NATIONAL RESOLUTION SYMPOSIUM 2025

Two Centuries of Systemic Bank Runs

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This presentation is based on joint academic work with Rustam Jamilov (Oxford), Tobias König (Bonn), and Farzad Saidi (Bonn) with the same title, as well as ongoing work with the same team and in addition Sami Mahmood (NUS). All views are my own.

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Singapore, 1974

UK, 2007

USA, 2023

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New macro-historical evidence on bank runs

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We study bank runs and their macroeconomic aftermath covering 184 countries, 1800-2023

Run definition: "Depositors rush to withdraw their deposits because they expect the bank to fail" (Diamond and Dybvig, 1983, p. 401)

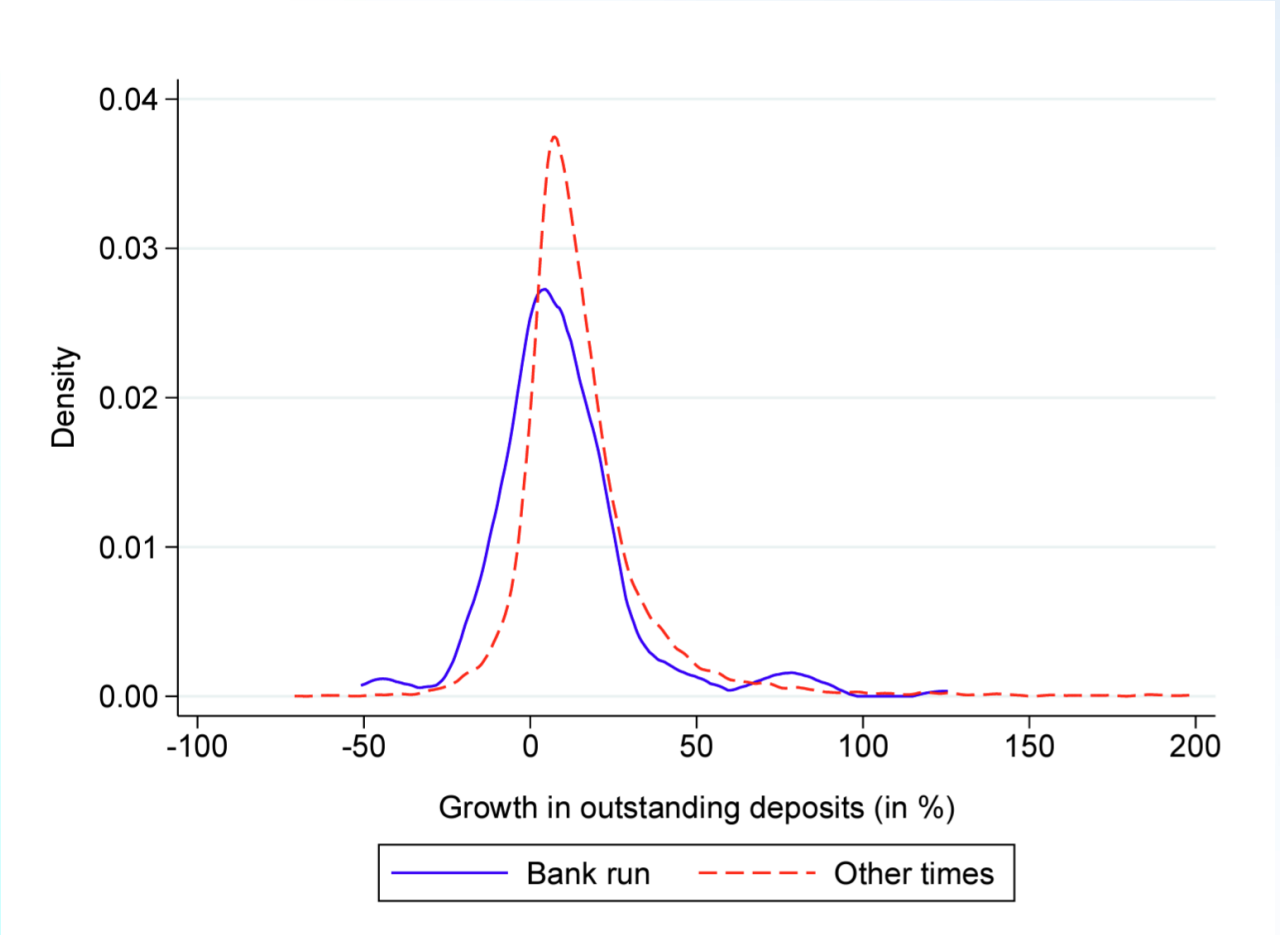
Backbone: A new dataset on the incidence of bank runs and deposit contractions

- Qualitative: Narrative chronology covering 316 bank run episodes globally, based on 503 sources
- Quantitative: Cross-country dataset on banking sector-wide deposits based on 50 sources

These data allow us to address many key open questions about bank runs

- How common are bank runs? Have they become more or less frequent over time?
- What happens to the macroeconomy in the aftermath of bank runs?
- What is the role of fundamentals during runs? Do runs pose risks even if banks are solvent?

During bank runs, deposits contract



Notes: This figure plots nominal deposit growth rates during periods of bank runs vs. other times. We trim nominal growth rates at 200% to abstract from the influence of major inflation episodes.

Identifying systemic runs with contractions in banking sector-wide deposits

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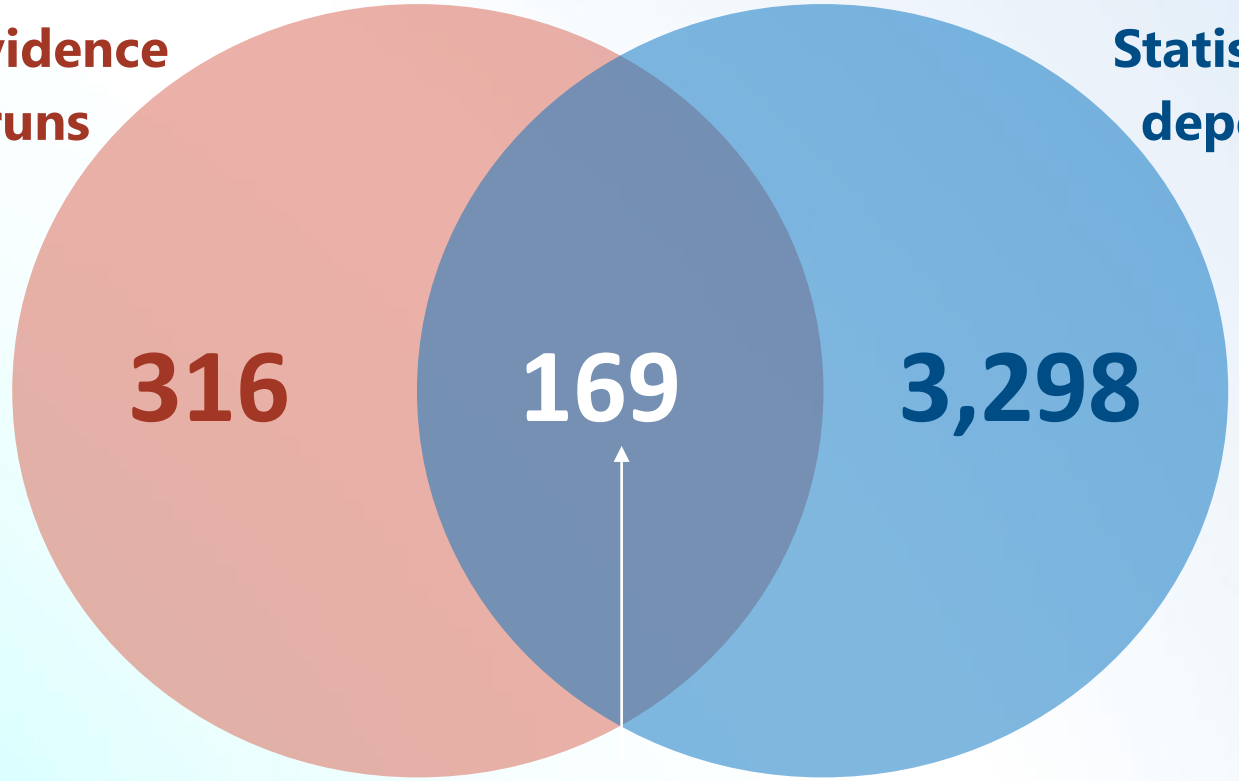
Systemic bank runs: overlap of narrative evidence of runs + aggregate deposit contraction



