

# Global Sovereign debt and the Dollar after COVID

## Webinar



Ken Rogoff (Harvard)

Introductory  
remarks by

Markus  
Brunnermeier

# PAST AND FUTURE SPEAKERS

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- Last



Lisa Cook  
"Racial disparities"

- Today



Ken Rogoff  
"Sovereign debt and the Dollar"

- Next webinars



Raj Chetty    WEDNESDAY  
"Tracking real time impact of COVID"



Veronica Guerrieri

# DEBT

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- The 2 roles of (defaultable) debt

- Lending/Borrowing: transfer resources over time
- Default: transfer resources across states of nature

➔ multiplicity problem

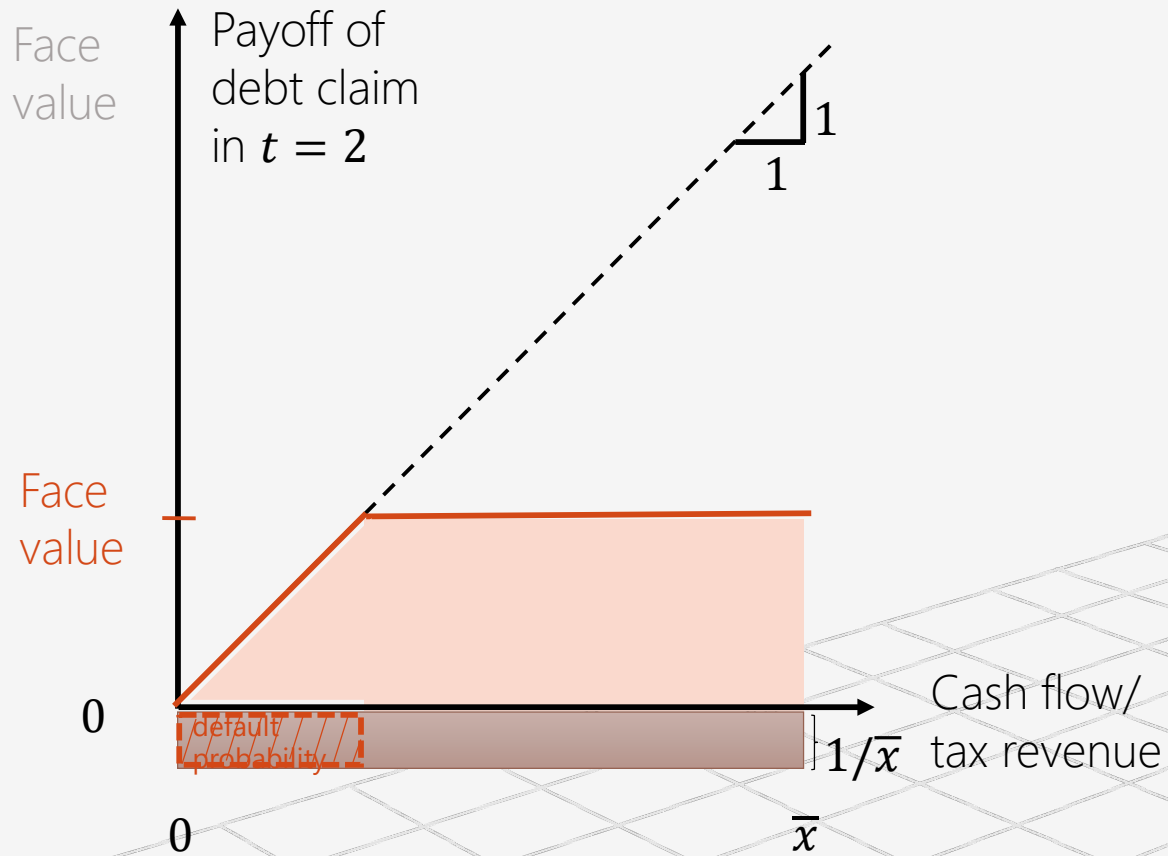
- Dynamics: Runs

- Debt holdout problem

- CAC, SRDM, Paris Club
- 

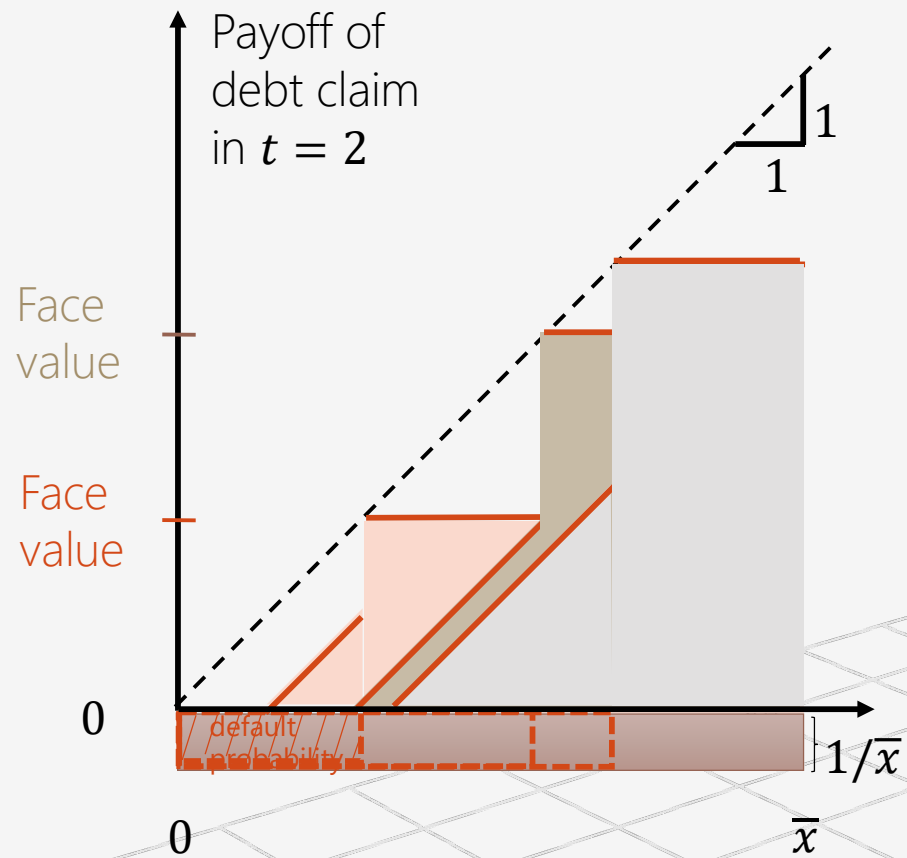
# DEBT THEORY

- Many risk-neutral investors,  $r^f = 0$



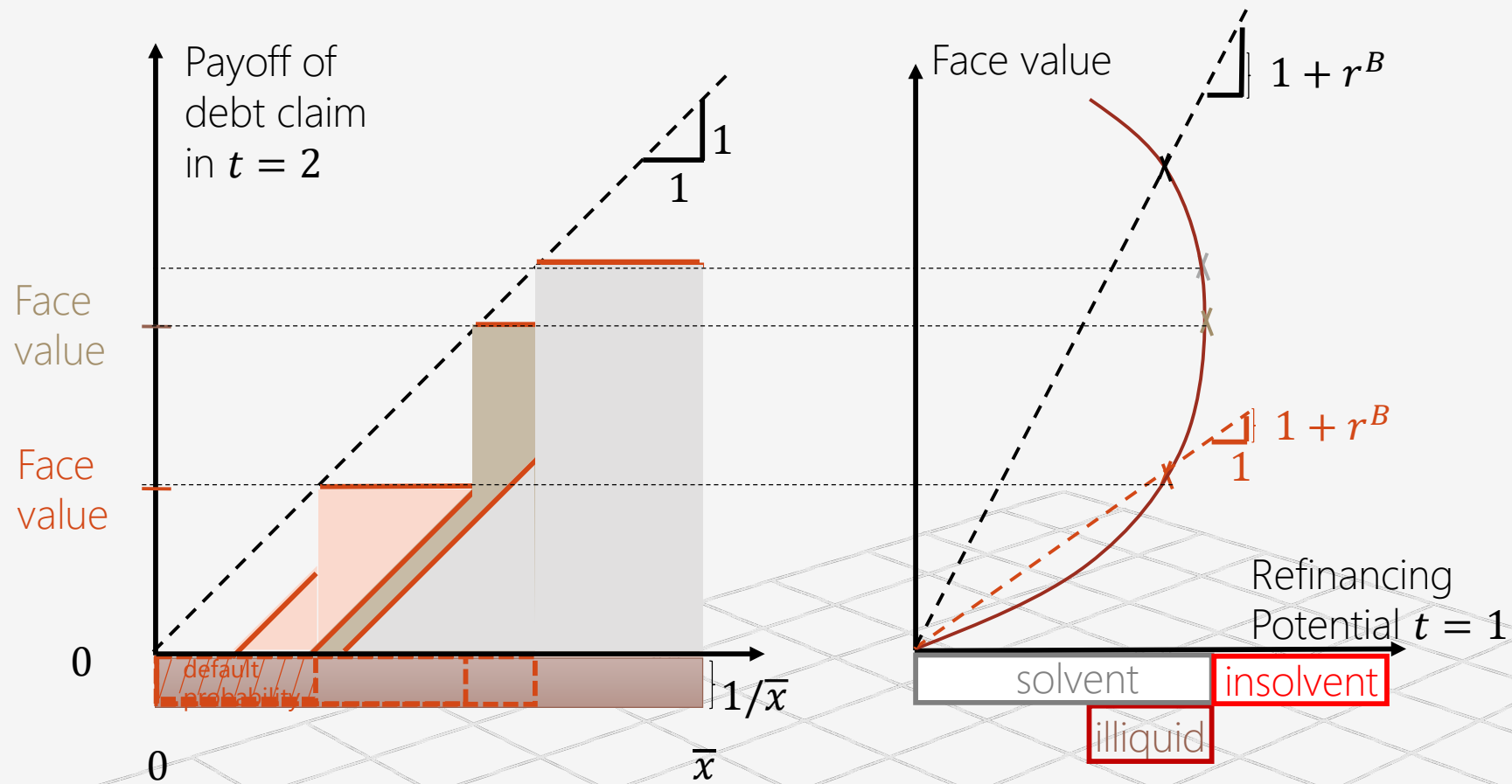
