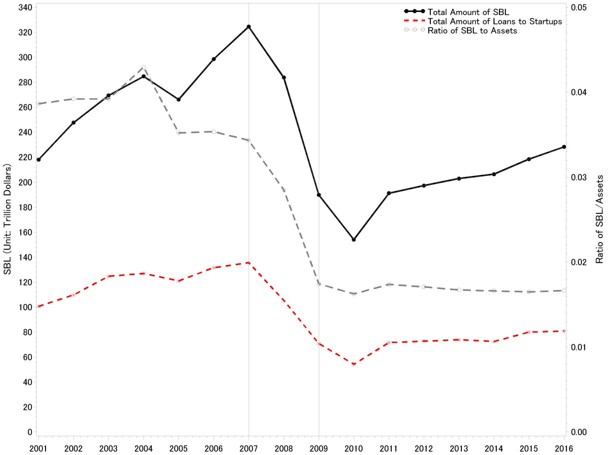
Why is SBL important?

- Small business is the backbone of US economy.
  - 50% of non-farm GDP
  - 64% of net new job creation over the past 15 years
- Their credit access influences the speed of recovery.
  - Credit constraint - Investment plans - Production
- Bank credit is their major funding source.

SBL Recovered?

Small Business Loans/Lending:

- Proxy: Newly originated C & I loans under $ 1 million.



Source: CRA

Regulatory Burden?

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010

- was designed to target SIFIs or SIBs
- but "daunting new compliance, operational, and record-keeping burdens on **all** banks...make it significantly harder for banks, particularly community banks" (ABA, 2012)
- SIB: large banks with assets more than $50 billion submit to annual stress test and heighten supervision. Details

Surveys and Interviews of Regulatory Compliance Cost on Community Banks

No significant effects:

- FDIC (2012): Only cumulative effects; too costly to tract regulatory compliance costs. Measure Problem
- Conference of State Bank Supervisors (2017): Dodd-Frank Act "not considered a serious problem because banks already have established regulatory compliance programs."

Heavy burdens:

- George Mason University (2012): 90% reported increased compliance cost; 83% reported more than 5% increase.
- GAO (2015)

How Would Dodd-Frank Act Affect SBL?

Direct way:

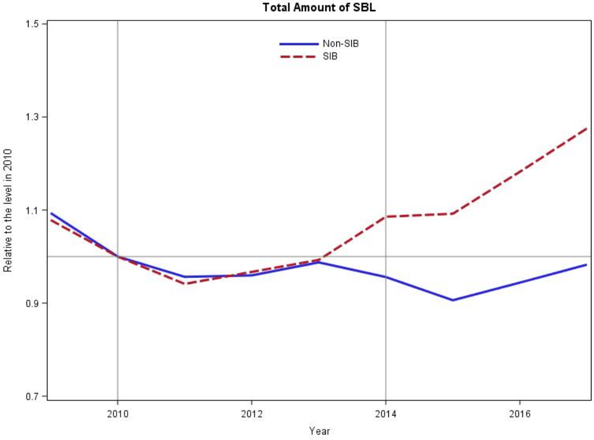
- Title X Section 1071: "Small Business Data Collection"
- but it has never been implemented. Details

Indirect way:

- Many provisions in Dodd-Frank Act might **jointly** affect banks' ability to lend to small businesses.
- Large banks – stress test
- Community banks – mortgage lending

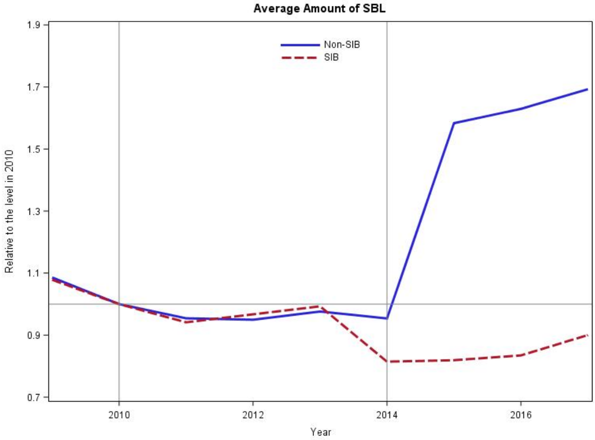
Systemically Important Banks

Outstanding SBL by SIBs recovered better **in total**, but...



Systemically Important Banks

...but outstanding SBL by Non-SIBs recovered better **on average**.



The Regulatory Relief Plan of 2015

From 2015, a series of rules are effective to relieve some regulatory burden of the Dodd-Frank Act on smaller banks.