Notes: Deposit contraction equal to 1 if $\Delta Outstanding\ deposits^{j}_{i,t+k} < 0$, in country i, with $j \in \{total, demand, time\}$ and $t \in$

A history of 316 bank runs since 1800

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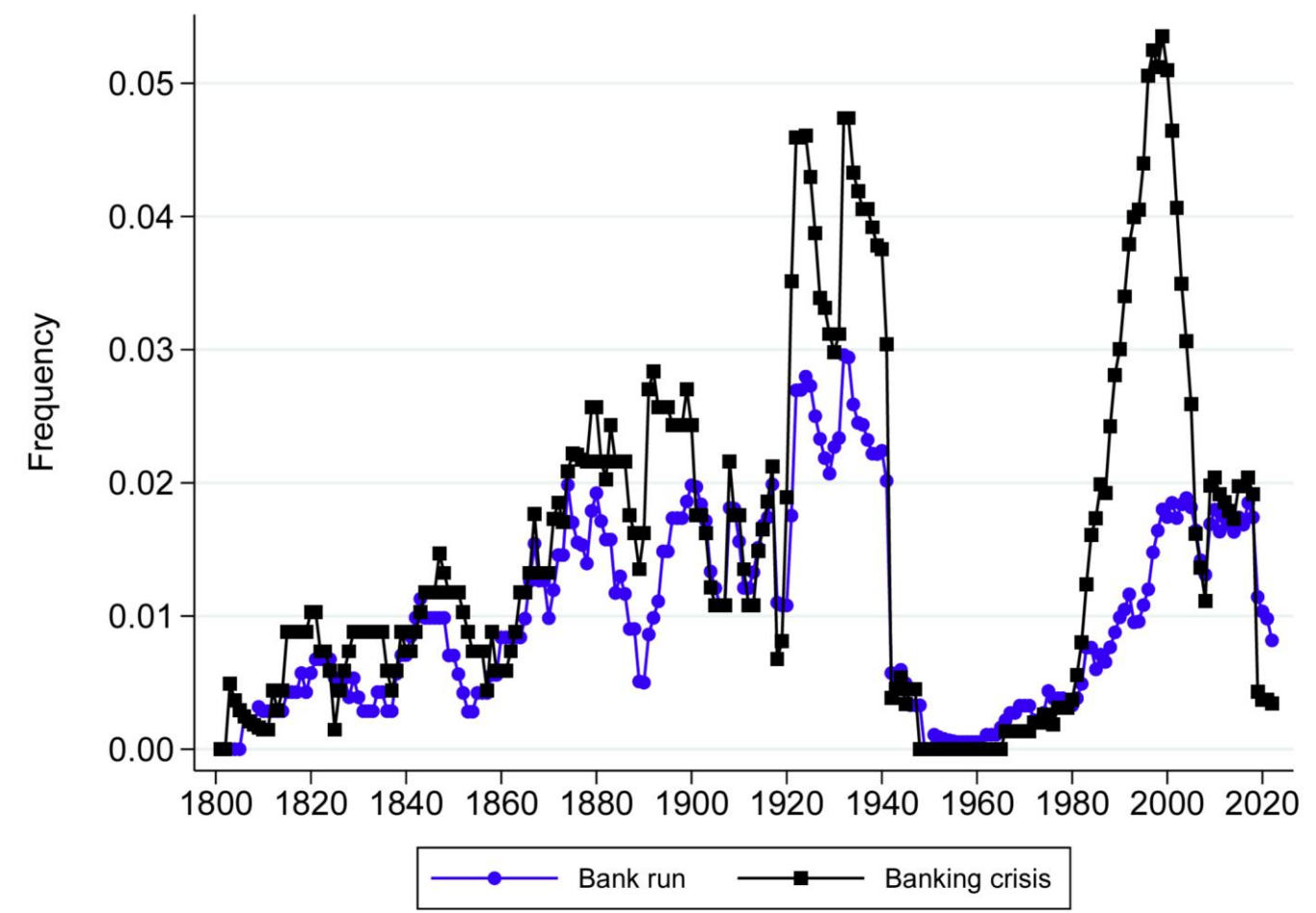
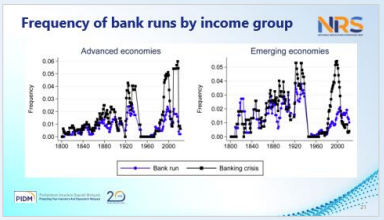
Considerably broader coverage than existing chronologies of banking crises

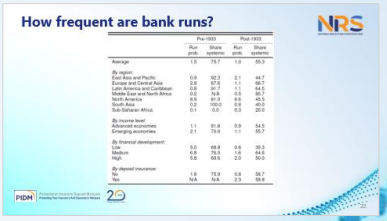
- Our work further uses quantitative (statistical) markers to validate qualitative (narrative) evidence

Dataset	Crisis definition	Narrative only	No. of countries	No. of events	Start Year	End Year	Obs.
Reinhart and Rogoff (2009)	Banking crisis	Yes	68	303	1800	2014	12,606
Laeven and Valencia (2018)	Banking crisis	Yes	156	151	1970	2017	7,488
Jordà et al. (2017)	Banking crisis	Yes	18	88	1870	2020	2,668
Baron et al. (2021)	Bank equity crash	No	46	262	1870	2016	4,279
Baron et al. (2021)	Banking crisis	Mixed	46	224	1870	2016	6,089
Baron et al. (2021)	Banking panic	Mixed	46	192	1870	2016	6,089
JKMS	Bank run	Yes	184	316	1800	2023	25,820
JKMS	Deposit contraction	No	179	3,298	1801	2022	13,631
JKMS	Systemic bank run	No	179	169	1801	2022	13,631

Bank runs and banking crises since 1800







Notes: We plot the 3-year moving average of the fraction of countries experiencing a bank run. Banking crisis dates are taken from Baron et al. (2021), Laeven and Valencia (2018), Jordà et al. (2017), and Reinhart and Rogoff (2011), in that order.

