

Banking crises interventions, 1257-2019

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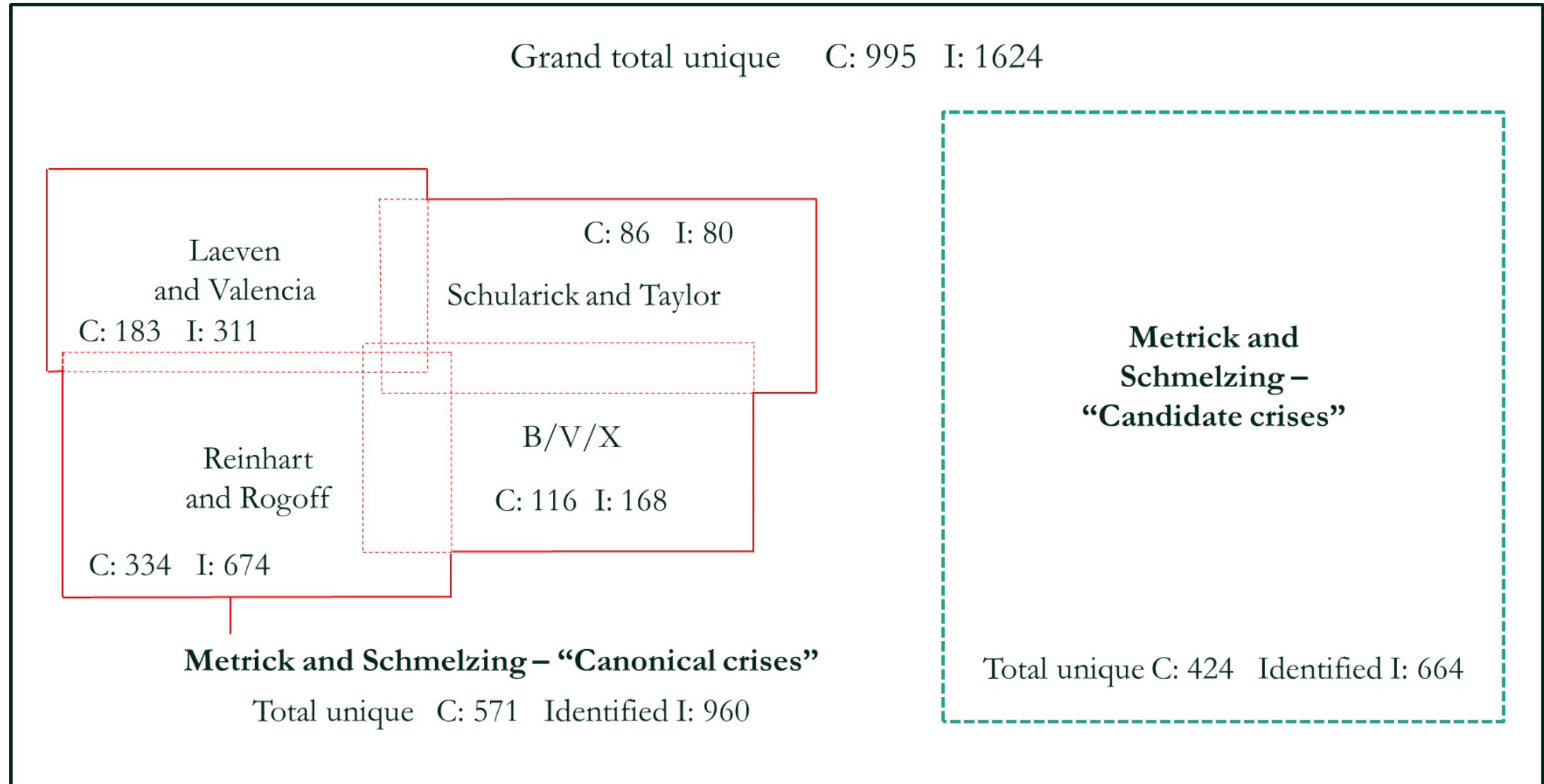
GENERAL

- Extensive literature on banking crises chronologies
 - Reinhart & Rogoff (2009).
 - Schularick & Taylor (2012).
 - Laeven & Valencia (2013, 2020).
 - Baron, Verner, and Xiong (2021).
- General focus: systemic crises-year classifications from 1870.
- Broader intervention focus overwhelmingly on post-1980s, systemic resolution of banking crises: e.g. Laeven & Valencia, Igan et al. (2019, for post-2007).
- What we ARE trying to do
 - Specify exact crises responses to “canonical” (existing literature) and “candidate” crises (confirmed interventions outside existing literature).
 - Detailing for the first time a large sample of global “would-be systemic crises” – partly averted because of early intervention measures.
 - Specify (secular) probabilities of “hands-off” responses, or private burden sharing in direct intervention costs.
 - Using the latest long-run DM GDP datasets to specify direct intervention costs (fiscal, liquidity, guarantee) for hundreds of cases.
- What we are NOT trying to do
 - “Reclassifying” existing chronologies.
 - Judging intervention effectiveness over time.
 - Calculating all secondary crises costs: wider output, bank-systemic, financial market costs.
 - Documenting interventions outside of banking/financial sector (i.e. GM 2008).

OUR APPROACH

- Classifying banking crises interventions across 5 major intervention groups, consisting of 21 intervention types.
- Including both private and public sector interventions, across “canonical” and new “candidate” crises.
- Incorporating latest long-run (current) GDP series (e.g. Malanima 2011; Ridolfi 2020) to provide direct intervention costs, wherever available. Currently: 473 intervention cost datapoints (of which: 386 outside L/V’s 1980-2017). Prior to 1850, current GDP focus on “core DM” group.
- Types
 - Lending: ad hoc liquidity assistance (**AHLA**), broad-based liquidity assistance (**BBLA**), market liquidity assistance (**MLA**).
 - Guarantees: deposit guarantees (**AG**), asset guarantee (**ASG**), blanket guarantees (**BG**), other liability guarantees (**OLG – existing/forward/combined**).
 - Capital injections: ad hoc capital injection (**AHCI**), broad-based capital injections (**BBCI**).
 - Rules: debt and payment moratoria (**DPM**), stock market closures and bank holidays (**SBH**), credit rules (**CRL**), other rules (**ORL**).
 - Other: resolution or restructuring (**RES**), major communication (**MC**), stress test (**ST**), stakeholder bail-in (**SPI**), ad hoc asset management (**AHAM**), broad-based asset management (**BBAM**), no intervention (**NO/I**), other.

CRISES AND INTERVENTION UNIVERSE



C=No. of crisis country years (start year); I=No. of interventions identified for respective crisis country start years. Canonical crises only record “unique” crises for non-Reinhart/Rogoff.

IDENTIFICATION PROCESS

1. Investigation of all “canonical” crises in literature.
 - Primary, secondary sources detailing public/private responses.