- Low-risk community ($<$ **\$10 billion**) and regional banks (**\$10-50 billion**): lower examination intensity and frequency.
- Small bank holding companies and savings and loan holding companies ($<$ **\$1 billion**): higher debt limit for transferring ownership; excluded from consolidated capital requirements.
- Bank holding companies and savings and loan holding companies ($<$ **\$1 billion**): exempted from quarterly Y-9C reports.
- Savings and loan holding companies ($<$ **\$500 million**) are exempted from reporting regulatory capital data in Y-9SP reports.

Research Questions - What We Know?

Why SBL Recovering Slowly?

- Fed Report (2017): weak demand for credit.
- Chen, Hanson, and Stein (2017): decline of SBL by big banks, especially top 4.
- Bord, Ivashina, and Taliaferro (2018): large banks affected by real estate price collapse.
- Bordo, Cole, and Duca (2018): Dodd-Frank Act regulatory burdens.

What are the Outcomes?

- Klein (2014): slower recovery of output.
- Chen, Hanson, and Stein (2017): slower employment and wage growth.
- Bord, Ivashina, and Taliaferro (2018): lower aggregate credit and deposits growth, and lower entrepreneurial activities.
- Bordo, Cole, and Duca (2018): slow down the pace of

Research Question - This Paper

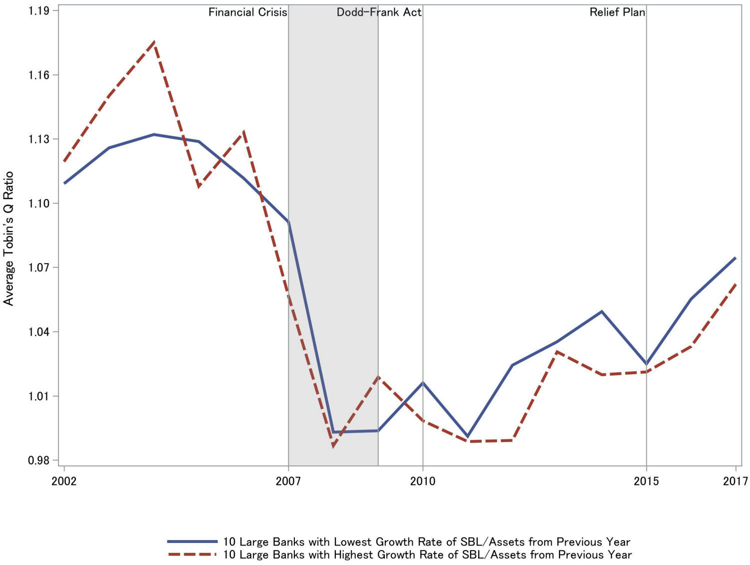
Why SBL Recovered Slowly?

- Did the Capital Market Penalize Banks for Lending to Small Businesses in U.S. after the recent financial crisis?
- What are the effects of regulatory policies?
  - The Dodd-Frank Act of 2010
  - The Relief Plan for Smaller Banks (2015)

Preview of Results

- The capital market overall encourages SBL by community banks in U.S.
- However, the capital market has been penalizing mid-tier and large banks for SBL since the Dodd-Frank Act and Fed's Relief Plan.
- In addition, since the implementation of the Relief Plan, community banks have been rewarded more for increasing SBL.

Who Are Rewarded?



Data

1. Collect raw data
   - Small business loans: Call Report Drawbacks
   - Bank holding company balance-sheet data: Y-9C report Variables Filter Number BHC
   - Branch-level deposits: Summary of Deposits
   - Bank market values: WRDS Compustat
   - The state-level GDP: the Bureau of Economic Analysis
   - SBL from CRA CRA
2. Calculate deposit-weighted HHI and GDP Calculation
3. Sum up to bank holding company level
4. Link market values to BHC data Stock

The Definitions of SBL in Call Reports

4. Number and amount currently outstanding of "Commercial and industrial loans to U.S. addressees" in domestic offices reported in Schedule RC-C, part I, item 4.a, column B:					4.
a. With original amounts of $100,000 or less	RCON5570	246921	RCON5571	2,008,029	4.a.
b. With original amounts of more than $100,000 through $250,000	RCON5572	7022	RCON5573	659,022	4.b.
c. With original amounts of more than $250,000 through $1,000,000	RCON5574	5376	RCON5575	1,364,634	4.c.

1. Indicate in the appropriate box at the right whether all or substantially all of the dollar volume of your bank's "Loans secured by nonfarm nonresidential properties" in domestic offices reported in Schedule RC-C, part I, items 1.e.(1) and 1.e.(2), column B, and all or substantially all of the dollar volume of your bank's "Commercial and industrial loans to U.S. addressees" in domestic offices reported in Schedule RC-C, part I, item 4.a, column B, have original amounts of $100,000 or less	RCON6999	**No**	1.