Why care about runs? Real GDP dynamics

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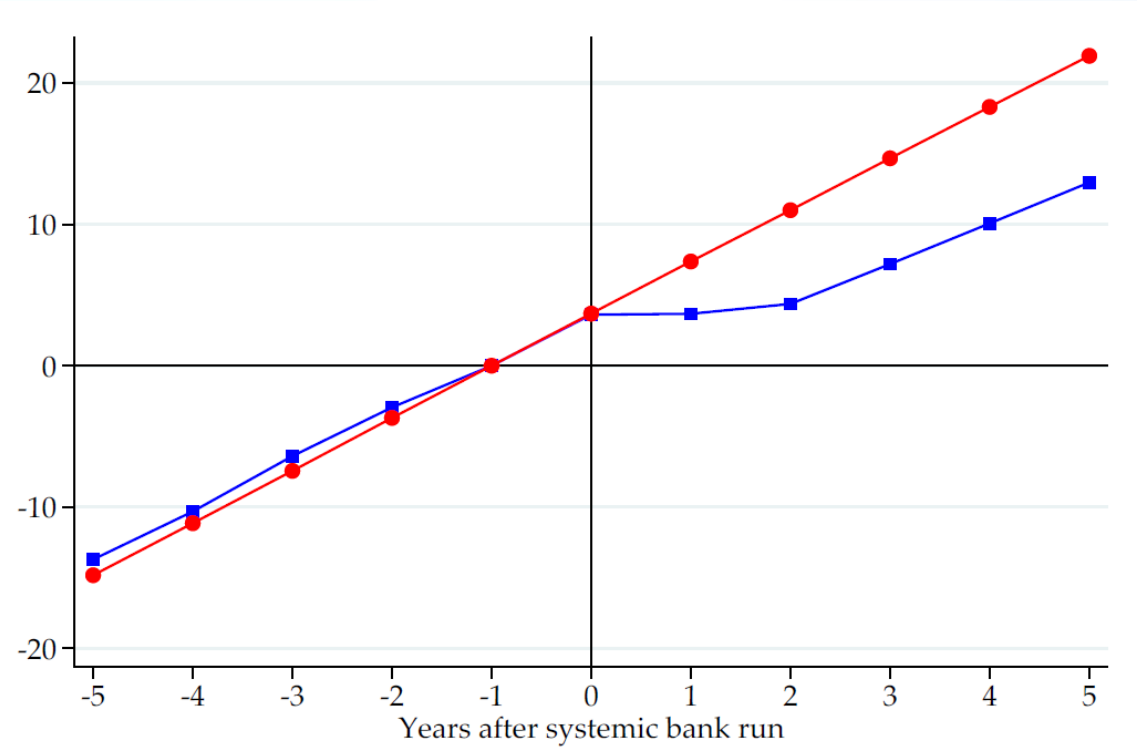
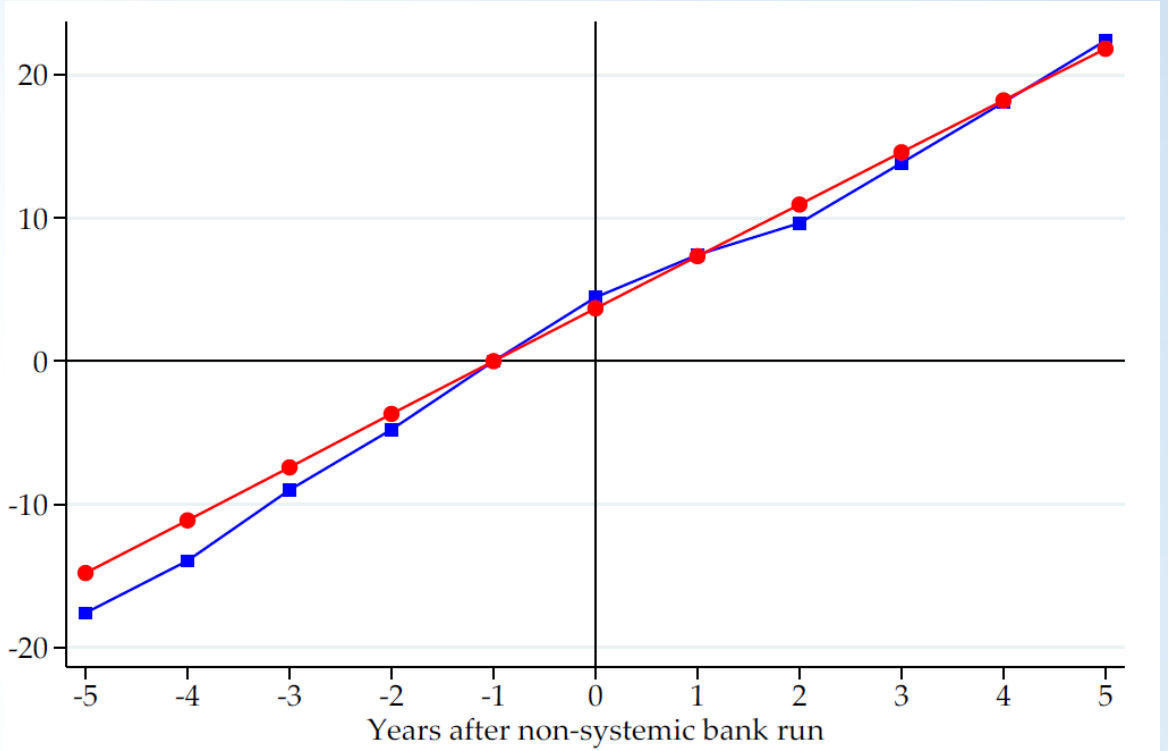
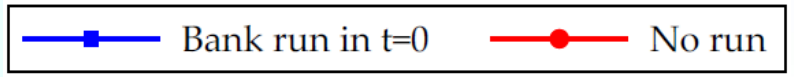
(a) Systemic bank runs
(runs with deposit contractions)



(b) Non-systemic bank runs
(runs without deposit contractions)





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Notes: Systemic runs are defined as the 169 narrative runs that coincide with a contraction of (i) total deposits, (ii) demand deposits, or (iii) time deposits within ± 1 year of the run event. Non-systemic runs are defined as the 147 remaining cases of narrative runs.

Estimating the aftermath of bank runs

We study the aftermath of (systemic) bank runs using local projections (Jordà, 2005):

$$\Delta Y_{i,t+h} = \alpha_i^h + \beta^h \mathbf{1}_{i,t}^{Run} + \sum_{k=1}^{3} \gamma^{k,h} \Delta \mathbf{X}_{i,t-k} + \varepsilon_{i,t}^h \quad \text{with h} \in [0,4]$$

$\Delta Y_{i,t+h}$ denotes changes in either log real GDP, log real deposits, deposits-to-GDP, or credit-to-GDP.

Baseline specification:
We include three lags of $\mathbf{X}_{i,t-k}$, which always includes ΔY, log real GDP, and log real deposits.
Standard errors are double-clustered by country and year.

The results are robust to alternative specifications and adding more controls.

Systemic vs. non-systemic run episodes

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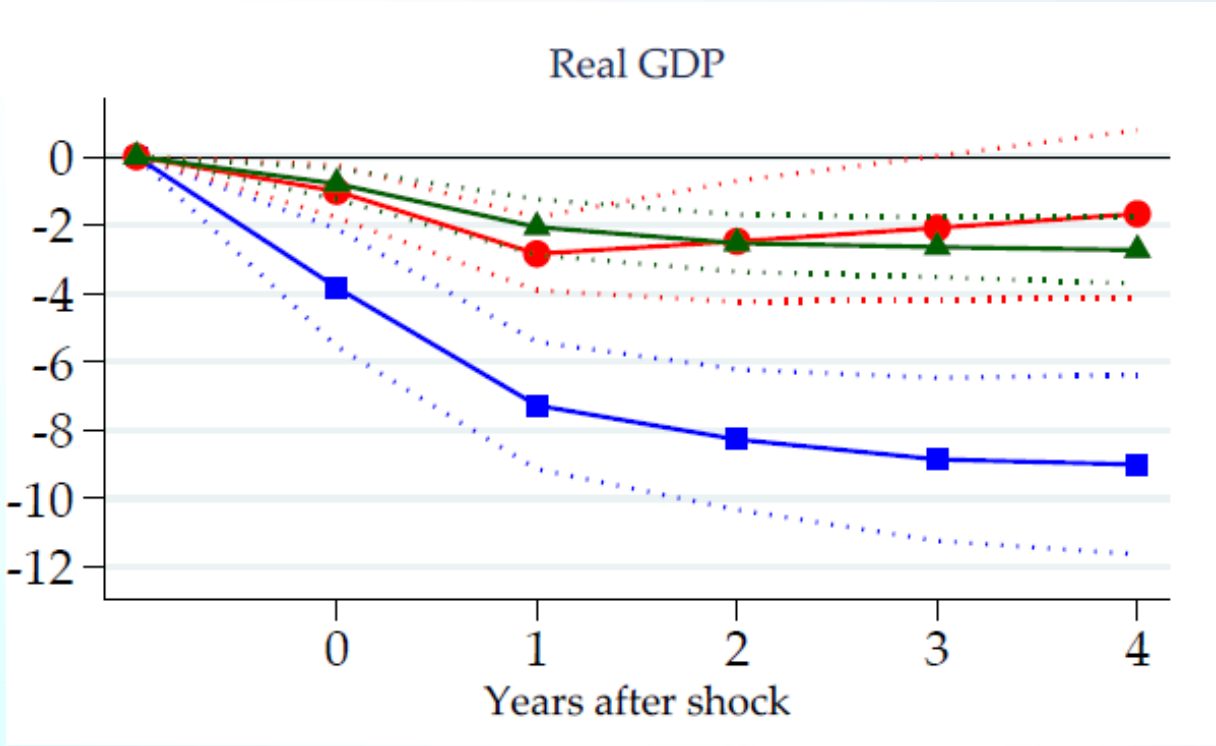
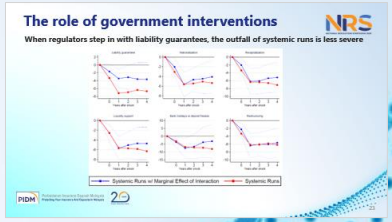
Recessions are particularly deep and protracted after systemic bank runs





Why are runs damaging to the economy?