2. Wide investigation of financial, financial history primary and secondary literature, across space, time, and languages to identify “candidate” crises.
 - Micro-histories (e.g. Roover’s “Medici Bank”, Buist’s “Hope & Co.”), Institutional histories (e.g. Gilbert’s *History of the Bank of Ireland*, Montaud’s “Banca de Emision en Cuba”).
 - Sector histories, general (financial) history – including EM and DM (e.g. Bisschop’s, *Rise of the London Money Market, 1640-1826* (1910), Davidson’s *Geschichte von Florenz* (1896)).
 - Pre-1945 literature, including Italian, Spanish, German sources (e.g. Ferrara’s “Documenti per servire alla Storia de’ Banchi Veneziani” (1871)).
 - Primary sources (e.g. *Calendar of State Papers*, Fugger archives Dillenburg, newspapers), here primarily DM.
 - Minimum criteria:
 - Intervention or balance sheet size of affected single institution during crisis event > 5m USD/GBP (from 1850), > 250,000 USD/GDP (from 1700), > 10,000 USD/GBP/RFL (from 1257).
 - OR
 - Intervention affecting more than one institution at once.
 - Where neither information is available – judgment call (few cases overall).
 - In general, we estimate >90% of “core DM” printed material is covered since 1650s.

GENERAL FINDINGS, I

- Bank interventions have a long pre-Bagehot, pre-central bank history, often featuring substantial outlays across categories, e.g.:
 - 1595 Bolognese *Monte* fund (“early SPV”) to support banking sector: 8.9% of GDP
 - 1739 Venetian recapitalization of *Bancogiro*: 26.9% of GDP
 - 1815 Prussian guarantee for *Koeniglich Preussische Bank*: 2.6% of GDP
 - 1875 Brazilian emergency loans to *Banco de Brazil, Banco Rural e Hypothecario* et al.: 3.1% of GDP
- Among the most popular pre-Bagehot tools: debt moratoria/mandated bank suspensions (DPM, SBH), liquidity (AHLA).
- Over time, liquidity assistance interventions have been the most frequently-used tool to respond to crises, though receding over 2000s.
- Clear differences between DM and EM crises response: DMs with meaningfully higher shares of liquidity, guarantee use (c.f. slide 12).
- As countries “graduate” towards higher per capita GDP levels, “NO/I” and “rules” use appears to decrease (c.f. slide 12).
- There are clear historical trends in tools used:
 - Capital injections represent a comparatively new, 20th century tool – much more scarcely used prior to 1945.
 - “Guarantees” have seen a notable revival in their frequency, and are the 2nd most prominent tool as of the 2000s.
 - “Rules” represent a key traditional intervention tool until the 1980s. But since then, their importance has sharply diminished.

GENERAL FINDINGS, II

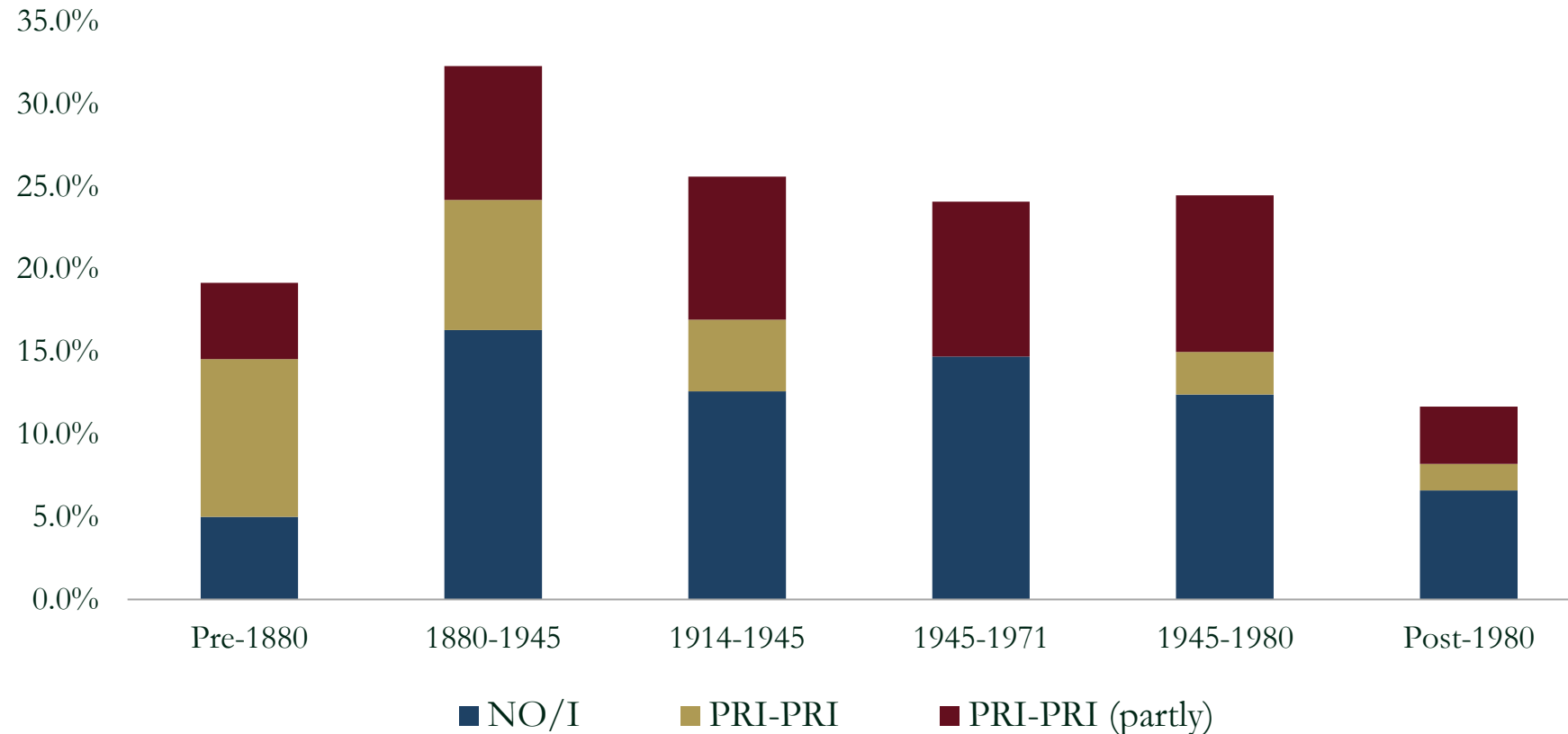
- Further:
 - Frequencies of “hands-off” (“NO/I”), or relying on private sector response (“PRI-PRI”, “PRI-PRI (partly)”) are becoming scarcer. Private burden-sharing, in fact, appears to have reached the lowest levels ever in the period since 1980.
 - While overall crises frequency increases gradually over the (very) long-term (for “core DM” by a factor of ca. 3.5x over 1700-2019), crises frequency for key historical periods does not necessarily imply more aggressive responses (intervention costs).
 - The pre-classical gold standard period’s (pre-1880) fiscal response was on average more aggressive than the classical gold standard period, with comparable aggressiveness on liquidity measures.
 - While the Bretton Woods Period (1945-71) ranks low on crises frequency (c.f. Bordo et al. 2001), it already shows substantial rise in crises costs. The interwar period shows high crises frequency, but surprisingly low fiscal and liquidity crises costs.

