Two Centuries of Systemic Bank Runs

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CEPR IMF Annual Meeting
November, 2024

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- Much of the literature: bank crises (equity declines) and failures
- Our focus: bank *runs*, severe *liability* disruptions

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- Granular bank-level analysis: U.S. banks during 1867-1904 and 1976-2020

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5. Aftermath of *non-systemic* bank runs: 1.9% real GDP decline

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10. *Bank-level analysis*: reallocation of deposits, households run on high-leverage banks

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- Numerous validation checks and readings by 20+ people

A New Narrative Chronology of Bank Runs

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, Schularick, and Taylor (2017)	Banking crisis	Yes	18	88	1870	2020	2,668
Baron, Verner, and Xiong (2021)	Bank equity crash	No	46	262	1870	2016	4,279
Baron, Verner, and Xiong (2021)	Banking crisis	Mixed	46	224	1870	2016	6,089
Baron, Verner, and Xiong (2021)	Banking panic	Mixed	46	192	1870	2016	6,089
Jamilov et al. (2024)	Bank run	Yes	184	308	1800	2023	25,820
Jamilov et al. (2024)	Deposit contraction	No	179	3,293	1801	2022	13,597
Jamilov et al. (2024)	Systemic bank run	No	179	165	1801	2022	13,597

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- To compute frequencies, we count withdrawals in consecutive years as one episode

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- Add, in this order, Laeven and Valencia (2018), Jordà, Schularick, and Taylor (2017), Reinhart and Rogoff (2009)
- In the econometric analysis, we treat as a "new" event any banking crisis that was not preceded by another one within the previous three years

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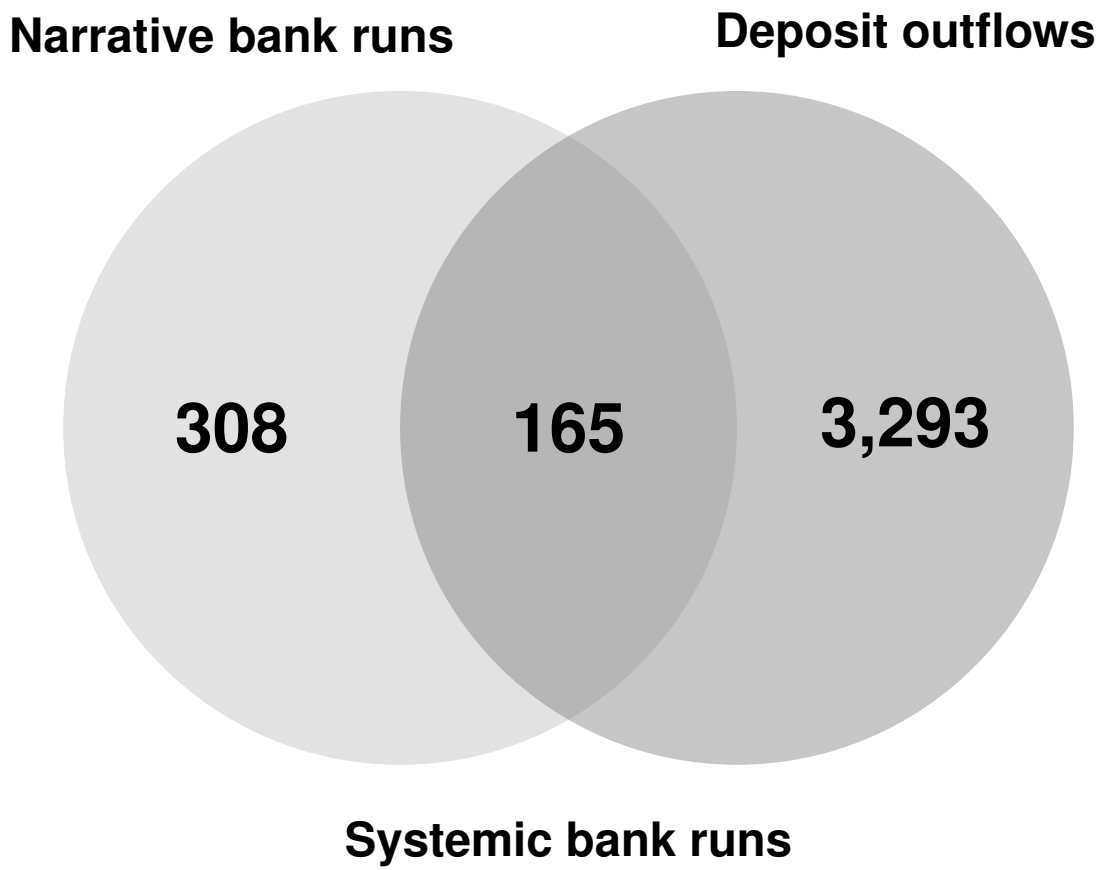
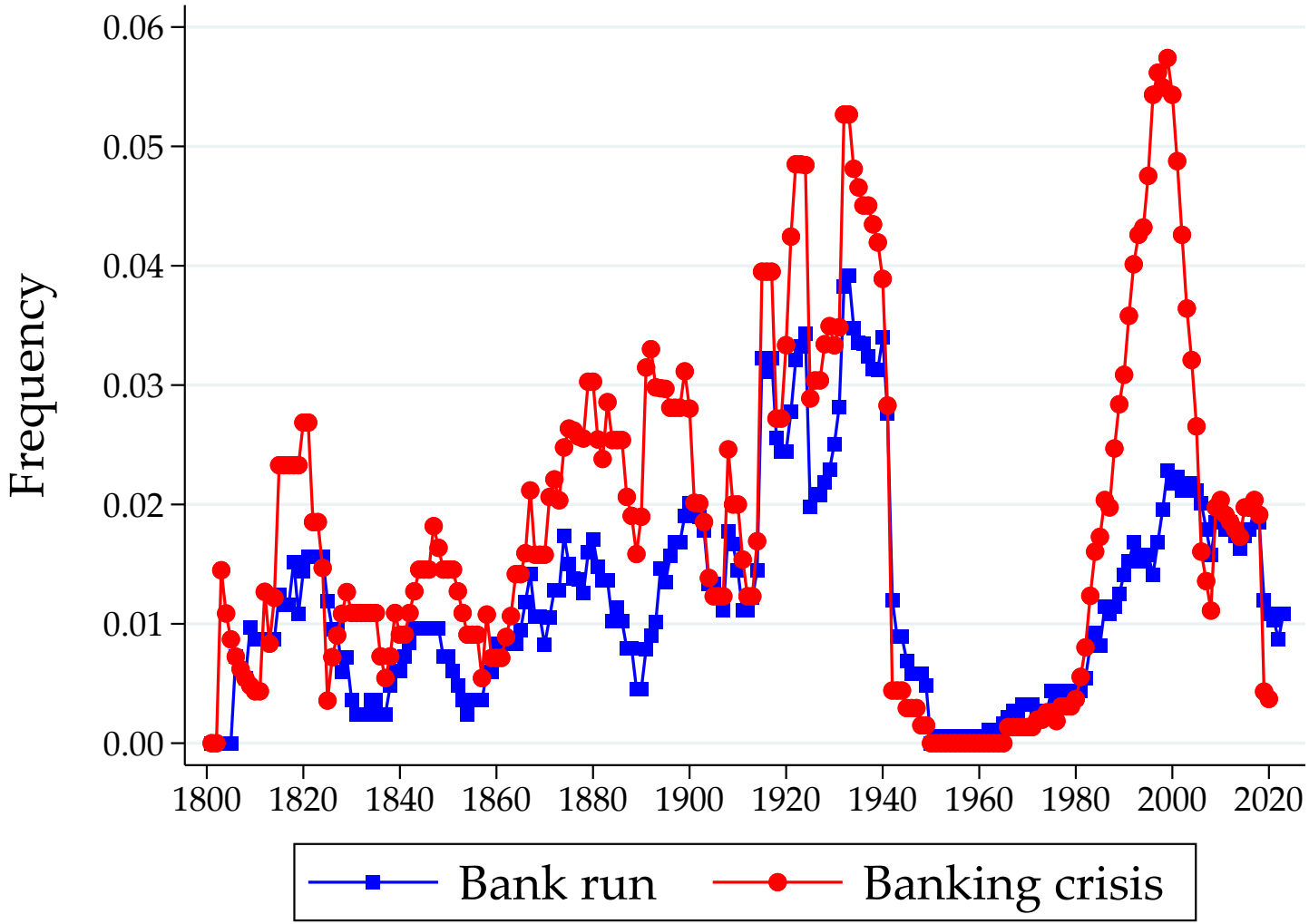
- Amador and Bianchi (2024): a bank run is systemic if a *share* of banks facing a run is large enough
- Our systemic bank runs: episodes where we have narrative evidence of a bank run that is also associated with an outflow of deposits from the banking sector

Systemic Bank Runs



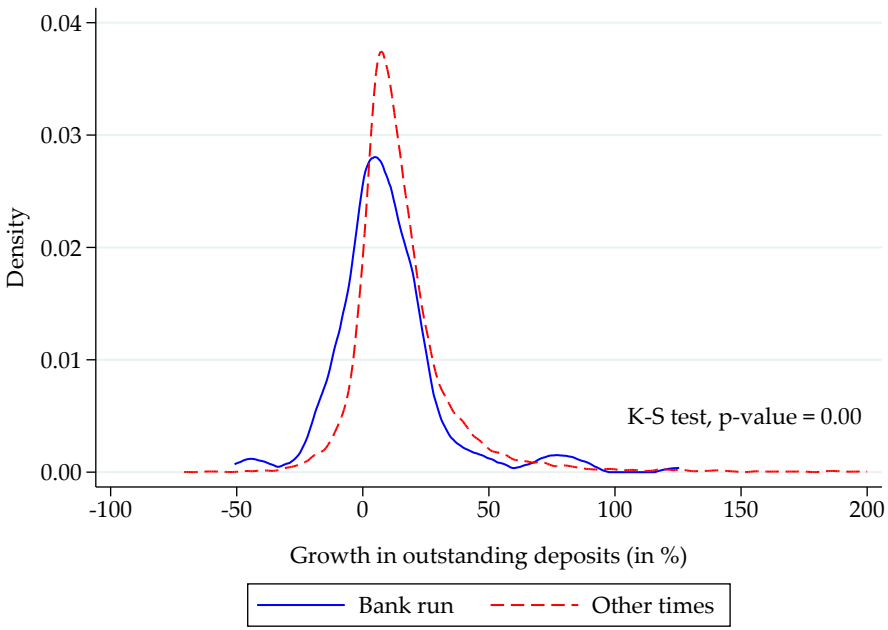
Bank Runs and Banking Crises: 1800-2022



▸ Advanced and Emerging Economies

Bank Runs and Deposit Withdrawals

(A) Distribution of Deposit Growth Rates



(B) Deposit Contractions Around Runs

▸ Run Frequency by Deposit Growth Deciles

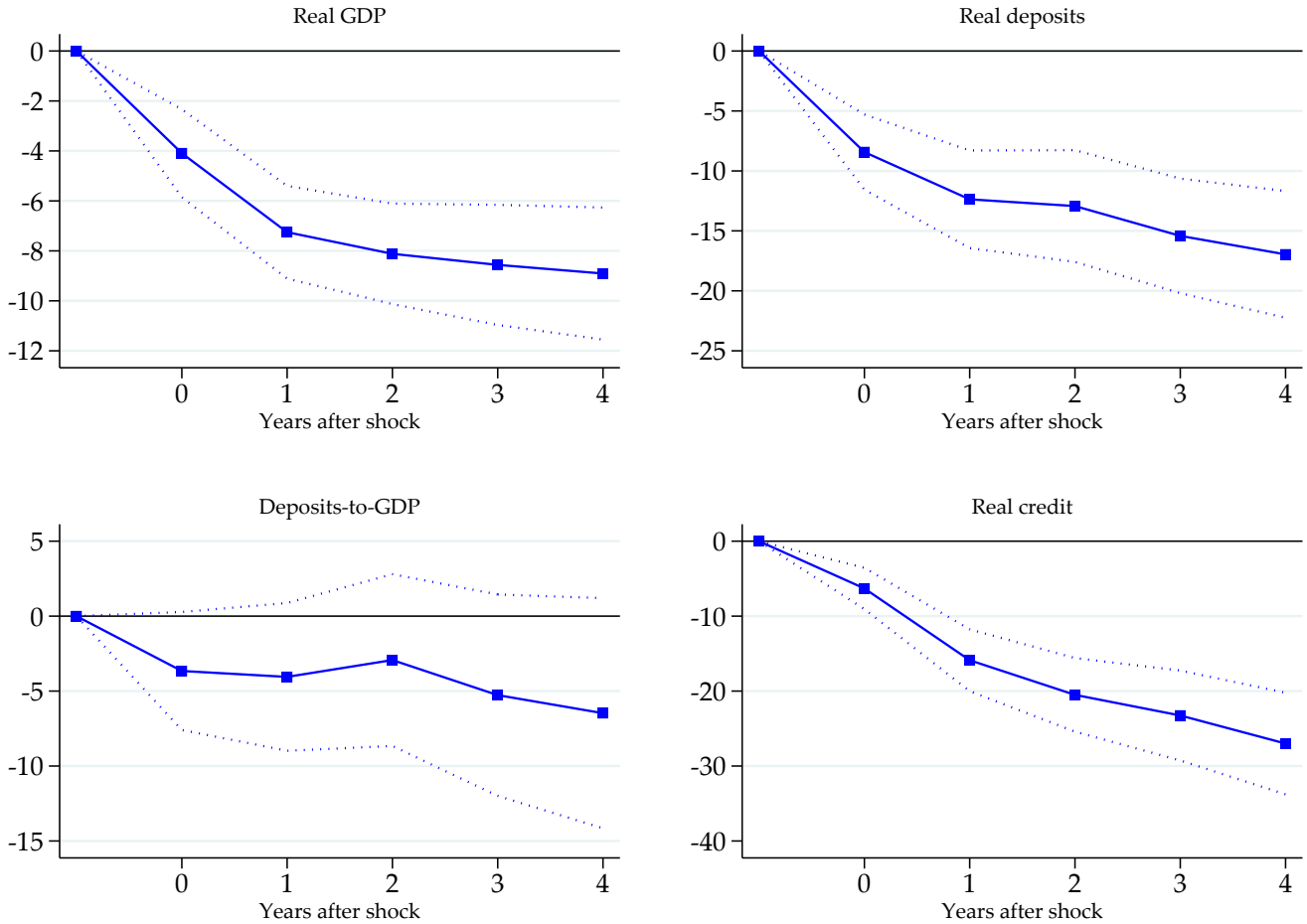
How Likely are Bank Runs?