Whether all the commercial and industrial loans have origination amount less than $100,000

- If RCON6999=False:
  SBL = RCON5571+ RCON5573+ RCON5575
- If RCON6999=True:
  SBL= RCON1766

Grouped by the Size of Assets

- large banks: assets $>$ \$50 billion Scattered Plot Comparison
- mid-tier banks: \$10-50 billion assets
- large community banks: \$1-10 billion assets
- small community banks: $<$ \$1 billion assets Scattered Plot

Basic Idea: Financial Incentives from the Capital Market

Based on Hughes, Jagtiani, and Mester (2016):

$$\mathit{FinancialPerformance} = \alpha + \beta * \mathit{SBLrelated} + \gamma^{'} \mathit{Control} + \epsilon$$

- If β is significantly positive,
- then increasing SBL would improve banks' financial performance.
- Implying that banks have "financial incentives" to make SBL.

Tobin's Q ratio

The financial performance is proxied by:

$$Tobin'sQratio = \frac{MVA}{Replacement} = \frac{MVE + BVL}{BVA}$$

Control Variables

$$FinancialPerformance_i = \alpha + \beta_1 \frac{SBL_i}{Assets_i} + \beta_2 \frac{LBL_i}{Assets_i} + \beta_3 \frac{OtherLoans_i}{Assets_i} + \gamma' X_i + \epsilon_i$$

- X_i includes:
  - logarithm of book value of assets, liquid assets/total assets, non-interest income/total revenue, nonperforming loans/assets, deposits/total funding, equity/assets,
  - deposit-weighted 5-year average state-level GDP growth rate,
  - and deposit-weighted county-level HHI.

Table: **The Mean Table for Key Variables** (N=6026)

Variable	Mean	Std. Dev.	Min.	Max.
Tobin's Q	1.054	0.071	0.616	1.514
SBL/Assets	0.05	0.039	0	0.455
Business-Loan/Assets	0.108	0.074	0	0.579
Total-Loan/Assets	0.682	0.134	0.012	0.966
Log(Assets)	14.701	1.646	11.941	21.65
GDP	0.019	0.013	-0.031	0.092
HHI	0.191	0.084	0.061	0.895
Liquid-Assets/Assets	0.262	0.121	0.016	0.952
Noninterest-Income/Revenue	0.189	0.132	-1.129	0.977
Nonperforming-Loan/Assets	0.021	0.024	0	0.316
Deposits/Funding	0.906	0.096	0.041	1

[1] Except for SBL data, other data is collected at the end of each year during 2001-2017.

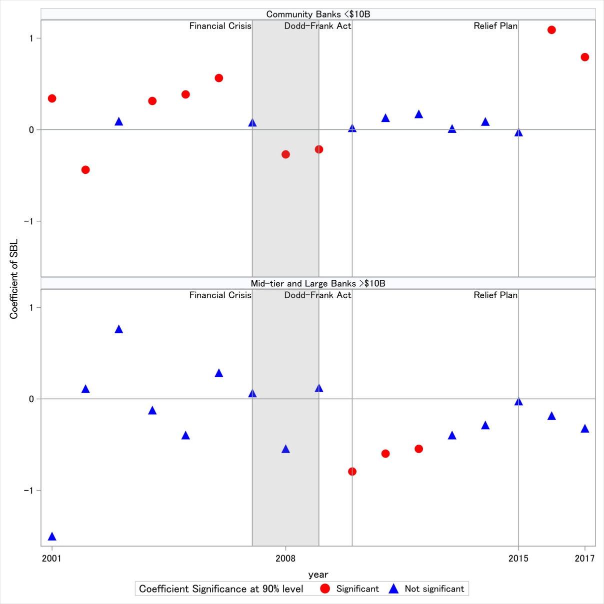
[2] All variables are at bank holding company level.

Coefficient of Interest

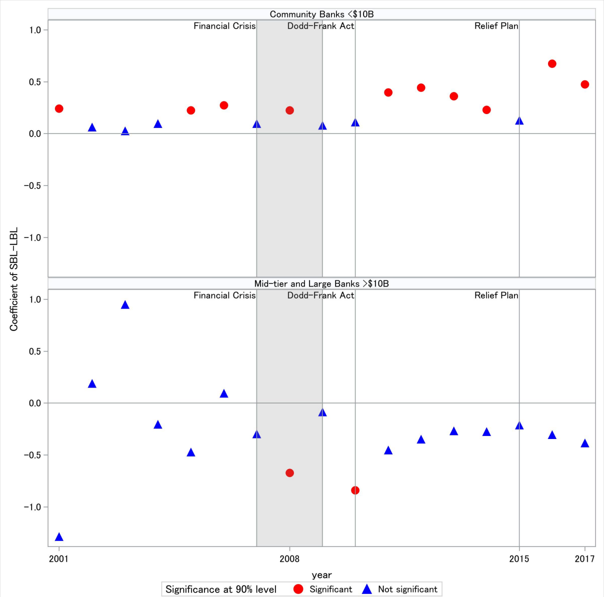
$$FinancialPerformance_i = \alpha + \beta_1 \frac{SBL_i}{Assets_i} + \beta_2 \frac{LBL_i}{Assets_i} + \beta_3 \frac{OtherLoans_i}{Assets_i} + \gamma' X_i + \epsilon_i$$