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# DYNAMIC GENERALIZATION

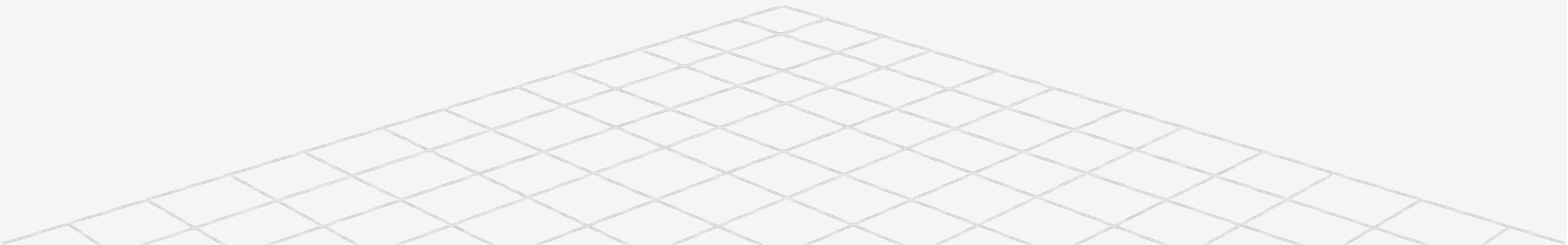
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- Many risk-neutral investors,  $r^f = 0$ , bankruptcy cost  $c\%$  of face value
- Come in with legacy debt that needs to be rolled at  $t = 1$
- Illiquid equilibrium = RUN  
(don't rollover if others don't)
- Reprofile/debt moratorium
  - Forced to roll-over
  - Rules out "bad equilibrium"
- ... but investors might fear moratorium  
and run before others run

# RISK-AVERSE INVESTORS

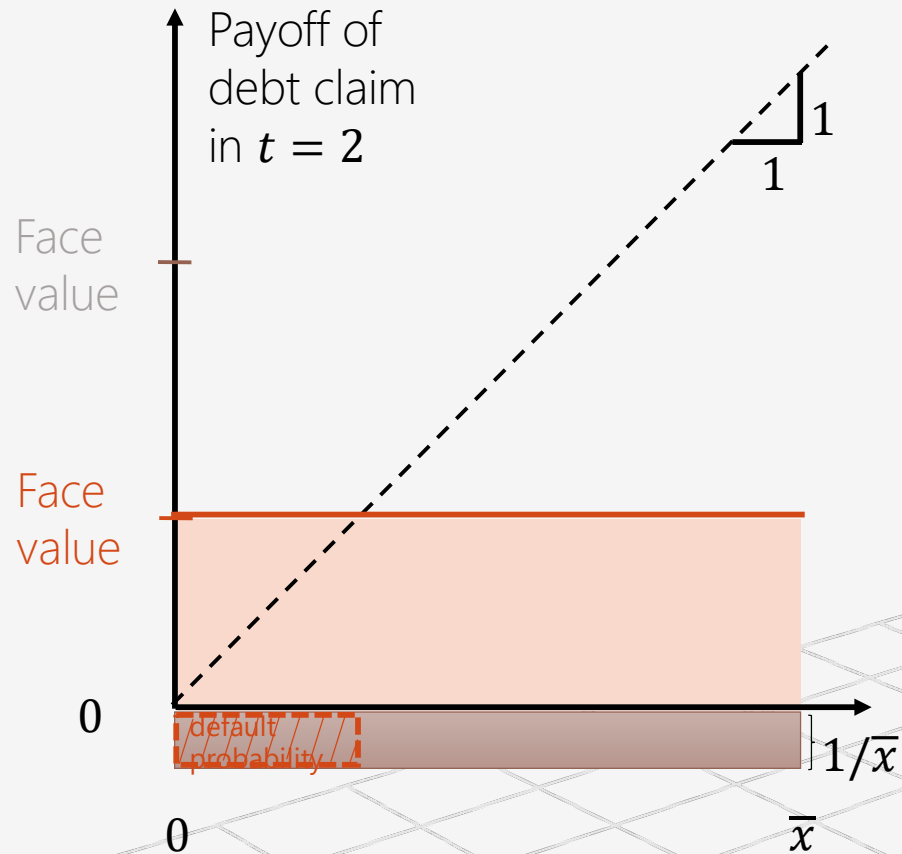
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- Many risk-averse investors,  $r^f = 0$ , bankruptcy cost  $c\%$  of face value
- Risk premia = price of risk \* (exogenous + endogenous risk)
- 2 risks
  - Exogenous:  $x$  cash flow payoff
  - Endogenous: jump in bad illiquidity equilibrium