	Probabilities of bank runs			
	Narrative bank run	Deposit contraction	Systemic bank run	Non-systemic run
Unconditional	1.9	12.5	1.2	0.7
Conditional on a banking crises	47	67	33	15
Conditional on a banking panics	65	70	46	22

	Probabilities of banking crises	Probabilities of banking panics
Unconditional	2.7	3.5
Conditional on a narrative bank run	56	44
Conditional on a deposit contraction	14	8
Conditional on a systemic bank run	61	47
Conditional on a non-systemic bank run	48	39

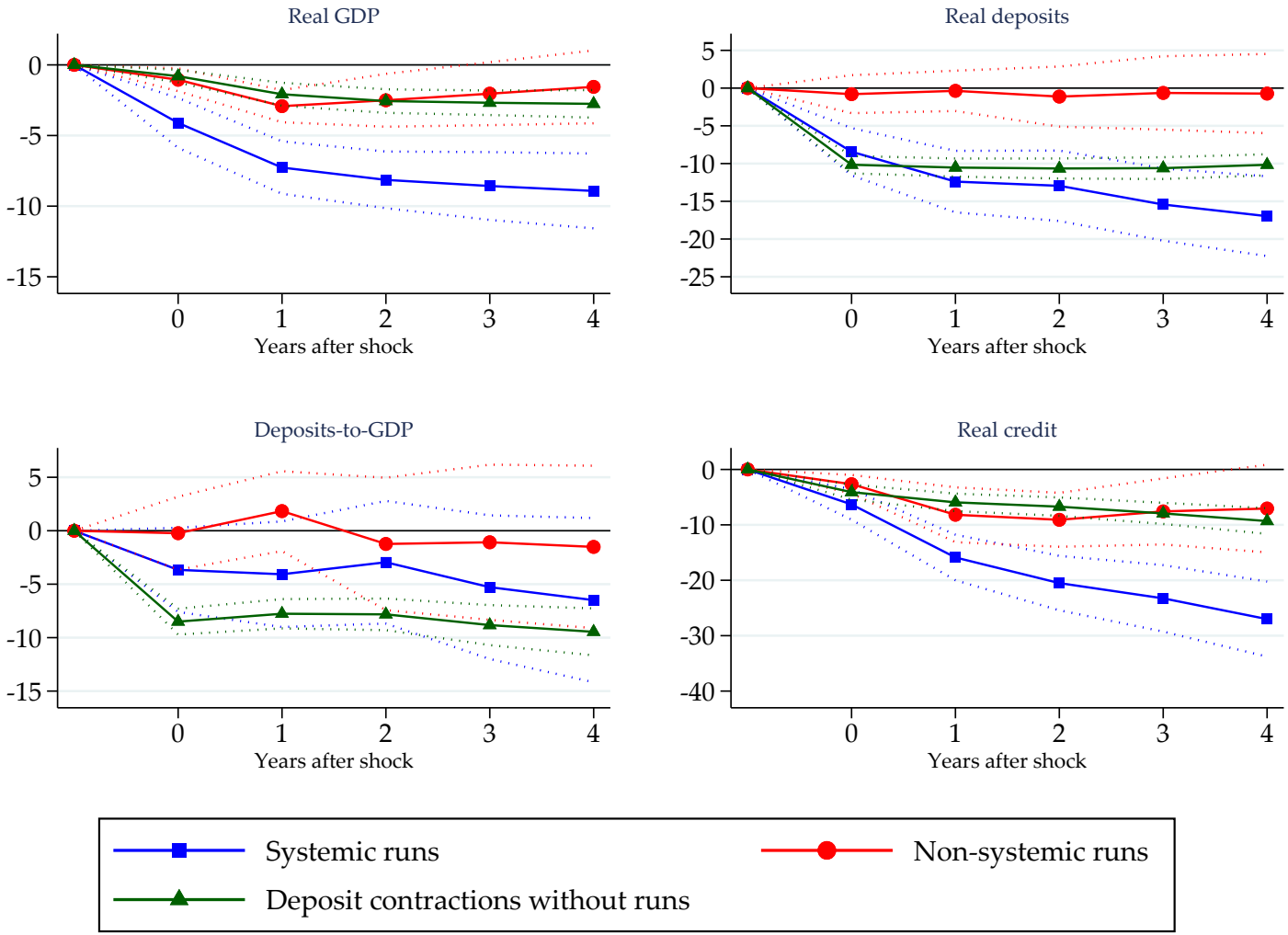
▸ Frequencies Pre and Post 1933

The Macroeconomic Cost of Systemic Bank Runs



▸ Output around Systemic Runs ▸ Output around Non-Systemic Runs ▸ Different Thresholds ▸ Real Deposit Thresholds ▸ Credit-Deposit Ratio Threshold

Systemic vs Non-Systemic Runs



▸ Table with Estimates ▸ Macro Heterogeneity ▸ Intensive Margin of Deposit Withdrawals ▸ Bank Capital Ratios

▸ Response of Nominal Deposits ▸ Response of Demand and Time Deposits

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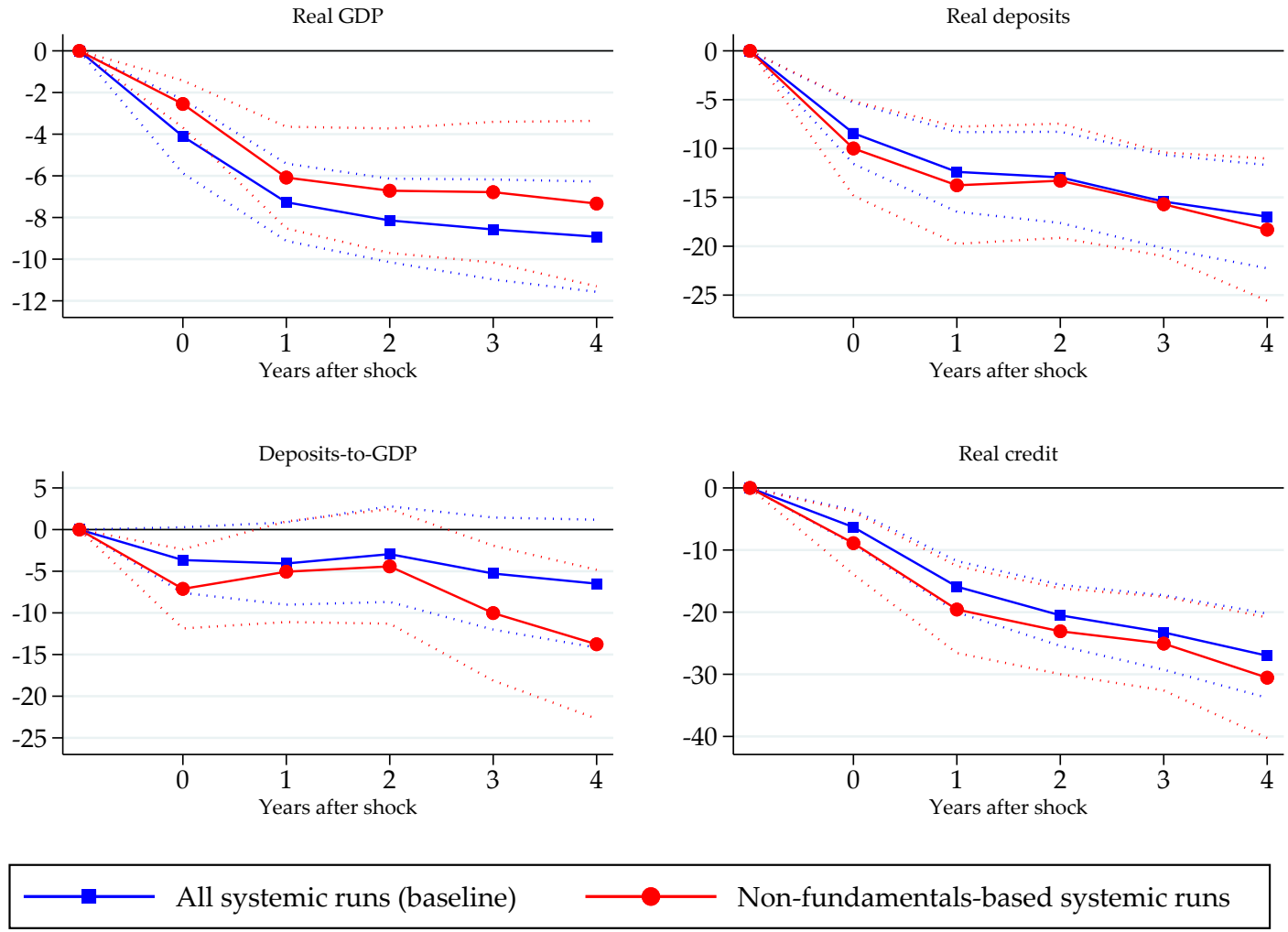
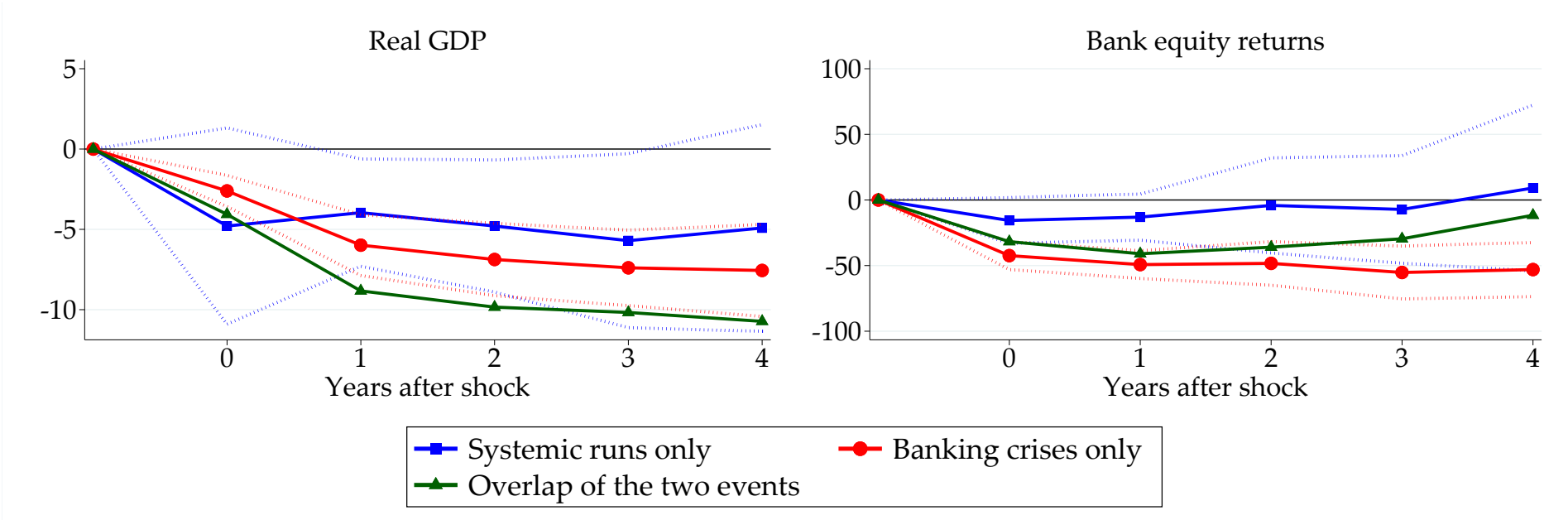
- Out of 165 systemic bank runs, *55 are non-fundamental*

Fundamental vs Non-Fundamental Runs



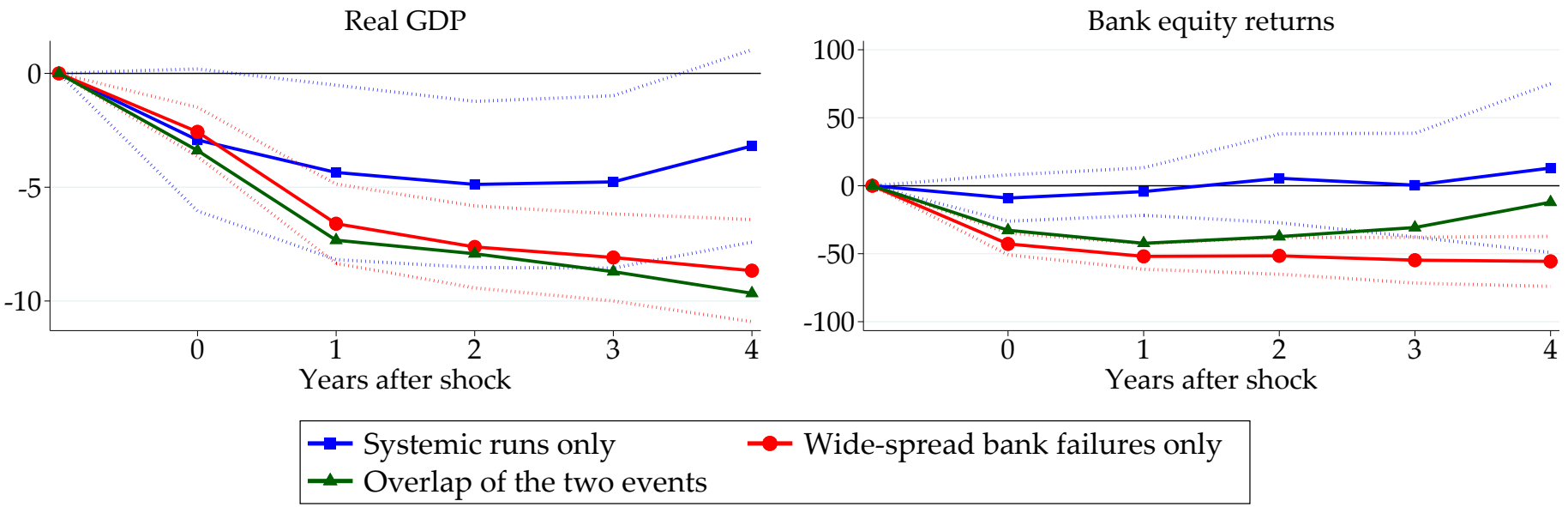
- Fundamentalness is not necessary for the impacts of systemic bank runs