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Liquidity view

- Self-fulfilling runs can make otherwise solvent banks fail (e.g., Diamond and Dybvig, 1983; Peck and Shell, 2003; Diamond and Kashyap, 2016; Gertler and Kiyotaki, 2015)
- Sometimes referred to as the "expectations" approach, part of the broader literature on sunspot equilibria in macroeconomics (e.g., Farmer, 1999; Keister and Narasiman, 2016)

Solvency view

- Depositors run because of poor fundamentals, where it can be rational for individual households to run even if nobody else does (e.g., Bryant, 1980; Chari and Jagannatha, 1988; Jacklin and Bhattacharya, 1988; All and Gale, 1998; Morris and Shin, 1998; Kashyap et al., 2024)
- Meshes well with empirical evidence that bank failures are predominantly about solvency (e.g., Saunders and Wilson, 1996; Calomiris and Mason, 1997; Iyer et al., 2016; Correia et al., 2024)

Three pieces of evidence suggest: solvency is insufficient to explain output losses after runs

Real GDP drops after systemic runs even if…

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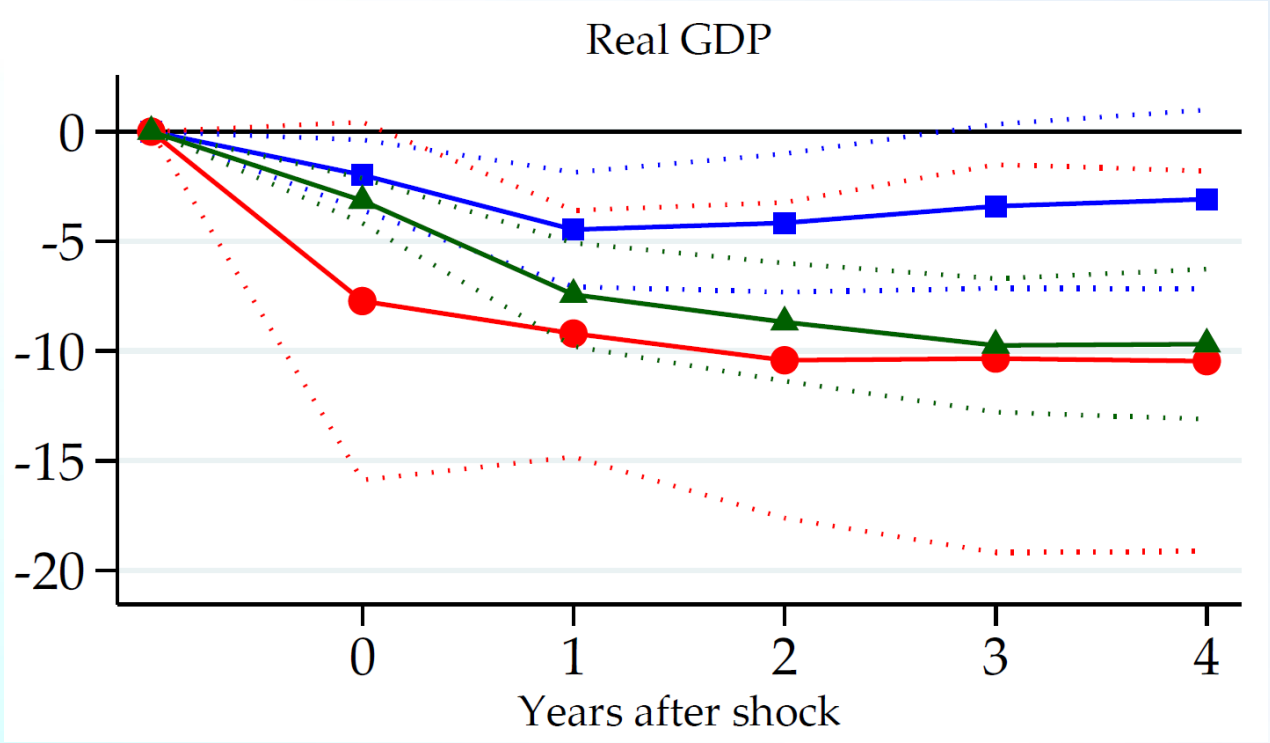
…we cannot identify a fundamental bank-specific or macroeconomic cause



Real GDP drops after systemic runs even if…

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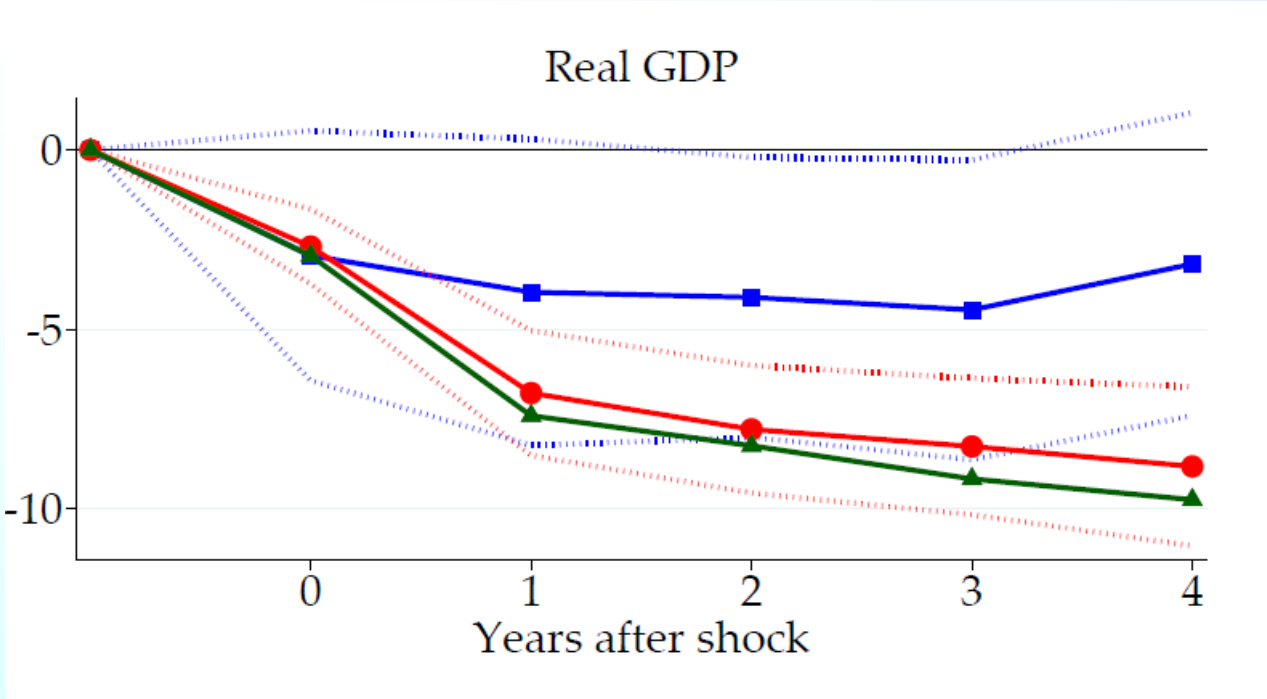
…there are no widespread bank failures