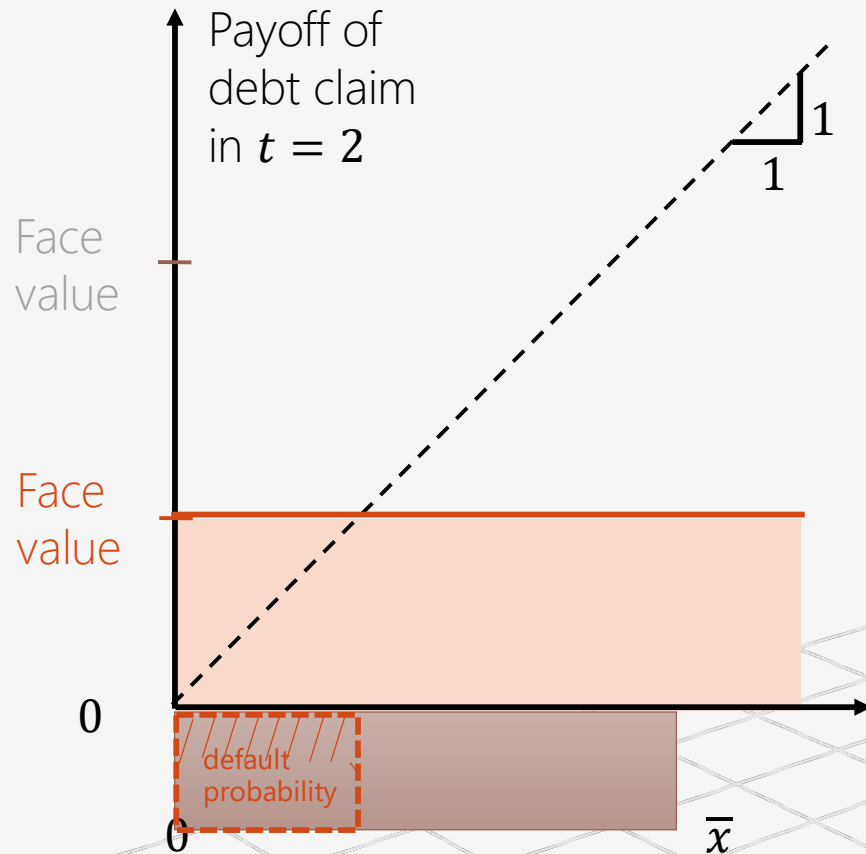


# STRAITJACKET COMMITMENT



- Straitjacket commitment (repay debt no matter what  $x$  will be)
  - Use banks as “hostage” (doom loop)
- Advantage
  - Removes illiquid equilibrium (multiplicity)
  - Reduces risk premia
- Disadvantage
  - Debt overhang
  - Austerity measures

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➔ Shifts cash flow distribution  $x$

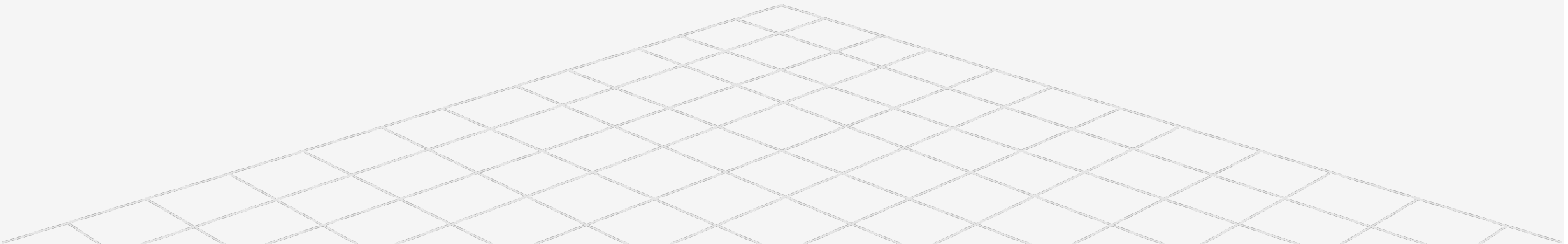
# HOLD-OUT PROBLEM

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- **Large** Many risk-neutral investors,  $r^f = 0$ , bankruptcy cost  $\$C$
- Large investors can overcome multiplicity problem
- **Debt hold-out**: refusal to restructure
- Collective Action Clauses (CAC)
  - CAC lead to lower yield: Colla et al (2020)
- Sovereign Debt Restructuring Mechanism

# IS SOVEREIGN DEBT DIFFERENT FROM PRIVATE DEBT?

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- Sovereign debt often serves as safe asset
- Asset Price =  $E[\text{PV}(\text{cash flows})] + E[\text{PV}(\text{service flows})]$ 
  - Service flows/convenience yield

1. Collateral

2. Safe asset [good friend analogy]

- When one needs funds, one can sell at stable price  
... since others buy
- Partial insurance through retrading - market liquidity!

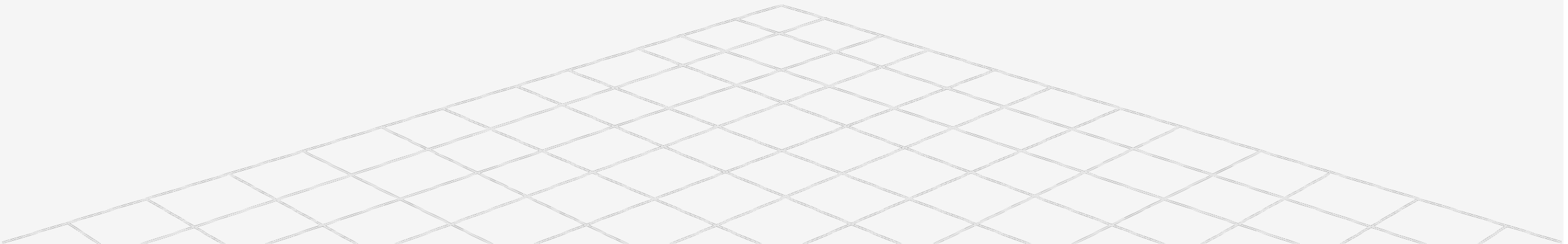
$$r^f + \text{risk premium} < g$$

3. Money (medium of exchange)

# ROLE OF THE DOLLAR

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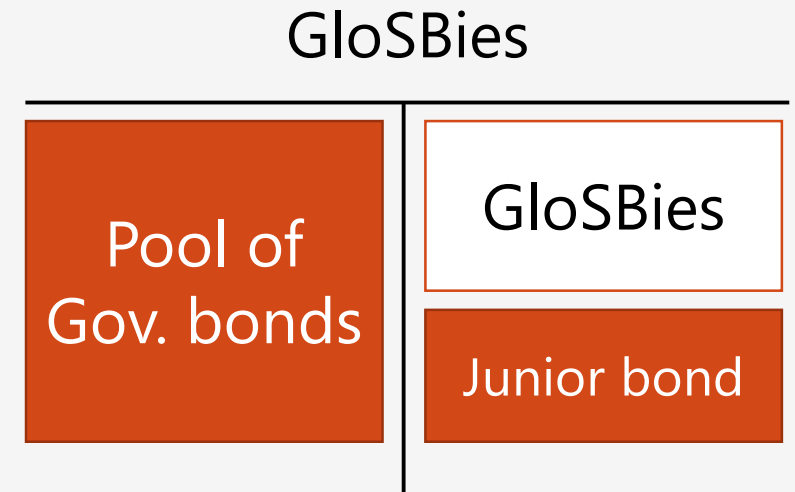
- Global anchor currency
  - Invoicing currency      medium of exchange
  - Reserve currency      store of value
  
- Triffin dilemma
  - Large supply of reserve currency needed
  - Large US deficit makes debt less safe



# SELF-STABILIZING GLOBAL FINANCIAL ARCHITECTURE: GLOSBIES

- EMDE safe asset status often wobbly

$$r + \text{RISK PREMIUM} < g$$



- Tranching: to concentrate risk premium on junior bond  
eliminate risk premium on senior bond
- Real bond: to remove inflation risk from senior bond
- Pooling: to overcome commitment problem  
not to create a supersenior bond later