Bank Runs and Banking Crises



- Equity-driven crises are sufficient but not necessary for the macroeconomic impacts of systemic bank runs

Bank Runs and Bank Failures



- Bank failures are sufficient but not necessary for the macroeconomic impacts of systemic bank runs

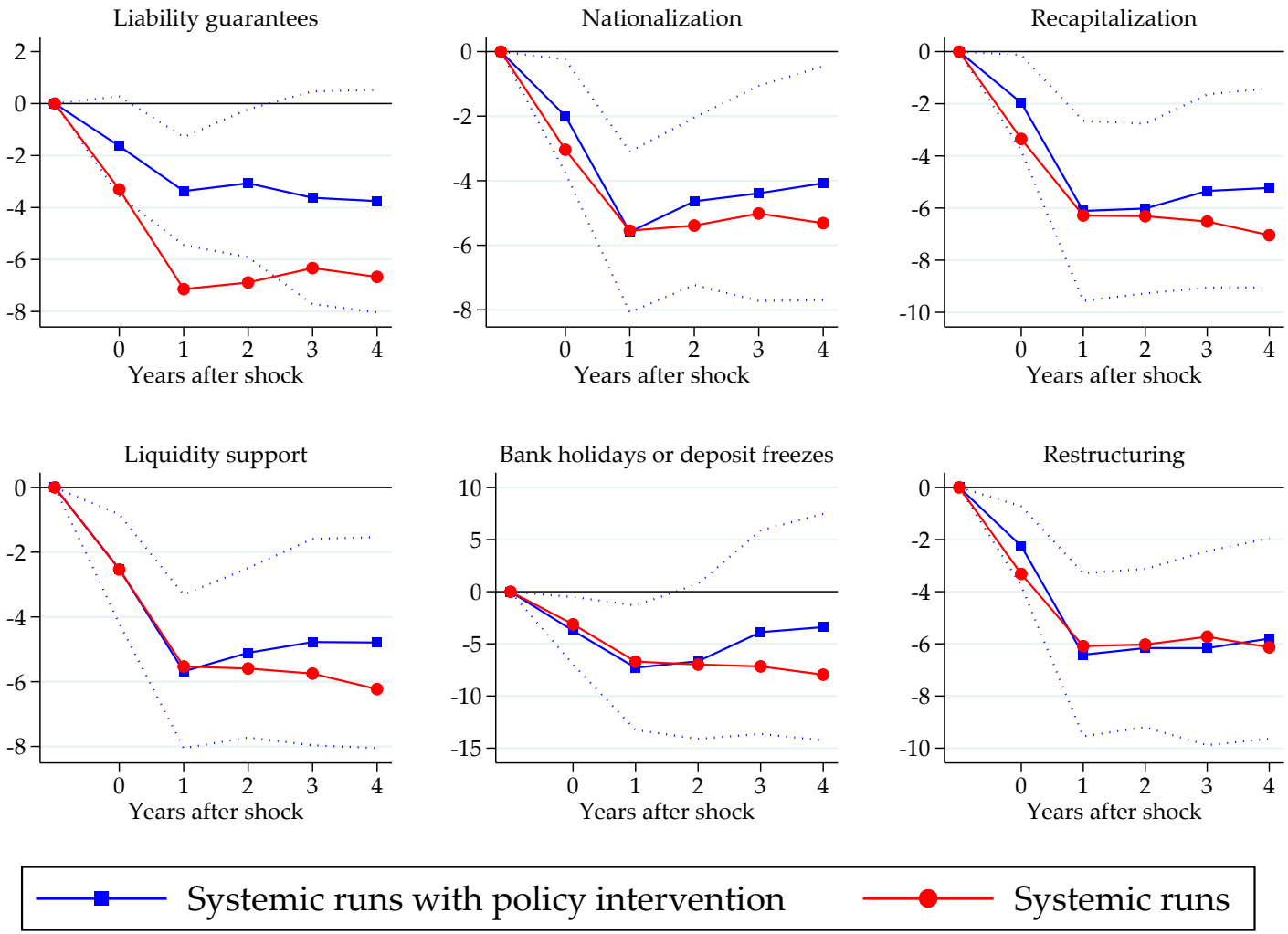
Ex-Ante Government Policies

	Full sample			Excl. 2007-2011		
	(1)	(2)	(3)	(4)	(5)	(6)
Central bank exists	-0.25*			-0.25*		
	(0.14)			(0.15)		
Deposit insurance exists		-0.19			-0.27*	
		(0.12)			(0.14)	
DI with ex-ante funding			-0.23*			-0.30**
			(0.13)			(0.14)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean of DV	0.65	0.65	0.66	0.65	0.65	0.65
Observations	170	170	167	155	155	152
R^2	0.28	0.28	0.28	0.28	0.28	0.29

- Lenders of last resort and (credible) deposit insurance help prevent systemic bank runs.

▸ Aftermath of Runs with Ex-ante Regulation

Ex-Post Government Interventions



- The aftermath of systemic runs can be tamed with liability guarantees

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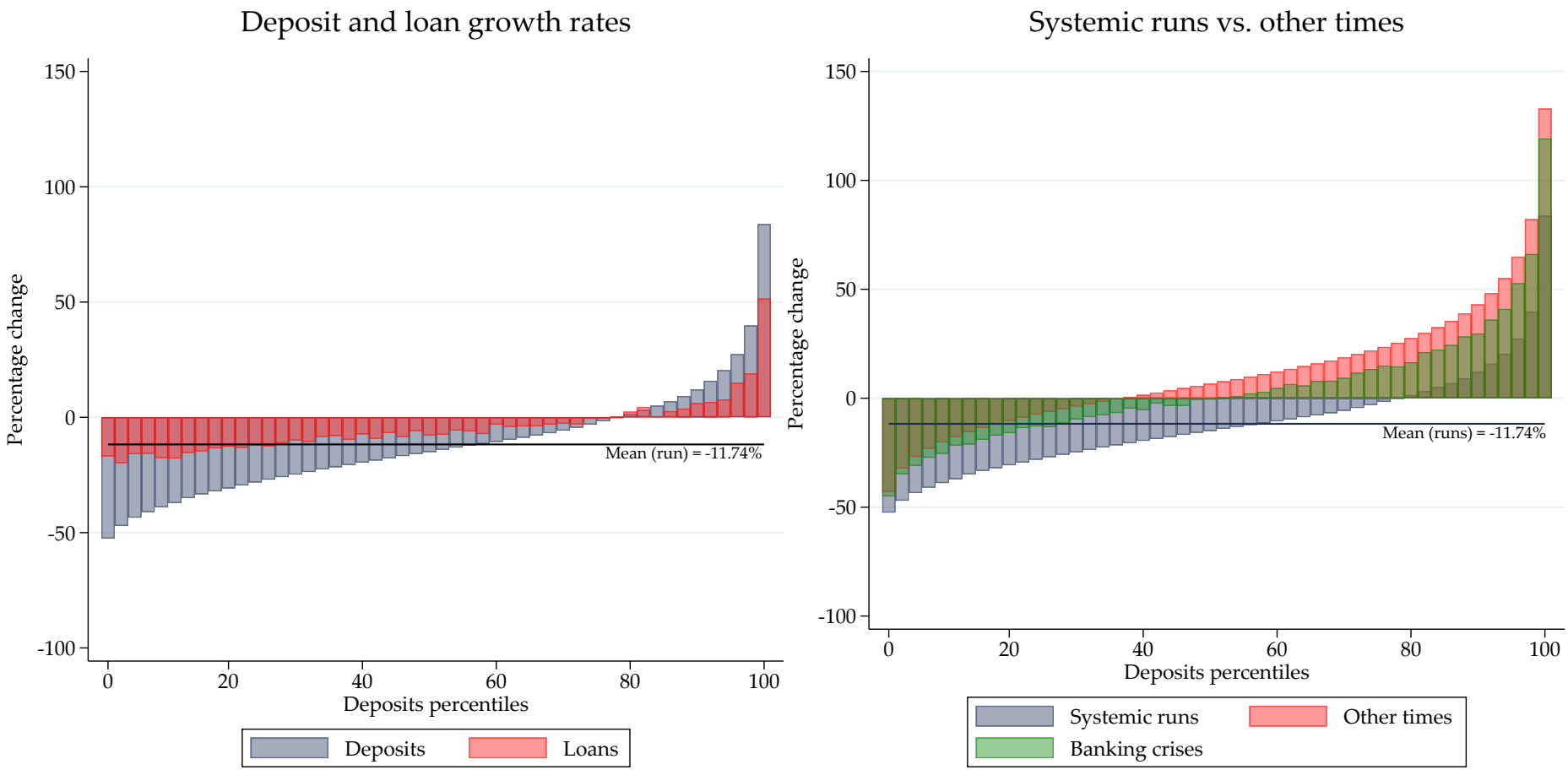
5. Systemic run likelihood can be reduced ex-ante by credible deposit insurance
6. Conditional on having a systemic run, only *liability guarantees* tame their full-scale effects

Bank-Level Data

1. US Office of the Comptroller of the Currency (OCC) (Carlson, Correia, and Luck, 2022)
   - US national banking era, 1867-1904
   - 108,732 bank-year observations. 7,046 individual national banks
2. US Call Reports
   - US modern banking era, 1976-2020
   - 476,782 bank-year observations and 23,424 unique banks.

Bank-Level Reallocation during Runs



(A) US banks, 1867-1904

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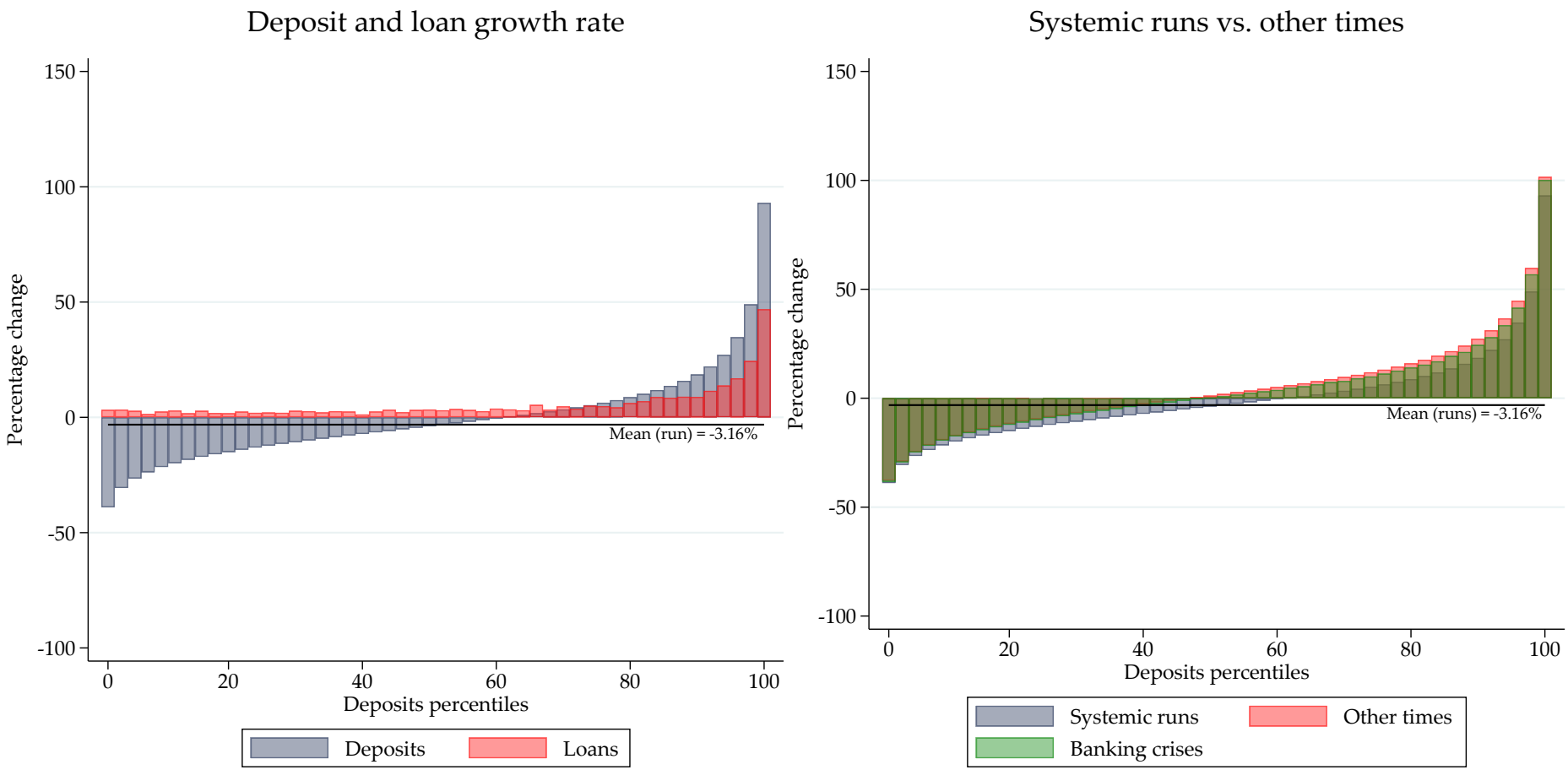
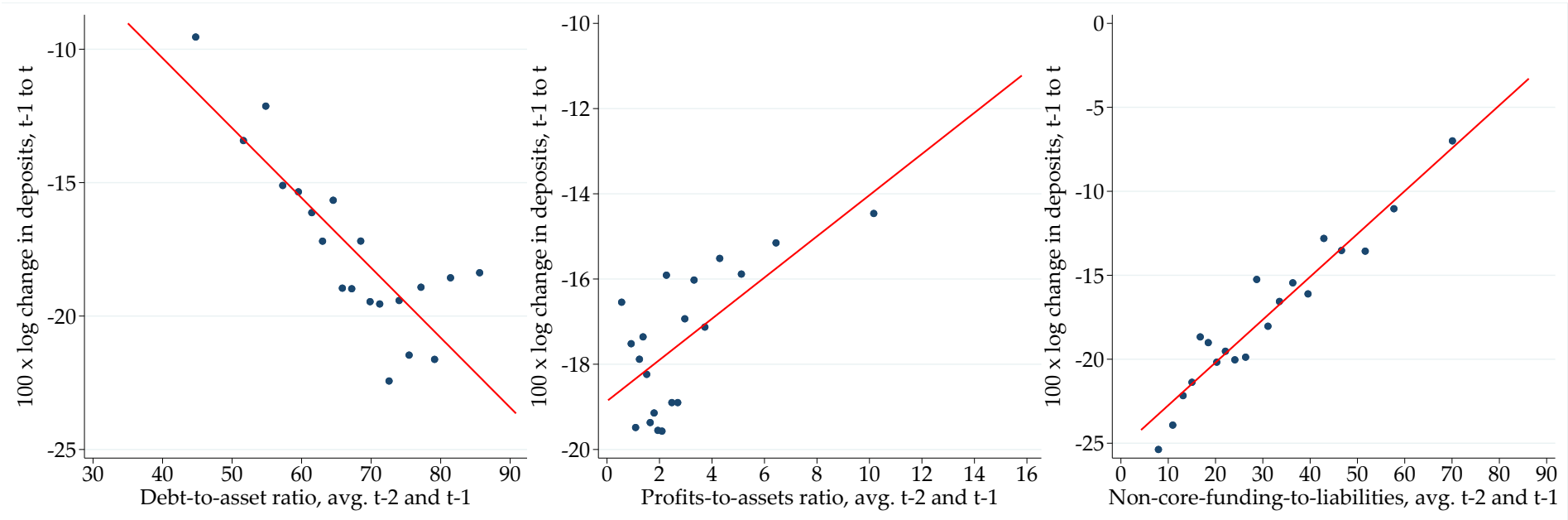


(B) US banks, 1976-2020

Which Banks Experience Deposit Withdrawals?