<i>Intervention costs to NGDP</i>	Pre-1880	1880-1945	1914-1945	1945-1971	1945-1980	Post-1980
Fiscal	2.2%	1.5%	1.7%	7.1%	15.8%	11.5%
Liquidity	1.6%	1.8%	1.8%	3.6%	8.2%	14.2%
Guarantees	0.9%	7.9%	11.2%	-	0.2%	15.2%
Crisis frequency, % of “core DM” GDP affected	5.4%	14.4%	20.4%	5.1%	8.6%	21.2%
Share of NO/I (all countries)	5.0%	16.3%	12.6%	14.7%	12.4%	6.6%
Share of “PRI-PRI”, or “PRI-PRI (partly)” (all countries)	14.2%	16.0%	13.7%	9.4%	12.1%	4.9%

INCREASING SENSITIVITY OF PUBLIC SECTOR DURING CRISIS EVENTS

- Conditional on the existence of a crisis event, the combined probabilities of either a “hands-off” approach, or a substantial burden-sharing of the private sector in the direct intervention costs appear to have decreased substantially post-1980s – while it was unusually high during the classical Gold Standard Era (1880-1914).

Frequencies of “non-public” response categories, by historical regime (all countries)



DATABASE STRUCTURE

Monthly dates wherever available

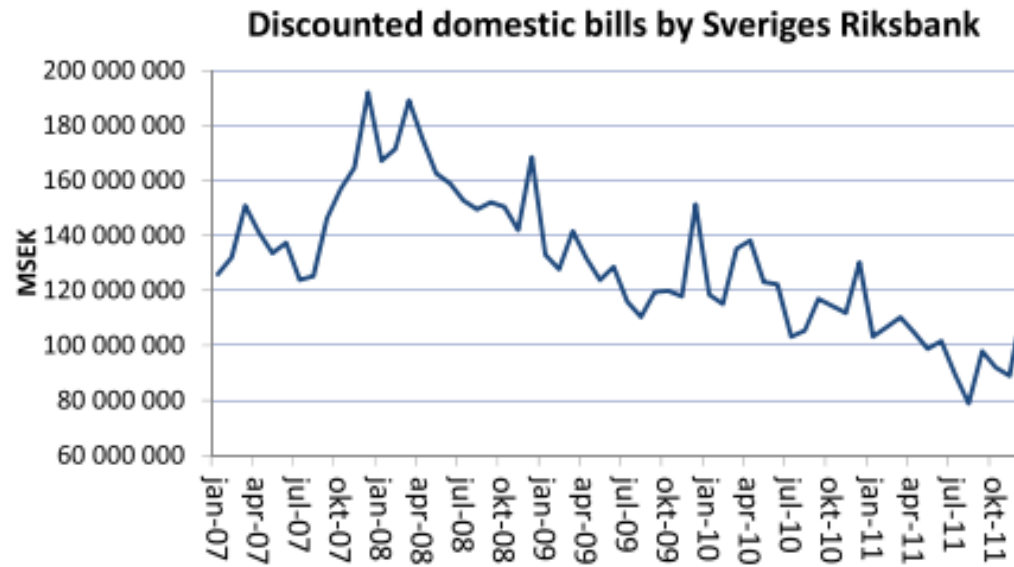
Private sector involvement? State-owned banks?

Total no. of countries: 133

Crisis code	When	Where	Monetary/government response	What	Conduit	Flags	Literature
UK-1797	February 1797	United Kingdom	BoE stops gold conversion on 25 February 1797, but lends freely on government securities. Meeting between “hundreds” of bankers and merchants at Mansion House establishing BoE notes as circulating medium instead of gold. BoE issues high volumes of low-denomination notes to replace guinea demand. “Restriction period” lasts until 1821.	BBLA, ORL, SBH	Market (partly)		Feaveryear 1931, 170ff.
	February 1797	Scotland	Scottish banks under “grave threat”; at their own initiative, banks decide to suspend specie convertibility, even though suspensions illegal under Scottish law.	SBH		PRI-PRI	Checkland 1975, 220f.
IRL-1797	March 1797	Ireland	Bank of Ireland restriction along BoE lines enacted on March 2, at the order of the Privy Council.	SBH			Hall 1949, 65.
IT-1798	January 1798	Venice	Bancogiro suspends payments, which are partially lifted August 1799. Closed for good October 1800.	SBH		STOW	Roberds and Velde 2016, 339.
IT-1798	February 1798	Rome	Rome’s banks are closed amid capital flight surrounding French military intervention, including <i>Banco di Santo Spirito</i> . Significant restructuring of liabilities, including extinction of coupons and debts, prior to regular resumption in July 1814.	DPM, RES, SBH		STOW (partly)	De Matteo 2001, 50ff.

Crisis start year, associated with one or more interventions

EXAMPLE: LIQUIDITY COST CALCULATION – SWEDEN 1907 CRISIS.



Source: *Sammandrag af Bankernas Uppgifter 1907–1912*. Monthly data in millions of SEK.

Fig. A2. Domestic bills discounted by the Riksbank 1907–1912.

Source: *Sammandrag af Bankernas Uppgifter 1907–1912*.

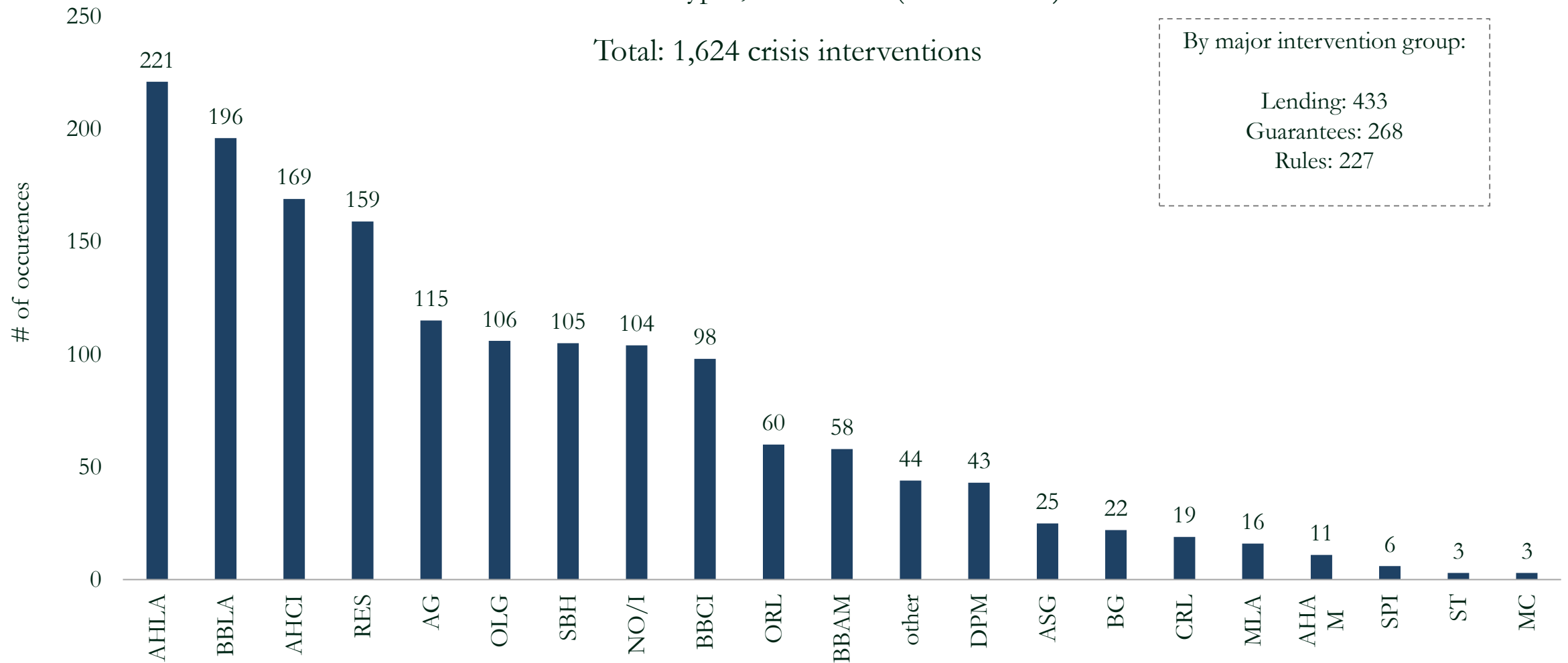
Note: Monthly data in millions of SEK.