- β_1:
  the impact of a 1 pp increase in SBL ratio (with other loans unchanged)
- $\beta_1 - \beta_2$:
  the impact on bank's financial performance if replacing **large business loans** with SBL
- $\beta_1 - \beta_3$:
  the impact of replacing **other types of loans** (other types of loans include real estate loans, loans to other banks, loans to other financial institutions, agricultural loans, consumer loans, and loans to foreign governments) with SBL

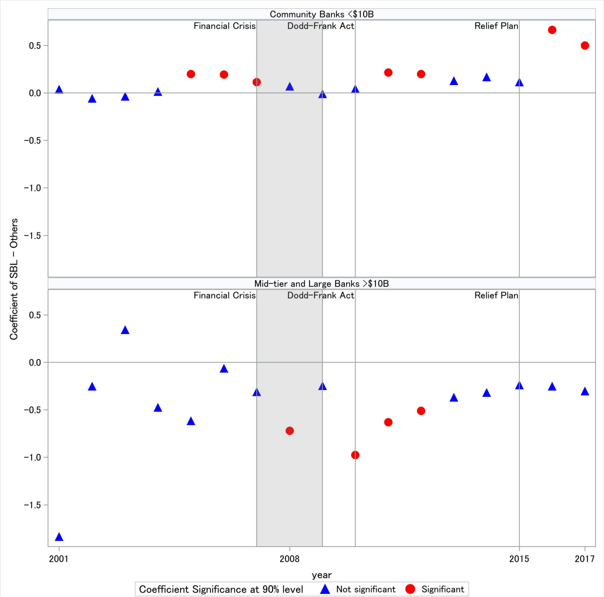
β_1: Effect of increasing 1 pp of SBL/Assets on Tobin's Q.



$\beta_1 - \beta_2$: Effect of replacing 1 pp of large business loans/Assets with 1 pp of SBL/Assets on Tobin's Q.



$\beta_1 - \beta_3$: Effect of replacing 1 pp of other loans/Assets with 1 pp of SBL/Assets on Tobin's Q.



What do we learn from the cross-sectional results?

- Overall, the capital market encouraged SBL (driven by community banks).
- The capital market was insensitive to SBL by mid-tier and large banks before the 2008 financial crisis,
- but started to penalize them after the crisis.
- Why??

Dummy for Systemically Important Banks and the Dodd-Frank Act

- SIB $= 1$ for bank with assets $>$ \$50 billion;
- SIB $= 0$ for bank with assets $<$ \$50 billion.
- DFA $= 1$ for year=2010–2017;
- DFA $= 0$ for year=2001–2009.

Pooled Cross-sectional Regression

$$
\begin{aligned}
FinancialPerformance_{it} = \alpha_0 + \alpha_t + \beta_1 \frac{SBL_{it}}{Assets_{it}} + \beta_2 \frac{SBL_{it}}{Assets_{it}} \\
* DFA + \beta_3 \frac{SBL_{it}}{Assets_{it}} * SIB \\
+ \beta_4 \frac{SBL_{it}}{Assets_{it}} * DFA * SIB + \gamma^{'} X_{it} + \epsilon_{it}
\end{aligned}
$$

- β_1: Non-SIBs before the regulation;
- $\beta_1 + \beta_2$: Non-SIBs under the regulation;
- $\beta_1 + \beta_3$: SIBs before the regulation;
- $\beta_1 + \beta_2 + \beta_3 + \beta_4$: SIBs under the regulation.

The Interaction Effect of the Dodd-Frank Act

Table: Dependent variable: Tobin's Q Ratio 2001-2017

	Model 1	**Model 2**	**Model 3**
SBL/Assets	0.024	0.022	0.115***
	(0.023)	(0.023)	(0.03)
LBL/Assets	-	-0.011	-0.073***
	-	(0.014)	(0.023)
Other Loans/Assets	-	-0.008	0.13***
	-	(0.022)	(0.021)
(SBL/Assets)*DFA	0.189***	0.187***	0.156***
	(0.048)	(0.047)	(0.045)
(SBL/Assets)*SIB	-0.808***	-0.731***	-0.652***
	(0.18)	(0.181)	(0.171)
(SBL/Assets)*DFA*SIB	-1.837***	-1.875***	-1.843***
	(0.279)	(0.278)	(0.266)
ln(Assets)	0.014***	0.014***	0.016***
	(0.001)	(0.001)	(0.001)
GDP	-	0.582***	0.4***
	-	(0.072)	(0.071)
HHI	-	-0.023**	-0.019**
	-	(0.009)	(0.009)
Other Bank Controls?	NO	NO	YES
Year Effect?	YES	YES	YES
Adj.R^2	0.382	0.39	0.459

For Non-SIBs before DFA...

