

Justifying the Glass-Stegall Act: Underwriter competition and risk taking in the 1920s

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QUESTION

Did commercial banks destabilize the NYSE in the 20ies?

- Strong evidence commercial banks were not reckless (e.g. Kroszner and Rajan (1994); Flandreau, Gaillard, and Panizza (2010))
- But what about State Chartered FED Members? Enjoyed liquidity backstop & arguably laxer regulator
- And what the effects *on other banks* of their presence in the market?

Competition and stability trade-off meets the Glass-Steagall Act

AGENDA & PREVIEW

- ① Introduce historical context
- ② Introduce dataset and how we use it
- ③ Present some preliminary findings

Main findings (preliminary):

State chartered FED members were taking more risk **for the same fees**

Correlation btw competition **and worse performance of bond underwritten by Investment banks**

WHY WE ARE WORKING ON THIS

- Challenge conventional wisdom that implicit insurance played no role before FDIC
- Argument in favor of Glass-Steagall Act: it was a **necessary condition** for extending insurance further
- Cautionary tale on differently regulated entities competing in the same market (nowadays shadow banks vs banks)

SOVEREIGN BONDS IN 20IES' NYSE

After end of WWI, US starts investing heavily in foreign Sovereigns

The NYSE becomes important for placing and trading Sovereign Bonds

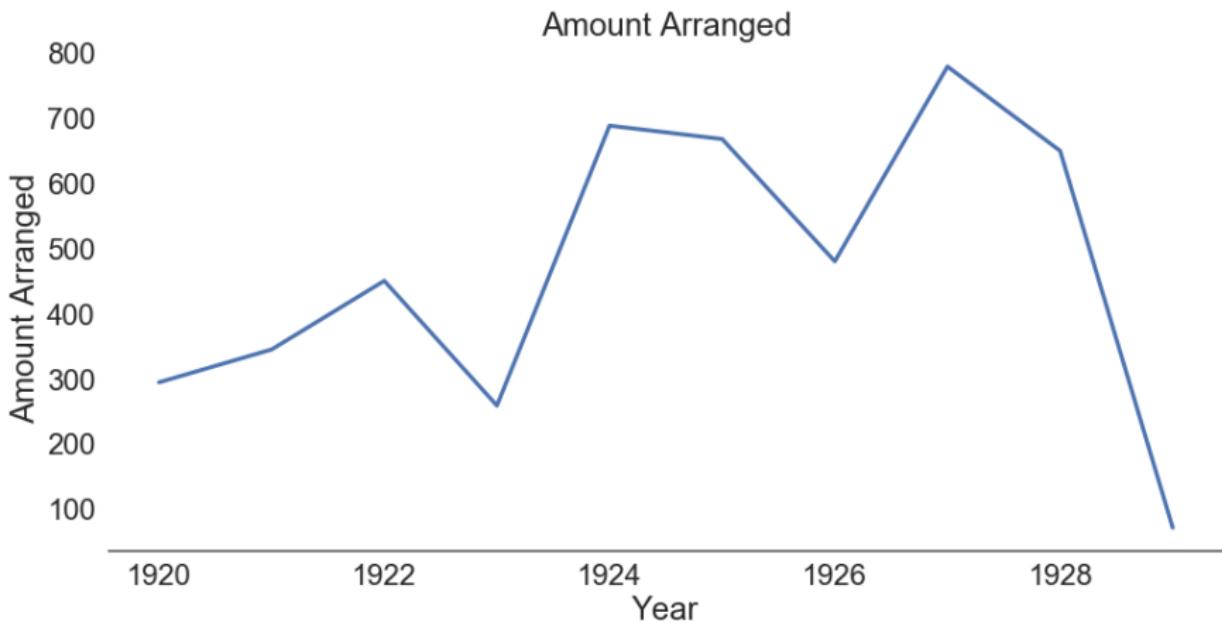
Two main players: Investment Banks, Commercial Banks