- “The Riksbank provided this foreign exchange to Swedish banks through the mechanism of rediscounting bills of exchange, presented by the banks in the autumn of 1907 (Söderlund, 1964, pp. 303–304; Fregert, 2018, p. 117). Between August and December 1907, the value of domestic bills rediscounted by the Riksbank increased by 53% and returned to August 1907 levels as late as May 1909”.

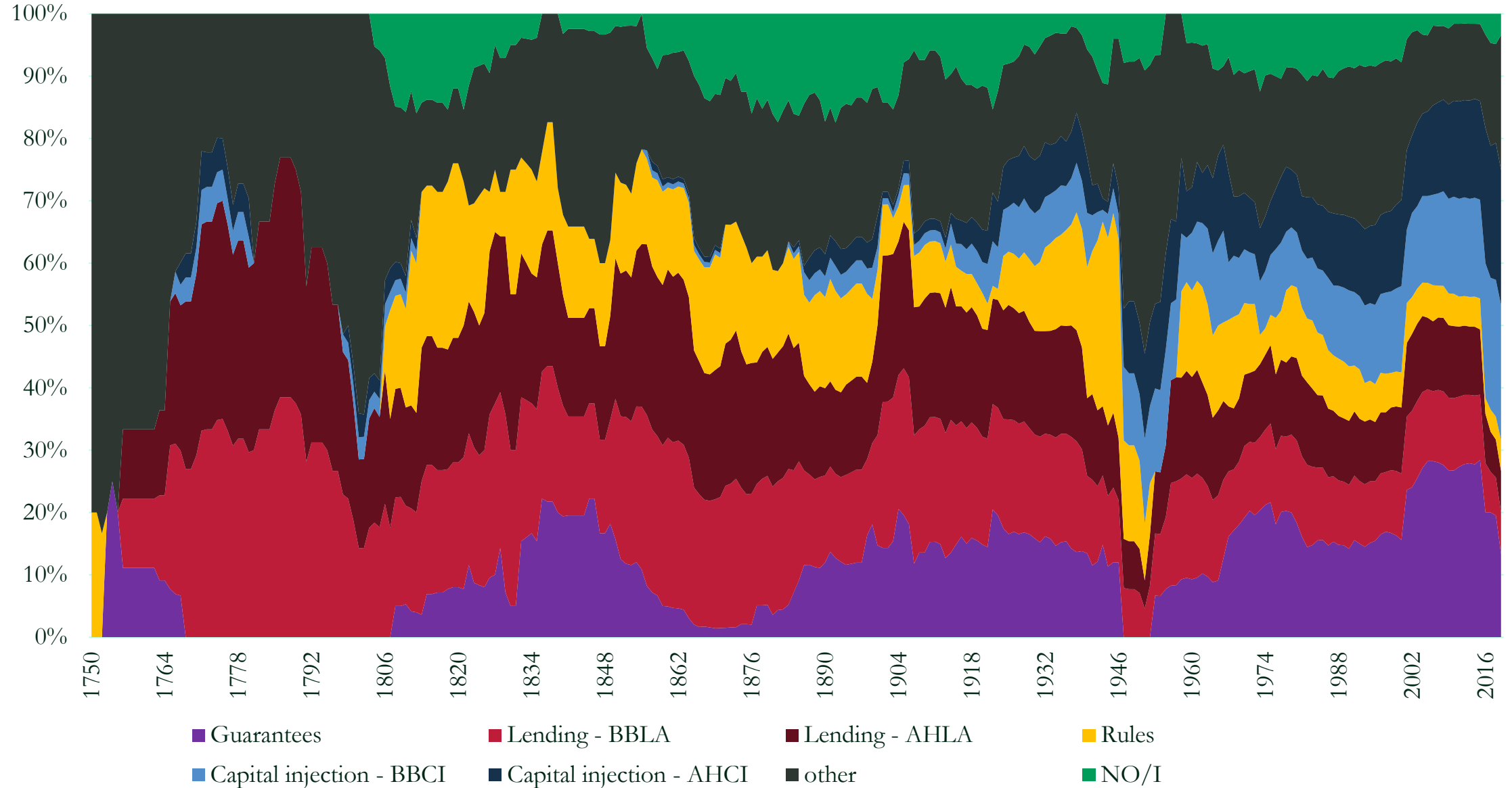
GENERAL BREAKDOWN – 21 TYPES

Intervention types, 1257-2019 (all countries)