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Marginal Effect

Table: Marginal Effect of 1 pp Increase in SBL/Assets

	Model 1	**Model 2**	**Model 3**
pre-DFA + non-SIB	0.024	0.022	0.115***
	-	-	-
DFA + non-SIB	0.213***	0.209***	0.271***
	(25.09)	(23.76)	(35.75)
pre-DFA + SIB	-0.784***	-0.709***	-0.537***
	(18.69)	(15.04)	(9.52)
DFA + SIB	-2.432***	-2.397***	-2.224***
	(97.97)	(93.7)	(87.71)

Dummy for the Relief Plan

Based on Bordo, Cole, and Duca (2018):

- DFA2 = 1 for year=2015–2017
  to capture the effect of the Relief Plan;
- DFA2 = 0 for year=2009–2014.

The Interaction Effect of Regulation Change

Table: Dependent variable: Tobin's Q Ratio 2009-2017

	Model 1	**Model 2**	**Model 3**
SBL/Assets	0.027	0.017	0.111**
	(0.038)	(0.038)	(0.041)
LBL/Assets	-	-0.05***	0.049
	-	(0.02)	(0.017)
Other Loans/Assets	-	-0.03***	0.153***
	-	(0.009)	(0.037)
(SBL/Assets)*SIB	-2.388***	-2.25***	-2.162***
	(0.334)	(0.333)	(0.318)
(SBL/Assets)*DFA2	0.376***	0.397***	0.374***
	(0.052)	(0.082)	(0.078)
(SBL/Assets)*SIB*DFA2	-0.852*	-0.947**	-0.899**
	(0.484)	(0.481)	(0.457)
ln(Assets)	0.013***	0.013***	0.015***
	(0.001)	(0.001)	(0.001)
GDP	-	0.535***	0.342***
	-	(0.097)	(0.094)
HHI	-	-0.021*	-0.017
	-	(0.012)	(0.012)
Other Bank Controls?	NO	NO	YES
Year Effect?	YES	YES	YES
Adj.R^2	0.374	0.385	0.446

Non-SIBs in 2009-2014

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Table: Dependent variable: Tobin's Q Ratio 2009-2017

	Model 1	**Model 2**	**Model 3**
SBL/Assets	0.027	0.017	$\boxed{0.111^{**}}$
	(0.038)	(0.038)	(0.041)
LBL/Assets	-	-0.05***	0.049
	-	(0.02)	(0.017)
Other Loans/Assets	-	-0.03***	0.153***
	-	(0.009)	(0.037)
(SBL/Assets)*SIB	-2.388***	-2.25***	$\boxed{-2.162^{***}}$
	(0.334)	(0.333)	(0.318)
(SBL/Assets)*DFA2	0.376***	0.397***	$\boxed{0.374^{***}}$
	(0.052)	(0.082)	(0.078)
(SBL/Assets)*SIB*DFA2	-0.852*	-0.947**	$\boxed{-0.899^{**}}$
	(0.484)	(0.481)	(0.457)
ln(Assets)	0.013***	0.013***	0.015***
	(0.001)	(0.001)	(0.001)
GDP	-	0.535***	0.342***
	-	(0.097)	(0.094)
HHI	-	-0.021*	-0.017
	-	(0.012)	(0.012)
Other Bank Controls?	NO	NO	YES
Year Effect?	YES	YES	YES
Adj.R^2	0.374	0.385	0.446

Marginal Effect

Table: Marginal Effect of 1 pp Increase in SBL/Assets

	Model 1	**Model 2**	**Model 3**
DFA1 + non-SIB	0.027	0.017	$\boxed{0.111^{**}}$
	-	-	-
DFA2 + non-SIB	0.403***	0.414***	$\boxed{0.485^{***}}$
	(30.01)	(31.54)	(40.03)
DFA1 + SIB	-2.361***	-2.233***	$\boxed{-2.051^{***}}$
	(48.74)	(44.08)	(40.45)
DFA2 + SIB	-2.837***	-2.783***	$\boxed{-2.95^{***}}$
	(45.81)	(44.56)	(41.77)

Conclusion

- Throughout my sample period of 2001–2017, the capital market has been encouraging community banks to lend to small businesses, but it has been penalizing mid-tier and large banks for SBL.
- Ever since 2010 when the Dodd-Frank Act was signed, the disincentives to large banks for SBL has escalated.
- Since total SBL by SIBs is 1.2-1.5 times of that by non-SIBs and 70% small businesses cited a big bank as primary financial sources, these financial disincentives to large banks contributed to the slow recovery of SBL in the U.S.