Real GDP drops after systemic runs even if…

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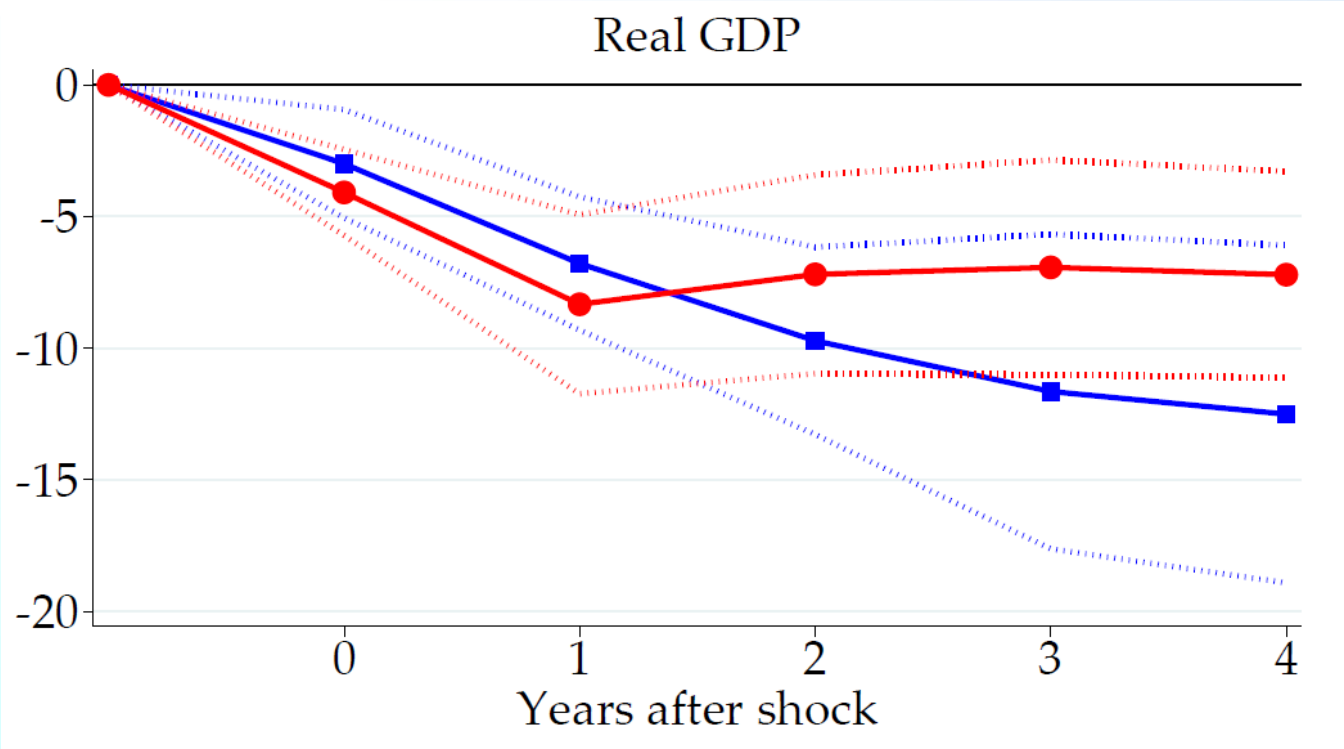
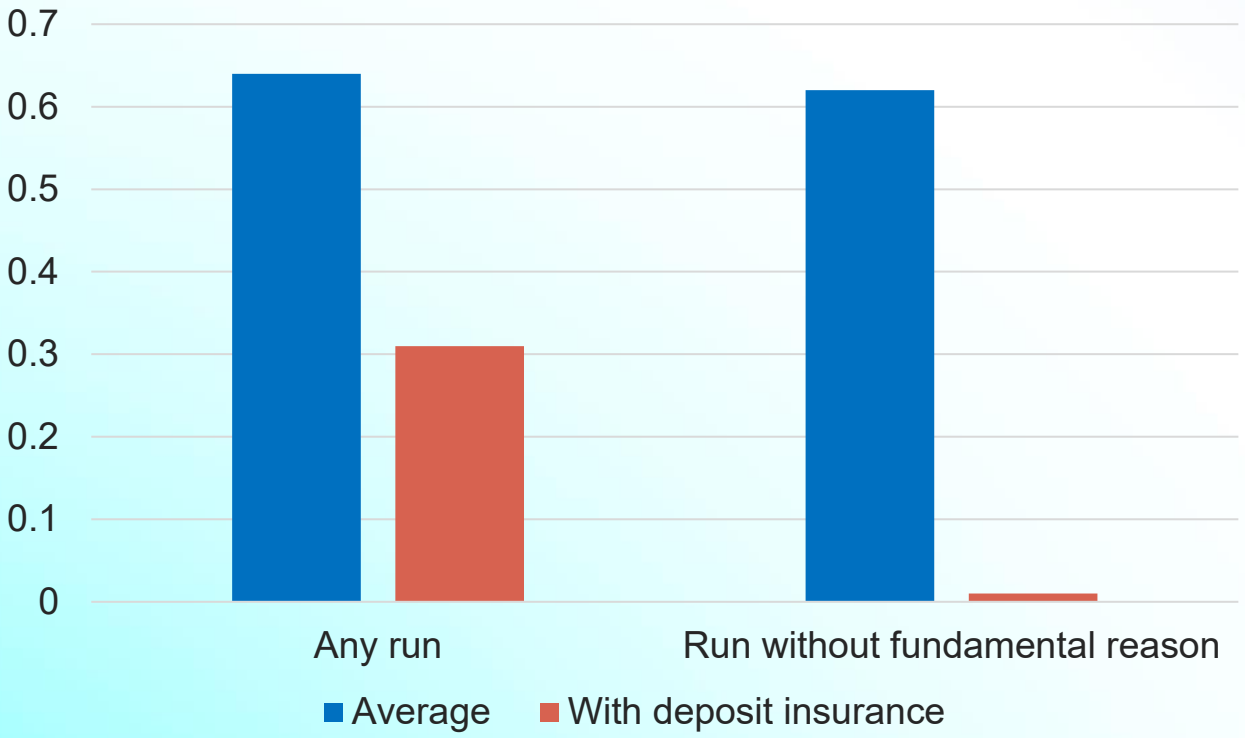
…banks have an above-average level of capitalization



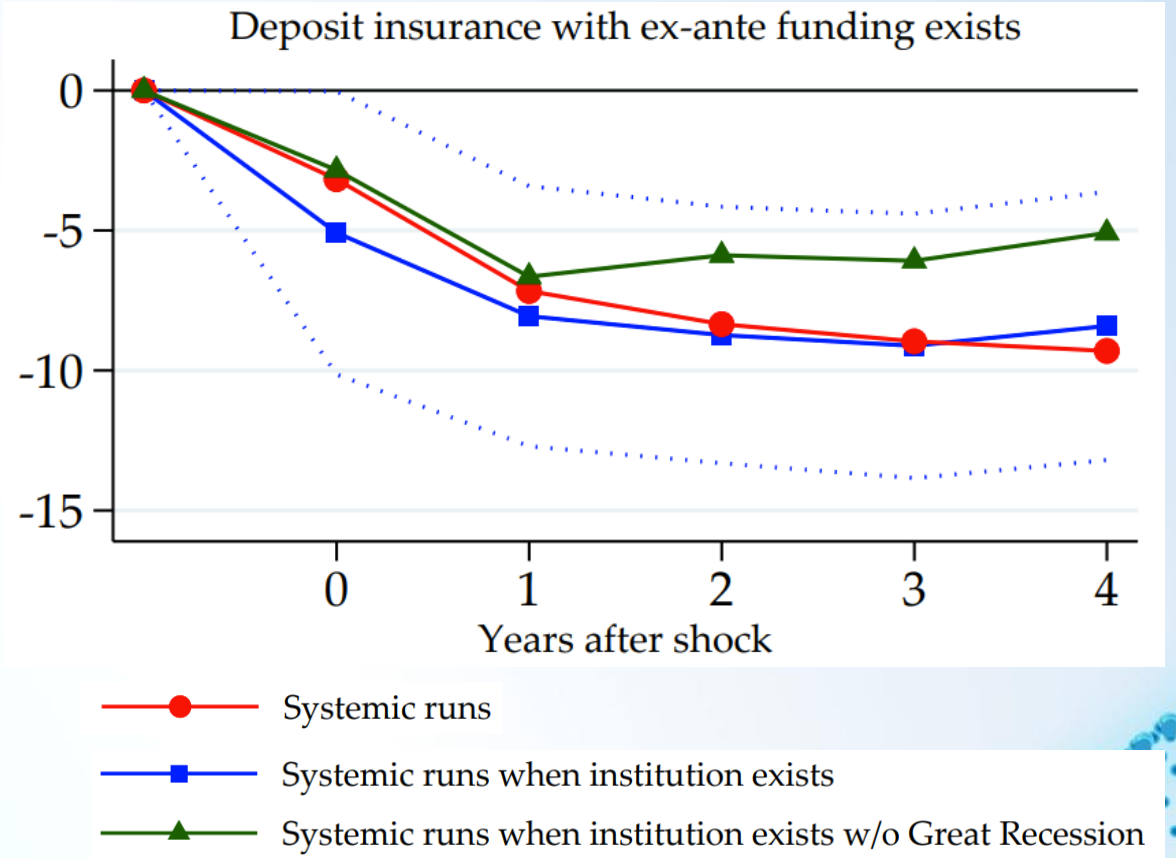
The role of deposit insurance

Where it is in place, runs are less likely to become systemic; but when they do, it matters less

(a) Prob. run becomes systemic



(b) Real GDP after systemic run



Wholesale funding runs: the key risk today?

