Bank Runs With and Without Bank Failure

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Motivation

Bank runs are a salient feature of many financial crises, but their causes and consequences are subject to longstanding debates (e.g., Blanchard, 2018)

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- ... amplifier of deteriorating fundamentals
  Goldstein and Pauzner (2005)...
- ... consequence of deeper solvency problems
  Temin (1976), Gennaioli and Shleifer (2018)...

Challenge: Lack of Systematic Micro-level Evidence

Existing evidence focuses on either...

- **Bank failures**
  - Objectively recorded in historical records, but misses runs without failure

    Calomiris and Mason (2003), Correia, Luck and Verner (2025)...

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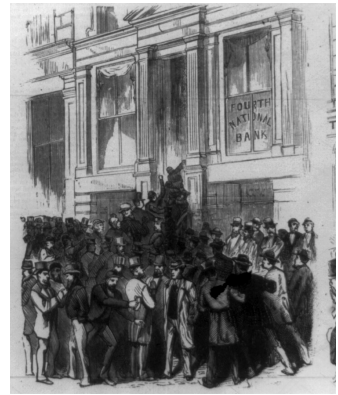
- **Aggregate narrative data** on banking panics
  - Many episodes but no bank-level information

    Gorton (1988), Baron, Verner and Xiong (2021), Jamilov et al. (2024)...

This Paper

Approach: Novel large-scale bank-level evidence on runs

- Apply LLMs to historical U.S. newspapers from 1863–1934
- Historical laboratory without deposit insurance or LOLR (pre-1914)
- New database of 3,984 runs on individual banks



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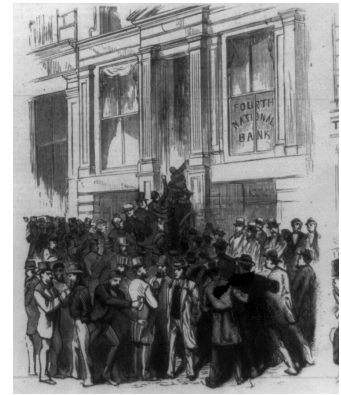

Questions:

1. What are the determinants of runs?
2. When do bank runs result in bank failure?
3. What are the consequences of runs for lending and the real economy?

Key Findings

1. Determinants of runs
    - More common in weak banks
    - Also occur in strong banks after bad macro/banking news

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2. Runs and failure
   - Runs usually only trigger failure in weak banks
   - Most failed banks appear fundamentally insolvent
   - Strong banks survive runs through various mechanisms

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2. Runs and failure
   - Runs usually only trigger failure in weak banks
   - Most failed banks appear fundamentally insolvent
   - Strong banks survive runs through various mechanisms

3. Consequences of runs for lending and the real economy
   - Runs depress local credit and manufacturing activity...
   - ...but only when they occur in weak banks and lead to failure

Overall Takeaways

1. Poor fundamentals are central to explaining both when runs occur and when they have severe economic effects

2. Evidence tempers pure self-fulfilling-run interpretations

New Bank Runs Dataset

Runs Database Construction

- Classify **runs**, **suspensions**, **reopenings**, and **failures** in **newspaper articles**
  - 372 million articles from *Chronicling America* (Dell et al., 2023), `newspapers.com`
  - Initial filter using keywords: "bank + run," "heavy withdrawals," "panic,"...
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  - Bank run
  - Bank run $\rightarrow$ suspension $\rightarrow$ reopening
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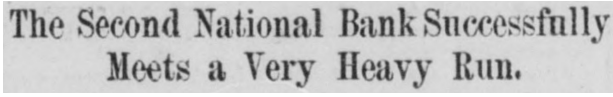
- Merge with **national bank call reports**, 1863-1935 (Correia, Luck and Verner, 2025)

Runs Were Prominently Discussed in Newspapers

Panic of 1884: Run without failure

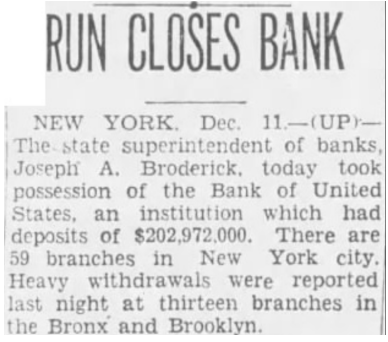

The Second National Bank Successfully Meets a Very Heavy Run.

Panic of 1907, Knickerbocker Trust


WHEN BANK FAILED

Scenes During Run on Knickerbocker Trust Company.

1930: Bank of US run and failure


RUN CLOSES BANK

NEW YORK, Dec. 11.—(UP)—The state superintendent of banks, Joseph A. Broderick, today took possession of the Bank of United States, an institution which had deposits of $202,972,000. There are 59 branches in New York city. Heavy withdrawals were reported last night at thirteen branches in the Bronx and Brooklyn.

Validation

- Cross-validation against four ground-truth datasets of national bank events

Cross-validation sample	N events	Match rate
Wicker (1996, 2006) runs	34	94.1%
Rockoff (2021) failures	7	100%
Bradstreet's 1893 suspensions	123	93.5%
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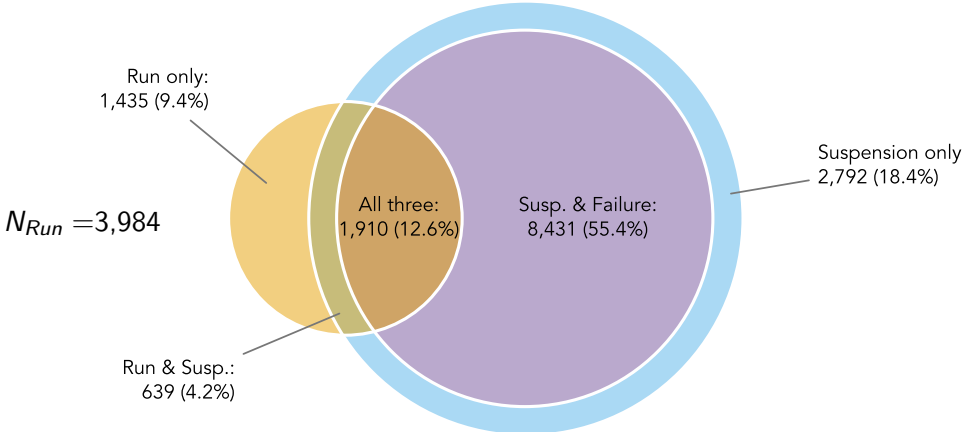
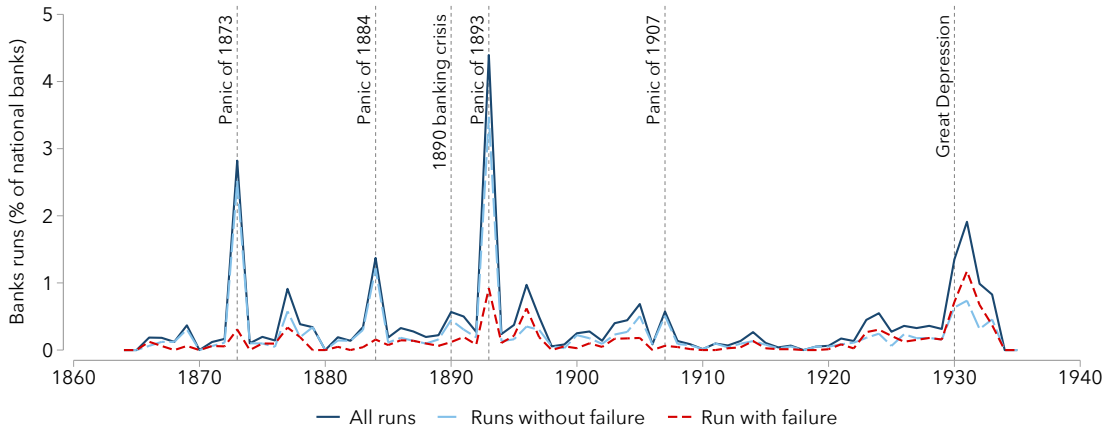
- Caveat: Bias towards larger banks Evidence
- All runs documented at: `finhist.com/bank-runs`