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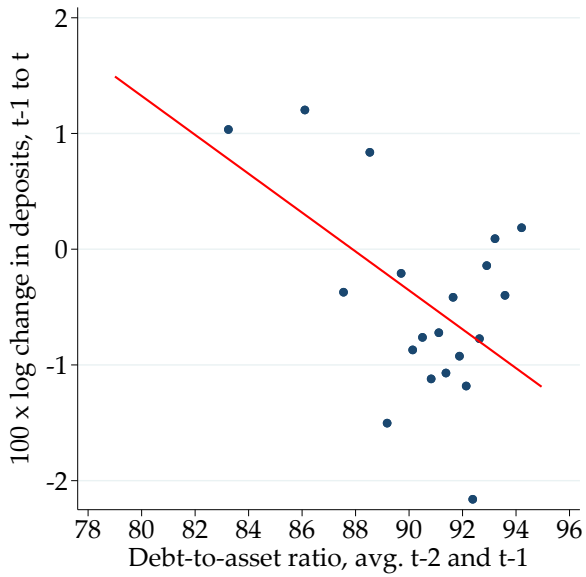
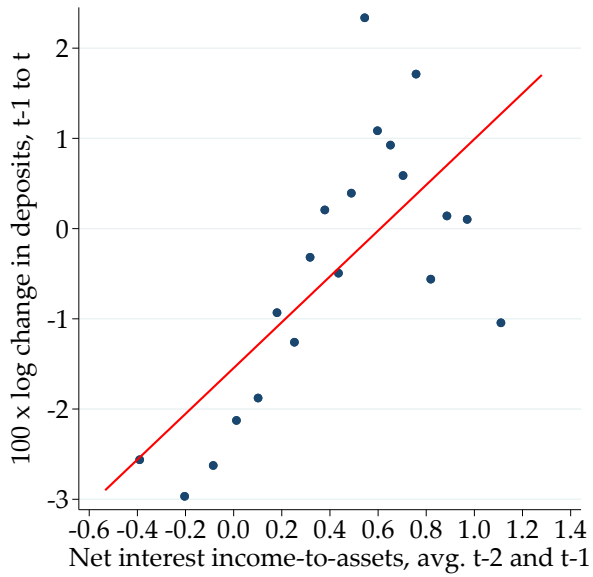
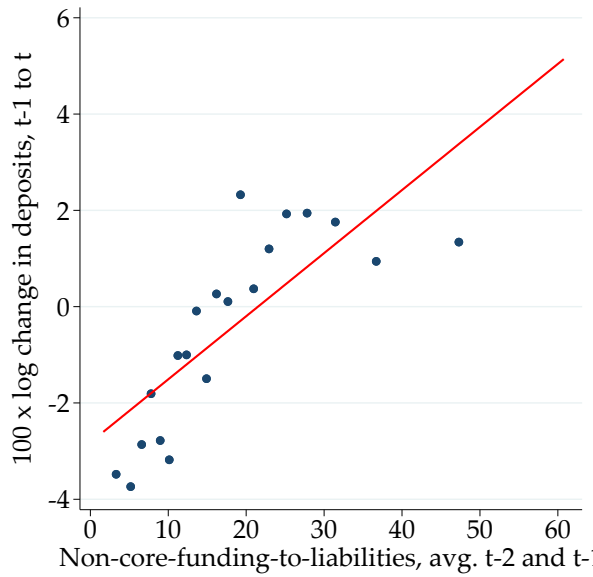
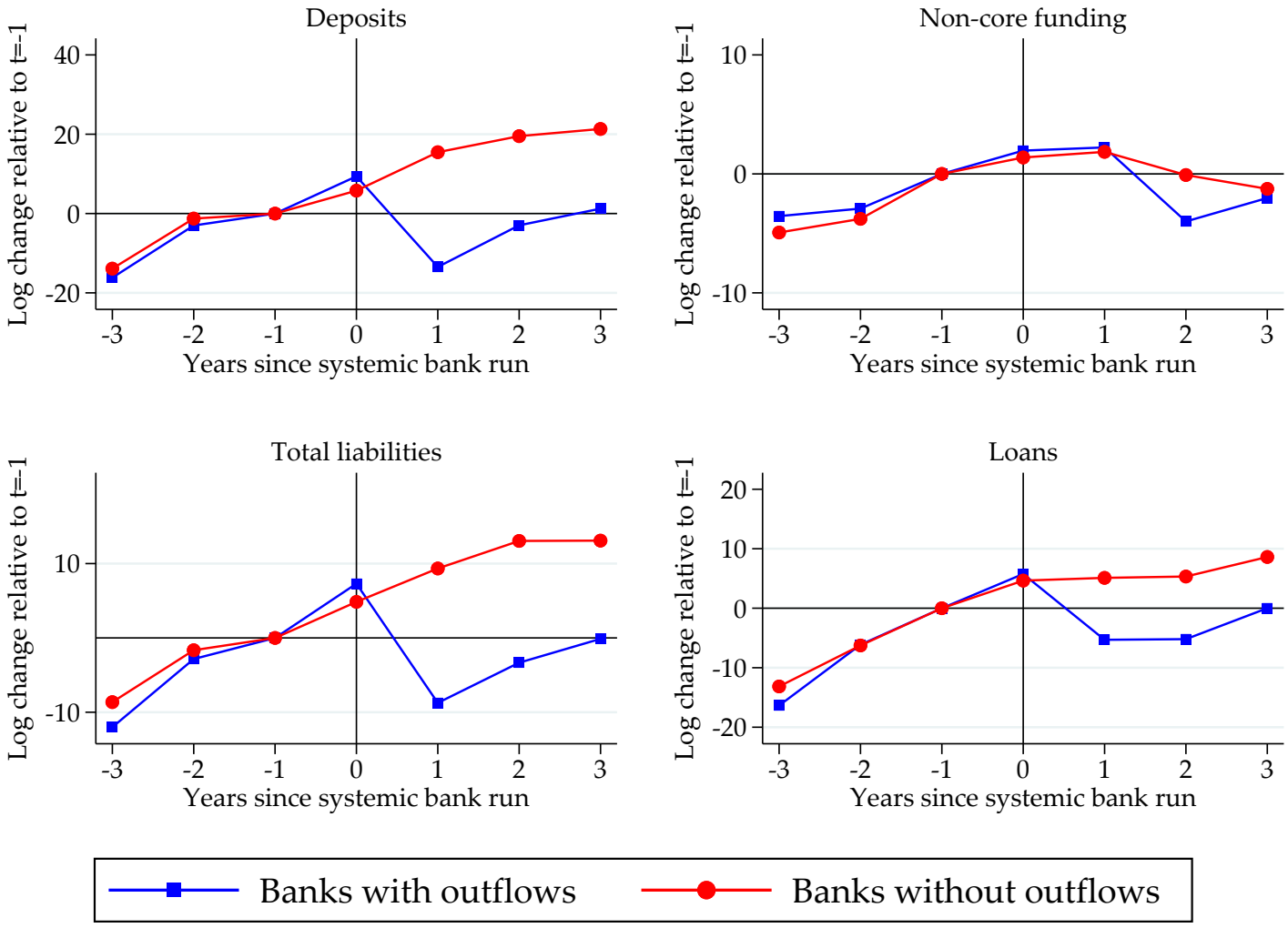






