

# Beyond Boom and Bust

Narrative (Real) Causes of Banking Crises, 1870–2016

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# Outline

1. Introduction
2. Methodology
3. Stylized facts
4. Results
5. Conclusions

# Introduction

- What we know:
  - Some banking crises are triggered by domestic credit booms gone bust (Schularick & Taylor, 2012; Minsky, 1986)
  - Some financial crises are transmitted by heavily borrowing from (Kaminsky & Reinhart, 2000) or lending to foreign banking systems.
- Research questions:
  1. Can real shocks trigger banking crises and at what magnitude?
  2. Have banking systems become more resilient to certain types of shocks?

# Methodology

- The Historical Banking Crisis Database project
  - Complete revision of the historiography of 150 years of banking crises in 46 countries: 450+ sources.
  - Joint work with Matthew Baron and Attila Balogh.
  - Summaries and source material covering macroeconomic background, narrative causes, bank failures, description of main crisis events, policy responses, and economic and legislative consequences.

[www.quantfinhistory.org/banking-crises-database](http://www.quantfinhistory.org/banking-crises-database)

(available for download in the future or upon request already now)

- Banking crisis definition builds on Baron et al. (2021): All country-year observations identified by bank equity declines or from narrative for which there is evidence of bank failures or panics.

# Methodology

## Coding narrative causes

- We code six major types of narrative causes of banking crises for this presentation:

Category of cause	Type
Credit boom	financial
Real estate boom	financial
Capital flow shock	financial
Commodity price shock	real
Natural disaster	real
Wars and political shocks	real

# Methodology

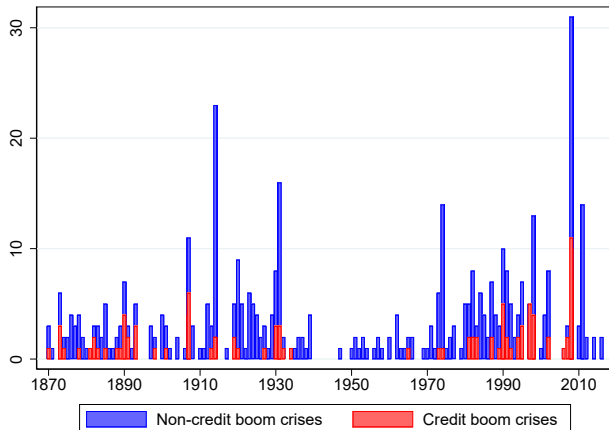
## Quantitative proxies for causes

- Measures of consequences: Real bank stock returns, real broad stock returns, real GDP growth, real bank credit.
- Proxies for categories of narrative causes:
  - Bank credit (real)
  - House prices (real)
  - Change in current account-to-GDP
  - Global commodity price index (real)
  - Total deaths from disasters to population
  - Geopolitical Risk Index
- Sources: Jordà et al. (2017), Knoll et al. (2017), Jacks (2019), Baron et al. (2021), Dario and Iacovello (2022), Bank for International Settlements, and EM-DAT, CRED / UCLouvain, Brussels, Belgium – [www.emdat.be](http://www.emdat.be)

# Stylized facts

## Credit booms

- Schularick & Taylor (2012): “Banking crises are credit booms gone bust”. Yes, many are, but:



- Historically, only 35% of all banking crises are credit booms gone bust!



# Stylized facts

Cause categories, all crises (widespread bank failures or panics)

- Share of banking crises by categories (not mutually exclusive).

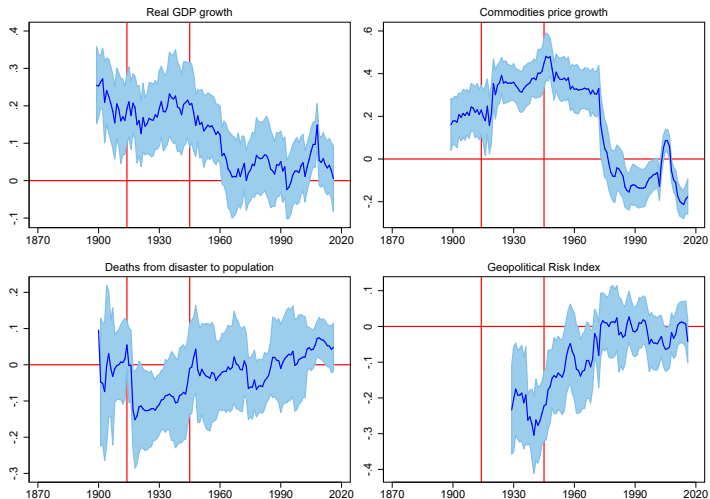
Narrative cause	1870–1913	1914–1945	1945–2016	1870–2016
Credit boom	40%	17%	44%	35%
Real estate boom	16%	7%	28%	18%
Capital flow shock	48%	28%	55%	43%
Commodity price shock	33%	23%	12%	21%
Natural disaster	8%	5%	2%	4%
Wars and political shocks	17%	32%	4%	17%
Number of countries	28	33	43	45
Number of observations	63	75	99	246