Bank Runs, Suspension, and Failures



Most runs do not involve failure, and most failures do not involve runs

Bank Runs, 1863-1934



$P(\text{run}) = 0.39\%,\ P(\text{run}|\text{crisis}) = 1.42\%$

Monthly during Great Depression

What Are the Determinants of Runs?

Runs Are More Likely in Weak Banks

...But Can Also Occur In Strong Banks

- $Fundamentals_{bt}$ = Predicted probability of survival based on financial statements
  - Capitalization
  - Recent profitability
  - Reliance on noncore funding

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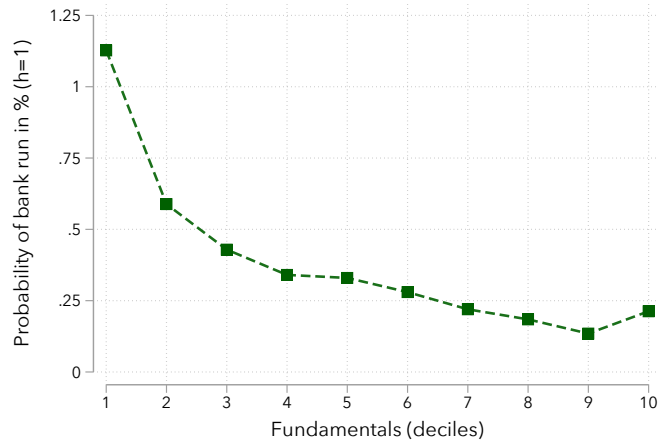

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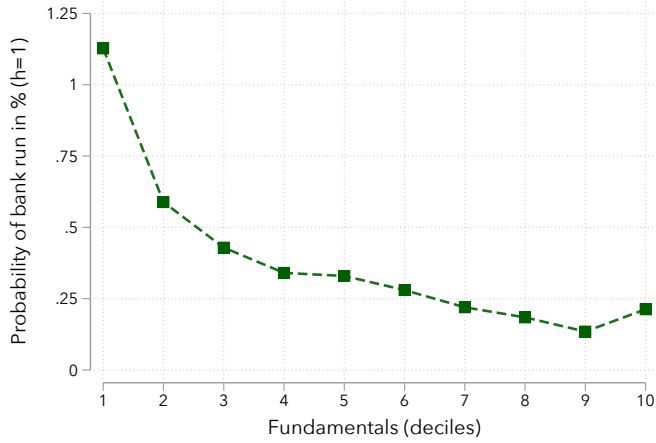
- Runs on weak banks consistent with **fundamental-based panic runs** (Goldstein and Pauzner, 2005)
- Runs on strong banks partly explained by **bad public signals** (Gorton, 1988; Dang et al., 2017)

AUC evidence



When Do Runs Result in Bank Failure?

Pass-Through of Runs to Failure

$$\mathbf{1}[\text{Failure}]_{bt+h} = \beta^h \mathbf{1}[\text{Run}]_{bt} + \epsilon_{bt+h}, \qquad h = -5, ..., 40$$

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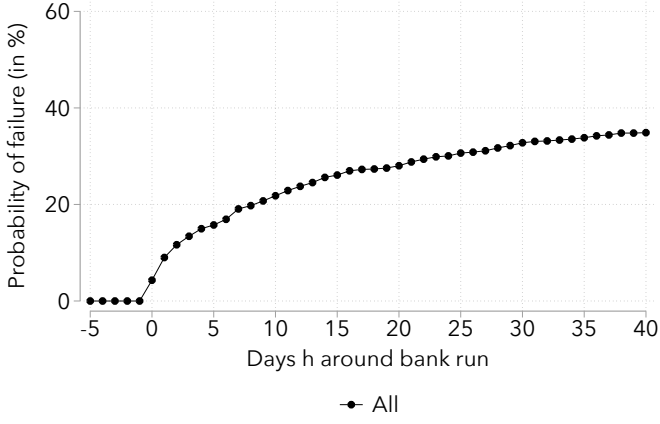

Runs Usually Only Trigger Failure of Weak Banks

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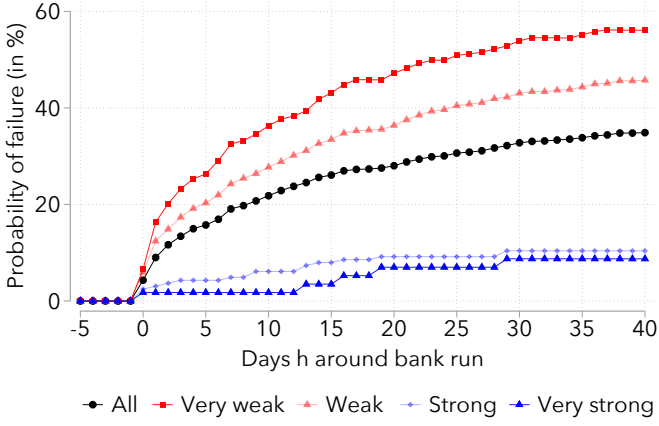