Commercial banks officially allowed in investment services in 1913

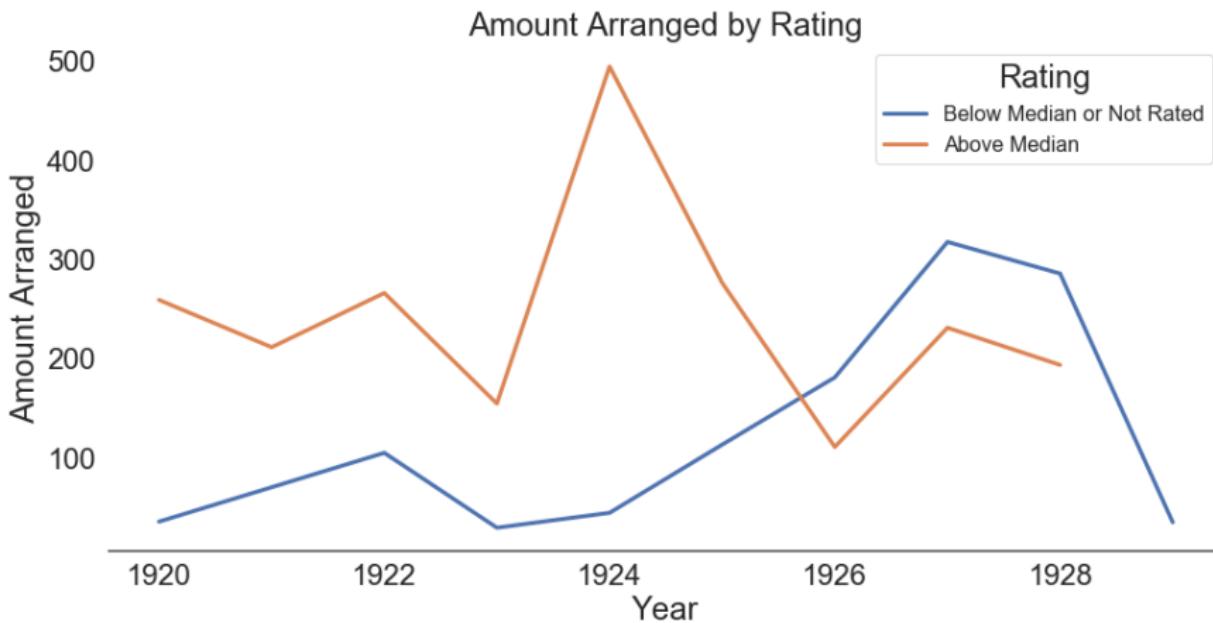
Started being noticeably active with placement of War Bonds (White, 1984)

Boom ends in a dramatic bust: in 1931 sovereign bond rated A was at 58.1 to par, domestic corporate bond rated A was at 85.7 to par (Flandreau, Gaillard, and Packer (2011))

GROWTH AND COLLAPSE IN AMOUNTS ARRANGED



RELATIVE GROWTH OF LOW RATING TRADED



REGULATION WAVE — THE GLASS-STEAGALL ACT

Claims that international bankers defrauded “Tom, Dick and Harry”

Discovery of scandalous instances in lending to emerging countries

Market leaders (J.P. Morgan, Kuhn and Loeb, etc) hop on (misguidedly)