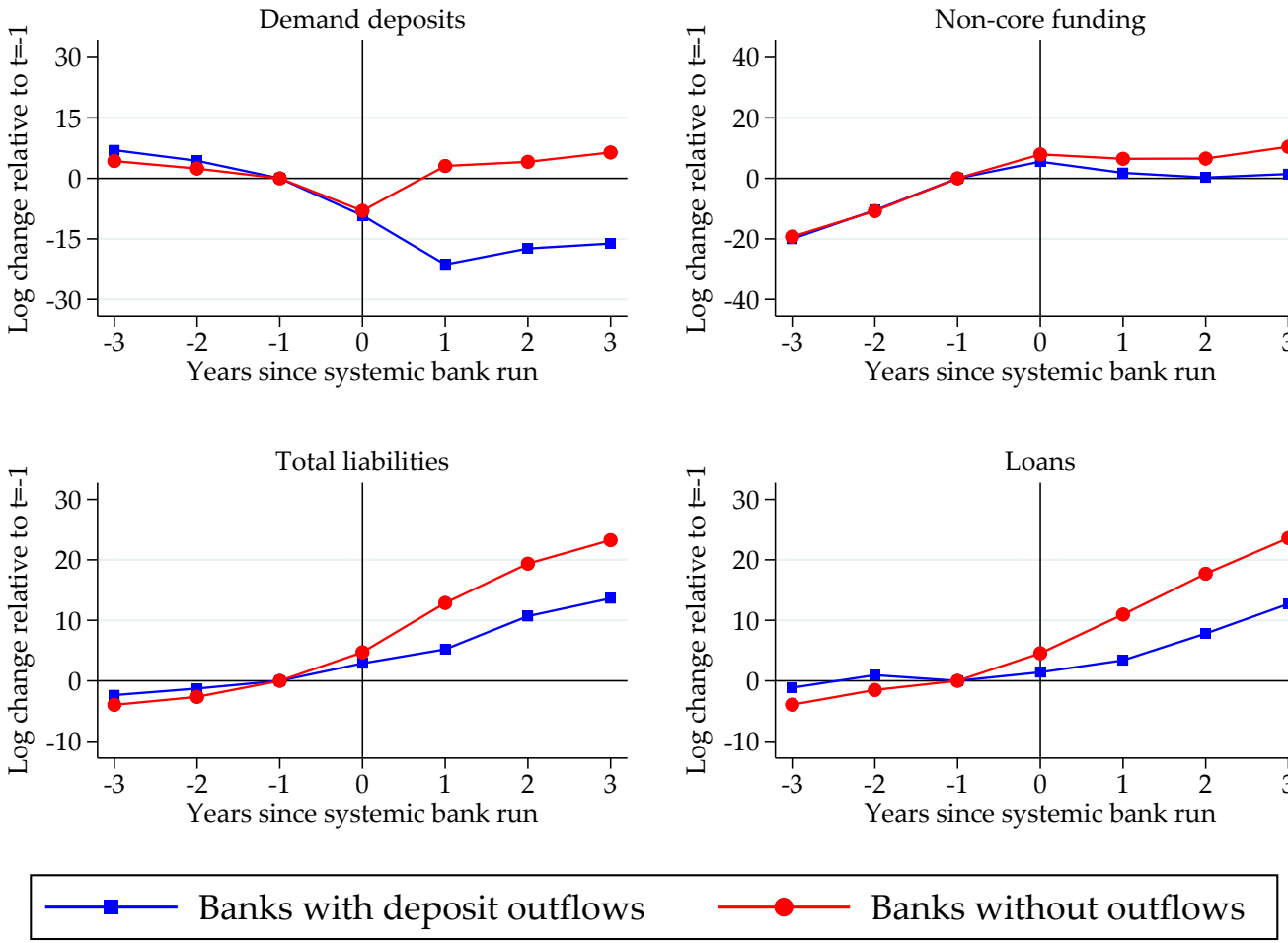
(B) US banks, 1976-2020

Aftermath of Bank-Level Deposit Withdrawals



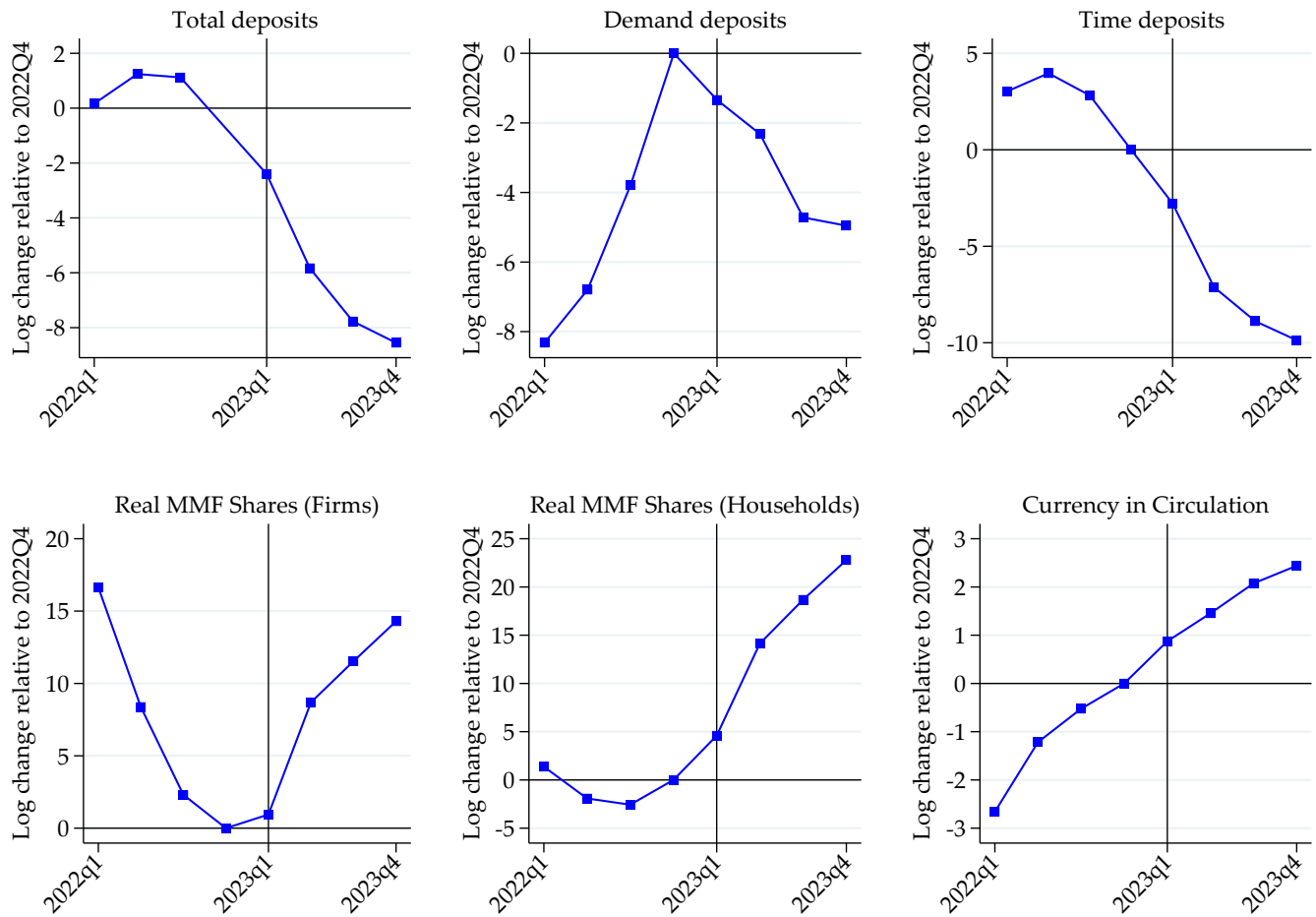
(A) US banks, 1867-1904

Aftermath of Bank-Level Deposit Withdrawals

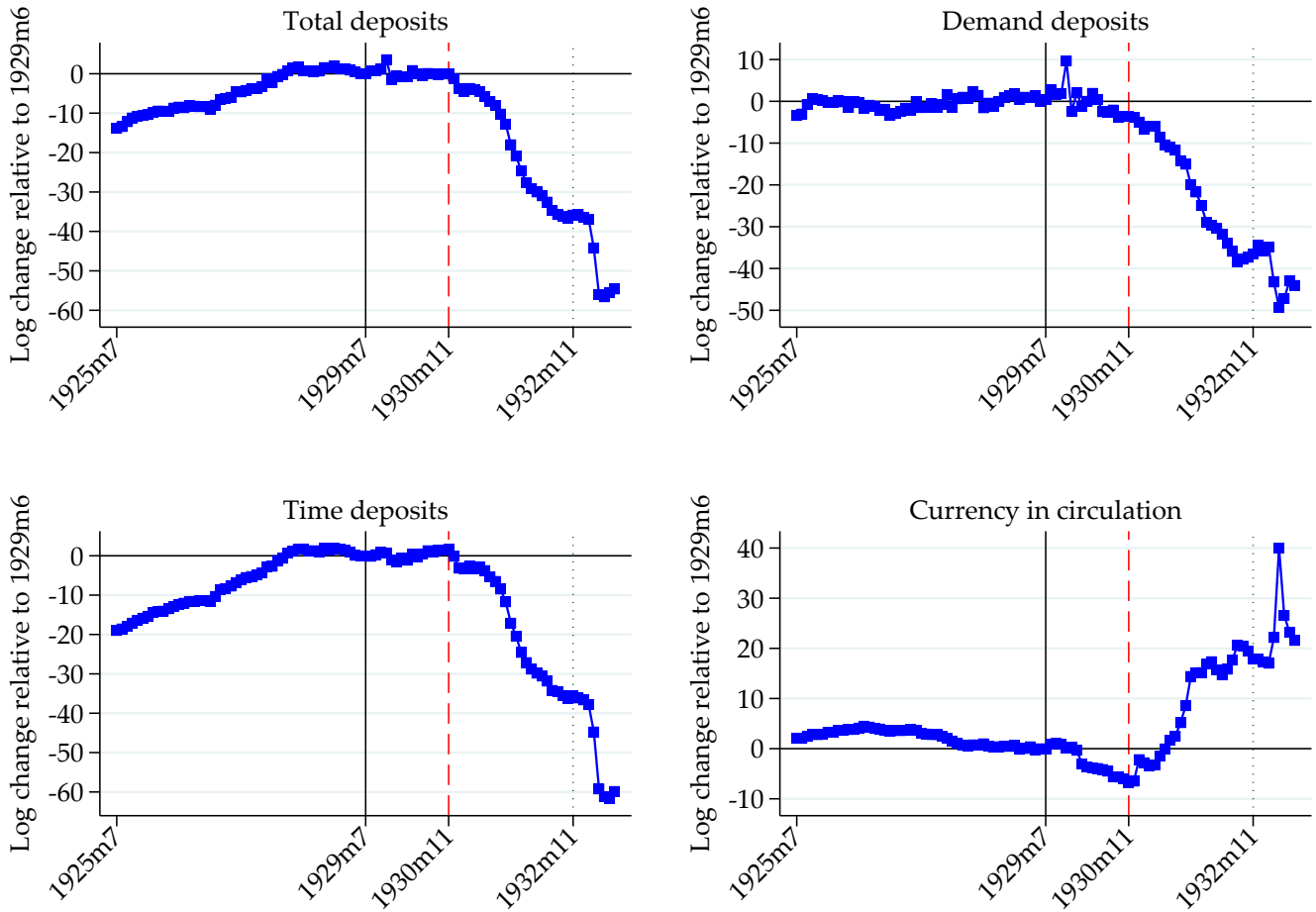


(B) US banks, 1976-2020

Case Study: Silicon Valley Bank Run



Case Study: The Great Depression



Conclusion

- A novel macro-historical database on bank runs covering 200 years and 184 countries
- Hybrid approach: qualitative narratives and quantitative deposit withdrawal data
- New insights into the concepts of systemicness and fundamentalness
- New stylized facts for structural modelling and calibration
- Future research
  1. Bank runs, rare disasters, and asset prices (JKMS, work in progress)
  2. Wholesale funding and inter-bank markets

Appendix

Advanced and Emerging Economies

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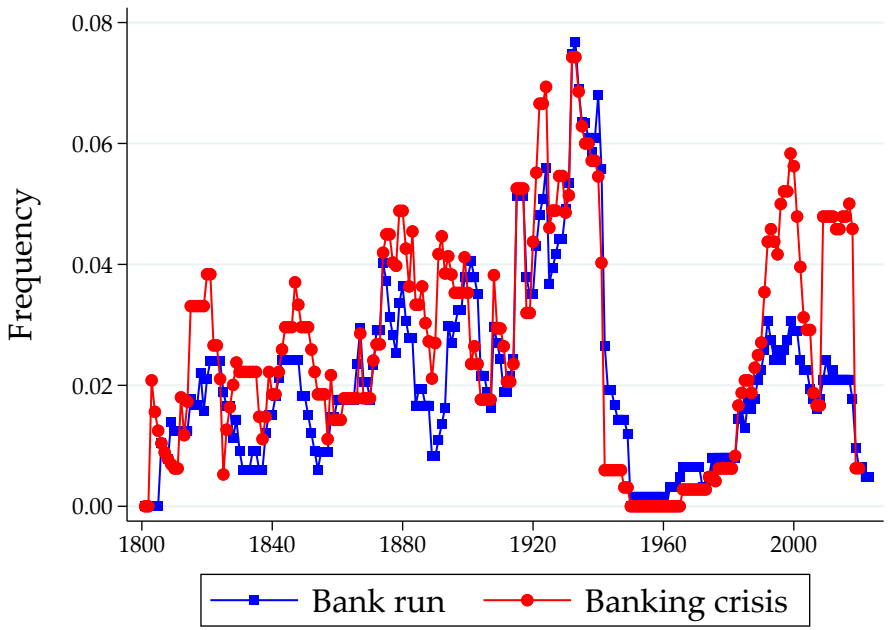
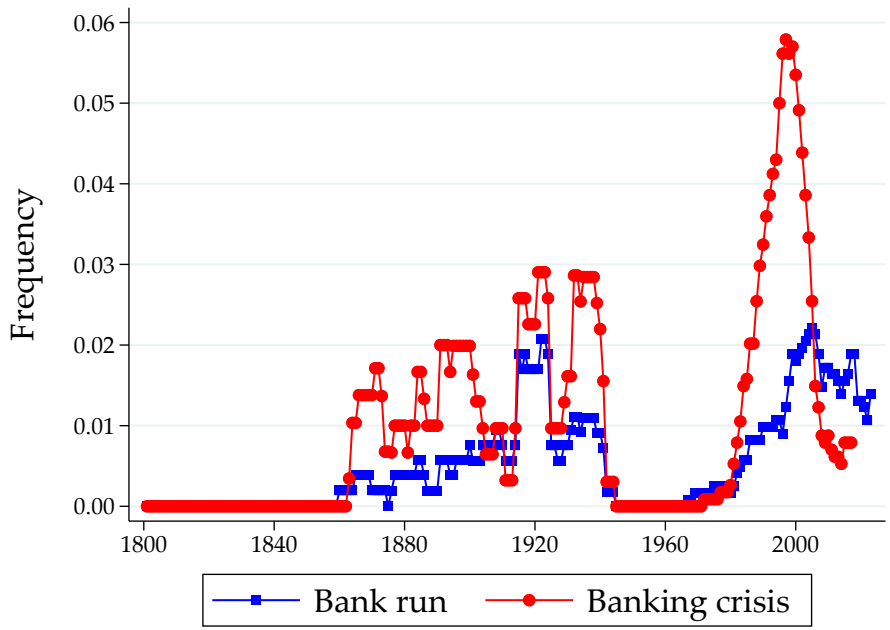
(A) Advanced economies



(B) Emerging economies



- Classification based on World Bank

Frequencies Pre and Post 1933

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	Pre-1933		Post-1933	
	Run prob.	Share systemic	Run prob.	Share systemic
Average	4.9	75.7	1.3	55.3
By region:				
East Asia and Pacific	3.6	92.3	2.7	44.7
Europe and Central Asia	5.2	67.6	1.5	66.7
Latin America and Caribbean	3.6	91.7	1.3	64.5
Middle East and North Africa	N/A	N/A	0.6	85.7
North America	10.6	81.0	6.2	45.5
South Asia	1.3	100.0	1.0	40.0
Sub-Saharan Africa	0.0	0.0	0.3	20.0
By income level:				
Advanced economies	6.3	80.9	1.6	54.5
Emerging economies	4.5	70.0	1.3	55.7
By financial development:				
Low	4.8	68.8	0.6	35.3
Medium	6.6	76.0	1.6	64.6
High	5.8	69.6	2.0	50.0
By deposit insurance:				
No	4.9	75.7	0.9	52.1
Yes	N/A	N/A	2.4	58.8

Run Frequency by Deposit Growth Deciles

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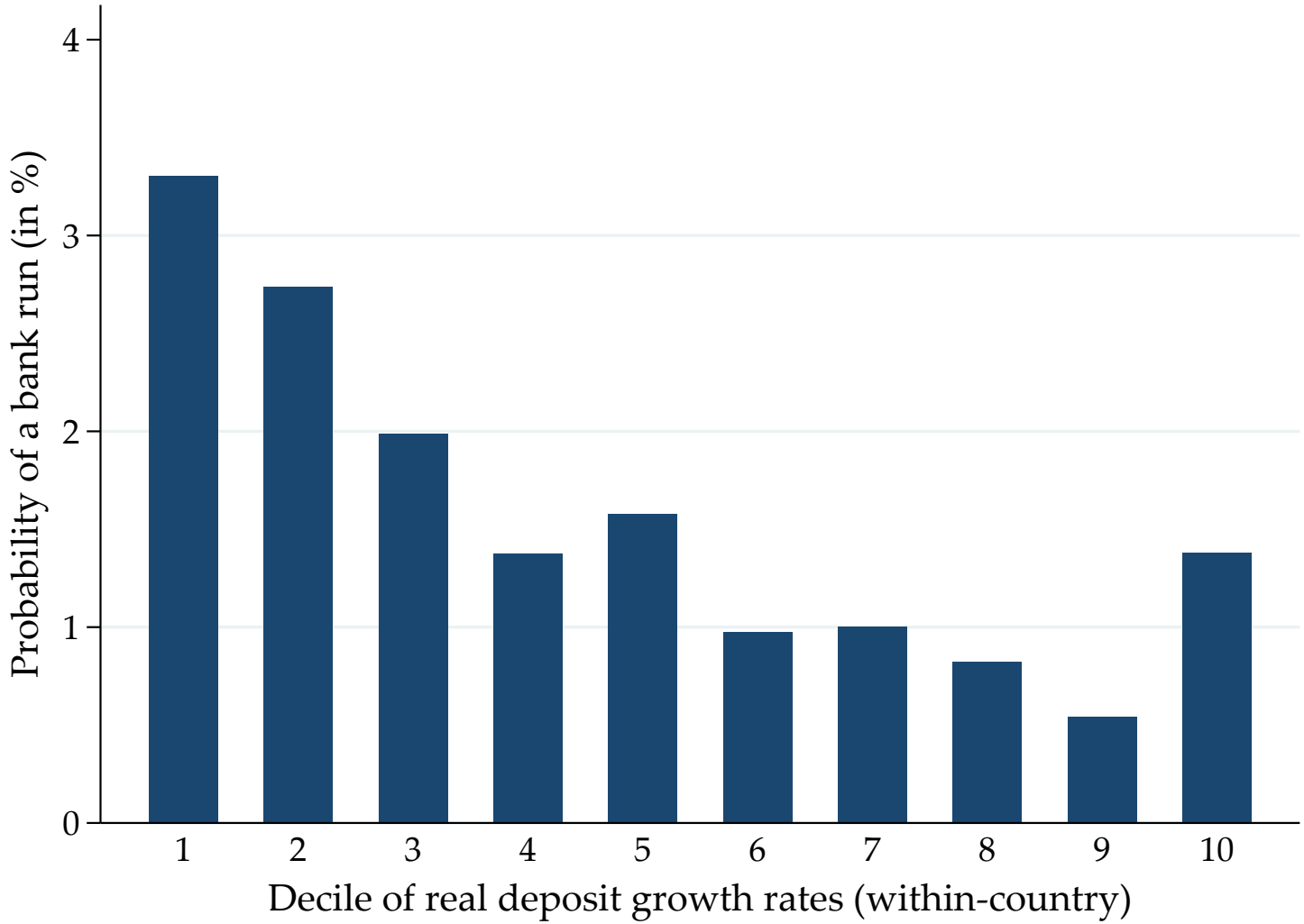