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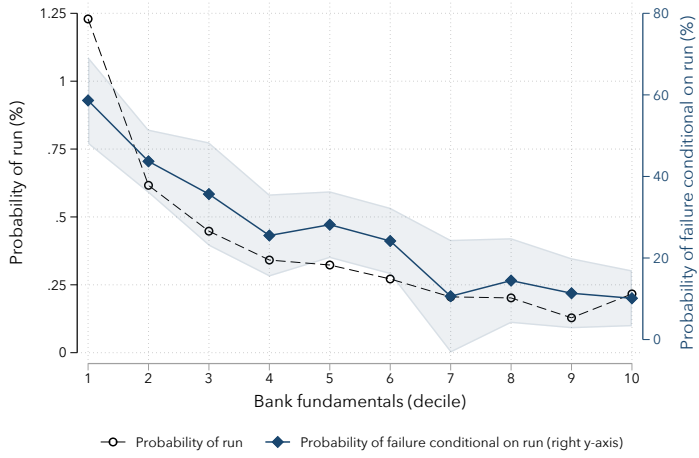
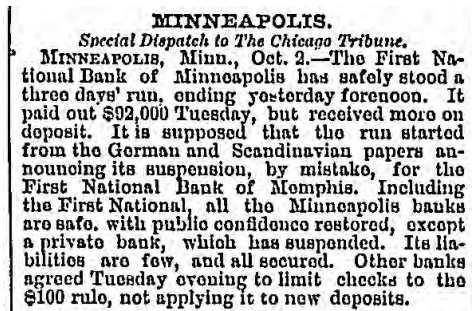


- Note: Fundamentals$_{bt}$ imperfect proxy
  - Banks not required to provision, fraud, sudden shocks...

Non-Fundamental Runs

- Can non-fundamental run trigger bank failure?
- Classify run as "non-fundamental" if newspapers describe it as triggered by false or mistaken information
- 53 non-fundamental runs on natl. banks (hand-checked)



MINNEAPOLIS.

Special Dispatch to The Chicago Tribune.

MINNEAPOLIS, Minn., Oct. 2.—The First National Bank of Minneapolis has safely stood a three days' run, ending yesterday forenoon. It paid out $92,000 Tuesday, but received more on deposit. It is supposed that the run started from the German and Scandinavian papers announcing its suspension, by mistake, for the First National Bank of Memphis. Including the First National, all the Minneapolis banks are safe, with public confidence restored, except a private bank, which has suspended. Its liabilities are few, and all secured. Other banks agreed Tuesday evening to limit checks to the $100 rule, not applying it to new deposits.

Non-Fundamental Runs and Failure

$$\mathbf{1}[\text{Failure}]_{bt} = \beta_0 + \beta_1 \mathbf{1}[\text{Non-Fundamental Run}]_{bt} + \beta_2 \mathbf{1}[\text{Other Run}]_{bt} + \epsilon_{bt}$$

Dependent variable	Failure in t		
	(1)	(2)	(3)
Run	0.38***		
	(0.051)		
Non-fundamental run		0.11***	0.14***
		(0.036)	(0.045)
Other run		0.40***	0.44***
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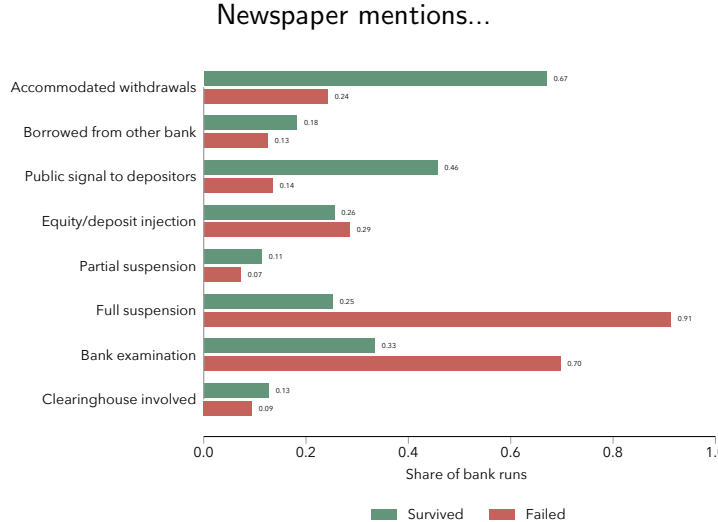
- Cases where NF run led to failure involved hidden losses
- Run as monitoring device

Why Do Runs Rarely Cause Failure of Strong Banks?

- Strong banks can avert failure through:
  - New equity
  - Interbank borrowing
  - Clearinghouses
  - Suspension + examination



Recovery Rates in Failure

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- Avg. asset (deposit) recovery rate: 52% (66%)
  - Runs on solvent banks account for at most 7%-20% of failures ($\mu = 0\%$ to $\mu = 20\%$)

$\Rightarrow$ Most failed banks fundamentally insolvent

Source: Correia Luck Verner, "Failing Banks."

What Are the Consequences of Runs for Lending and Real Activity?

Bank-Level Consequences of Runs Without Failure

$$\frac{Y_{b,t+h} - Y_{b,t-1}}{\text{Assets}_{b,t-1}} = \alpha_b + \beta_S^h \mathbf{1}[\text{Run}^{Strong}]_{b,t} + \beta_W^h \mathbf{1}[\text{Run}^{Weak}]_{b,t} + \epsilon_{b,t+h}, \quad h = -5, ..., 5$$

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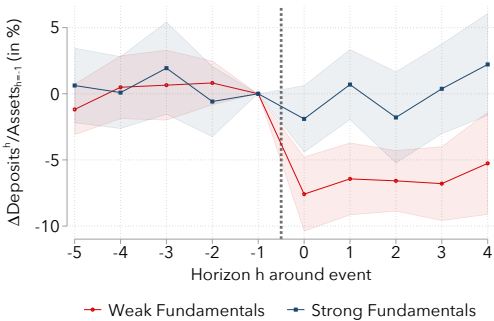

(a) Deposits

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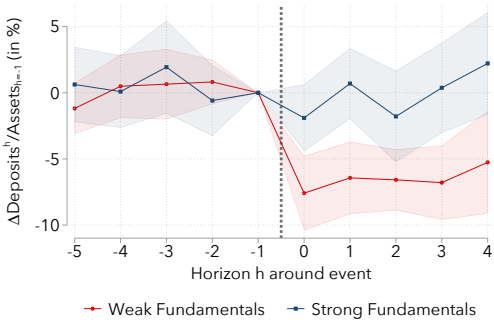

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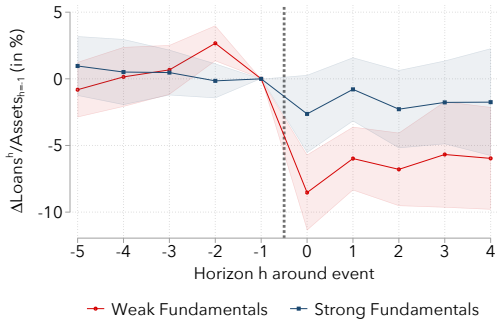

(b) Loans

City-Level Consequences of Runs for Lending

$$LoanGrowth_{c,t-1,t+h} = \alpha_c + \beta_S^h \mathbf{1}[\text{Run}^{Strong}]_{c,t} + \beta_W^h \mathbf{1}[\text{Run}^{Weak}]_{c,t} + X_{c,t-1}\Gamma^h + \epsilon_{c,t+h}, \quad h = 0, 1, ...$$