Pecora hearings paint bleak picture of commercial banks' activity

Laws are passed separating commercial and investment banking activity

DATASET

Universe of **government bonds** denominated in US \$ between 1920 – 1929

322 bonds for **44** underwriters

Information on **amount, maturity, coupon, date of issue, rating**

Default records up to 1940

Detailed information on bond terms, **including underwriting fees**

Rajan's data on **private bond market origination**

DESCRIPTIVES - COMMERCIAL AND INVESTMENT

Table: Descriptive Statistics Comparison

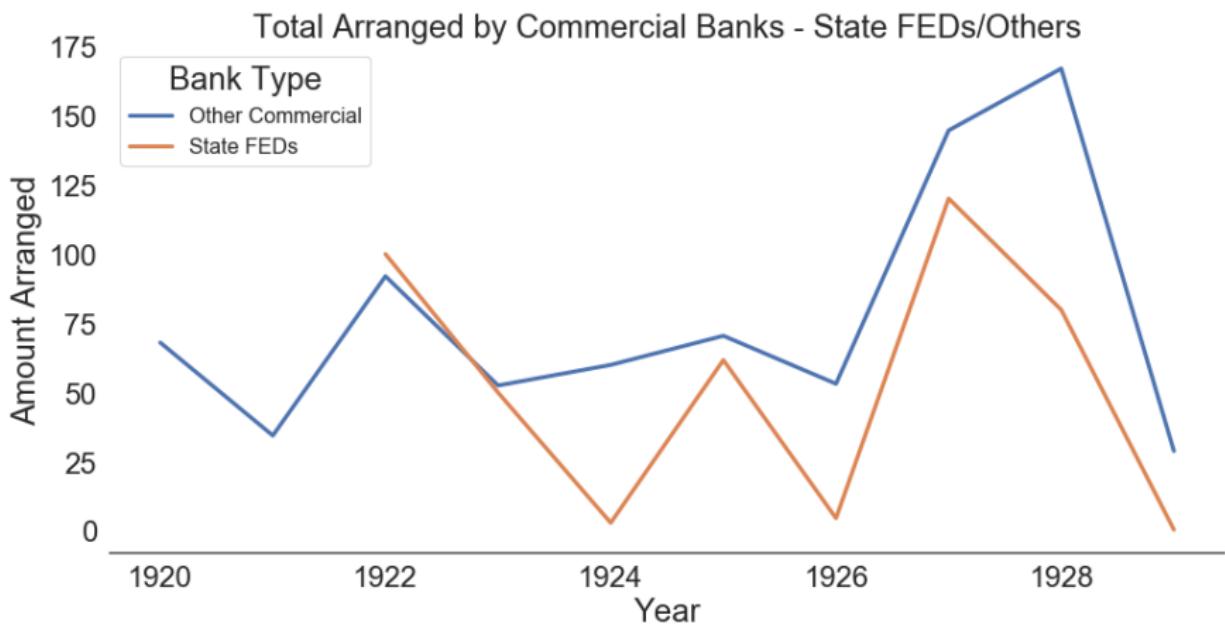
	Investment Banks 98 Major, 145 Minor			Commercial Banks 59 Major, 20 Minor		
	Mean	S.D.	Obs	Mean	S.D.	Obs
Fees	6	3.19	177	5.21	2.91	73
Spread	3.32	0.78	238	2.94	0.94	79
Amount in US \$	14.37	19.31	243	15.08	11.40	79
Maturity	1950	9.35	243	1951	8.4	79
Rating	2.66	1.2	243	2.97	1.48	79
Default	0.63	0.48	243	0.51	0.50	79

DESCRIPTIVES - STATE FEDS AND INVESTMENT BANKS

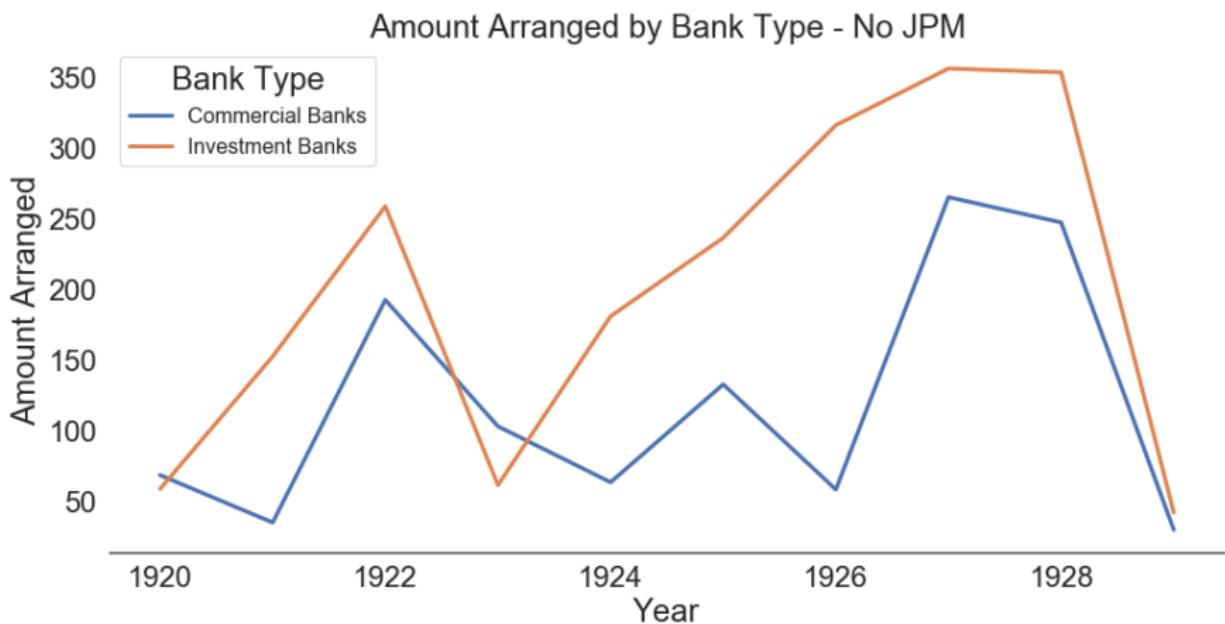
Table: Descriptive Statistics Comparison