# POLL

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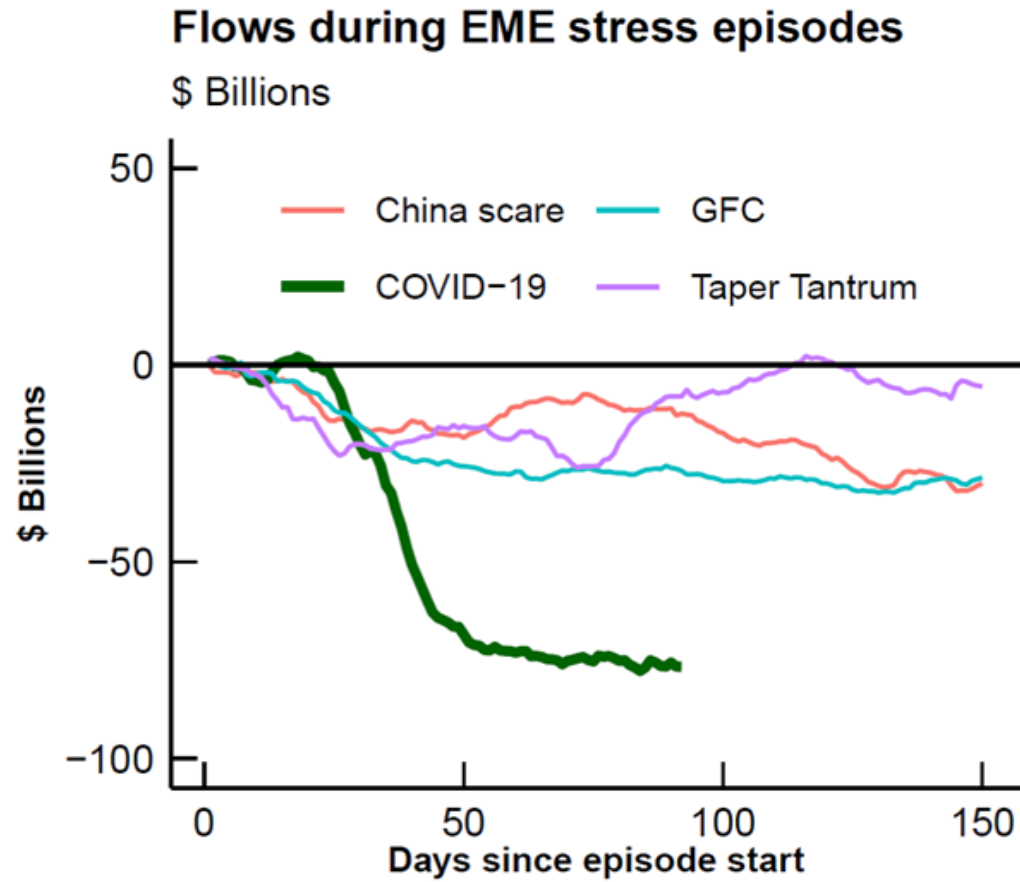
- Should private debt be defaultable since this provides ex-post insurance and avoids debt-overhang problems
  - Yes
  - No
- Should sovereign debt be treated differently from private debt?
  - Yes
  - No
- Will the dollar maintain its global role
  - Yes
  - Other currencies will become more important
  - Digital currencies will become more important



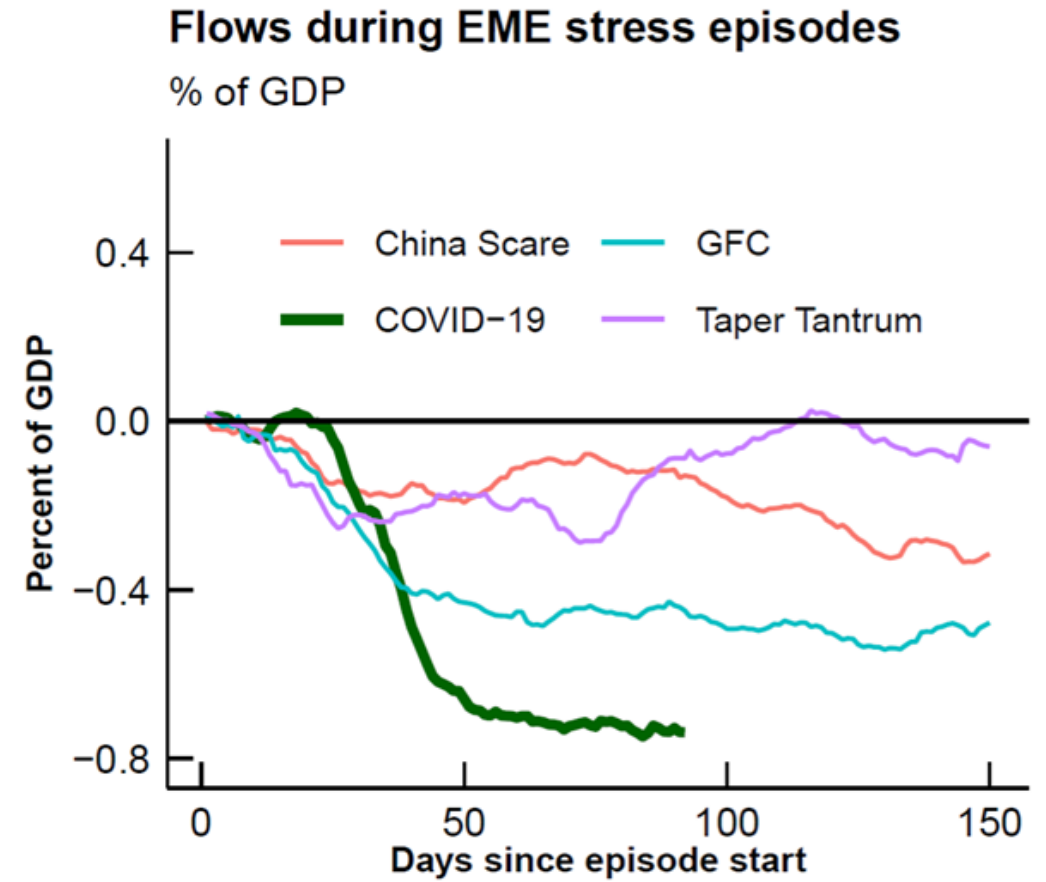
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- Defaultable debt:
    - Transfer resources over time and
    - Insurance product across states
  - Self-fulfilling and (straitjacket) commitment not to default
  - Inflation default vs. outright default
    - Crossing the Rubicon
  - Reprofile and dynamic incentives
    - Threat of reprofiling
    - Suspension of convertability
  - Sovereign debt versus corporate debt
  - SDRM
    - Hold-out problem and CAC: Pablo Colla and Elena Carletti
  - Paris Club and China
  - Dollar as international anchor currency
    - Reserve currency vs. invoicing currency

# CAPITAL OUTFLOWS

- March 2020: record outflow
- April 2020: stabilization



Source: National sources via Bloomberg.  
Episode start dates: September 8, 2008 for Global Financial Crisis, May 22, 2013 for Taper Tantrum, July 26, 2015 for China Scare, and January 21, 2020 for COVID-19.  
Excludes China. See panel 1 for list of countries included.