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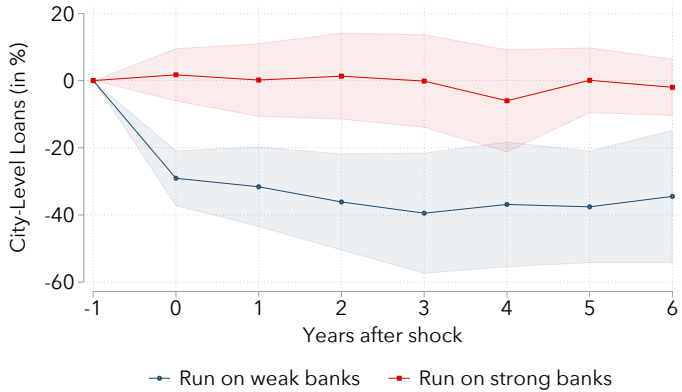

Non-fundamental runs | Runs w/ and w/o failure

Impact of Runs on City-Level Manufacturing Activity

Runs on weak vs strong banks

- New weekly city-level manufacturing activity data from *Bradstreet's* "Trade at a Glance"
  - 30 cities, 1917-1935
  - R^2 with IP of 49%

Details

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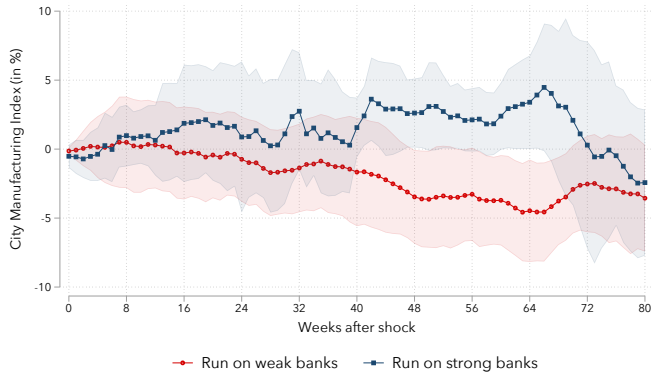
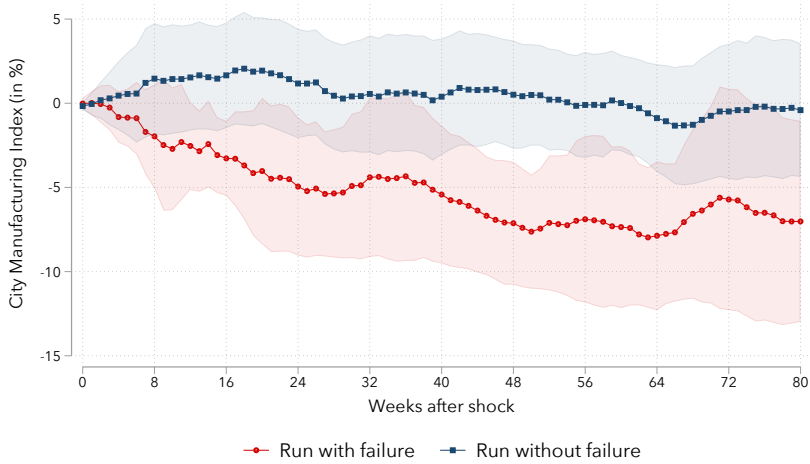


Failure Necessary for Real Economic Costs of Runs

Runs with and without failure



Conclusion

New data on $\approx$ **4,000 bank runs** reveal:

1. Runs $\neq$ failures, adverse real effects
2. Weak fundamentals necessary for runs to generate failures and adverse real effects

Broader view: Severe crises start with **insolvency, not illiquidity**

Policy: Emphasis on policies to protect and restore solvency

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Approach: Searched 372 Million Articles for Bank Distress Events

ELMIRA STAR-GAZETTE

Norris Invited To Form Third Party

Lindbergh Prophesies Network of Airlanes Linking Hemispheres

Directing Bank

Foe of Thugs Seeks Chicago Mayor's Post

They're Thinking of Bolting

Time Ripe For New Political Alliance, Dewey Tells Senator

33 Are Killed By Earthquake In Argentina

Kin Hubbard, Originator of Cartoon, Dies

Dry Laws Blamed By Wets For U.S. Court Congestion And Increase in Prisoners

Italian Air Giants Await Atlantic Hop

Suspect Reds Plotting Runs On U.S. Banks

Garner Favors Payment Now Of War Bonus

Woman's Body Found in Home Near Potsdam

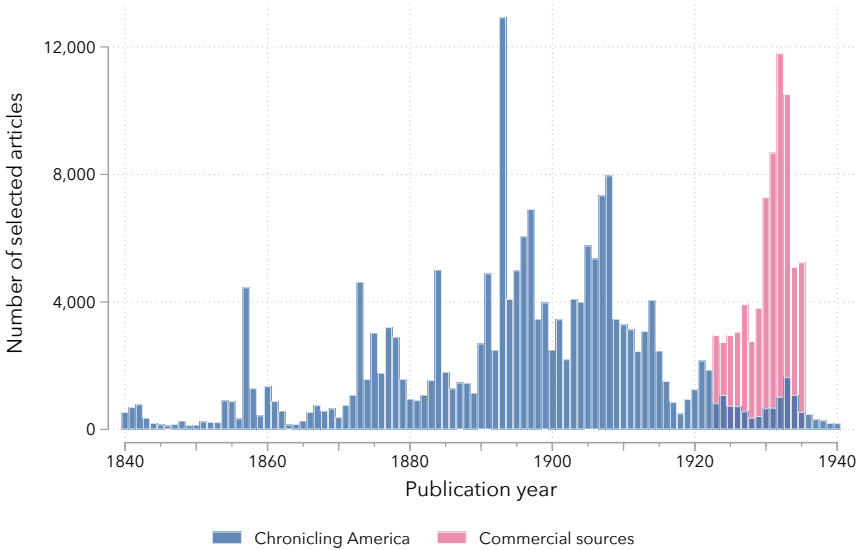
Says Industry May Resort to Five-day Week