	Investment Banks 98 Major, 145 Minor			State FEDs		
	Mean	S.D.	Obs	Mean	S.D.	Obs
Fees	6	3.19	177	6.04	4.39	28
Spread	3.32	0.78	238	3.1	1.15	28
Amount in US \$	14.37	19.31	243	14.99	14.92	28
Maturity	1950	9.35	243	1950	9.1	28
Rating	2.66	1.2	243	2.74	1.28	28
Default	0.63	0.48	243	0.57	0.5	28

STATE FEDS: HALF OF COMMERCIAL ARRANGEMENT



COMMERCIAL LITTLE LESS THAN HALF THE MARKET



Privileges of State FEDs

Membership = access to discount window and acceptances in distress time

The more members, the easier to provide “elastic currency”

Membership came regulation and supervision by the Federal Reserve System

⇒ Few state banks participated

Consequence: 1917 standards for state chartered members are lowered

FED Act 1917 amendment

...any bank becoming a member of the Federal Reserve System shall retain its full charter and statutory rights as a State bank or trust company, and may continue to exercise all corporate powers granted it by the State in which it was created, and shall be entitled to all privileges of member banks...

Committee on the state of Branch Banking, 1930

Their (State chartered FED members) examination and supervision were delegated to the Federal reserve banks and board, which, in turn, were authorized to accept reports and examinations from State supervising authorities in lieu of those of their own examiners

FED - post-1922, state banks costly advertise FED mmship (1923)

Guaranty Trust Company of New York
 1-107 • 117-64
 (140 Broadway)

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NAME OF BANK	PRESIDENT	VICE-PRESIDENT	CASHIER	ASS'T CASHIER
State Bank of Smithville • M. Paul Ross, T. Trout Pease,				

NEW YORK CITY (Borough of Manhattan)—Cont'd.
 Central Reserve City

LIABILITIES:
 SURPLUS TOTAL Assets Liabilities LOANS BONDS MORTGAGES Gains & Losses Non-Bank Towns with Respect Banking Point (Depot Accts.) Lawyers, Law Firms in local volume. For Interest Rates, Holidays, etc., see Laws.

PRINCIPAL CORRESPONDENTS:
 Leading banking institutions in the principal cities of the United States and in important centers throughout the world.

OFFICES:
 New York City:
 Main Office, 116 Broadway.
 Fifth Avenue Office, Fifth Avenue and 54th Street.
 Madison Avenue Office, Madison Avenue and 69th St.

London:
 22 Lombard Street, E. C.
 50 Pall Mall, S. W.
 Bush House, Aldwych, W. C. 2.

Liverpool:
 77 Cotton Exchange Buildings.

Paris:
 1 and 3 Rue des Italiens.

Huere:
 122 Boulevard de Strasbourg.

Brussels:
 156 Rue Royale.

Anwerp:
 36 Rue des Tanneurs.

THE GUARANTY TRUST COMPANY OF NEW YORK:
 Transacts a general commercial banking business. Collects notes, clean and documentary drafts, coupons, called and matured bonds, and similar instruments. Specializes in bill-of-lading drafts. Effects transfers of funds for customers by private wire, and executes telegraphic orders from out-of-town depositors to make payments in New York. Has complete facilities for handling the business of correspondent banks. Undertakes all kinds of foreign banking transactions. Accepts drafts for financing shipments to and from the United States. Deals in acceptances. Buys and sells foreign bank notes, coin and bullion. Issues letters of credit and travelers checks. Maintains offices in Europe and has correspondents throughout the world, thus affording complete banking facilities for international trade. Acts as transfer, fiscal, and disbursing agent, trustee, depositary, registrar, and in all fiduciary capacities for corporations and governments. **Acts in all fiduciary capacities for individuals.** **Affords, as a member of the Federal Reserve System, the benefit of its credit facilities and rediscount and collection privileges.**

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NEW YORK CITY (Borough of Manhattan)—Cont'd.
 Central Reserve City

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 SURPLUS TOTAL Assets Liabilities LOANS BONDS MORTGAGES Gains & Losses Non-Bank Towns with Respect Banking Point (Depot Accts.) Lawyers, Law Firms in local volume. For Interest Rates, Holidays, etc., see Laws.