Total: 1,624 crisis interventions

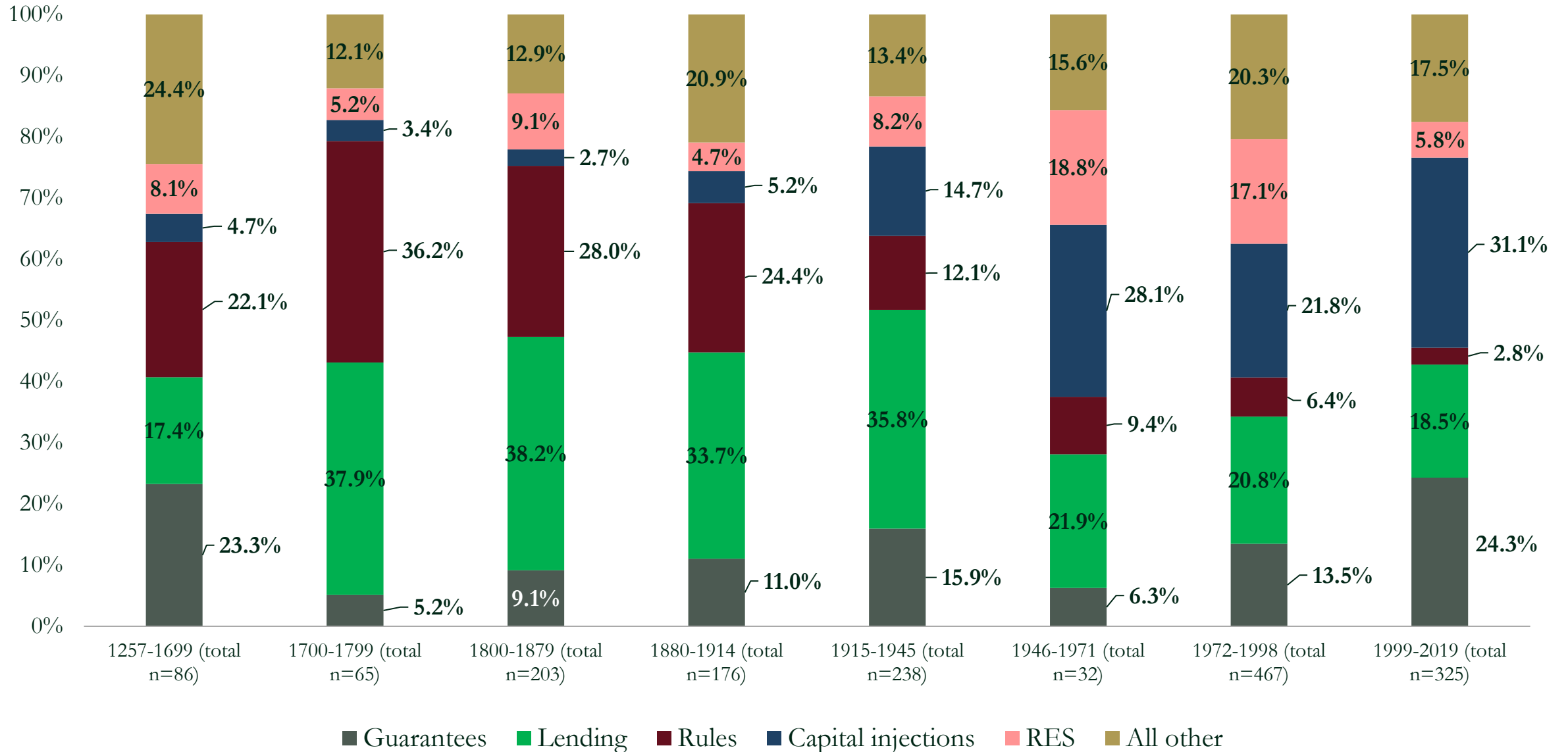


INTERVENTION DISTRIBUTION, ALL COUNTRIES, 1750-2019

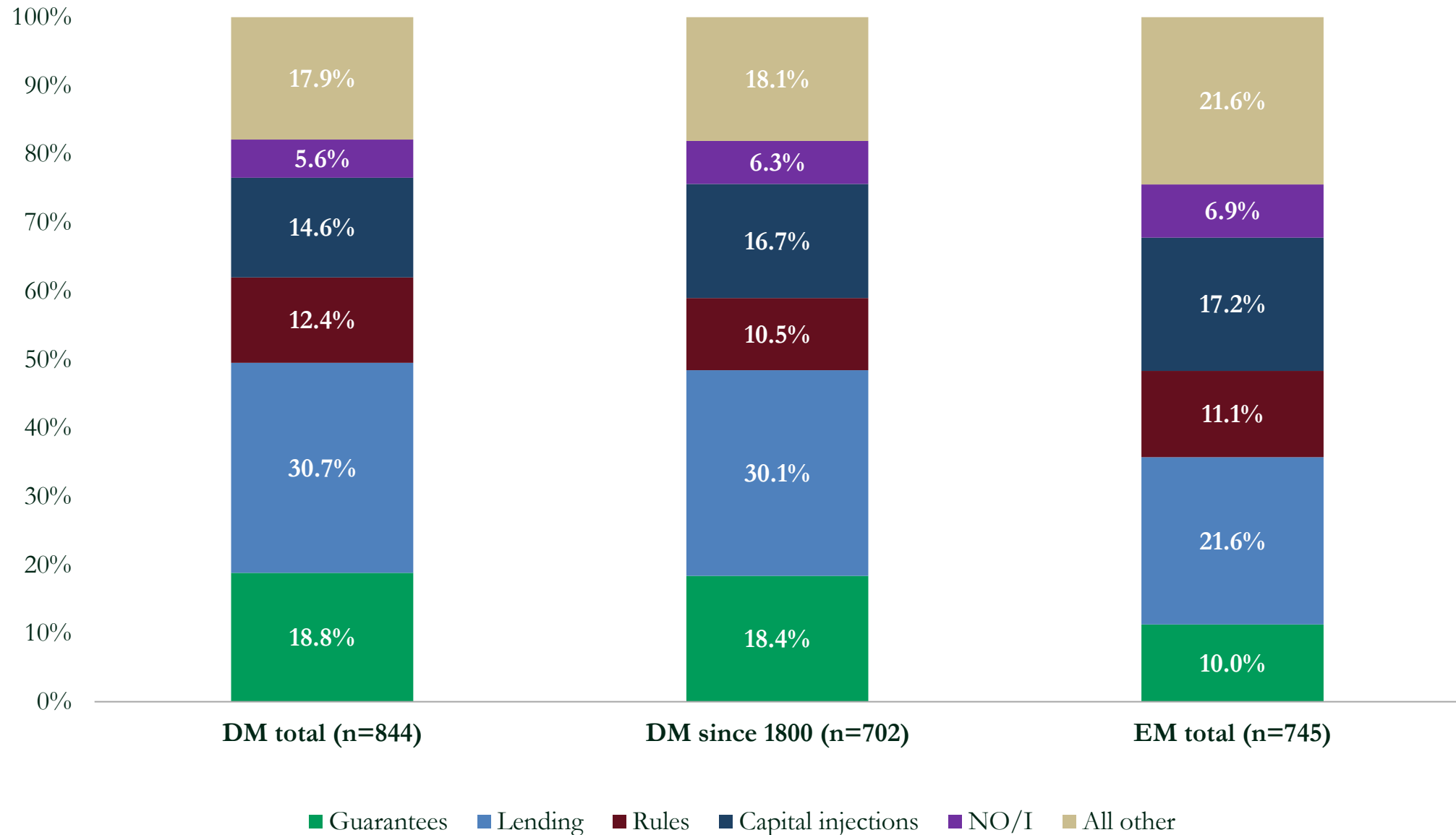


15-year centred average.