LATE NEWS

Roosevelt, Walker Committee's Target

Train Headlight Saves Two Boys Deep in Tar Pit

Number Newspaper Articles Used

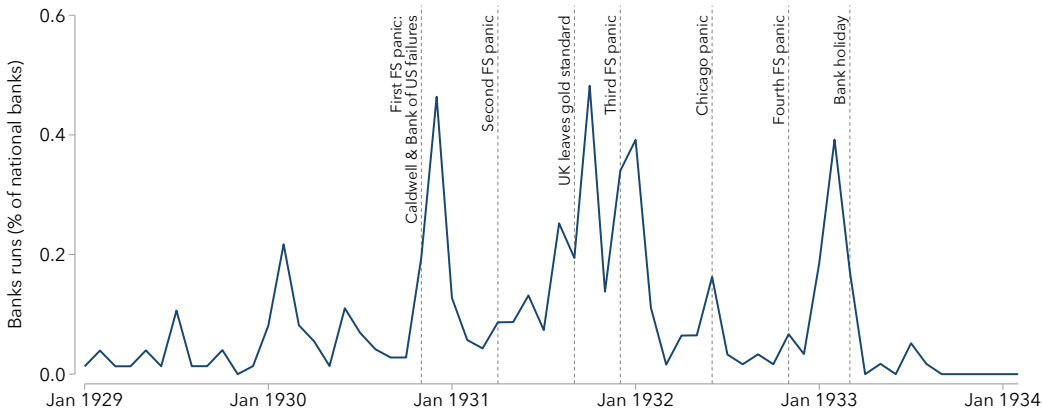


Relating Bank Distress to Bank Fundamentals

Dependent variable	Run in $t+1$	Run without failure in $t+1$	Failure in $t+1$	Failure with run in $t+1$
	(1)	(2)	(3)	(4)
Bank fundamentals:				
Surplus / Equity	-0.30**			-0.51***
	(0.13)			(0.19)
Noncore funding / Assets	11.06***			10.23***
	(1.78)			(1.83)
Surplus × Noncore funding	-11.05***			-11.75***
	(2.60)			(2.35)
Liquid Assets / Assets	-0.65***			-0.67*
	(0.24)			(0.34)
Deposits / Assets	0.74*			0.67*
	(0.40)			(0.34)
Asset Growth (3 years)	-0.15			-0.05
	(0.14)			(0.09)
Macro conditions:				
NB failure rate		-0.79		-0.29
		(3.96)		(3.73)
NB run rate		5.40		-5.30
		(17.17)		(14.63)
Business failure rate		21.34*		19.25
		(11.78)		(13.53)
Real GDP growth		0.93		0.33
		(0.89)		(0.72)
Stock market return		-0.68**		-0.65***
		(0.26)		(0.22)
Local conditions:				
Run on other bank in same city			3.47***	3.45***
			(0.95)	(0.95)
Local business failure rate			15.16***	1.95
			(3.60)	(6.28)
N	290437	277086	273481	243908
Mean dep. var	.39	.38	.38	.38

→ Define: Fundamentals$_{bt} \equiv -1\times$ out of sample predicted probability of failure

Bank Runs during the Great Depression



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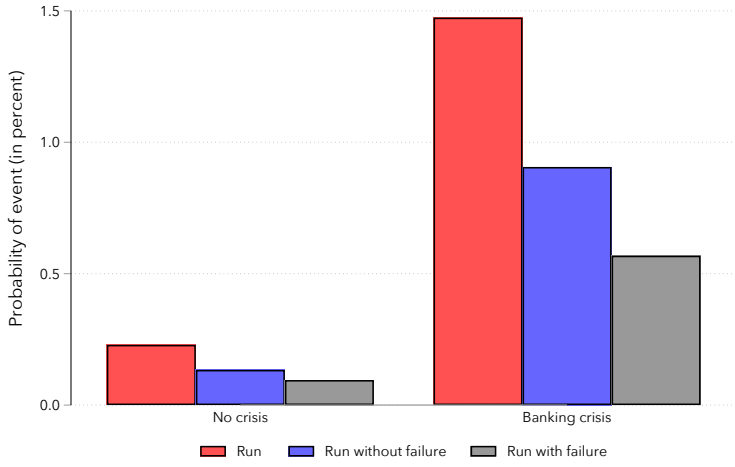
Probability of Bank Run During and Outside Crisis Years



Note: Banking crisis years from Baron, Verner and Xiong (2021). Back

Bank Distress Events Captures Regional Panics
From Jalil (2015) and Wicker (1996)

State-month regression

Dependent variable	Run	Failure	Suspension
	(1)	(2)	(3)
Major banking crisis year	0.20***	0.38***	0.68***
	(0.030)	(0.074)	(0.11)
Major banking panic month	0.89**	-0.34***	0.90**
	(0.43)	(0.095)	(0.45)
Regional banking panic	2.17***	2.34***	5.37***
	(0.47)	(0.43)	(0.95)
N	41609	41609	41609
Mean dep. var.	0.10	0.19	0.28

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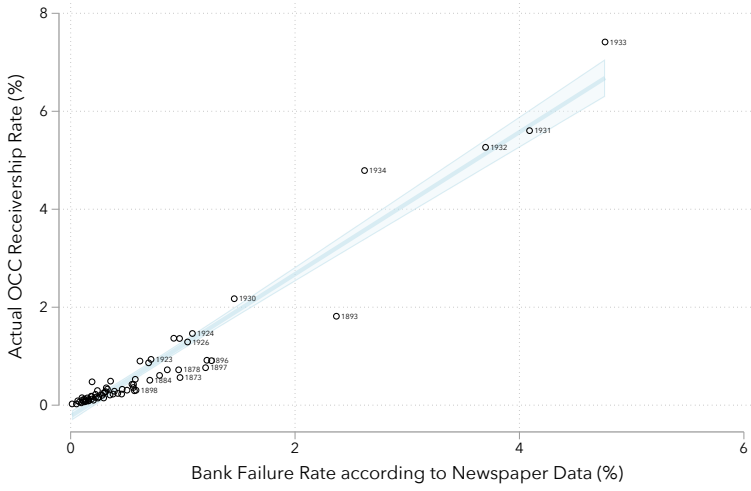
True Failure Rates Versus Newspaper Failure Rates



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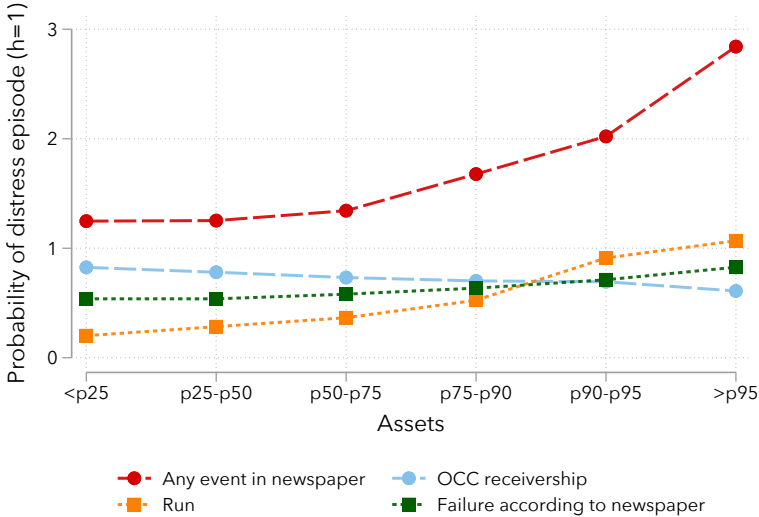
Probability of Distress in Newspapers by Size