THANK YOU!

Section 1071 Small Business Data Collection

- It amended the Equal Credit Opportunity Act,
- requiring financial institutions to ask borrowers if their business is **minority** or **women** owned by of it is a **small** business,
- to **compile** and **maintain** a record of the information (such as the census tracts of principal place of business, the type and purpose of the loan, the number and the received data of the application, the type of action and the date, race, sex, and ethnicity of principal owners, and etc.).
- It has been reclassified "from pre-rule status to longer-term action status" in Fall 2018 rulemaking agenda of Consumer Financial Protection Bureau.

Back

How to Quantify Regulatory Impacts?

- Regulatory compliance costs are difficult to measure directly.
    - Difficult to distinguish between regulatory compliance costs and operational costs. Call Report Data
    - Incompleteness of data.
- Proxies used in recent studies are crude: *numbers of employees per $1 million assets, non-interest expenses as a percentage of assets, earnings as a percentage of assets, salary-related non-interest expenses, and etc.*
- Therefore, I use a different time-series dummy approach to capture regulatory effects. Back

Systemically Important Financial Institutions

- The list includes both Global and Domestic SIBs with headquarters in the U.S.
- There were 12 SIBs during 2009-2013 and 22 SIBs after 2014.[1]
- Since 2009, SIBs include JPM Chase, Bank of America, Wells Fargo, Citigroup, USBC, PNC, Capital One, BB&T, Suntrust, Fifth Third, Keycorp, and Regions.
- In 2014, more banks were added: HSBC, Citizens, Santander, BMO, M&T, Huntington, BBVA, Comerica, MUFG, and Zions. Back

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[1] Note that I exclude Goldman Sachs, Morgan Stanley, Bank of NY Mellon, State Street, Northern TR, Ally Financial, American Express, Discover, and Metlife, because they made few or even no SBL.

Call Report Schedule RI-Income Statement - Noninterest Expenses

7. Noninterest expense:			7.
a. Salaries and employee benefits	RIAD4135	2,397,624	7.a.
b. Expenses of premises and fixed assets (net of rental income) (excluding salaries and employee benefits and mortgage interest)	RIAD4217	679,999	7.b.
c. Not available			7.c.
1. Goodwill impairment losses	RIADC216	0	7.c.1.
2. Amortization expense and impairment losses for other intangible assets	RIADC232	44,569	7.c.2.
d. Other noninterest expense*	RIAD4092	1,574,391	7.d.
e. Total noninterest expense (sum of items 7.a through 7.d)	RIAD4093	4,696,583	7.e.

2. Other noninterest expense (from Schedule RI, item 7.d) Itemize and describe amounts greater than $100,000 that exceed 3% of Schedule RI, item 7.d:			2.
a. Data processing expenses	RIADC017	252,157	2.a.

Dollar amounts in thousands			
b. Advertising and marketing expenses	RIAD0497	113,353	2.b.
c. Directors' fees	RIAD4136	0	2.c.
d. Printing, stationery, and supplies	RIADC018	0	2.d.
e. Postage	RIAD8403	0	2.e.
f. Legal fees and expenses	RIAD4141	0	2.f.
g. FDIC deposit insurance assessments	RIAD4146	CONF	2.g.
h. Accounting and auditing expenses	RIADF556	0	2.h.
i. Consulting and advisory expenses	RIADF557	0	2.i.
j. Automated teller machine (ATM) and interchange expenses	RIADF558	0	2.j.
k. Telecommunications expenses	RIADF559	59,235	2.k.
l. Other real estate owned expenses	RIADY923	0	2.l.
m. Insurance expenses (not included in employee expenses, premises and fixed asset expenses, and other real estate owned expenses)	RIADY924	0	2.m.

How to Get Market Values?

1. NY Fed provides links between identifier of Fed(RSSD) and that used in CRSP (PERMCO).

Obs	RSSD9001	permco	dt_start	dt_end
442	1069778	3685	06/30/1986	12/31/2016

2. Use PERMCO to get corresponding CUSIP used in Compustat.

Obs	PERMCO	CUSIP
568	3685	69347510

3. Extract year-end stock prices and outstanding shares. Back

Obs	year	CUSIP	CSHOQ	PRCCQ
490	2001	69347510	283.0000	56.2000
491	2002	69347510	285.0000	41.9000
492	2003	69347510	277.0000	54.7300
493	2004	69347510	283.0000	57.4400
494	2005	69347510	293.0000	61.8300
495	2006	69347510	293.0000	74.0400

The Community Reinvestment Act

The Community Reinvestment Act of 1977 was enacted to encourage banks to meet the credit demand of local communities.