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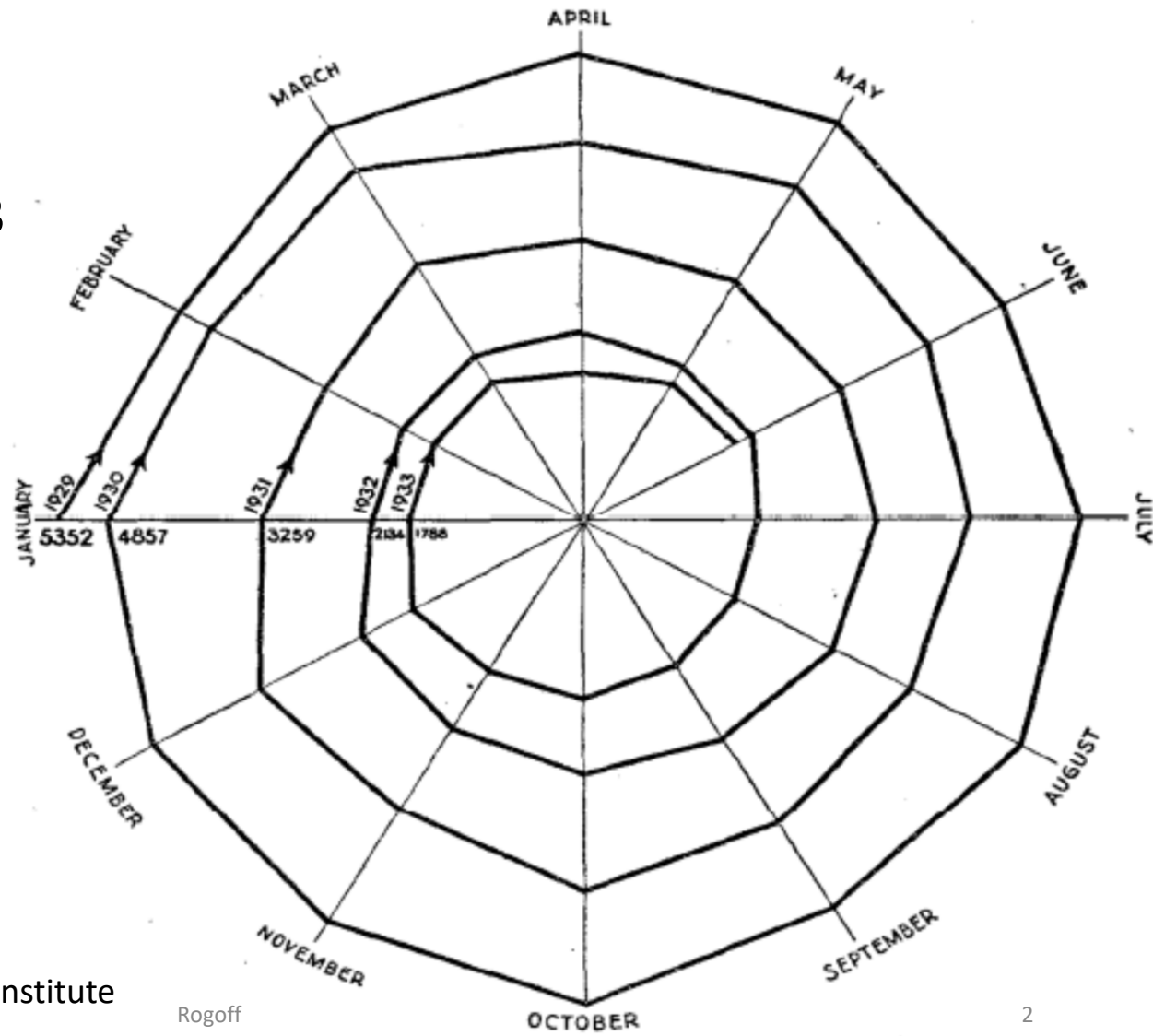
# Global Sovereign Debt and the Dollar Post-Covid

Kenneth Rogoff, Harvard University, June 12 2020

Princeton University Bendheim Center Series on

*The Economic Implications of COVID-19*

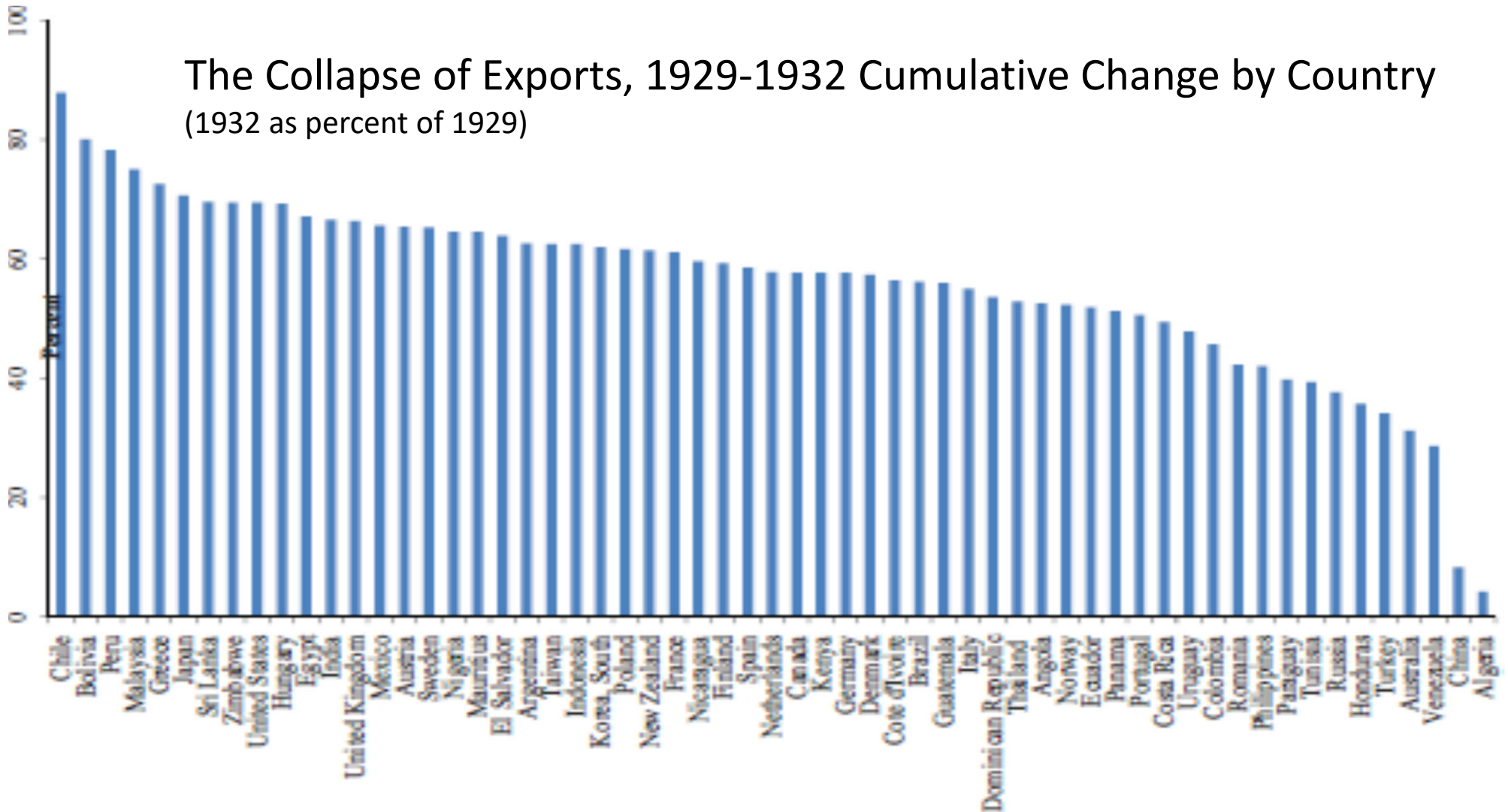
# The Contracting Spiral of World Trade January 1929 to June 1933



Source: Reinhart and Rogoff, 2009 TTID ch 16  
Reprinted from Monthly Reports of the Austrian Institute  
for Business Cycle Research 4 (1933); 63.