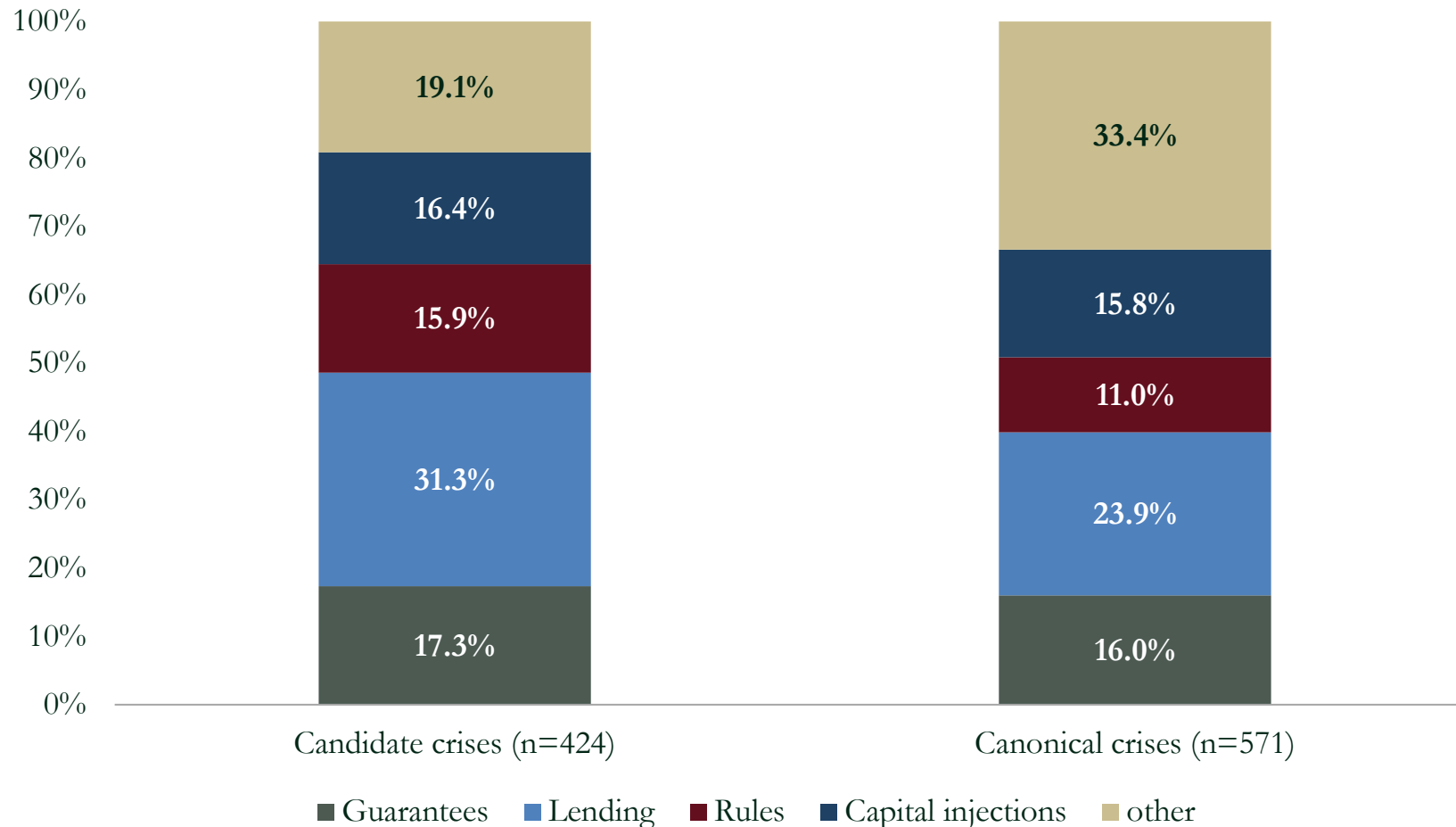
GENERAL BREAKDOWN – INTERVENTION GROUPS BY PERIOD



GENERAL BREAKDOWN – INTERVENTION GROUPS BY COUNTRY TYPE



“CANONICAL” VERSUS “CANDIDATE” CRISES RESPONSE

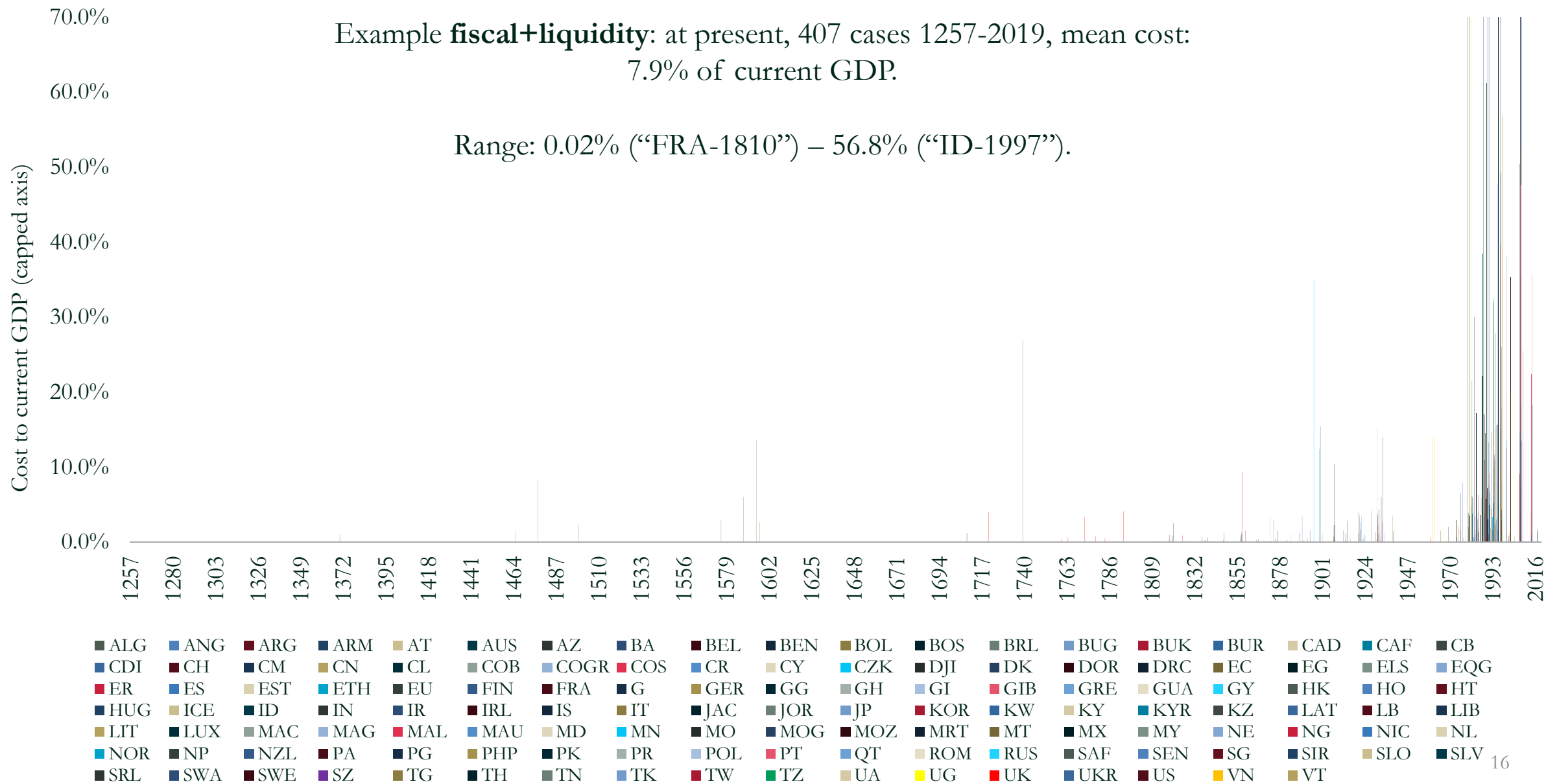


- greater propensity to use “lending” and “rules” in candidate (“would-be systemic”) crises – versus non-standard tools in systemic crises.