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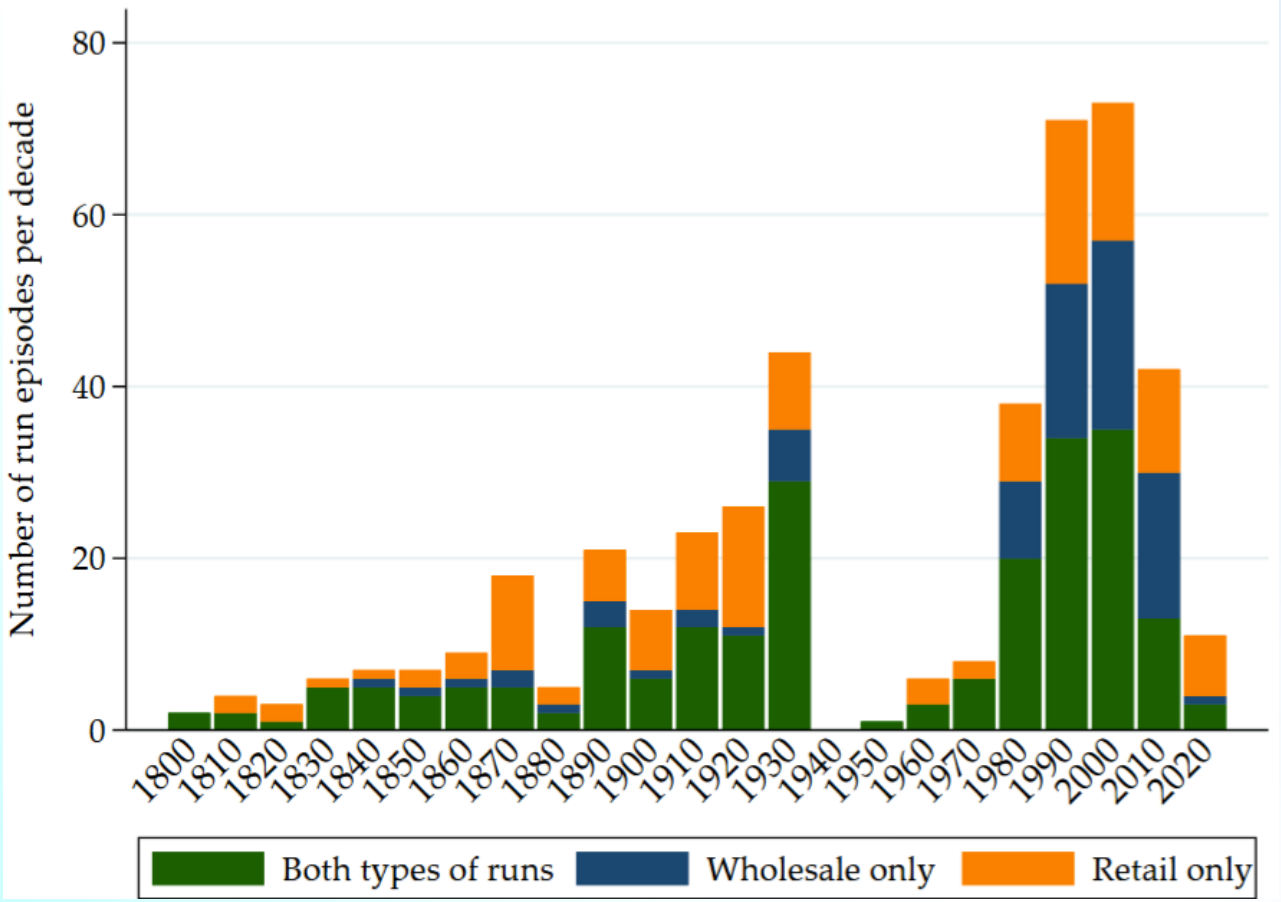
Ongoing work suggests risk of runs has never been higher due to (uninsured) wholesale funding



Conclusion

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Runs are not a relic of history

- Unconditional probability of a bank run is around 2%
- During an expansion of credit with low credit risk premia, such probabilities can go up to ~50%

Bank runs leave a lasting imprint on the macroeconomy

- Large output losses, especially when bank runs are systemic
- Systemic runs associated with a credit crunch because banks cannot make up for lost funding
- Runs pose a macroeconomic risk even when fundamentals are sound

Takeaways

- Focusing on bank solvency alone is insufficient to safeguard financial stability
- Deposit insurance makes it less likely runs become systemic, but also creates vulnerabilities in uninsured (wholesale) funding

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U.S. bank outcomes during systemic runs

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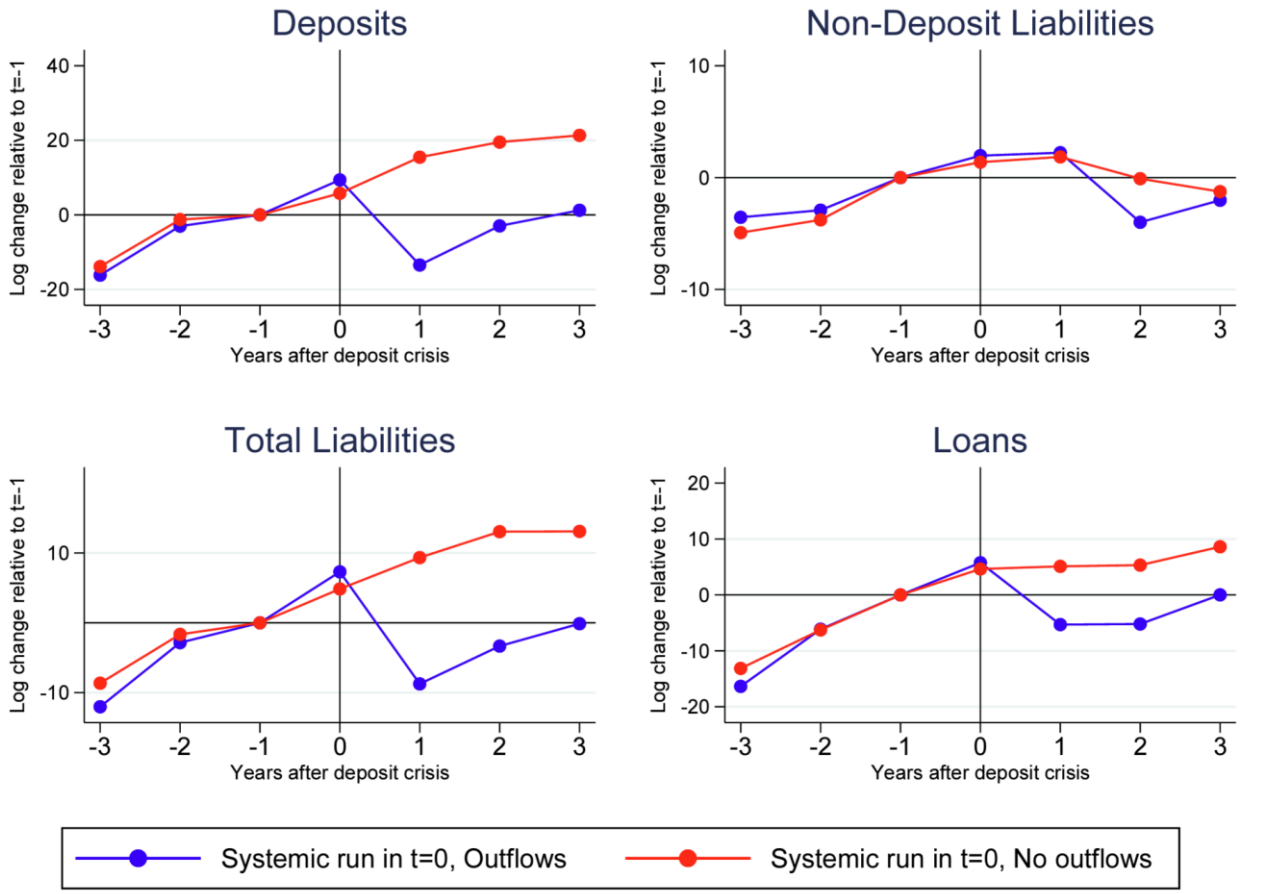
Banks that experience deposit outflows during runs curtail lending



Notes: These figures plot the average log change in banks' deposits, non-deposit liabilities, total liabilities, and loans relative to the year before a systemic bank run starts for two groups of institutions: banks that experience an outflow during the run, and those that did not. The data cover U.S. banks for the period 1867-1904, taken from Carlson, Correia, and Luck (2022).