Rogoff

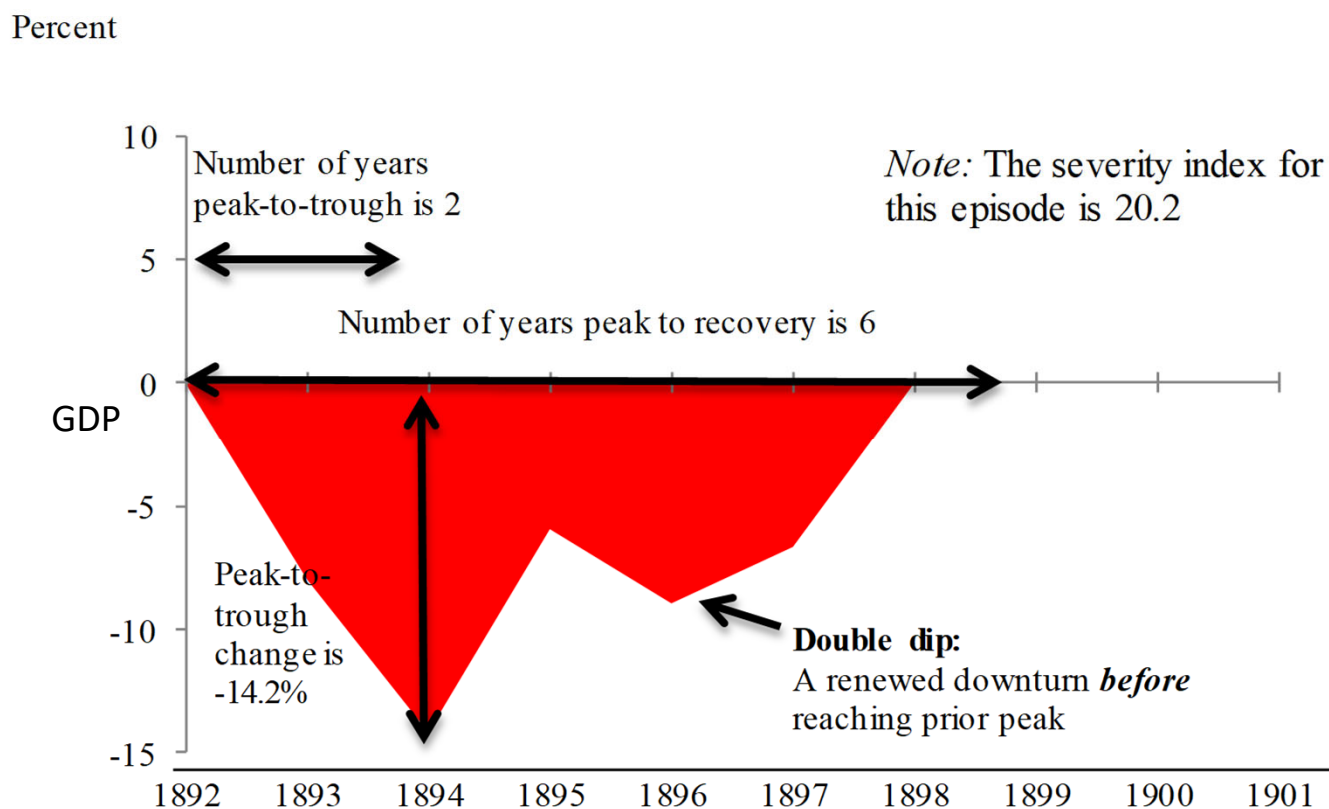
# The Collapse of Exports, 1929-1932 Cumulative Change by Country (1932 as percent of 1929)



Source: Reinhart and Rogoff (2009, ch 16)

Rogoff

# Double Dip Example: US Banking Crisis of 1893



Source: Reinhart and Rogoff (AER 2014)

Rogoff

Year	Country	% change		Number of years		Severity index	Double dip, yes=1
		Peak to trough	Peak to trough	Peak to recovery	Peak to recovery		
1	1926 Chile	-46.6	3	16	62.6	1	
2	1931 Spain	-34.6	9	26	60.6	1	
3	1983 Peru	-32.0	11	25	57.0	1	
4	1931 Uruguay	-36.1	3	17	53.1	1	
5	1893 Australia	-28.0	8	20	48.0	1	
6	1929 Mexico	-31.1	6	16	47.1	1	
7	1921 Italy	-25.5	3	21	46.5	1	
8	1890 Brazil	-21.7	4	21	42.7	1	
9	1923 Canada	-30.1	4	10	40.1	0	
10	1890 Uruguay	-21.0	2	19	40.0	1	
11	1981 Philippines	-18.8	3	21	39.8	1	
12	1929 India	-8.2	9	31	39.2	1	
13	1929/1933 US	-28.6	4	10	38.6	1	
14	1939 Netherlands	-16.0	6	21	37.0	1	
15	2008 Greece	-24.0	6	12	36.0	0	
16	1980/1985 Argentina	-16.9	6	18	34.9	1	
17	1920 UK	-18.7	3	16	34.7	1	
18	1931/1934 Argentina	-19.4	3	15	34.4	1	
19	1931 Poland	-24.9	4	9	33.9	0	
20	1929/1931 Austria	-23.4	4	10	33.4	0	

Source: Reinhart and Rogoff, AER 2014

Rogoff

Summary Statistics: Lessons from 100 Systemic Financial Crises over 150 years

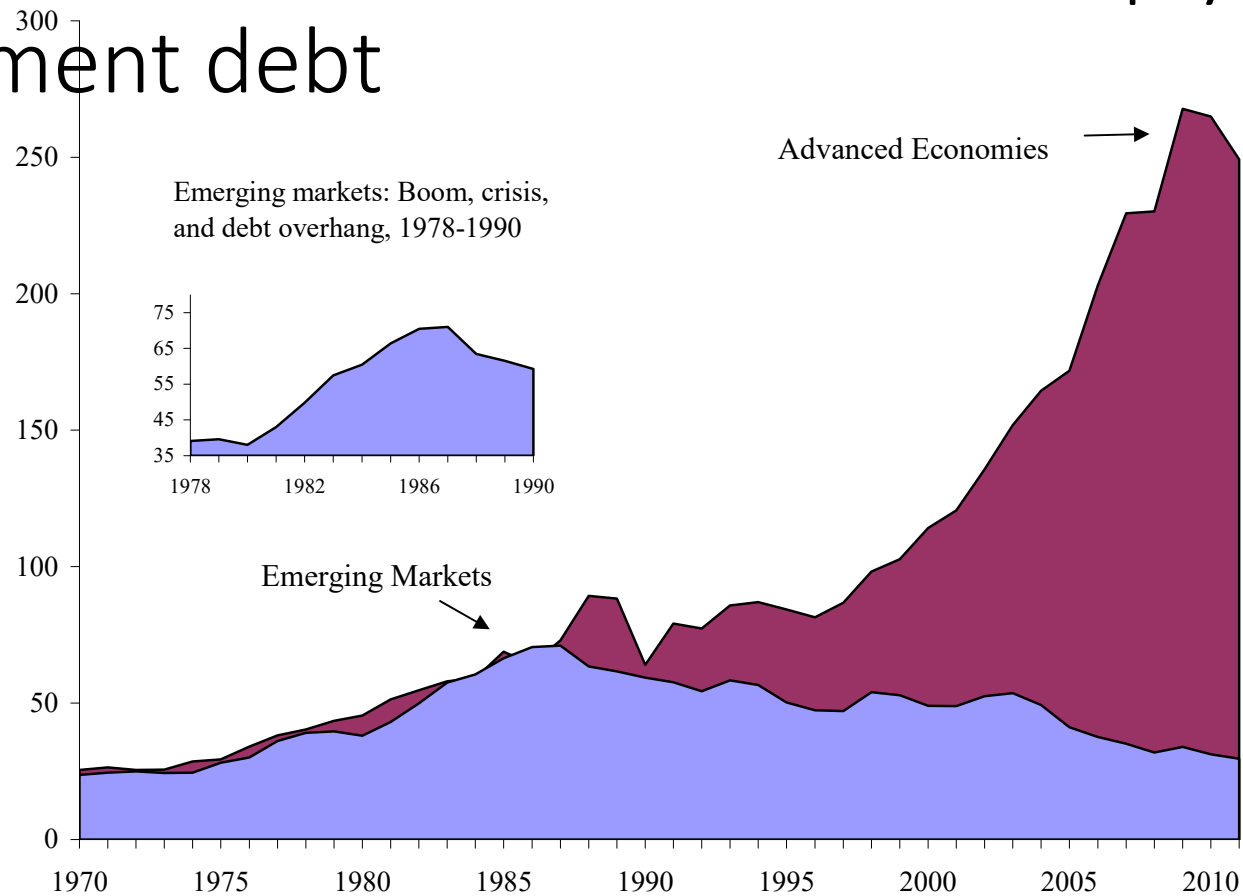
Descriptive statistic	% change		Number of years		Severity index
	Peak to trough	Peak to trough	Peak to recovery		
<i>100 Crises: Full sample</i>					
Mean	-11.3	3.0	8.4	19.7	
Median	-8.6	2.0	6.5	15.8	
Standard deviation	9.1	2.2	6.2	14.0	
<u>Share of episodes with double dip</u>					43.0
<i>63 Crises: Advanced economies</i>					
Mean	-9.6	2.9	7.4	17.0	
Median	-7.1	2.0	6.0	13.0	
Standard deviation	7.8	1.9	5.2	12.2	
<u>Share of episodes with double dip</u>					42.9
<i>37 Crises: Emerging markets</i>					
Mean	-14.2	3.2	9.9	24.2	
Median	-13.3	2.0	8.0	22.1	
Standard deviation	10.4	2.7	7.4	15.9	
<u>Share of episodes with double dip</u>					43.2
<i>Difference in means test (emerging minus advanced)</i>					
Difference	-4.7	0.3	2.5	7.2	
p value	0.020**	0.523	0.072	0.020**	