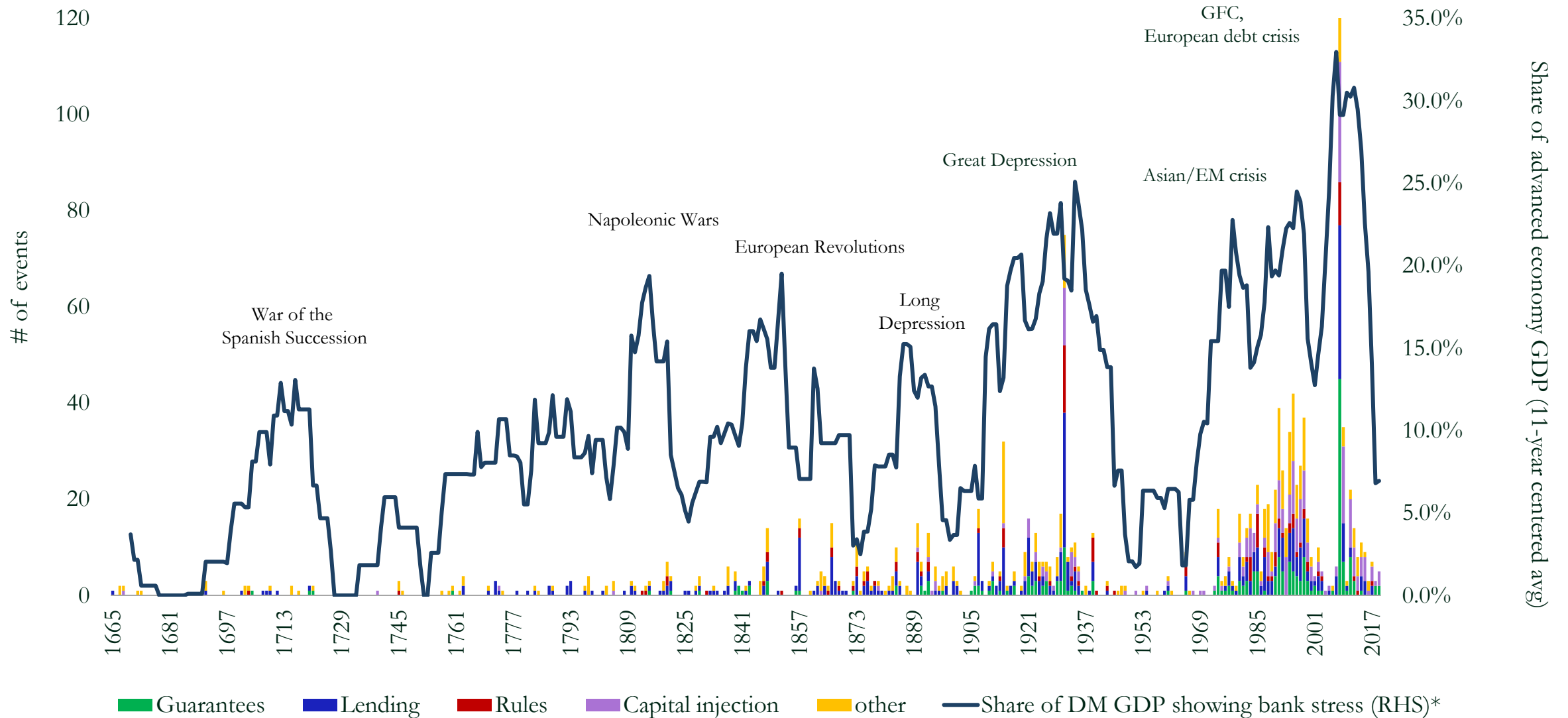
CRISES COST OVERVIEW: FISCAL, LIQUIDITY, GUARANTEES.

Example **fiscal+liquidity**: at present, 407 cases 1257-2019, mean cost: 7.9% of current GDP.

Range: 0.02% (“FRA-1810”) – 56.8% (“ID-1997”).



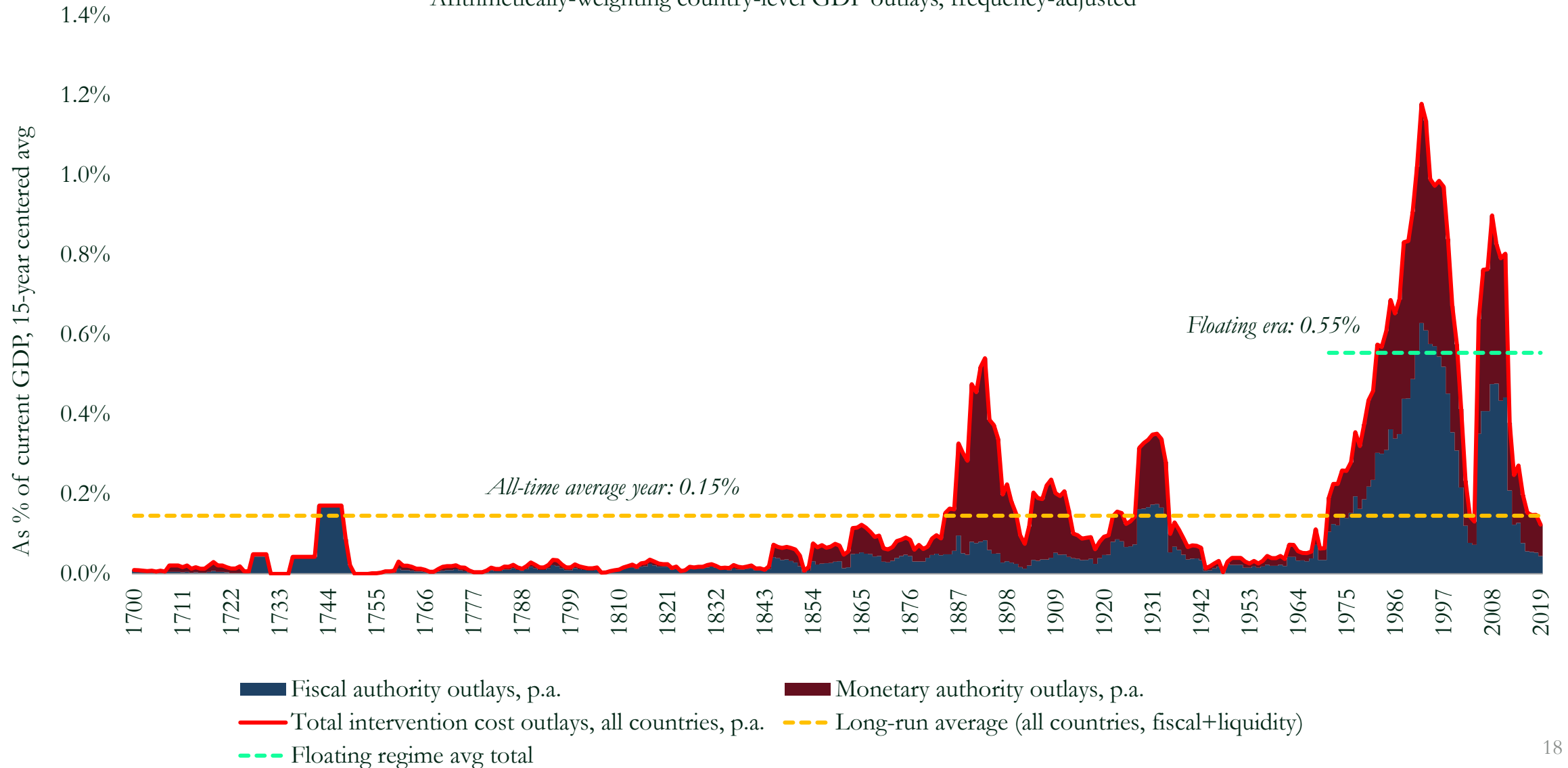
CRISES FREQUENCY, “CORE DM”, 1665-2019.