Individual banks during systemic runs

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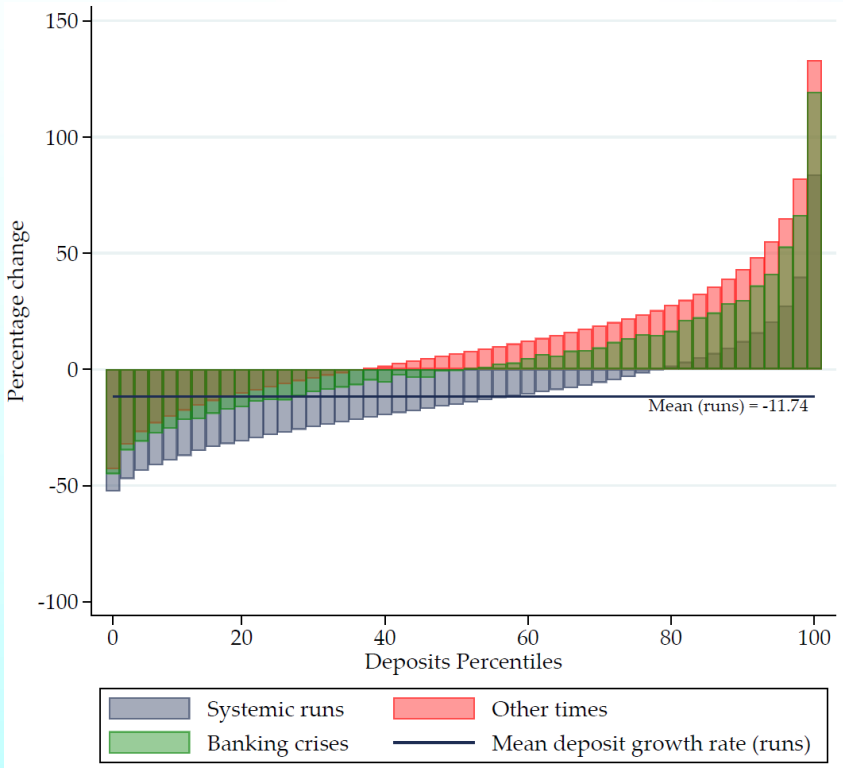
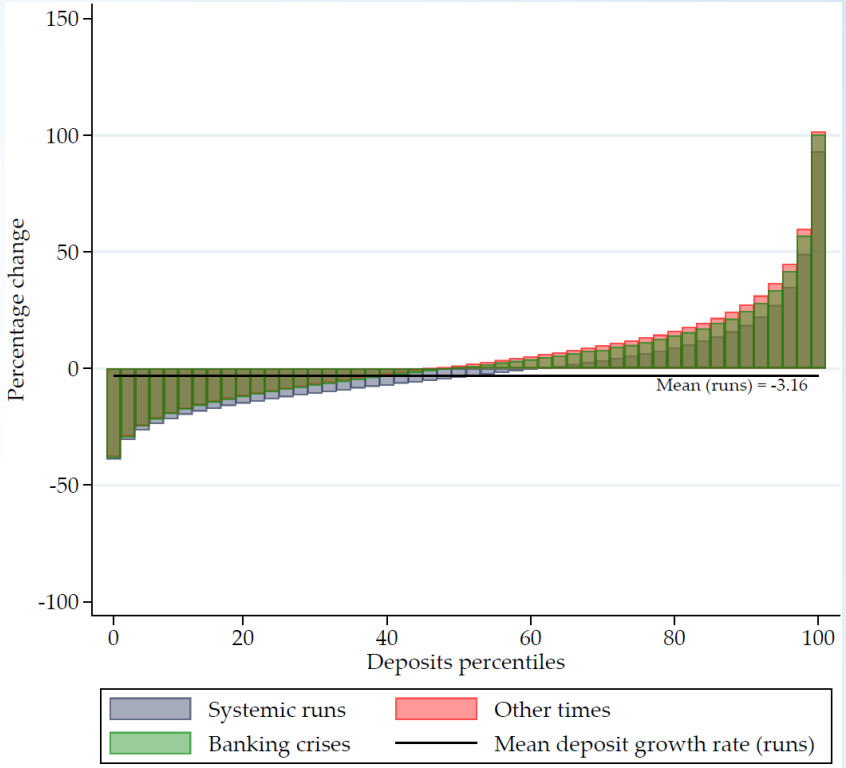
In US data, large dispersion of deposit growth, especially before deposit insurance

(a) 1867-1904

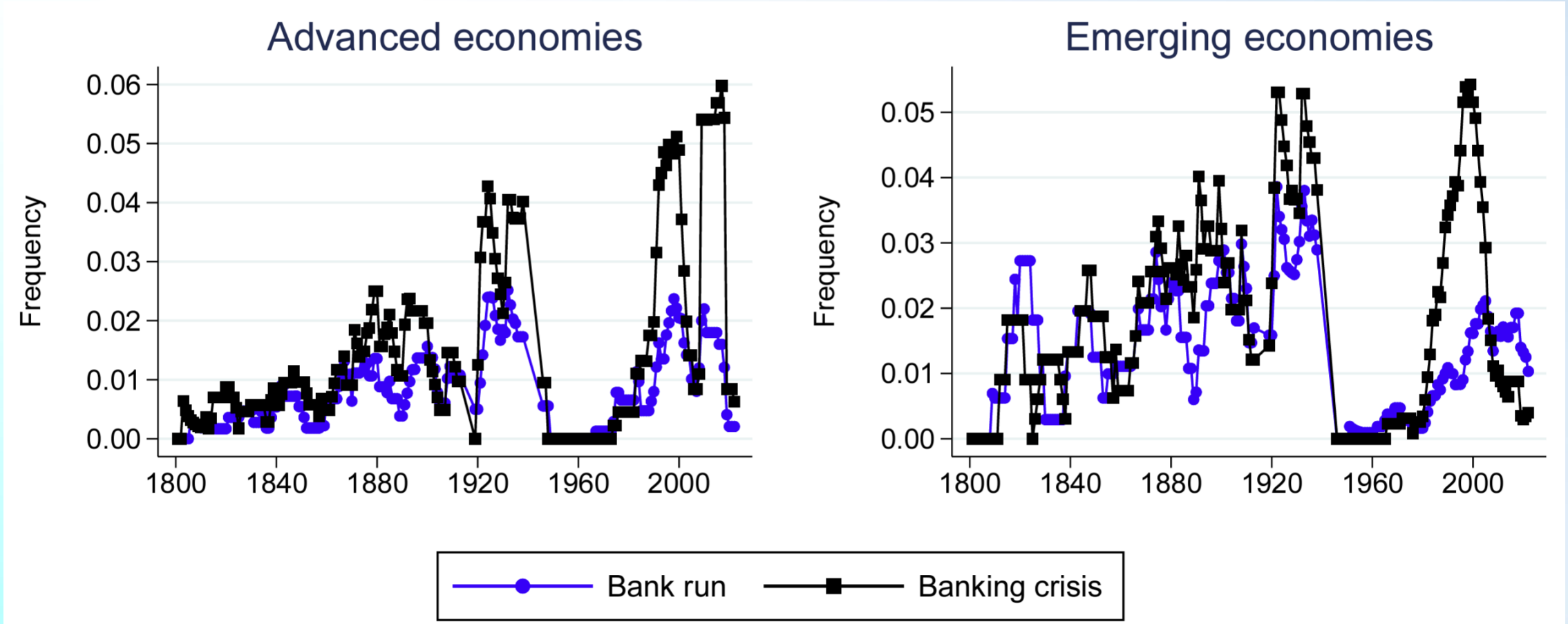


(b) 1976-2020



Notes: These figures plot the dispersion of deposit growth rates during systemic bank runs, banking crises, and other times. The growth rates for runs and crises are calculated as the percentage change in a bank's deposits between the year before until the year after the event. Systemic run events are in 1884, 1893, 1982, 1991, and 2007.

Frequency of bank runs by income group



How frequent are bank runs?