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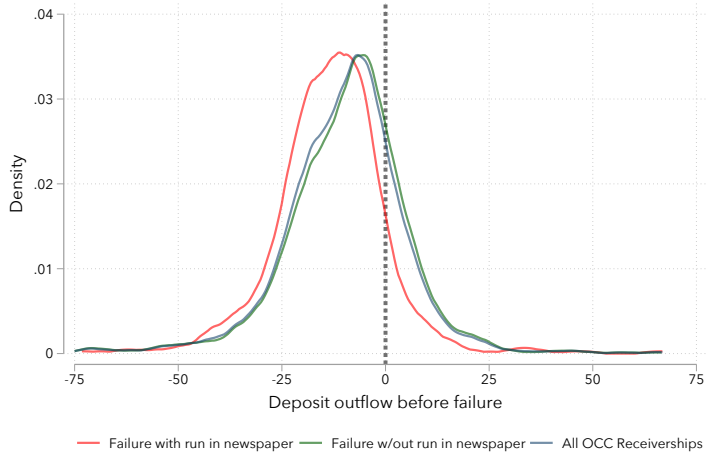
Deposit Outflows in National Bank Failures Depending on Whether Run is Reported Or Not



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Bank Runs: Summary Statistics

	Bank run				Failure	Suspension
	All	Run w/o suspension	Run with sus. + reopen.	Run with failure		
Panel A: Total number of events, all bank types						
All	3,984	1,435	639	1,910	10,341	13,772
1863-1913 (NB Era)	2,042	991	341	710	3,717	4,932
1914-1928 (Early Fed)	797	230	87	480	2,655	3,082
1929-March 6, 1933	1,132	208	210	714	3,367	4,825
After March 6, 1933	13	6	1	6	602	933
Panel B: Number of events as a share of total number of banks (in %), national banks						
All	0.39	0.15	0.06	0.18	0.89	1.17

Determinants of Bank Runs and Failures

Outcome	Area under the curve (AUC)					
	(1)	(2)	(3)	(4)	(5)	(6)
Bank run	0.69	0.82	0.75	0.79	0.80	0.84
without failure	0.62	0.80	0.69	0.73	0.75	0.82
with failure	0.84	0.88	0.86	0.88	0.88	0.89
Bank failure	0.87	0.90	0.90	0.89	0.90	0.91
Specification details						
Bank fundamentals	✓	✓	✓	✓	✓	✓
Macro conditions			✓		✓	
Local conditions				✓	✓	✓
Year FE		✓				✓

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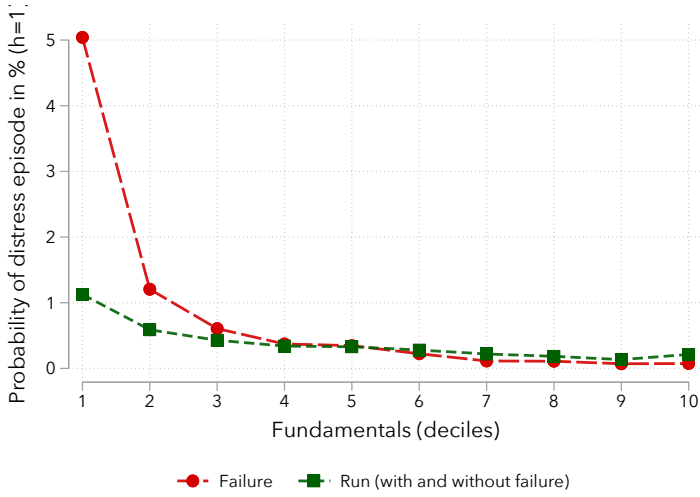
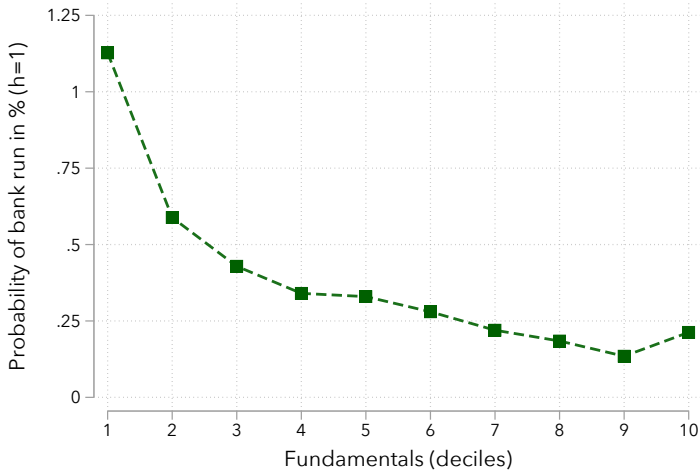
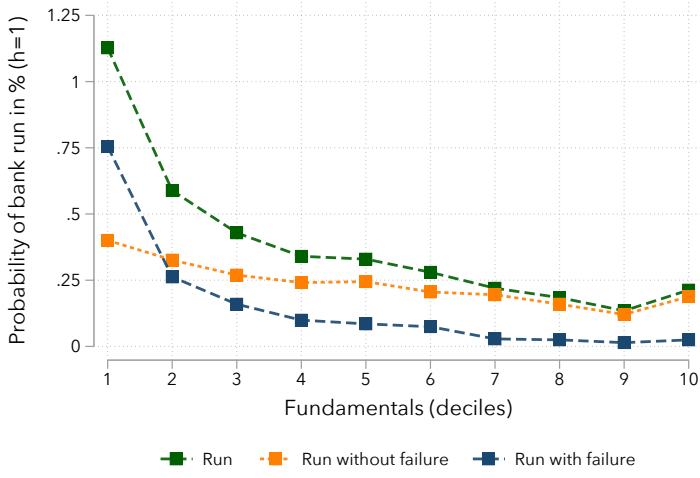
Runs Less Predictable Than Failures Based on Bank Fundamentals



Bank Runs With and Without Bank Failure



Bank Runs With and Without Bank Failure



Pass-Through of Runs to Failure

Dependent variable	Failure in t					
	(1)	(2)	(3)	(4)	(5)	(6)
Run	0.38***	0.25***	0.43***	0.40***	0.33***	0.29***
	(0.051)	(0.039)	(0.053)	(0.051)	(0.053)	(0.053)
Fundamentals		-3.40***				
		(0.82)				
Fundamentals × run		-12.7***				
		(1.82)				
Strong fundamentals			-0.0094**		-0.0054**	
			(0.0038)		(0.0025)	
Strong fundamentals × run			-0.32***		-0.27***	
			(0.049)		(0.048)	
Very strong fundamentals				-0.0072**		-0.0034**
				(0.0029)		(0.0017)
Very strong fundamentals × run				-0.30***		-0.23***
				(0.067)		(0.066)
Observations	272535	272535	272535	272535	73859	73859
Mean dep. var.	0.0084	0.0084	0.0084	0.0084	0.0050	0.0050
Sample					Large Banks	Large Banks