Output Path around Systemic Runs

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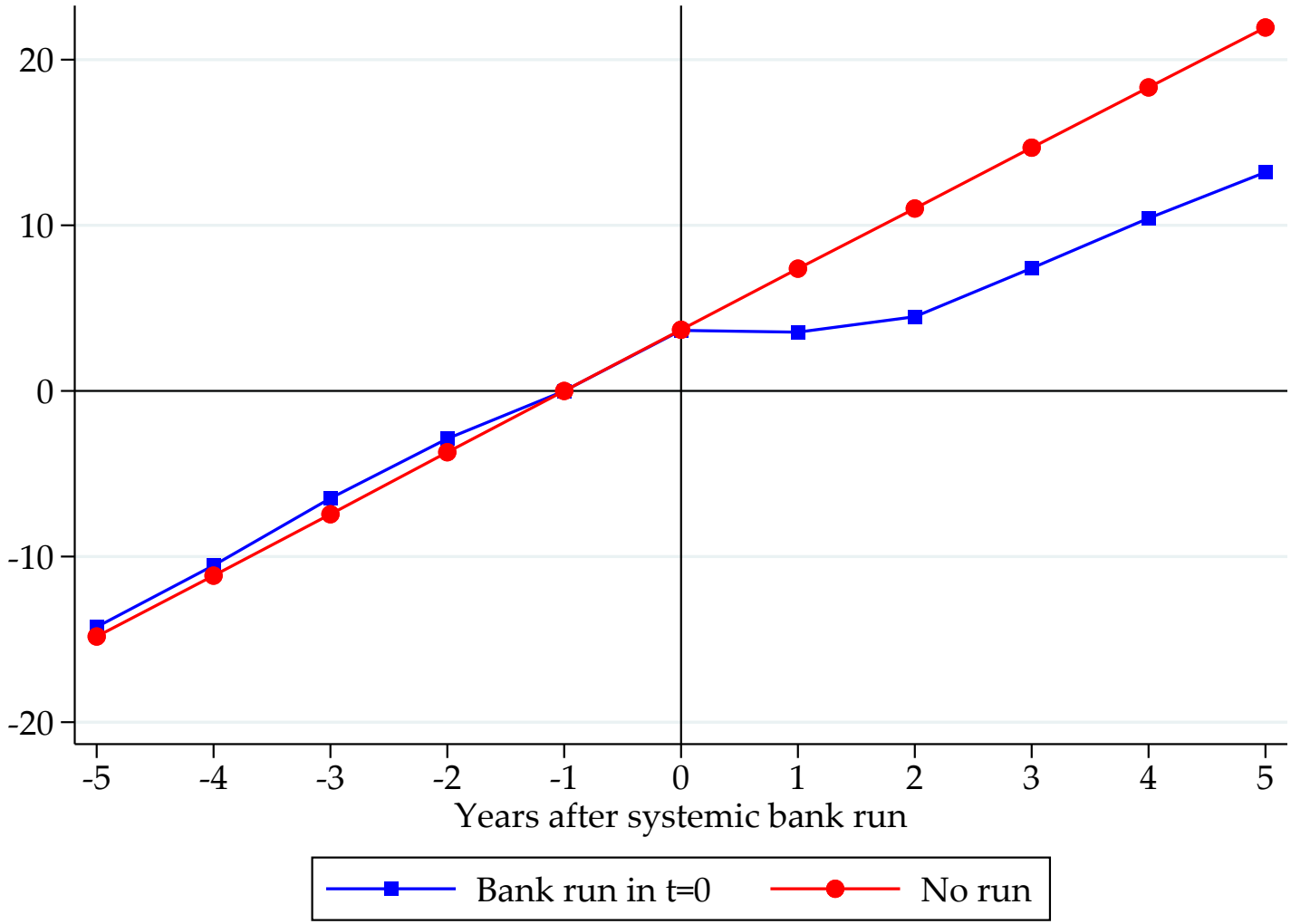

Output Path around Non-Systemic Runs

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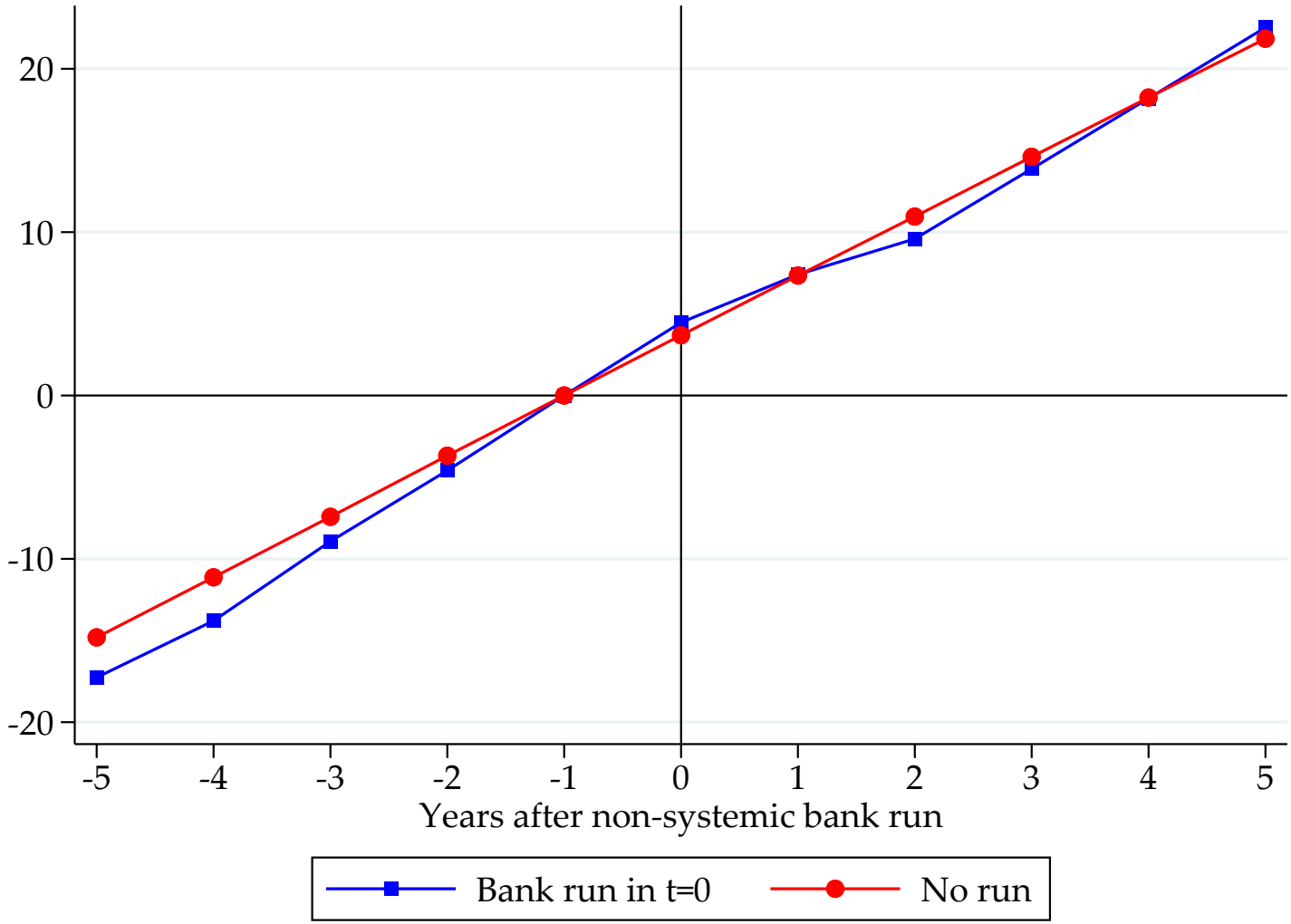

Different Thresholds of Nominal Deposit Withdrawals

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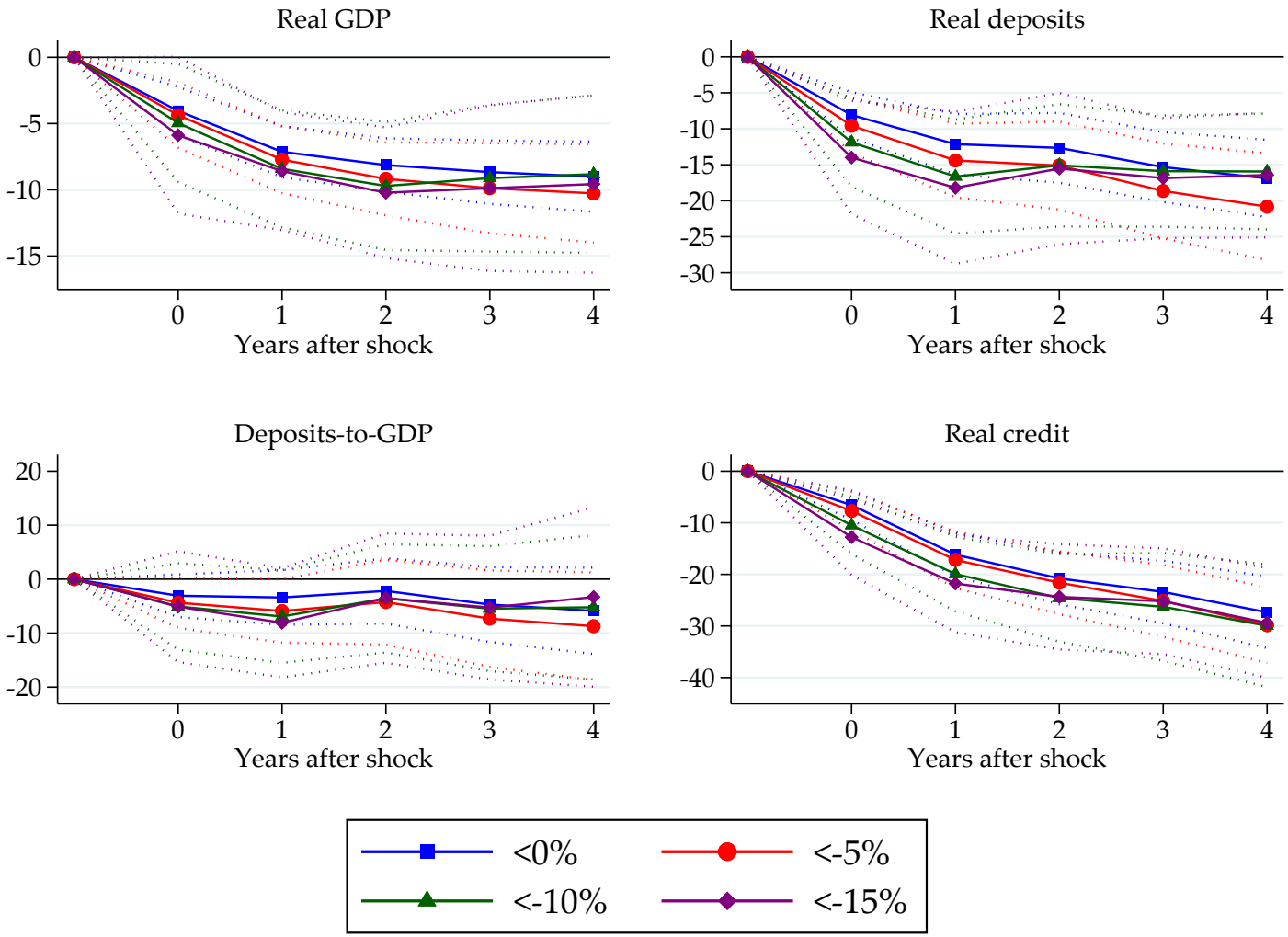