Rogoff

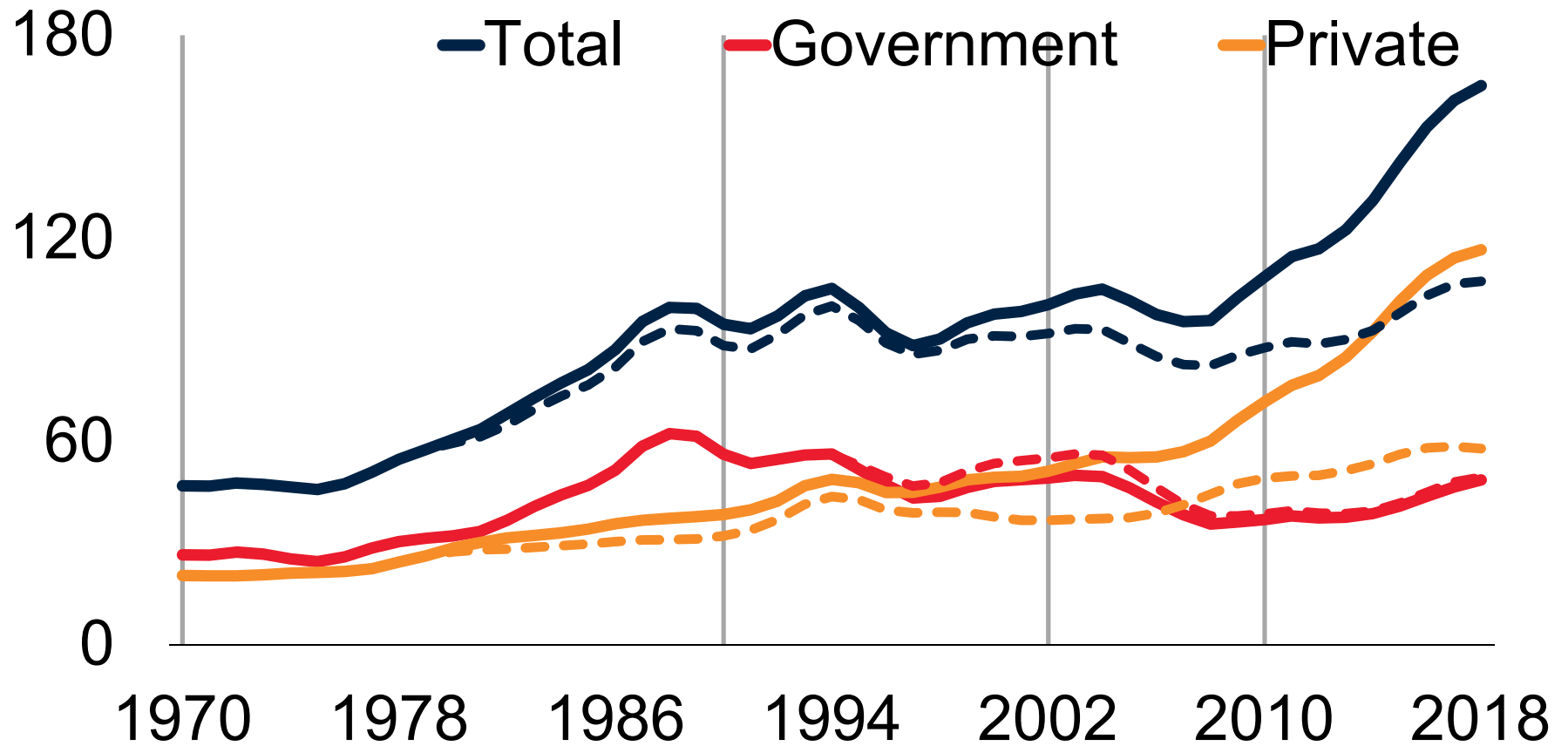
Source: Reinhart and Rogoff, AER 2014



# Total debt has risen much more sharply than government debt

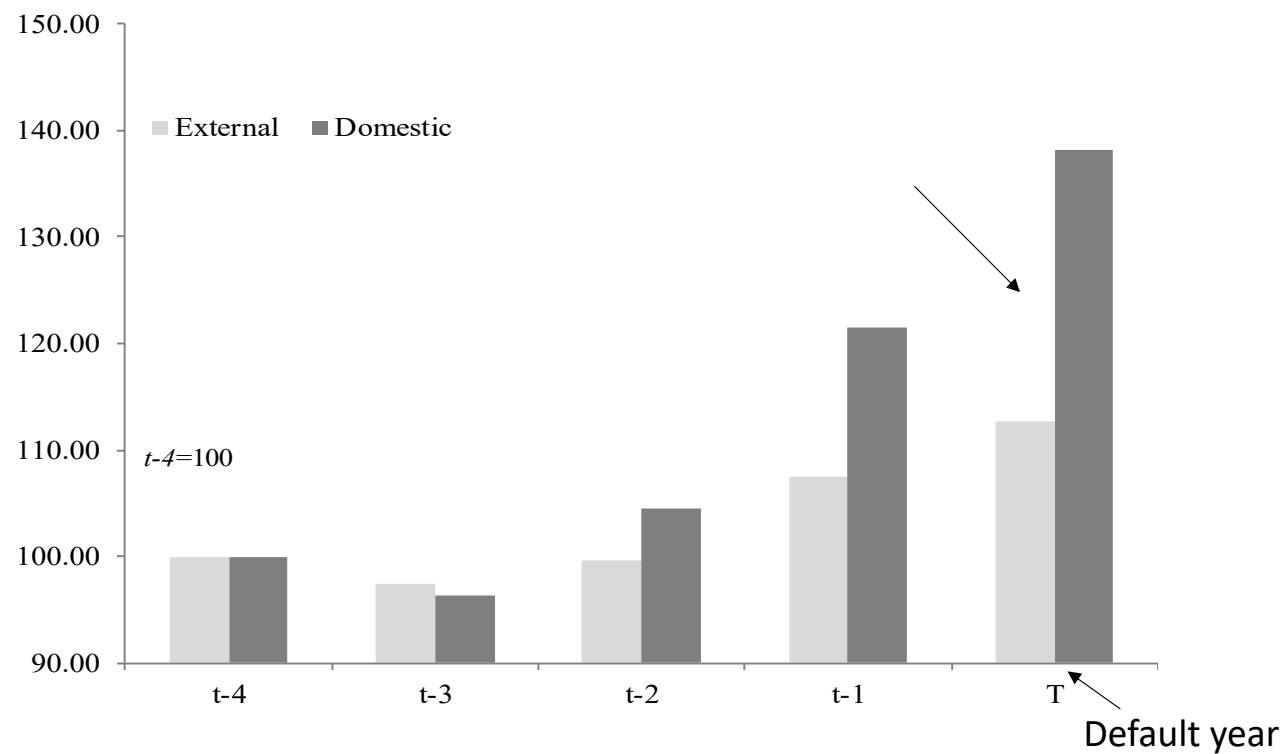


# EMERGING MARKETS AND DEVELOPING ECONOMIES DEBT (% of GDP)



Source: Kose et al., *Global Waves of Debt*, World Bank, December 2019, IMF debt database