- Share of real causes has declined after WWII while the share of financial causes (especially housing booms) have risen.

# Stylized facts

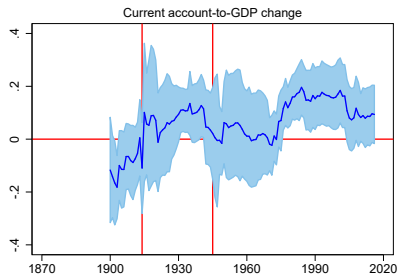
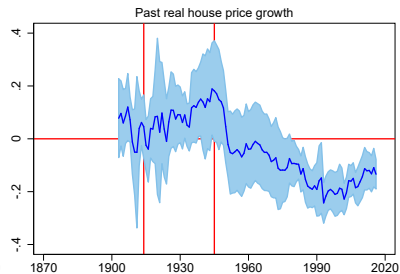
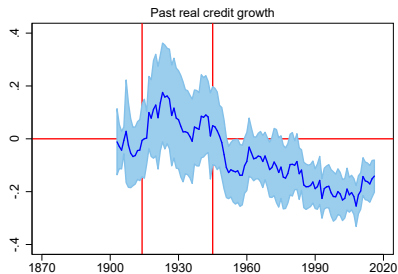
## Sensitivity of bank equity to real factors

- 30-year rolling within-country correlations between proxy variables and real bank equity returns, de-meaned on the country level. “Past” refers to the last 3 years.



# Stylized facts

## Sensitivity of bank equity to financial factors



# Results: Consequences of banking crises

	(1) GDP	(2) Broad equity	(3) Bank equity	(4) Credit
Real cause=1 × Post-WWII=0	-0.05*** (0.01)	-0.13*** (0.03)	-0.23*** (0.04)	-0.14*** (0.03)
Real cause=1 × Post-WWII=1	-0.00 (0.01)	0.01 (0.15)	-0.10 (0.13)	-0.02 (0.06)
Financial cause=1 × Post-WWII=0	-0.01 (0.01)	-0.14*** (0.03)	-0.17*** (0.04)	0.01 (0.03)
Financial cause=1 × Post-WWII=1	-0.08*** (0.01)	-0.46*** (0.04)	-0.60*** (0.04)	-0.10*** (0.02)
Post-WWII	0.03*** (0.01)	0.09*** (0.02)	0.12*** (0.02)	0.04* (0.02)
Constant	0.05*** (0.00)	0.11*** (0.01)	0.13*** (0.01)	0.09*** (0.01)
Observations	5788	4323	4488	2344
$R^2$	0.040	0.020	0.024	0.015

Standard errors in parentheses

Consequences are measured as cumulative growth rates in  $t=0$  and  $t=1$ .

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Results: Real shocks and banking sector resilience

	Real bank equity return, pre-1970			Real bank equity return, post-1970		
	(1)	(2)	(3)	(4)	(5)	(6)
5 quantiles of r_comm_return=1	-0.13*** (0.02)			0.09*** (0.03)		
5 quantiles of r_comm_return=2	-0.02 (0.01)			0.05* (0.03)		
5 quantiles of r_comm_return=4	0.02** (0.01)			0.08** (0.03)		
5 quantiles of r_comm_return=5	0.05*** (0.01)			-0.05* (0.03)		
5 quantiles of deaths2pop =1		0.04 (0.04)			-0.05 (0.04)	
5 quantiles of deaths2pop =2		0.00 (0.03)			-0.04 (0.04)	
5 quantiles of deaths2pop =4		-0.04 (0.04)			0.00 (0.04)	
5 quantiles of deaths2pop =5		-0.09** (0.04)			0.03 (0.07)	
5 quantiles of gpr_gr=1			-0.00 (0.02)			0.04 (0.04)
5 quantiles of gpr_gr=2			0.00 (0.02)			0.02 (0.04)
5 quantiles of gpr_gr=4			-0.02 (0.02)			0.06 (0.04)
5 quantiles of gpr_gr=5			-0.04* (0.02)			0.00 (0.05)
Constant	0.05*** (0.01)	0.09*** (0.02)	0.06*** (0.02)	0.09*** (0.02)	0.11*** (0.03)	0.10*** (0.02)
Observations	2312	308	1560	1783	527	1447
R <sup>2</sup>	0.046	0.031	0.004	0.012	0.007	0.002