PRINCIPAL CORRESPONDENTS:
 N. Y. Clearing House Ass'n, Member, see Laws.

FED - post-1922, state banks costly advertise FED mmship (1927)

987 Number under Name of Bank is the New Transit Number given to all banks in the United States by the American Bankers' Association, under the authority of The American Bankers' Ass'n.

Mem. A.H.A. "New Transit No."
12th State B. Ass'n. Total
Feb. Rec'd. from Central Reserve City
of State Dep. C.R.C. Last Rec'd. Dte.

LIST OF OFFICERS.

NEW YORK CITY—Central Reserve City—Cont'd (Borough of Manhattan)				
LIABILITIES.				
PAID-UP CAPITAL	SURPLUS & PROFITS	TOTAL DEPOSITS	OTHER LIABILITIES	RESOURCES.
\$	\$	\$	\$	\$
30,000,000	32,030,230	650,054,515	55,819,819	453,070,392
				72,829,373
				68,355,487
				185,381,216

GUARANTY TRUST COMPANY OF NEW YORK:
Transacts a general commercial banking business.
Collects notes, clean and documentary drafts, coupons, called and matured bonds, and similar instruments. Specializes in bill-of-lading drafts.
Effects transfers of funds for customers by private wire, and executes telegraphic orders from out-of-town depositors to make payments in New York.
Has complete facilities for handling the business of correspondent banks.
Has facilities for the transaction of every kind of foreign banking business, including: selling drafts and cable orders, payable in foreign currencies; purchasing and selling foreign exchange for future delivery; issuing drafts drawn on foreign countries covering export shipments; financing import shipments with commercial letters of credit; issuing commercial letters of credit; issuing sight letters, issuing travelers letters of credit and travelers checks; acting for foreign governments, banks, corporations, firms, and individuals.
Has branches in London, Liverpool, Paris, Havre, Hamburg, Copenhagen, where complete banking service along American lines is provided.
Acts as transfer, fiscal, and disbursing agent, trustee, depositary, registrar, and in all fiduciary capacities for corporations and governments.
Acts in all fiduciary capacities for individuals.
Affords, as a member of the Federal Reserve System, the benefit of its facilities and services.

Federal Reserve City No. 2
N.Y. Clearing House Ass'n. Members shown by *
Affiliated Banks by *
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and 44th St.
Madison Avenue Office, Madison
Avenue and 66th St.

London:
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22 Lombard Street, E. C. 3
DANIEL B. GREEN, Mgr.
ERNEST G. HUMPHREYS, Asst. Mgr.
ROBERT PACKEY, Asst. Mgr.
Kingsway Office
Bush House, Strand, E. C. 2
ANDREW F. PATTERSON, Mgr.
Pall Mall Office
50 Pall Mall, S. W. 1
H. STUART GOLDIE, Mgr.
JOHN WHALLEY, Asst. Mgr., and A. S. S.
Liverpool:
27 Cotton Exchange Buildings.
DUNCAN R. PATTEN, Asst. Mgr.

Paris:
1 and 3 Rue des Halles.
JOHN A. GRISWOLD
H. MORSE, Asst. Mgr.
ALBERT N. CONNETT, Jr.
THEODORE HOUSSEAU, Asst. Mgr.

Hanov:
122 Boulevard de Strasbourg.
J. H. CONN, Mgr.

Brussels:
22 Avenue des Arts.
LEON DE WAEL, Mgr.
P. PASTEUR, Asst. Mgr.

Antwerp:
36 Rue des Tanneurs.
J. B. AVENDO, Mgr.
GEO. C. DE GEBSTER, Asst. Mgr.



FED - post-1922, state banks costly advertise FED mmship (1928)