Withdrawals based on Real Deposits

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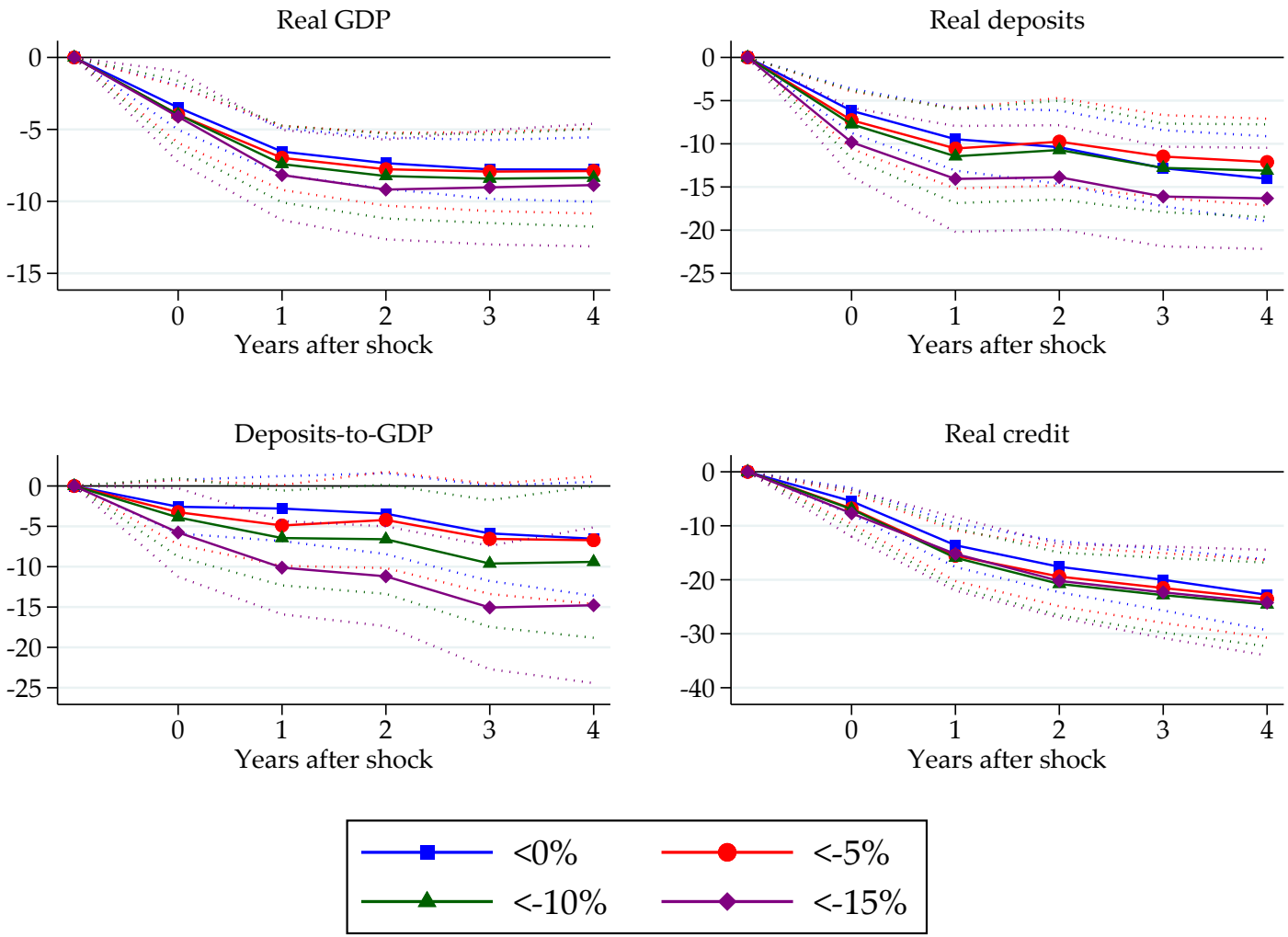

Withdrawals based on Credit-to-Deposits Ratio

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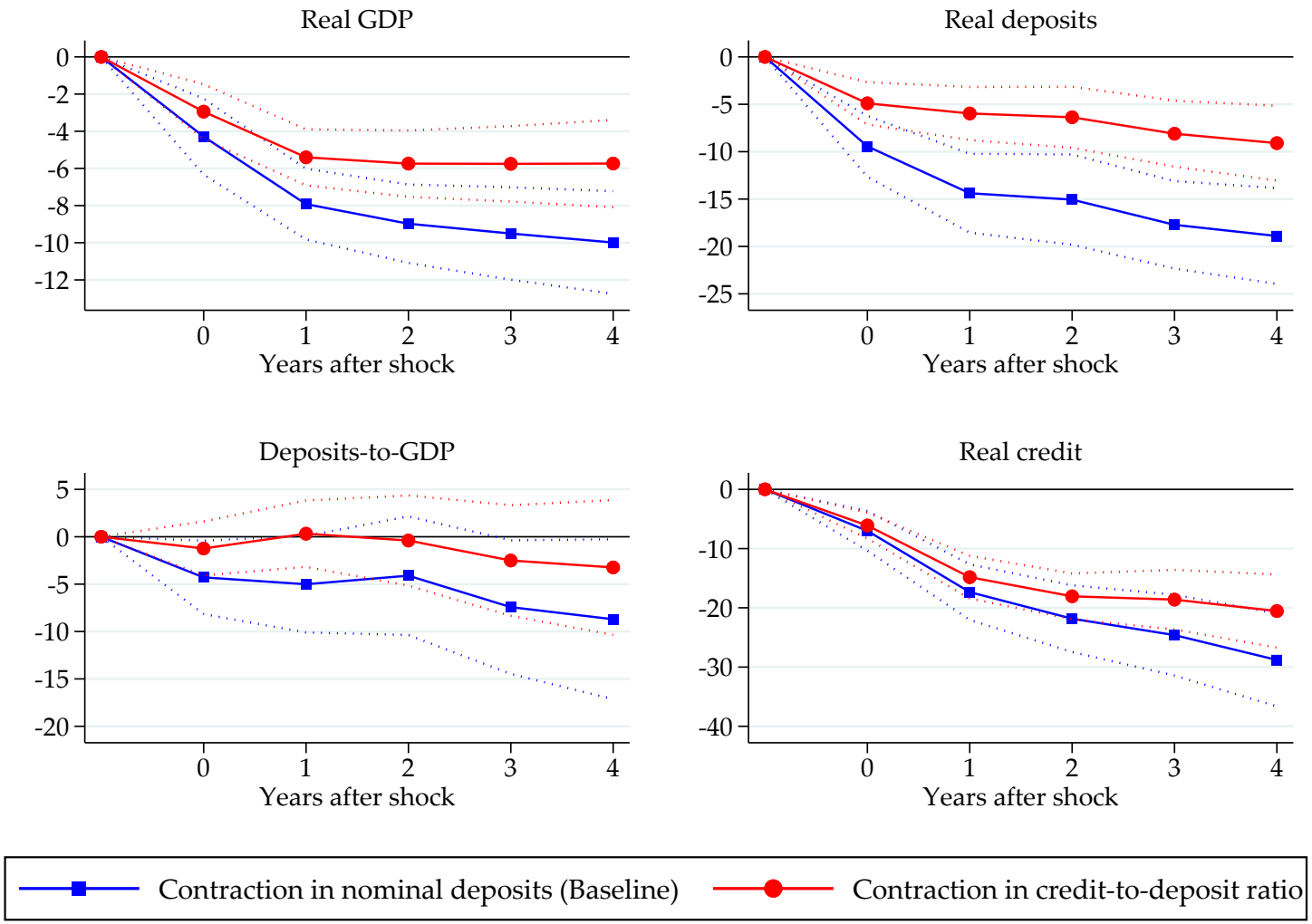

Macro Heterogeneity

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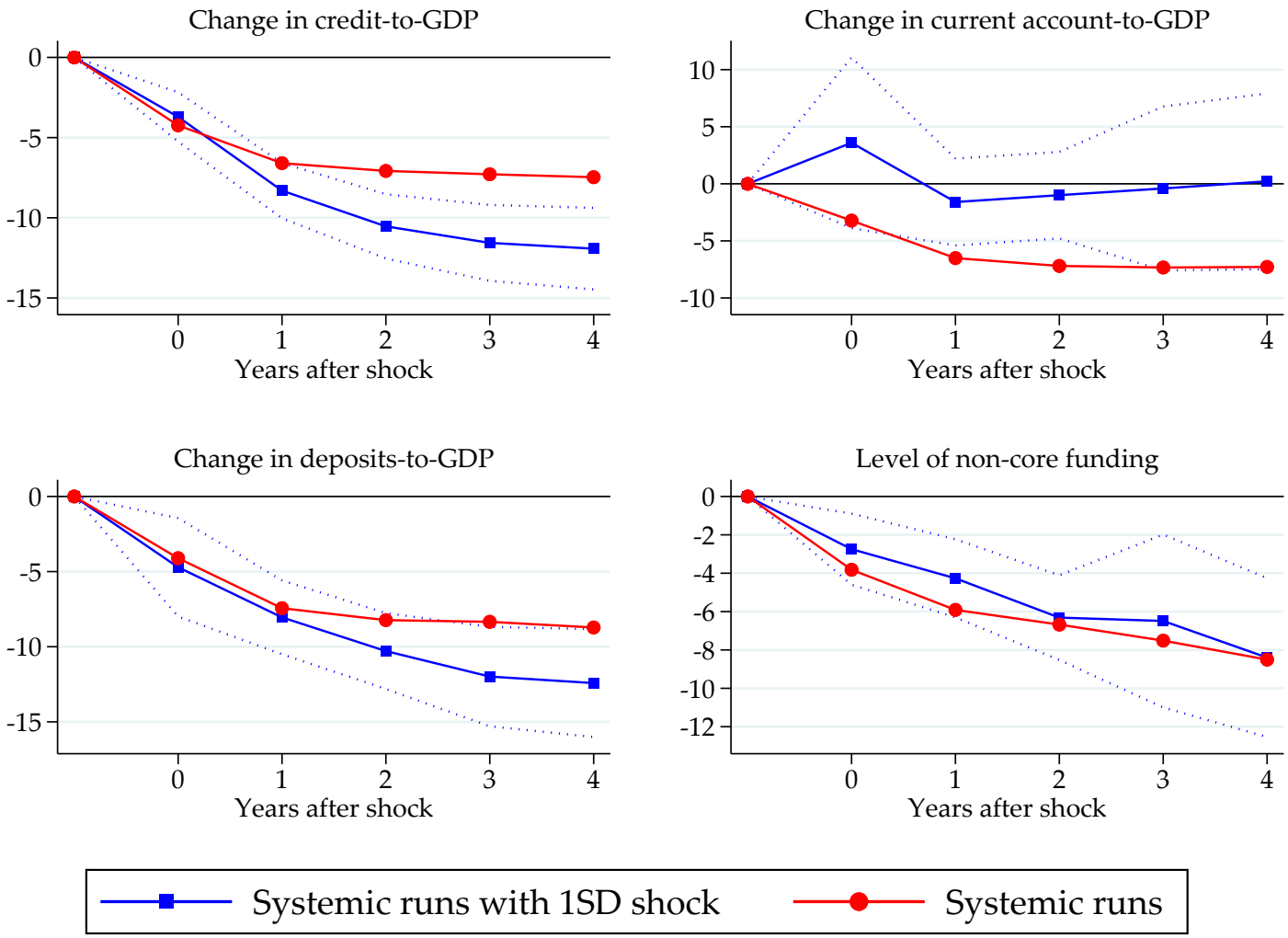

Response of Output to Narrative Runs for Different Withdrawal Intensities

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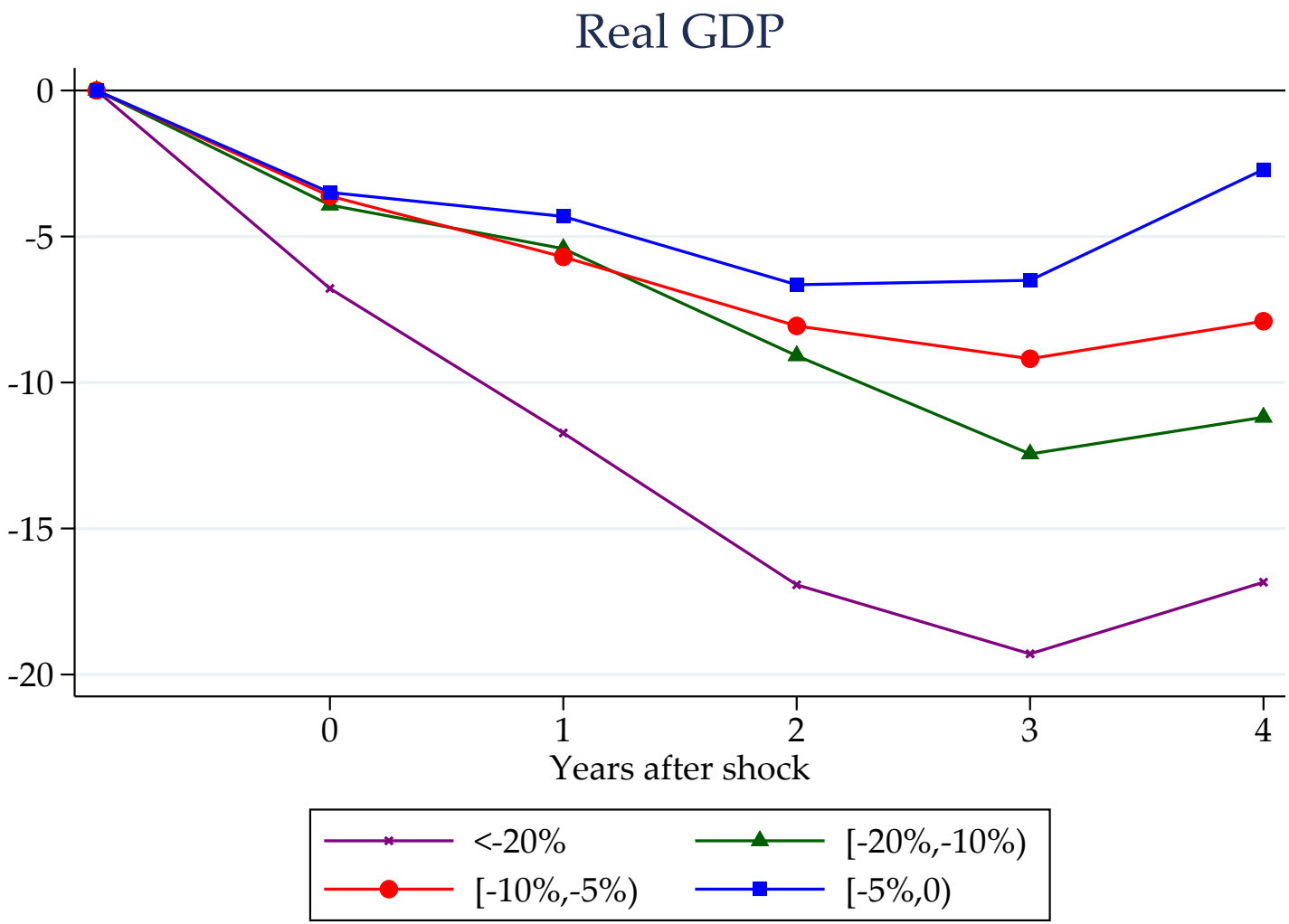