*bank stress frequency: combining Bordo et al. (2001), Reinhart/Rogoff (2009), Schularick and Taylor (2012), Laeven and Valencia (2020), Baron/Verner/Xiong (2021), Metrick and Schmelzing (2021) banking crises or bank intervention chronologies, for eight country DM sample. Frequency=(no. of country years with stress event in any database)/(total no. of country years). Includes systemic and non-systemic events. GDP weights based on Schmelzing (2020).

FREQUENCY-ADJUSTED COSTS: INTERVENTION COSTS AS A % OF GDP, PER ANNUM.

Arithmetically-weighting country-level GDP outlays, frequency-adjusted

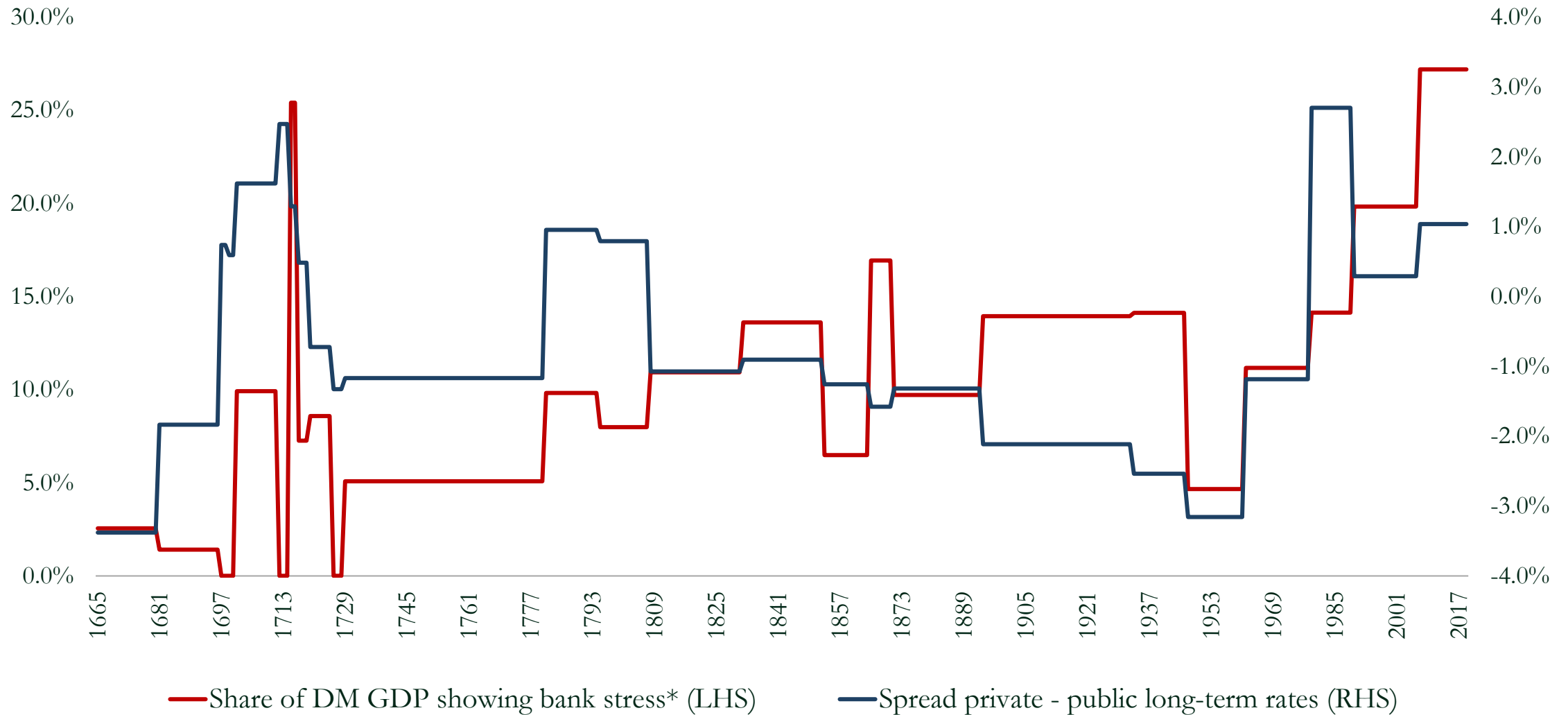


TAKEAWAYS

- New and nuanced panorama of banking sector intervention patterns over multiple centuries, drawing on wide source basis.
- Interventions per se existed long before Bagehot and modern central banks – across fiscal, liquidity, and guarantee types.
- Intervention bias shows dynamic picture, over space and time: increasing focus on guarantee, and capital injection measures.
- Increasing bias to opt for capital injections and guarantees over “rules” measures (esp. DPM, SBH) as countries graduate, financial systems mature.
- “Crises” (canonical + candidate) appear to secularly increase in frequency.
- “Crises” (canonical + candidate) appear to secularly become more costly for authorities (as a share of GDP and in absolute terms), with a first notable break around 1945 (especially pronounced for fiscal costs).
- Globally, fiscal authorities are “back in play”.
- Frequencies of “NO/I”, “PRI-PRI”, “PRI-PRI (partly)” have all secularly decreased: since 1980s, crises appear more likely than ever to witness(exclusive or near-exclusive) public shouldering of (direct) intervention costs.

- Future uses/research
 - Playbook: how to avoid graduation of “non-systemic” into “systemic” event. Use of early-stage liquidity interventions?
 - Assess macroeconomic and sectoral dynamics, by intervention group.
 - Assess links to capital mobility, and other systemic features and intervention bias (e.g. gold standard era vs. “deregulation era”)
 - Assess public-private cost sharing dynamics.
 - Assess NO/I dynamics: when and why are authorities becoming more “sensitive” to crises.
 - Assess drivers for secular shifts in intervention bias: EM vs DM, pre-1980s vs. post-1980s.

APPLICATIONS: SECULARLY RISING PRIVATE SECTOR RISK COULD BE BEHIND BROADER TRENDS IN PRIVATE-PUBLIC RISK PREMIA.



Private-public spread based on identical “Core DM” country sample, using long-term Continental European secured mortgage rates for private, GDP-weighted sovereign long-term yields for public, described in more detail in Schmelzing (2020).