MARCH, 1928

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NEW YORK BANKS

TOWN AND COUNTY	District	Transit Numbers Shown Below Name of Each Bank.				
+ State	* Private	ESTAB	OFFICERS	LIABILITIES	RESOURCES	CORRESPONDENTS
CONDENSED STATEMENT, December 31, 1927						
RESOURCES Cash on Hand, in Federal Reserve Bank and due from Banks and Builders \$209,991,163.17 U. S. Government Bonds and Certificates 43,151,317.30 Public Securities 7,497,383.61 Other Securities 22,500,000.00 Loans and Bills Purchased 481,783,400.41 Real Estate Bonds and Mortgages 4,231,863.33 Items in Transit with Foreign Branches 6,178,371.87 Credits Granted on Acceptances 58,900,000.00 Rent Estate 7,687,509.75 Accrued Interest and Accounts Receivable 8,434,087.68 LIABILITIES Capital \$ 30,000,000.00 Surplus Fund 30,000,000.00 Undivided Profits 7,036,720.97 Accrued Interest, Reserve for Taxes, etc. \$ 67,036,720.97 Acceptances 4,040,311.14 Deposits 58,655,156.34 Outstanding Checks 43,672,869.04 8850,300,359.88 8720,020,171.43 8850,300,359.88						
GUARANTY TRUST COMPANY OF NEW YORK Transacts a general commercial banking business. Collects notes, clean and documentary drafts, coupons, checks, matured bonds, and similar instruments. Specializes in bill-of-lading banking. Effects transfers of funds for customers by private wire, and executes telegraphic orders from out-of-town customers to make payments in New York. Has complete facilities for handling all kinds of foreign banking business, including: selling drafts and cable orders, payable in the regular regular currencies; purchasing and selling foreign exchange for future delivery; negotiating drafts drawn on foreign countries covering export shipments; financing import shipments with commercial letters of credit; issuing commercial letters of credit for export shippers; commercial travelers' letters of credit and travelers' checks, acting for foreign governments, banks, corporations, firms and individuals. Has branches in London, Liverpool, Paris, Havre, Brussels and Antwerp, where complete banking service along American lines is provided. Acts as transfer, fiscal and disbursing agent, trustee, depository, registrar, and in all fiduciary capacities for corporations and governments. Affords, as a member of the Federal Reserve System, the benefit of its facilities and services.						

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 Cable Address: Guarpmail.
 Kingsway Office, Bush House, W. C. 2.
 Cable Address: Guiking.
Liverpool:
 27 Cotton Exchange Buildings, Liverpool
 Cable Address: Garrick
Paris:
 1 and 3 Rue des Italiens.
 Cable Address: Garrick
Havre:
 122 Boulevard de Strasbourg.
 Cable Address: Garrick
Brussels:
 27 Avenue des Arts
 Cable Address: Garrick
Antwerp:
 36 Rue des Tanneurs.
 Cable Address: Garrick

STATE CHARTERED FED MEMBERS TOOK MORE RISK

Linear probability model, similar spirit as [Kroszner and Rajan \(1994\)](#)

Main indep. variable: Dummy $SFED_{bct}$ b lead underwriter, c country, t underwriting year

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \omega Comm_{bct} + \gamma SFED_{bct} + \beta X_{btc} + \epsilon_{btc}$$

Controls: α_t year fe, η_{rating} Moody's rating fe, $Comm_{bct}$ commercial bank dummy, X_{btc} includes up to: Latin America dummy, maturity, log(bond amount), spread, **Underwriting Fees**

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \omega Comm_{bct} + \gamma SFED_{bct} + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2	(6) Default bf WW2
$\hat{\gamma}$	0.149** (2.32)	0.132** (2.14)	0.131** (2.09)	0.127** (2.00)	0.120* (1.85)	0.135** (1.99)
Commercial Bank	-0.0748 (-1.30)	-0.0790 (-1.55)	-0.0728 (-1.42)	-0.0704 (-1.43)	-0.0521 (-1.08)	-0.0825* (-1.69)
Latin America			0.0637 (1.05)	0.0611 (1.03)	0.0977 (1.59)	0.125* (1.82)
Maturity				0.00402 (1.41)	0.00394 (1.44)	0.00392 (1.38)
Log(Amount)				-0.0271 (-1.27)	-0.0241 (-1.14)	-0.0293 (-1.12)
Spread					0.0863* (1.71)	0.0190 (0.36)
Fees						0.0237*** (2.90)
Observations	321	321	321	321	316	250
Adjusted R^2	0.514	0.538	0.540	0.542	0.553	0.619
Bank-Year Clusters	140	140	140	140	137	110
Rating FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

IMPORTANCE OF INCLUDING FEES

Including them, positive and significant $\gamma \Rightarrow$

*State chartered FED members were taking **more risk for the same reward***

May arguably be considered a sign of

***competitive pressure** against other commercial and investment banks*

DID COMPETITION PUSH INV. BANKS TO RISK MORE?