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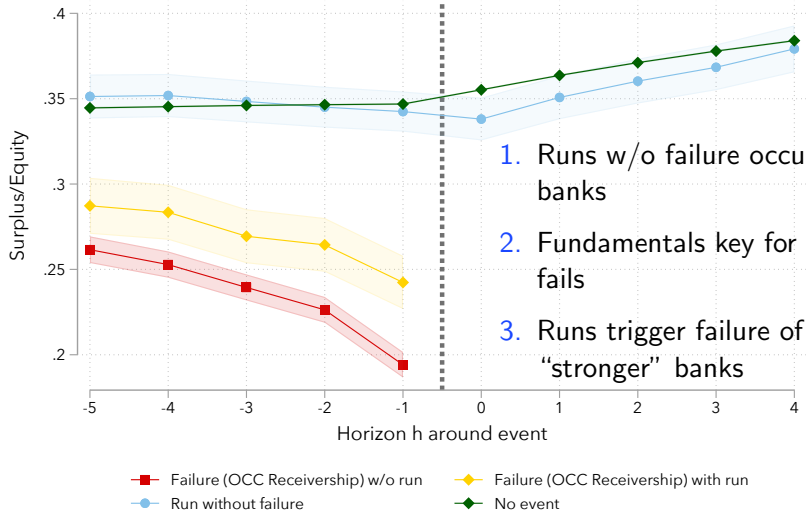
Differences between Failing Banks and Banks Subject to Runs

Estimate specifications of the following form:

$$
\begin{aligned}
y_{bt+h} = & \beta_1^h \times \mathbf{1}[\text{Run w/o failure}_{bt}] \\
& + \beta_2^h \times \mathbf{1}[\text{Failure with run}_{bt}] \\
& + \beta_3^h \times \mathbf{1}[\text{Failure w/o run}_{bt}] \\
& + \beta_4^h \times \mathbf{1}[\text{No Event}_{bt}] \\
& + \gamma_t^h + \epsilon_{bt+h},, \qquad\qquad h = -5, ..., 5.
\end{aligned}
$$

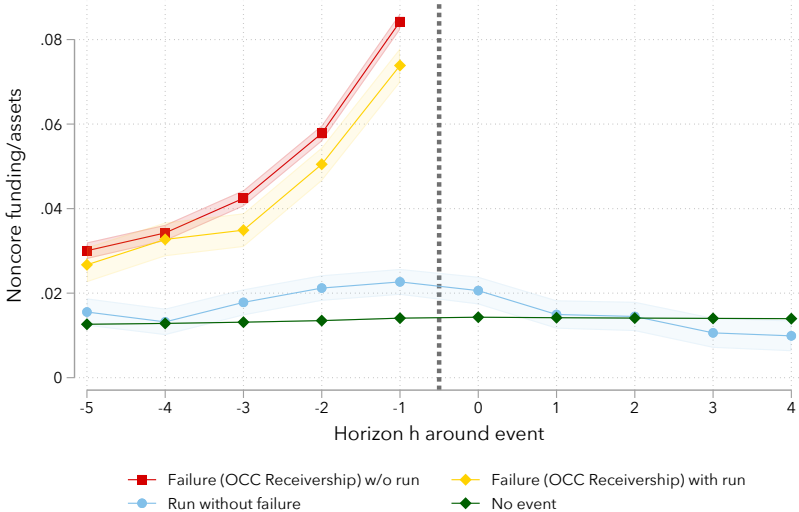
- y_{bt+h}: bank-level variable in year $t + h$
- RHS:
  - (i) bank is subject to a run in t but does not fail
  - (ii) bank fails with a run mentioned in newspaper accounts
  - (iii) bank fails without a run in t
  - (iv) no event for bank b in year t

Differences between Failing Banks and Bank Runs: Capitalization

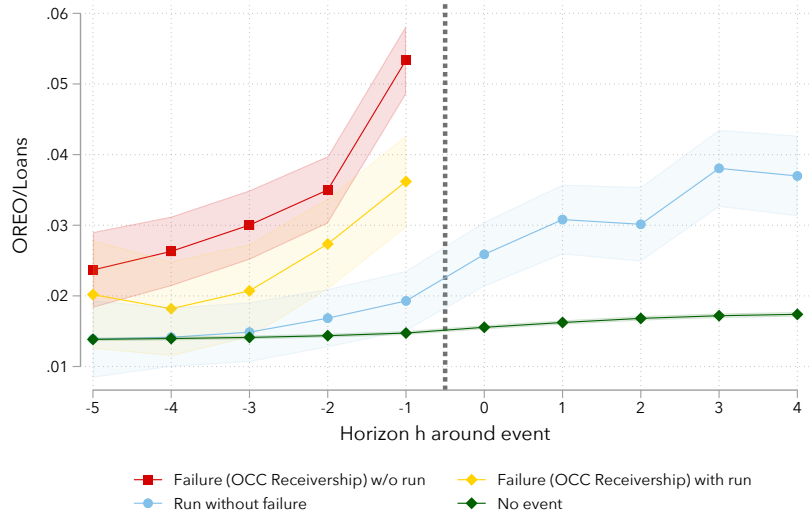


1. Runs w/o failure occur in stronger banks
2. Fundamentals key for whether bank fails
3. Runs trigger failure of marginally "stronger" banks

Differences between Failing Banks and Bank Runs: Noncore Funding



Differences between Failing Banks and Bank Runs: OREO

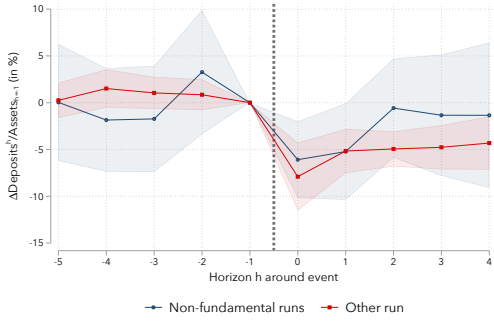


Clearinghouses

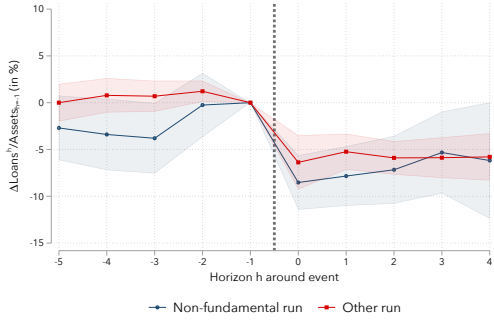
Dependent variable	Failure in t+1
	(1)
Run	0.43***
	(0.050)
Clearinghouse City	-0.0025**
	(0.0011)
Clearinghouse City × Run	-0.14***
	(0.035)
Observations	282082
R^2	0.071
Mean dep. var.	0.0082