- Annual county-level small business loans data since 1996;
- Records are used to evaluate applications for deposit facilities, including M&A.

Difference between SBL from CRA and SBL from Call Reports

- CRA includes commercial real estate loans under $1 million too.
- CRA provides originated or purchased loans (flow data).
- All banks are required to file Call Reports; banks with more than approximately $1 billion assets are required to report to CRA.

Back

Variable Definition in Y-9C Reports

Class	Variable	My Code	Code in Y-9C	Note
Liabilities	Book Value of Liabilities	TLIB	BHCK2948	Back
Assets	Book Value of Assets Net of Goodwill	BVA	BHCK2170 -BHCK3163	
Revenue	Total Revenue	REVENUE	BHCK4079 +BHCK4107	
Loans	Total loans	LSUM	BHCK2122 +BHCK2123	
Loans	Total Business Loans	LCIL	BHCK1763 +BHCK1764	
Loans	Residential RE Loans	LRRE	BHDM1797 +BHDM5367 +BHDM5368	Before 1991/03: not exist
Loans	Commercial RE Loans	LCRE	BHCK1410 -LRRE	
Loans	Consumer Loans (including credit cards)	LIND	BHDM1975	
NPL	Past Due but Accruing		BHCK5525 +BHCK5524	
NPL	Non-accruing		BHCK5526	
NPL	Gross Charge-offs		BHCK4635	
NPL	Nonperforming C&I	BNPL	BHCK1606 +BHCK1607 +BHCK1608	

Drawbacks

FDIC Small business Lending Survey (2018) criticized this SBL proxy from Call Reports

- Fails to capture **large business loans** extended to small businesses.
- Fails to capture **loans secured by residential real estate** extended to small businesses.
- The limit of $1 million was set in the early 1990s and was never adjusted for **inflation**.
- According to their estimation, SBL in the U.S. was understated by at least 12% or $37 billion in 2015.
- **"Still the Best Available Measure of SBL in the U.S."**
  - Loan size is highly correlated to business size.
  - All banks track the size of loans but not all banks track the size of businesses. Back

Number of Y-9C Observations in My Sample during 2001-2017

Reasons for declining number of observations:

- The trend of consolidation of small banks.
- The asset-size threshold for filing the FR Y-9C increased from \$150 million to \$500 million in March 2006, and then further increased to \$1 billion in March 2015. Back

Year	**2001**	**2002**	**2003**	**2004**	**2005**				
N of Obs.	1791	1926	2073	2190	2202				
Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
N of Obs.	942	918	921	958	947	952	1003	1012	1005
Year	**2015**	**2016**	**2017**						
N of Obs.	576	566	564						

Bank Holding Company

Definition: A company that owns and/or controls one or more banks; regulated and supervised by the Board of Governors. The links between BHCs and banks are extracted from Summary of Deposits. Back

RSSDHCR	NAMEHCR	RSSDID	NAMEFULL	YEAR
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	83311	PNC Bank, Delaware	2006
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	212522	Somerset Trust Company	2006
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	817824	PNC Bank, National Association	2006
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	72614	Mercantile Peninsula Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	83311	PNC Bank, Delaware	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	208927	Mercantile-Safe Deposit and Trust Company	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	212522	Somerset Trust Company	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	229427	The Citizens National Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	246321	The National Bank of Fredericksburg	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	489128	Mercantile Southern Maryland Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	526229	Westminster Union Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	610623	Mercantile County Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	758721	Marshall National Bank and Trust Company	2007
1069778	PNC FINANCIAL SERVICES GROUP, INC., THE	802129	Farmers & Mechanics Bank	2007
1069778	PNC FINANCIAL SERVICES GROUP	809324	The Annapolis Banking and Trust	2007

Deposit-weighted Herfindahl-Hirschman Index

Definition: the sum of the squares of the market shares of the banks in one county (or one state), a measure of market concentration. Back

Example: 2 bank branches in Somerset county:

- Branch A of PNC: \$1 deposit;
- Branch X of Chase: \$1 deposit;
- HHI of Somerset county $= (\frac{1}{2})^2 + (\frac{1}{2})^2 = 0.5$

PNC Bank has two branches:

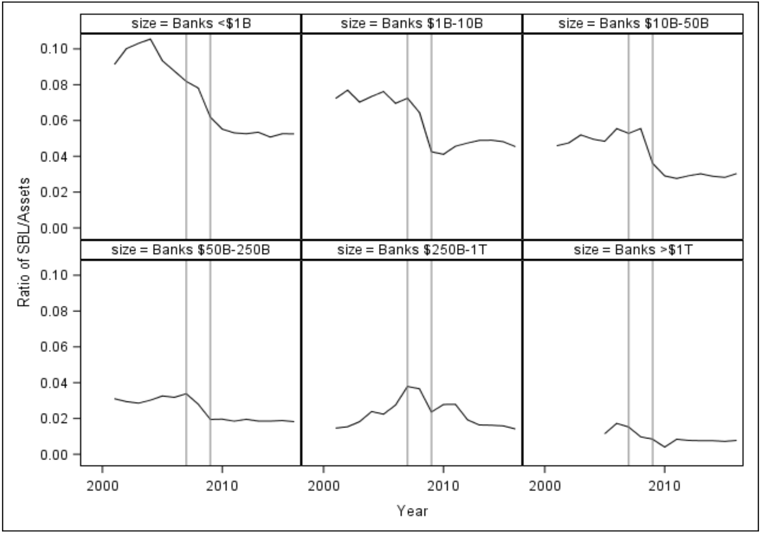
- Branch A with \$1 deposit in Somerset county, NJ;
- Branch B with \$1 deposit in Champaign county, IL.

If Champaign county also has HHI of 0.5, then PNC's deposit-weighted HHI $= 0.5*0.5+0.5*0.5=0.5$

Bank Data Filtering Criteria

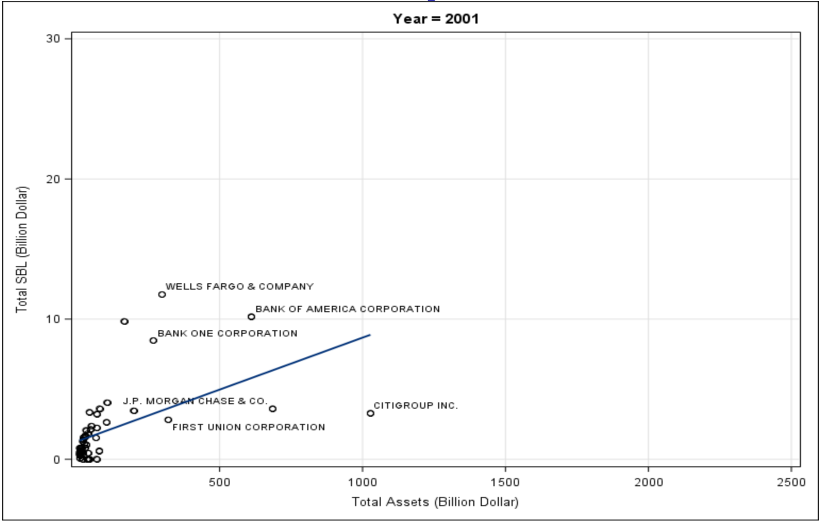
1. The observations with missing values or non-positive values for total assets are deleted (BHCK2170>0). Back
2. Keep bank holding companies (RSSD9331=28) and thrift holding company (RSSD9331=37), and exclude "not available" (RSSD9331=0).
3. The legal structure of the organization should be corporation (RSSD9047=1).
4. Keep holding company (RSSD9048=500) and securities broker or dealer (RSSD9048=700), and exclude insurance broker or company (RSSD9048=550), utility company (RSSD9048=710), and other non-depository institution (RSSD9048=720). Notice that Goldman Sacks, Morgan Stanley, Ally, and American Express are kept, although they are not in the desired category.
5. Drop Grandfathered savings and loan holding company (RSSD9425=18).

The Average Ratio of SBL/Assets



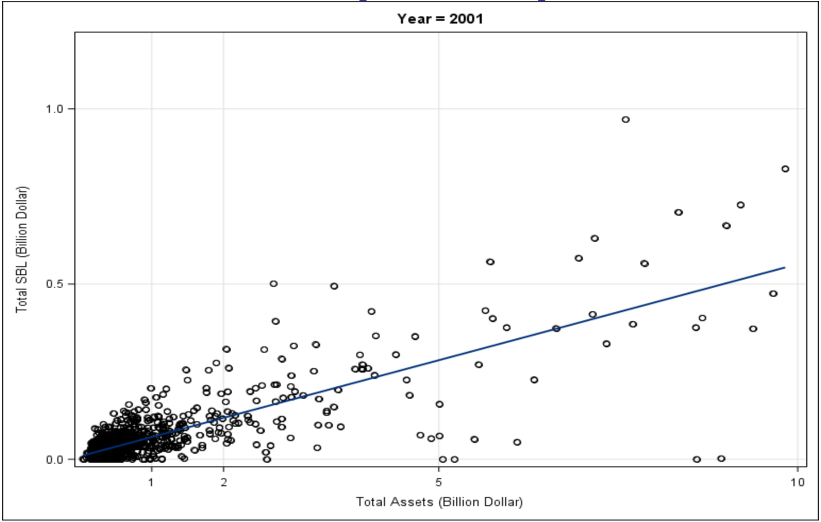
Back

Relationship between Assets and SBL of Large Banks by Year



Back

Relationship between Assets and SBL of Community Banks by Year



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