TWO CENTURIES OF SYSTEMIC BANK RUNS

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- ▶ Our focus: bank *runs*, severe *liability* disruptions

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- Systemicness: 165 narrative runs with deposit outflows
- Granular bank-level analysis: U.S. banks during 1867-1904 and 1976-2020

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- 4. Aftermath of systemic bank runs: 9.2% real GDP decline
- 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
JKMS	Bank run	Yes	184	308	1800	2023	25,820
JKMS	Deposit contraction	No	179	3,293	1801	2022	13,597
JKMS	Systemic bank run	No	179	165	1801	2022	13,597

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- 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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- 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



Systemic bank runs

BANK RUNS AND BANKING CRISES: 1800-2022



Advanced and Emerging Economies

BANK RUNS AND DEPOSIT WITHDRAWALS

(B) Deposit Contractions Around Runs



(A) Distribution of Deposit Growth Rates

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	
	Proba bankir	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



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TWO CENTURIES OF SYSTEMIC BANK RUNS

Systemic vs Non-Systemic Runs



What is the theoretical nature of bank runs?

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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

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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			E>	Excl. 2007-2011		
	(1)	(2)	(3)	(4)	(5)	(6)	
Central bank exists	-0.25* (0.14)			-0.25* (0.15)			
Deposit insurance exists	(-)	-0.19 (0.12)		()	-0.27* (0.14)		
DI with ex-ante funding		(-)	-0.23* (0.13)		(-)	-0.30** (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

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EX-POST GOVERNMENT INTERVENTIONS



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

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- 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
BANK-LEVEL REALLOCATION DURING RUNS



(B) US banks, 1976-2020

WHICH BANKS EXPERIENCE DEPOSIT WITHDRAWALS?



(A) US banks, 1867-1904

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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 runs (JKMS, work in progress)

Appendix

ADVANCED AND EMERGING ECONOMIES COBACK



(A) Advanced economies

(B) Emerging economies

Classification based on World Bank

FREQUENCIES PRE AND POST 1933 COBACK

	Pr	Pre-1933		st-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
Bv 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



OUTPUT PATH AROUND SYSTEMIC RUNS . GO BACK



OUTPUT PATH AROUND NON-SYSTEMIC RUNS COBACK



DIFFERENT THRESHOLDS OF NOMINAL DEPOSIT WITHDRAWALS GOBACK



WITHDRAWALS BASED ON REAL DEPOSITS . GO BACK



WITHDRAWALS BASED ON CREDIT-TO-DEPOSITS RATIO GOBACK



MACRO HETEROGENEITY COBACK



RESPONSE OF OUTPUT TO NARRATIVE RUNS FOR DIFFERENT WITHDRAWAL INTENSITIES COBACK

Real GDP



CAPITAL RATIOS GOBACK



BANK RUNS AND OUTPUT LOSES • GO BACK

	$ \Delta GDP_t^r$	$\Delta \text{GDP}_{\text{t+2}}^{\text{r}}$	$\Delta \text{GDP}_{\text{t+4}}^{\text{r}}$
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 COBACK



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AFTERMATH OF BANK RUNS WITH EX-ANTE REGULATION GOBACK



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