b bank, c country, t underwriting year

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + I_b + \beta \text{Exposure}_{t-1} * I_b + \beta X_{btc} + \epsilon_{btc}$$

Exposure_{t-1} = Share underwritten by **State chartered FED members** in $t - 1$

$I_b = 1$ for investment banks

X_{btc} controls: log(amount), maturity, spread, fees

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + I_b + \beta \text{Exposure}_{t-1} * I_b + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2
$\hat{\beta}$	0.134 ** (2.60)	0.136 ** (2.61)	0.140 *** (2.81)	0.135 *** (2.69)	0.122 ** (2.21)
Investment Bank	-0.0621 (-1.11)	-0.0701 (-1.21)	-0.0738 (-1.35)	-0.0834 (-1.43)	-0.0593 (-0.89)
Latin America		0.0727 (1.20)	0.0693 (1.17)	0.108* (1.77)	0.128* (1.86)
Maturity			0.00365 (1.25)	0.00384 (1.39)	0.00393 (1.38)
Log(Amount)			-0.0336 (-1.54)	-0.0303 (-1.42)	-0.0360 (-1.34)
Spread				0.112** (2.22)	0.0199 (0.37)
Fees					0.0245*** (3.05)
Observations	308	308	308	304	240
Adjusted R^2	0.529	0.532	0.535	0.544	0.600
Bank-Year Clusters	132	132	132	130	104
Rating FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

RESULTS WITH PRIVATE BOND MARKET EXPOSURE

Here we repeat the test using $Exposure_{t-1}$ computed from the Rajan's private bond market data.

Using Moody's 1928 banking manual, we track the state chartered fed member affiliate, compute their share of origination for each year, and lag it.

We thank Raghuram Rajan for making such data available to us.

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + I_b + \beta \text{Exposure}_{t-1} * I_b + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2
$\hat{\beta}$	0.0676** (2.03)	0.0706** (2.03)	0.0702** (2.02)	0.0643* (1.81)	0.0730* (1.91)
Investment Bank	-0.0669 (-0.88)	-0.0788 (-1.02)	-0.0813 (-1.07)	-0.0845 (-1.07)	-0.0872 (-1.01)
Latin America		0.0771 (1.25)	0.0733 (1.22)	0.110* (1.75)	0.133* (1.89)
Maturity			0.00308 (0.96)	0.00334 (1.10)	0.00387 (1.22)
Log(Amount)			-0.0312 (-1.40)	-0.0281 (-1.29)	-0.0351 (-1.26)
Spread				0.113** (2.16)	0.0153 (0.27)
Fees					0.0233*** (2.72)
Observations	293	293	293	289	228
r2_a	0.528	0.531	0.532	0.542	0.589
N_clust	126	126	126	124	98
Rating FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

WITHIN MARKET DESIGN I

Are we just capturing the unravelling of the stock exchange over time?

Run *within* market test: Latin American countries vs non-Latin American countries

$$\text{def}_{btc}^{<\text{WW2}} = \alpha_t + \eta_{rating} + I_b + M_m + M_m * I_b + \beta^w \text{Exposure}_{mt-1} * I_b + \beta X_{btc} + \epsilon_{btc}$$

Exposure_{mt} = Share underwritten by State chartered FED members in $t - 1$
within market m

M_m captures market m 's specific default probability across all observations

$$\text{def}_{btc}^{<\text{WW2}} = \alpha_t + \eta_{rating} + I_b + M_m + M_m * I_b + \beta^w \text{Exposure}_{mt-1} * I_b + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2
$\hat{\beta}$	0.0696** (2.30)	0.0840** (2.42)	0.0846** (2.49)	0.0798** (2.35)	0.0702** (2.16)
Investment Bank	-0.0331 (-0.56)	-0.0112 (-0.15)	-0.0231 (-0.32)	-0.0392 (-0.53)	-0.00405 (-0.05)
Latin America		0.0385 (0.37)	0.0149 (0.14)	0.0447 (0.40)	0.0954 (0.75)
Investment Bank * Latin America		-0.0823 (-0.75)	-0.0571 (-0.49)	-0.0399 (-0.34)	-0.0639 (-0.50)
Maturity			0.00410 (1.27)	0.00419 (1.40)	0.00399 (1.35)
Log(Amount)			-0.0300 (-1.29)	-0.0271 (-1.20)	-0.0301 (-1.03)
Spread				0.111** (2.25)	0.0214 (0.40)
Fees					0.0253*** (2.98)
Observations	308	308	308	304	240
Adjusted R^2	0.534	0.532	0.535	0.544	0.597
Bank-Year Clusters	132	132	132	130	104
Rating FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