	Pre-1933		Post-1933	
	Run prob.	Share systemic	Run prob.	Share systemic
Average	1.5	75.7	1.0	55.3
By region:				
East Asia and Pacific	0.9	92.3	2.1	44.7
Europe and Central Asia	2.9	67.6	1.1	66.7
Latin America and Caribbean	0.8	91.7	1.1	64.5
Middle East and North Africa	0.2	N/A	0.5	85.7
North America	8.9	81.0	6.6	45.5
South Asia	0.2	100.0	0.8	40.0
Sub-Saharan Africa	0.1	0.0	0.3	20.0
By income level:				
Advanced economies	1.1	81.8	0.9	54.5
Emerging economies	2.1	70.0	1.1	55.7
By financial development:				
Low	5.0	68.8	0.6	35.3
Medium	6.8	76.0	1.6	64.6
High	5.8	69.6	2.0	50.0
By deposit insurance:				
No	1.8	75.9	0.8	58.7
Yes	N/A	N/A	2.3	58.8

The role of government interventions

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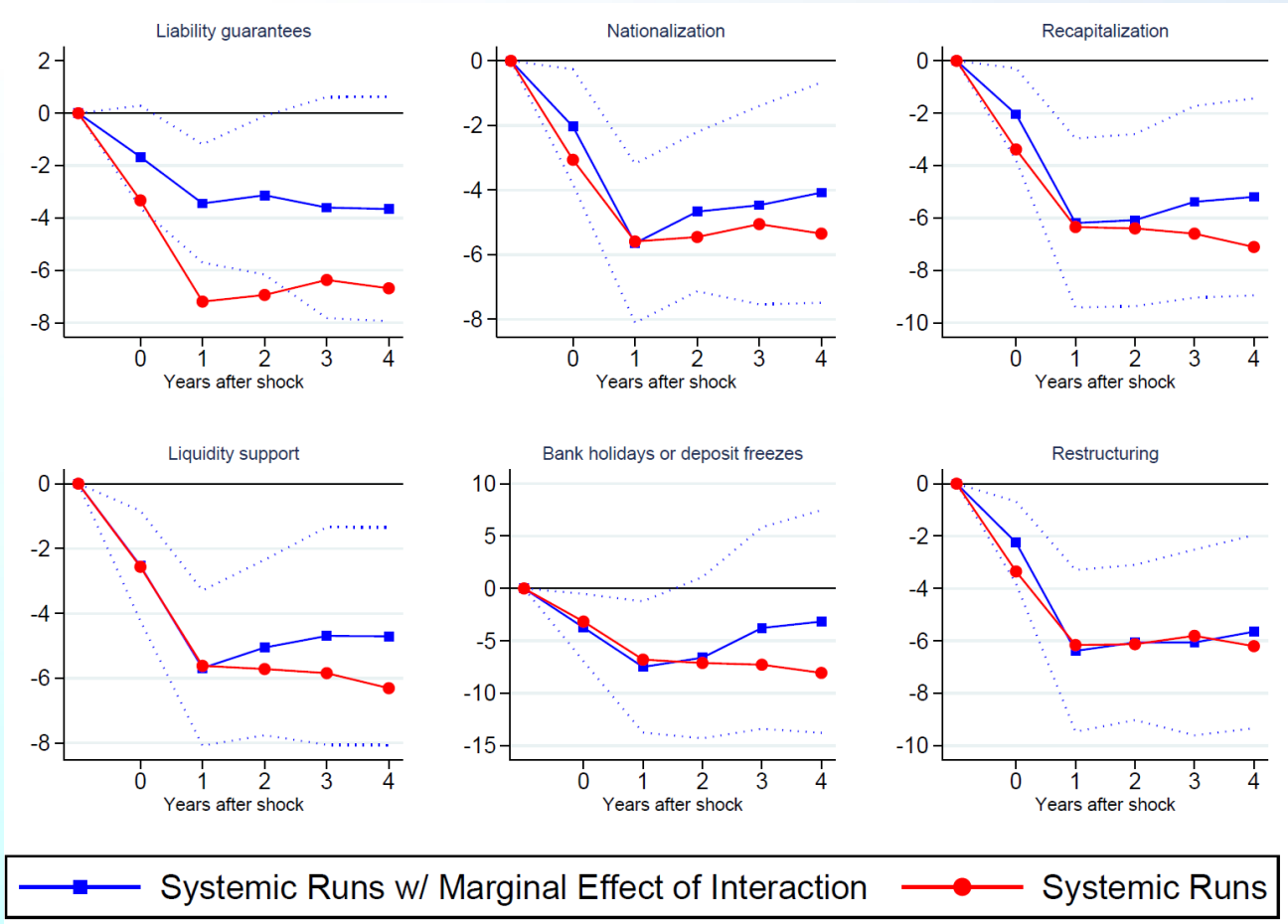
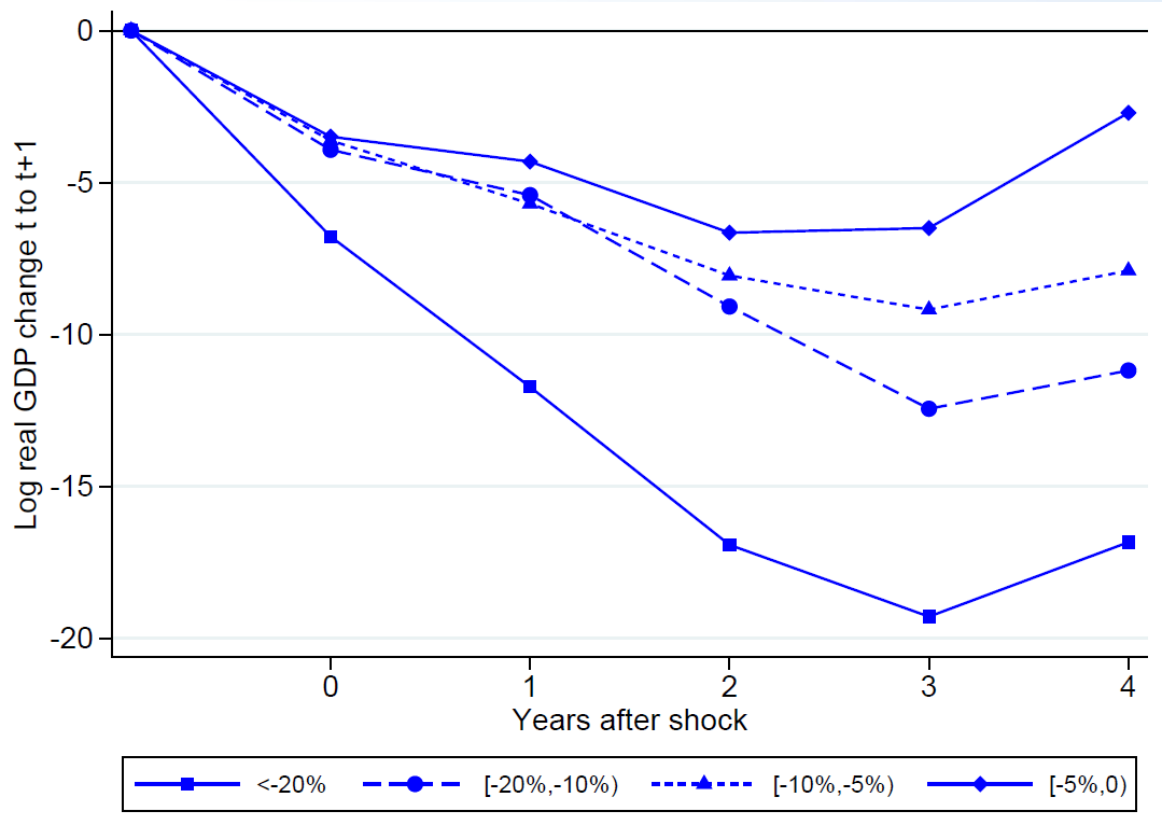
When regulators step in with liability guarantees, the outfall of systemic runs is less severe



The more deposits fall, the worse the recession

Conditional on a bank run, deposit contractions predict larger GDP declines



Notes: Contraction in deposits measured as the minimum deposit growth rate across the three deposit categories: (i) total deposits, (ii) demand deposits, and (iii) time deposits. We detrend each of the three deposit growth rates using the backward-looking three-year moving average.