Capital Ratios

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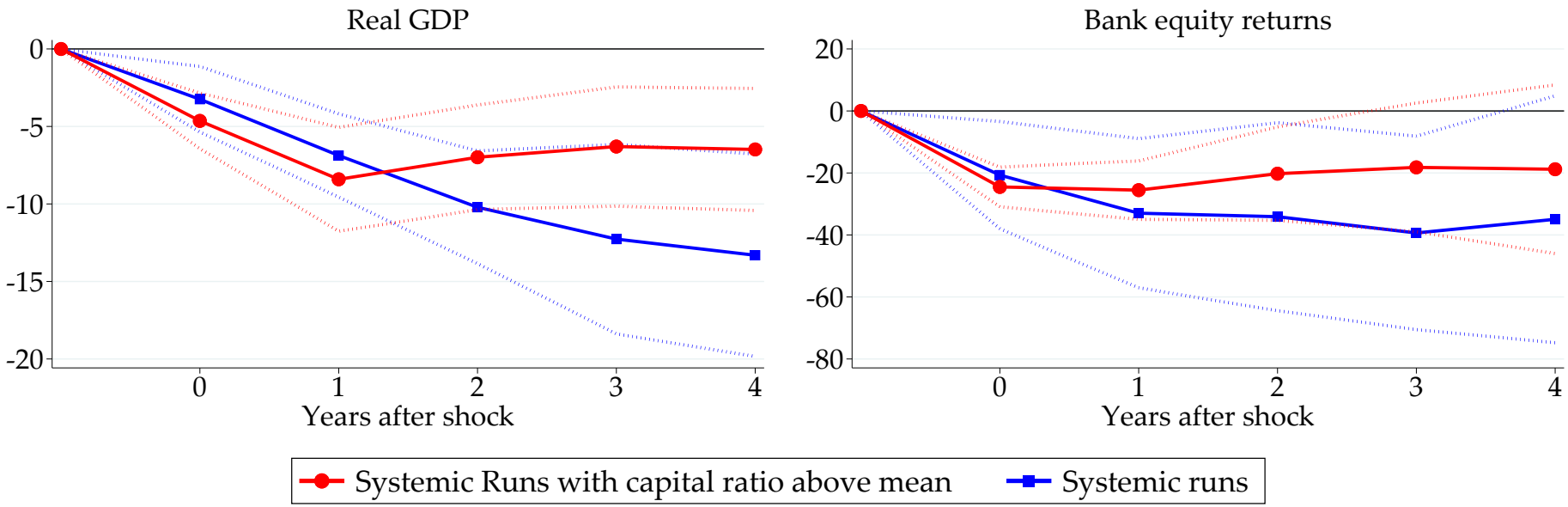

Bank Runs and Output Loses

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	ΔGDP^r_t	ΔGDP^r_{t+2}	ΔGDP^r_{t+4}
Deposit Contractions w/o Runs	-0.845***	-2.653***	-2.852***
	(0.235)	(0.433)	(0.508)
Non-Systemic Runs	-1.185**	-2.854**	-1.935
	(0.409)	(0.980)	(1.342)
Systemic Runs	-4.194***	-8.414***	-9.208***
	(0.918)	(1.041)	(1.380)
R^2	0.127	0.194	0.241
Observations	8539	8539	8430
Countries	177	177	177
Systemic Runs	83	83	82
Deposit Contractions	935	935	929
Non-Systemic Runs	54	54	53

Real and Nominal Deposits of Different Categories after Systemic Runs

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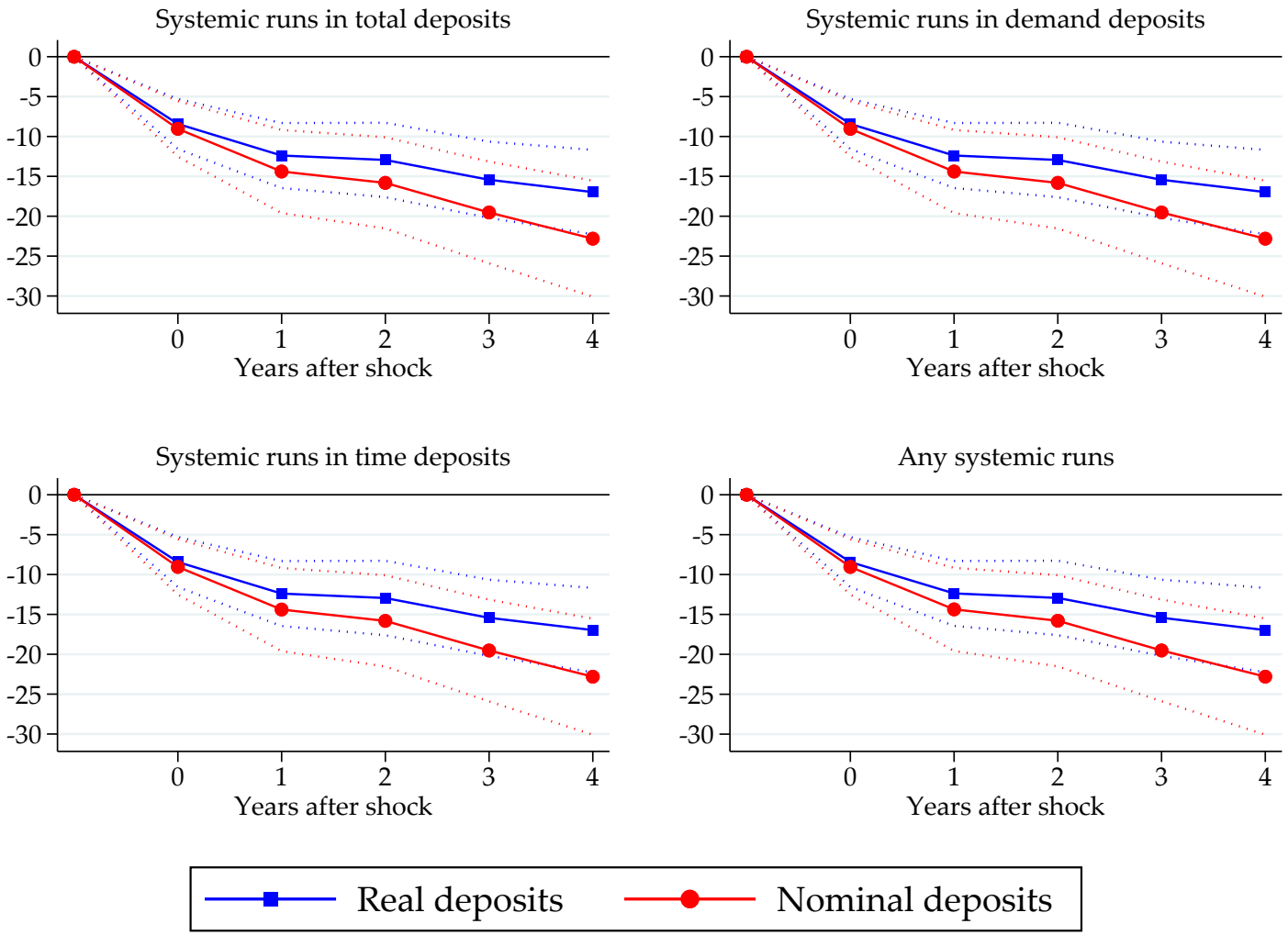

Aftermath of Bank Runs with Ex-ante Regulation

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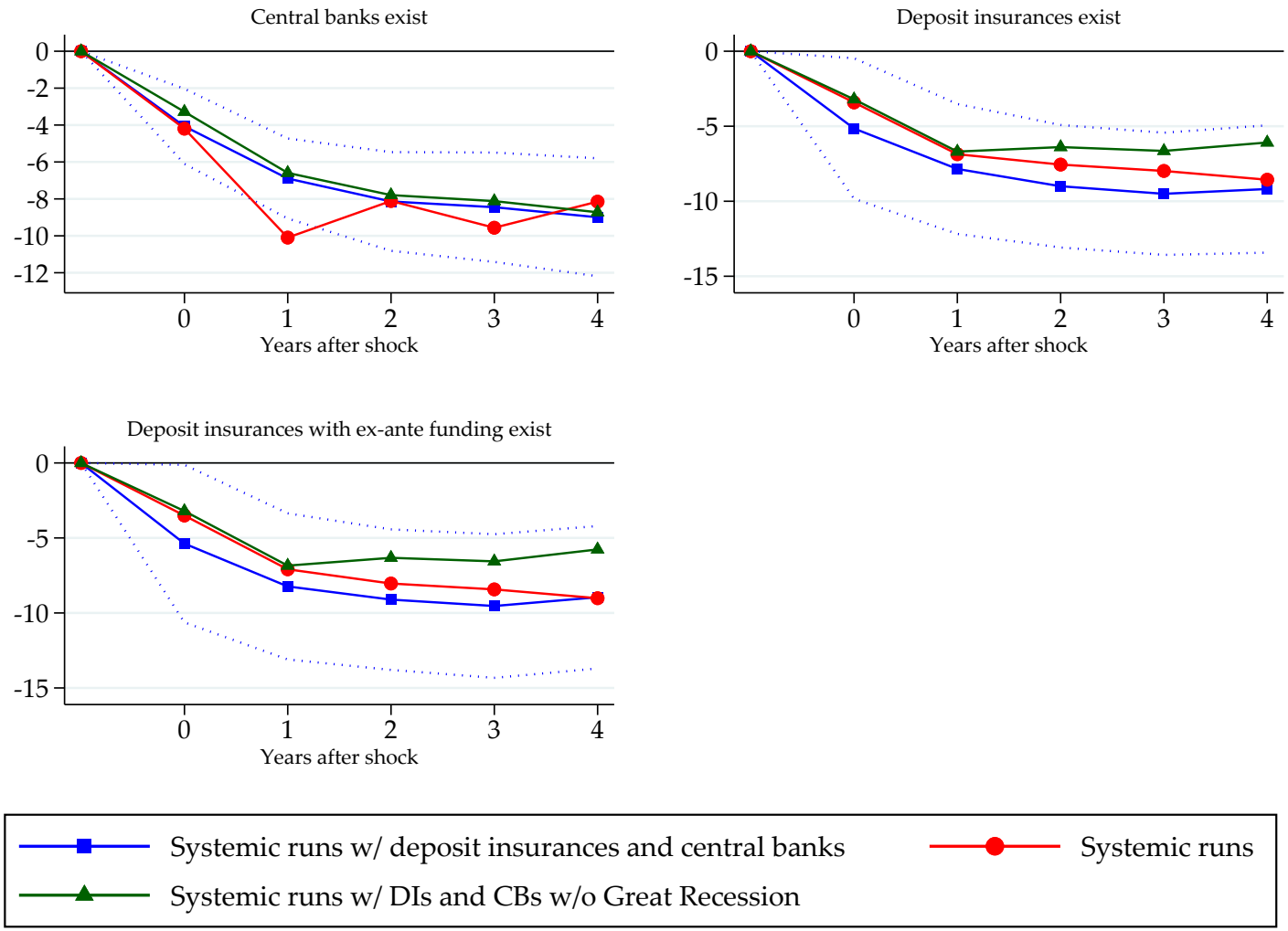

References I

Allen, Franklin and Douglas Gale. 2000. "Financial Contagion." *Journal of Political Economy* 108 (1):1–33.

Amador, Manuel and Javier Bianchi. 2024. "Bank Runs, Fragility, and Credit Easing." *American Economic Review* 114 (7):2073–2110.

Baron, Matthew, Emil Verner, and Wei Xiong. 2021. "Banking Crises Without Panics." *Quarterly Journal of Economics* 136 (1):51–113.

Bocola, Luigi and Alessandro Dovis. 2019. "Self-Fulfilling Debt Crises: A Quantitative Analysis." *American Economic Review* 109 (12):4343—-4377.

Bryant, John. 1980. "A Model of Reserves, Bank Runs, and Deposit insurance." *Journal of Banking & Finance* 4 (4):335–344.

Carlson, Mark, Sergio Correia, and Stephan Luck. 2022. "The Effects of Banking Competition on Growth and Financial Stability: Evidence from the National Banking Era." *Journal of Political Economy* 130 (2):462–520.

Cooper, Russell and Thomas W. Ross. 2002. "Bank Runs: Deposit Insurance and Capital Requirements." *International Economic Review* 43 (1):55–72.

Diamond, Douglas W. and Philip H. Dybvig. 1983. "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy* 91 (3):401–419.

Diamond, Douglas W. and Raghuram G. Rajan. 2005. "Liquidity Shortages and Banking Crises." *Journal of Finance* 60 (2):615–647.

Goldstein, Itay and Ady Pauzner. 2005. "Demand–Deposit Contracts and the Probability of Bank Runs." *Journal of Finance* 60 (3):1293–1327.

References II

Jamilov, R., T. König, K. Müller, and F. Saidi. 2024. "Two Centuries of Systemic Bank Runs." *CEPR Discussion Paper* 19382.

Jordà, Òscar, Moritz Schularick, and Alan M. Taylor. 2017. "Macrofinancial History and the New Business Cycle Facts." In *NBER Macroeconomics Annual 2016*, vol. 31, edited by Martin Eichenbaum and Jonathan A. Parker.

Laeven, Luc and Fabian Valencia. 2018. "Systemic Banking Crises Revisited." Working Paper WP/18/206, International Monetary Fund.

Metrick, Andrew and Paul Schmelzing. 2021. "Banking-Crisis Interventions, 1257-2019." Working Paper 29281, National Bureau of Economic Research.

Reinhart, Carmen M. and Kenneth S. Rogoff. 2009. "The Aftermath of Financial Crises." *American Economic Review* 99 (2):466–472.

Santos, João A.C. and Javier Suarez. 2019. "Liquidity Standards and the Value of an Informed Lender of Last Resort." *Journal of Financial Economics* 132 (2):351–368.

Uhlig, Harald. 2010. "A Model of a Systemic Bank Run." *Journal of Monetary Economics* 57 (1):78–96.