USING BANK-LEVEL VARIATION I

If interpretation makes sense, same should hold measuring bank-relative exposure

Investment banks for which market m is important should be displaced toward bad securities by the activity of competitors

$$\text{def}_{btc}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \beta^{\text{inv}} \text{Exposure}_{bt} + \beta X_{btc} + \epsilon_{btc}$$

$$\text{Exposure}_{bt} = \text{Exposure}_{mt-1} * \frac{\text{Tot. Underwritten}_{bm}}{\text{Tot. Underwritten}_b}$$

M_m captures market m 's specific default probability across all observations

$\frac{\text{Tot. Underwritten}_{bm}}{\text{Tot. Underwritten}_b}$ is computed with data only up to 1926

Test only includes investment banks

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \beta^{\text{inv}} \text{Exposure}_{bt} + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2
$\hat{\beta}$	0.107** (2.42)	0.127*** (2.93)	0.137*** (3.45)	0.134*** (3.34)	0.156*** (4.48)
Latin America		-0.0575 (-0.79)	-0.0609 (-0.80)	-0.0347 (-0.45)	-0.0303 (-0.38)
Maturity			0.00742** (2.11)	0.00701** (2.01)	0.00812** (2.28)
Log(Amount)			-0.0228 (-0.73)	-0.0202 (-0.65)	-0.0333 (-0.95)
Spread				0.0332 (0.51)	-0.0887 (-1.39)
Fees					0.0299*** (2.72)
Observations	209	209	209	205	162
Adjusted R^2	0.483	0.482	0.492	0.488	0.614
Bank-Year Clusters	87	87	87	85	71
Rating FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

THOUGHTS ON IDENTIFICATION

Challenges

- Reverse Causality: makes no sense in this case
- Simultaneity: lag-exposure to be safe
- Omitted Variable: the important one, progression of tests meant to address it
 - Varying the method by which we assess exposure we do not vary what we measure, but we vary the relationship between the measure and the unrelated unobservables

IMPROVEMENTS ON THOUGHTS: SHIFT-SHARE

Did banks for which private market was more important risked more after growth in the StateFED's activity in the private market?

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \beta^{\text{inv}} \text{Exposure}_{bt} + \beta X_{btc} + \epsilon_{btc}$$

$\Delta U_{\text{StateFEDs private mkt},t}$ = growth (log difference) in StateFED's private bonds' underwriting activity

$$\text{Exposure}_{bt} = \Delta U_{\text{StateFEDs private mkt},t} * \frac{\text{Tot. Underwritten}_{b \text{ private mkt},t}}{\text{Tot. Underwritten}_b}$$

Test only includes investment banks

$$\text{def}_{bct}^{<\text{WW2}} = \alpha_t + \eta_{rating} + \beta^{\text{inv}} \text{Exposure}_{bt} + \beta X_{btc} + \epsilon_{btc}$$

	(1) Default bf WW2	(2) Default bf WW2	(3) Default bf WW2	(4) Default bf WW2	(5) Default bf WW2
$\hat{\beta}$	0.118** (2.10)	0.148** (2.13)	0.167* (1.95)	0.171* (1.93)	0.137 (1.59)
Latin America		0.167* (1.71)	0.182* (2.01)	0.200** (2.31)	0.171+ (1.59)
Maturity			0.0116** (2.66)	0.0125** (2.68)	0.0105** (2.22)
Log(Amount)			-0.0534* (-1.77)	-0.0421 (-1.37)	0.0183 (0.45)
Spread				-0.0605 (-0.61)	-0.214* (-1.94)
Fees					0.0523** (2.52)
Observations	107	107	107	104	82
Adjusted R^2	0.526	0.544	0.571	0.566	0.641
Bank-Year Clusters	42	42	42	40	35
Rating FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes

t statistics in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

WAY FORWARD

- Should use lag of the bank exposure $\frac{\text{Tot. Underwritten}_b \text{ private mkt}, t}{\text{Tot. Underwritten}_b}$
 - if we try, end up with too little data points and loose power \Rightarrow further data collection effort needed on private bond market
- Done that, implement tests and go through [Goldsmith-Pinkham, Sorkin, and Swift \(2018\)](#)'s diagnostic

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