# Conclusions

1. Only 35% of all banking crises are domestic credit booms gone bust.
2. Real shocks have disappeared as (narrative) causes of banking crises while financial causes have become more prevalent.
3. The recent past suggests that banking systems have become more resilient to real shocks (Covid-19, the invasion of Ukraine) as policy makers now have the right tools to maintain stability.

However, rising commodity and energy prices currently function as a real shock and historical evidence suggests that banking stability could deteriorate if magnitude becomes sufficiently large.

Thank you!

*Questions?*

# Literature I

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# Appendix

## Narrative causes: full framework

Category of cause	Binary classifier		
	Type	Origin	Time horizon
Credit boom	financial	domestic	structural
Asset boom	financial	domestic	structural
Bonds	financial	domestic	structural
Real estate and land	financial	domestic	structural
Stocks	financial	domestic	structural
Commodity shock	real	foreign	sudden
Trade shock	real	foreign	sudden
Monetary gold shock	financial	depends	sudden
Financial flow shock	financial	depends	depends
Public finances	financial	domestic	structural
Exchange rate	financial	foreign	sudden
Private flows	financial	foreign	sudden
Interbank flows	financial	foreign	sudden
Natural disaster	real	domestic	sudden
War	real	depends	sudden
Political shock	depends	depends	depends
Miscellaneous	depends	depends	depends
Banking system structure	financial	domestic	structural
Bank governance	financial	domestic	structural
Domestic recession	real	domestic	sudden
Consumer price instability	real	domestic	structural

# Appendix

## Country coverage

Country	Coverage from	Entirely capitalist	Full coverage	Country	Coverage from	Entirely capitalist	Full coverage
Argentina	1870	1	1	Japan	1870	1	1
Australia	1870	1	1	Korea	1945	1	0
Austria	1870	1	1	Luxembourg	1870	1	1
Belgium	1870	1	1	Malaysia	1945	1	0
Brazil	1870	1	1	Mexico	1870	1	1
Canada	1870	1	1	Netherlands	1870	1	1
Chile	1870	1	1	New Zealand	1870	1	1
Colombia	1870	1	1	Norway	1870	1	1
Czech Republic	1870	0	0	Peru	1870	1	1
Denmark	1870	1	1	Philippines	1945	0	0
Egypt	1907	1	0	Portugal	1870	1	1
Finland	1870	1	1	Russia	1870	0	0
France	1870	1	1	Singapore	1965	1	0
Germany	1870	1	1	South Africa	1870	1	1
Greece	1912	1	0	Spain	1870	1	1
Hong Kong	1870	1	1	Sweden	1870	1	1
Hungary	1870	0	0	Switzerland	1870	1	1
Iceland	1870	1	1	Taiwan	1923	0	0
India	1907	0	0	Thailand	1945	1	0
Indonesia	1945	0	0	Turkey	1870	1	1
Ireland	1870	1	1	UK	1870	1	1
Israel	1948	1	0	US	1870	1	1
Italy	1870	1	1	Venezuela	1945	0	0

# Appendix

## Stylized facts: classifiers, all types of crises

Cause	1870–1913	1914–1945	1945–2016	1870–2016	Pooled
Type					
Financial	36.23	8.00	53.92	33.17	34.51
Real	13.04	37.33	2.94	17.56	17.25
Both	49.28	53.33	39.22	47.32	45.88
Cannot be determined	1.45	1.33	3.92	1.95	2.35
Origin					
Domestic	23.19	17.33	31.37	23.41	24.71
Foreign	13.04	25.33	7.84	16.59	15.29
Both	53.62	37.33	56.86	49.76	49.02
Cannot be determined	10.14	20.00	3.92	10.24	10.98
Time horizon					
Structural	13.04	6.67	30.39	16.59	18.43
Sudden	28.99	48.00	7.84	28.29	27.06
Both	55.07	44.00	57.84	52.68	51.76
Cannot be determined	2.90	1.33	3.92	2.44	2.75
Number of countries	28	33	43	31	45
Number of observations	69	75	102	205	255