Bank-Level Consequences of Bank Runs Without Failure

Non-Fundamental Runs



(a) Deposits



(b) Loans

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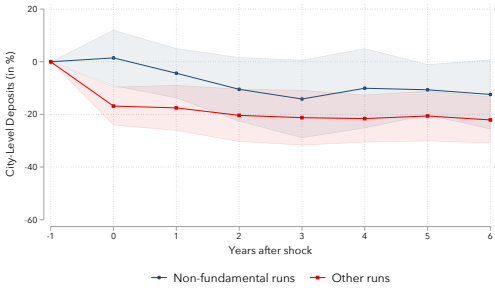
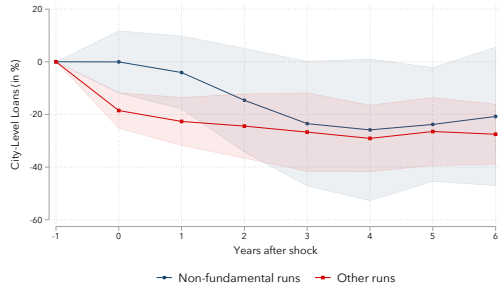
Local Consequences of Non-Fundamental Runs



(a) Impact of runs on deposits, non-fundamental runs



(b) Impact of runs on loans, non-fundamental runs

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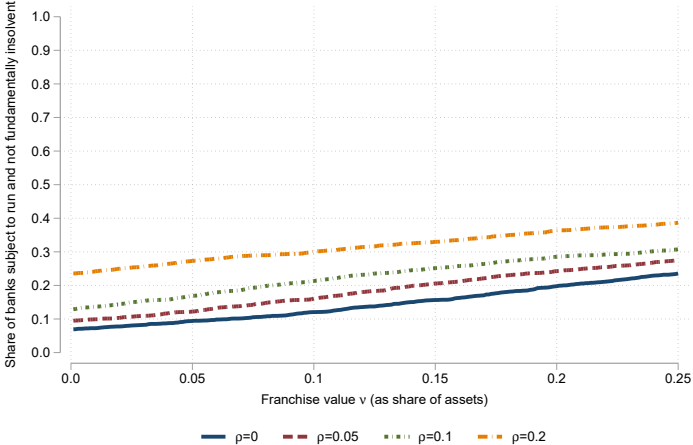
Most Failed Banks Fundamentally Insolvent

Share Subject to **Run** and **Fundamentally Solvent**



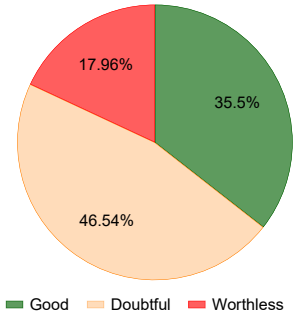
- Avg. asset recovery rate: 52%
- Avg. deposit recovery rate: 66%

- Mechanisms that reduce scope for runs to kill solvent banks are important

Source: Correia Luck Verner, "Failing Banks."

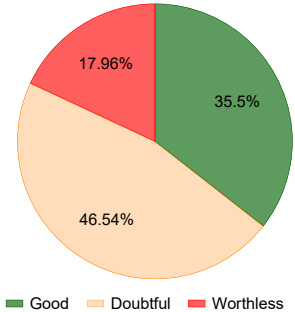
Bank Examiners Agree: Most Failures Caused by Bad Fundamentals

OCC Asset Quality Assessments for Failed Banks

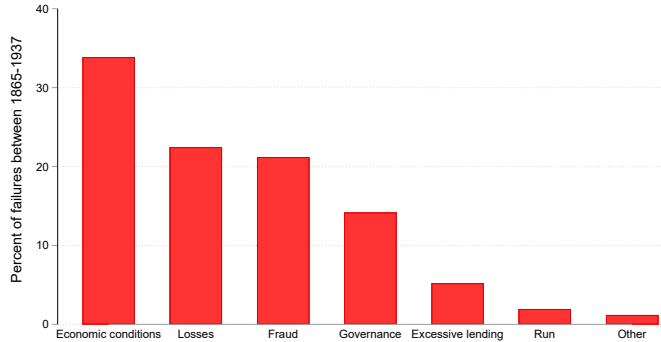


Bank Examiners Agree: Most Failures Caused by Bad Fundamentals

OCC Asset Quality Assessments for Failed Banks



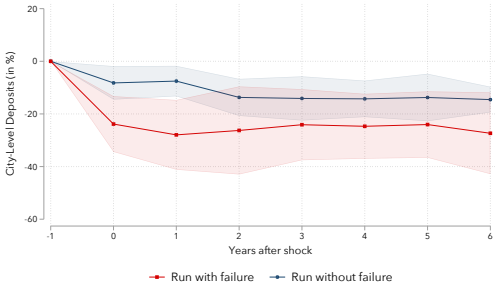
OCC Cause of Failure



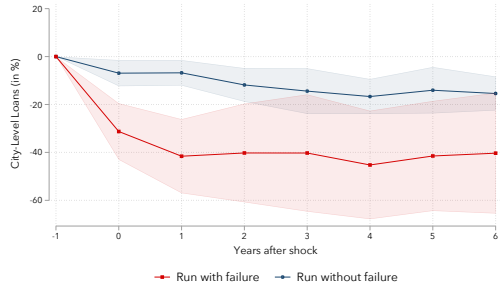
Sample of 2,935 NB failures. Source: Correia Luck Verner, "Failing Banks."

Local Consequences of Runs With and Without Failure

$$y_{c,t+h} = \alpha_c + \beta^h_{RNF}\mathbf{1}[\text{Run}^{\textit{Without failure}}_{c,t}] + \beta^h_{RWF}\mathbf{1}[\text{Run}^{\textit{With failure}}_{c,t}] + X_{c,t-1}\Gamma^h + \epsilon_{c,t+h}$$



(a) Deposits



(b) Loans

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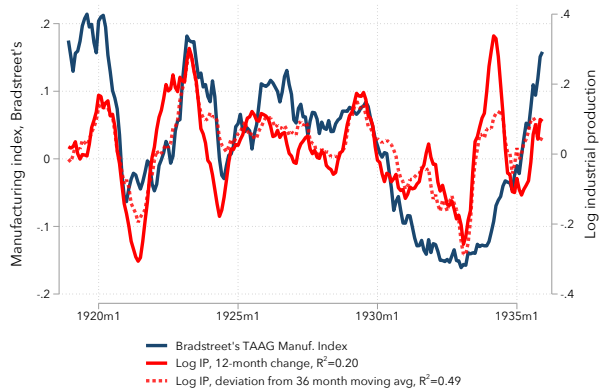
Bradstreet's Data on City-Level Manufacturing Activity

- New **weekly index of manufacturing activity** from *Bradstreet's* "Trade at a Glance"
  - Short summary of business conditions: "slow," "good"...
  - Categorize into 3 conditions: 1=poor, 2=fair, 3=good
  - Rescale to have same s.d. as IP
  - 30 major cities, 1917-1935

Bradstreet's Manufacturing Index vs IP



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