# Appendix

## Cross-tabulation of credit booms and financial flow shocks

Financial flow shock	Credit boom		Total
	0	1	
0	88	33	121
	72.73	27.27	100.00
	53.01	37.08	47.45
Public finances	18	4	22
	81.82	18.18	100.00
	10.84	4.49	8.63
Exchange rate	8	5	13
	61.54	38.46	100.00
	4.82	5.62	5.10
Private flows	31	24	55
	56.36	43.64	100.00
	18.67	26.97	21.57
Interbank flows	20	23	43
	46.51	53.49	100.00
	12.05	25.84	16.86
Other	1	0	1
	100.00	0.00	100.00
	0.60	0.00	0.39
Total	166	89	255
	65.10	34.90	100.00
	100.00	100.00	100.00

# Appendix

## Detailed real vs. financial narrative causes, all categories

	(1) GDP	(2) Broad equity	(3) Bank equity	(4) Credit
Commodity shock=1 × Post-WWII=0	-0.04** (0.01)	-0.05 (0.07)	-0.20*** (0.07)	-0.06 (0.04)
Commodity shock=1 × Post-WWII=1	-0.01 (0.02)	0.07 (0.22)	-0.03 (0.14)	-0.01 (0.09)
Natural disaster=1 × Post-WWII=0	-0.02 (0.03)	0.01 (0.07)	-0.06 (0.08)	-0.07* (0.03)
Natural disaster=1 × Post-WWII=1	-0.01 (0.01)	-0.13 (0.26)	-0.06 (0.31)	
War/political shock=1 × Post-WWII=0	-0.06*** (0.02)	-0.21*** (0.05)	-0.25*** (0.05)	-0.22*** (0.05)
War/political shock=1 × Post-WWII=1	0.01 (0.02)	-0.34* (0.19)	-0.48*** (0.15)	-0.07 (0.09)
Credit boom=1 × Post-WWII=0	0.01 (0.01)	-0.12** (0.05)	-0.15** (0.06)	0.01 (0.07)
Credit boom=1 × Post-WWII=1	-0.03* (0.01)	-0.11 (0.09)	-0.15 (0.09)	0.01 (0.07)
Real estate boom=1 × Post-WWII=0	-0.03* (0.02)	-0.04 (0.05)	0.02 (0.06)	-0.01 (0.05)
Real estate boom=1 × Post-WWII=1	-0.02 (0.02)	-0.13* (0.07)	-0.11 (0.08)	-0.06 (0.06)
Capital flow shock=1 × Post-WWII=0	-0.02 (0.01)	-0.09** (0.04)	-0.12** (0.04)	-0.03 (0.03)
Capital flow shock=1 × Post-WWII=1	-0.07*** (0.01)	-0.37*** (0.08)	-0.55*** (0.06)	-0.08* (0.04)
Post-WWII	0.03*** (0.01)	0.09*** (0.02)	0.12*** (0.02)	0.04* (0.02)
Constant	0.05*** (0.00)	0.11*** (0.01)	0.13*** (0.01)	0.10*** (0.01)
Observations	5788	4323	4488	2344
R <sup>2</sup>	0.041	0.020	0.025	0.016

# Appendix

## Detailed real vs. financial narrative causes, pre/post 1970

	(1) GDP	(2) Broad equity	(3) Bank equity	(4) Credit
Real cause=1 × Post-1970=0	-0.06*** (0.01)	-0.13*** (0.04)	-0.23*** (0.04)	-0.16*** (0.03)
Real cause=1 × Post-1970=1	0.00 (0.01)	-0.01 (0.15)	-0.12 (0.13)	0.00 (0.06)
Financial cause=1 × Post-1970=0	-0.02** (0.01)	-0.15*** (0.03)	-0.17*** (0.04)	-0.02 (0.03)
Financial cause=1 × Post-1970=1	-0.07*** (0.01)	-0.50*** (0.05)	-0.64*** (0.05)	-0.07*** (0.01)
Post-1970	0.00 (0.01)	0.15*** (0.03)	0.16*** (0.03)	-0.03 (0.02)
Constant	0.07*** (0.00)	0.11*** (0.01)	0.13*** (0.01)	0.13*** (0.01)
Observations	5788	4323	4488	2344
$R^2$	0.013	0.030	0.029	0.012

Standard errors in parentheses

Consequences are measured as cumulative growth rates in  $t=0$  and  $t=1$ .

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$