## The run-up in domestic and external debt on the eve of external default: eighty-nine episodes, 1827-2003



Source: Reinhart and Rogoff, TTID 2009, ch 8

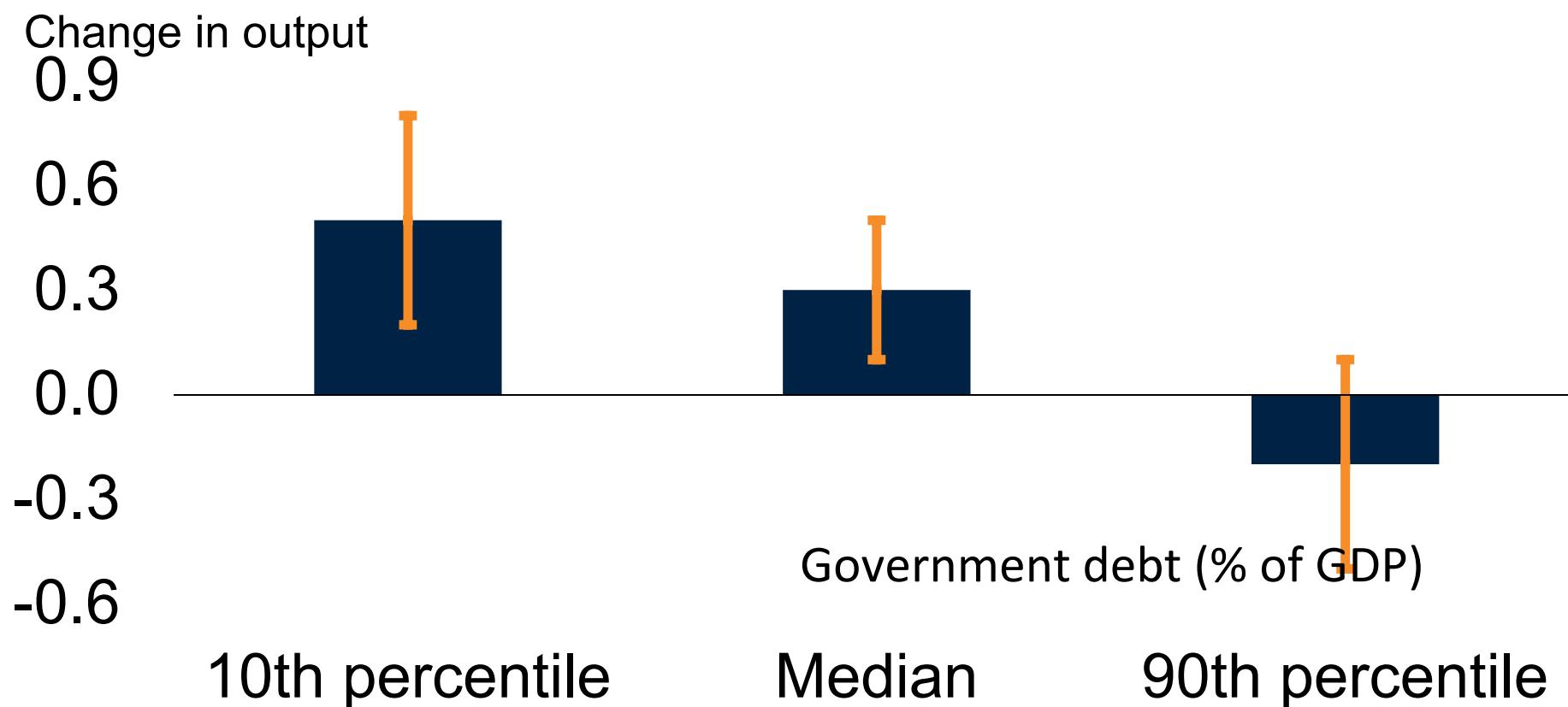
Rogoff

## Debt intolerance: EM default occur at relatively low thresholds of external debt to GNP

<i>External debt-to-GNP range in first year of default or restructuring</i>	<i>Percent of total defaults or restructurings</i>
Below 40 percent	13
41 to 60 percent	40
61 to 80 percent	13
81 to 100 percent	20
Above 100 percent	13

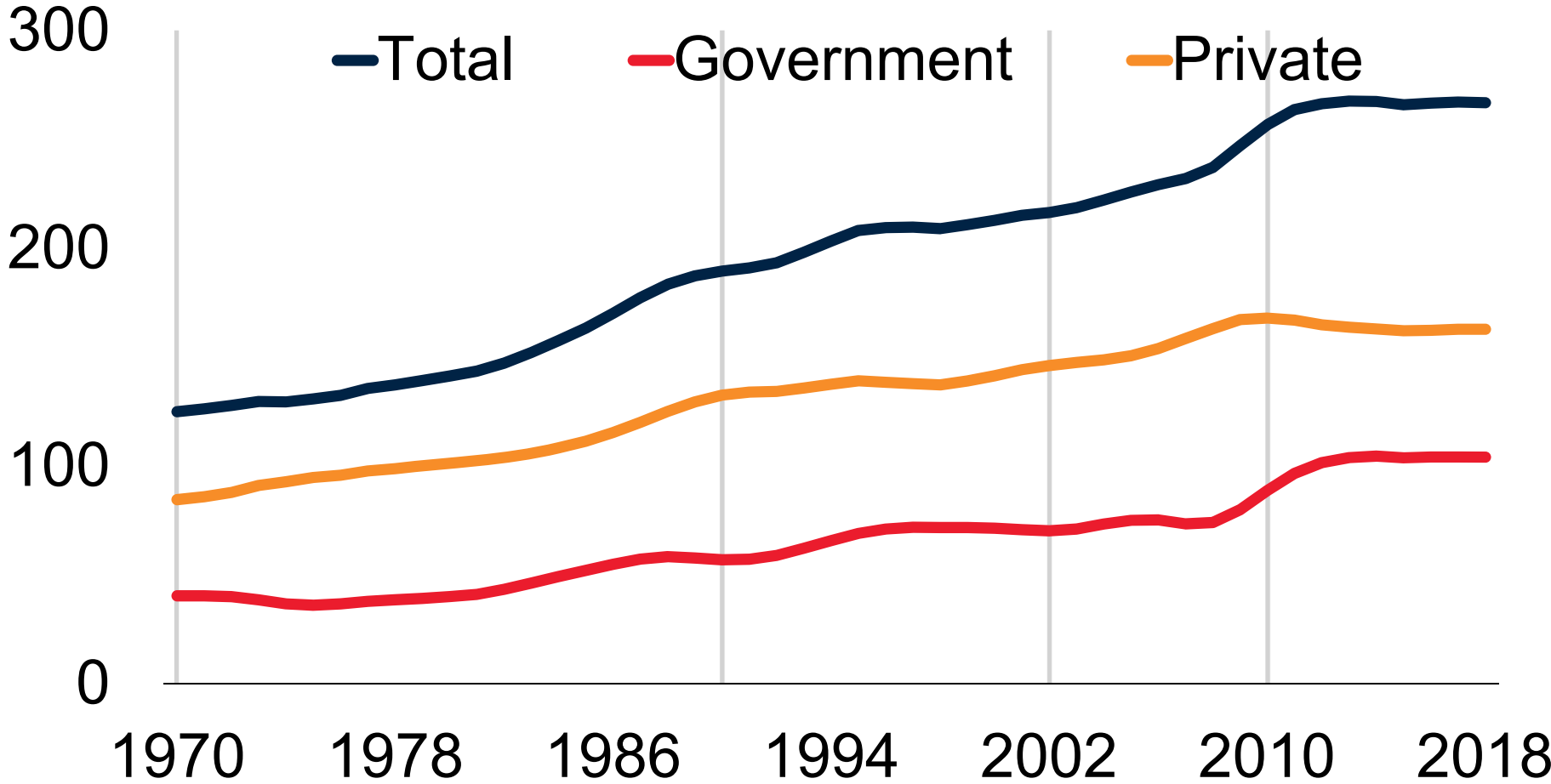
Reinhart, Rogoff and Savastano 2003, Reinhart and Rogoff, 2009, ch 2

## Fiscal Multipliers in Emerging Markets and Developing Economies (cumulative over two years)



Source: Kose et al, Global Waves of Debt, World Bank,  
See also Ilzetski, Mendoza and Vegh (JME, 2013)

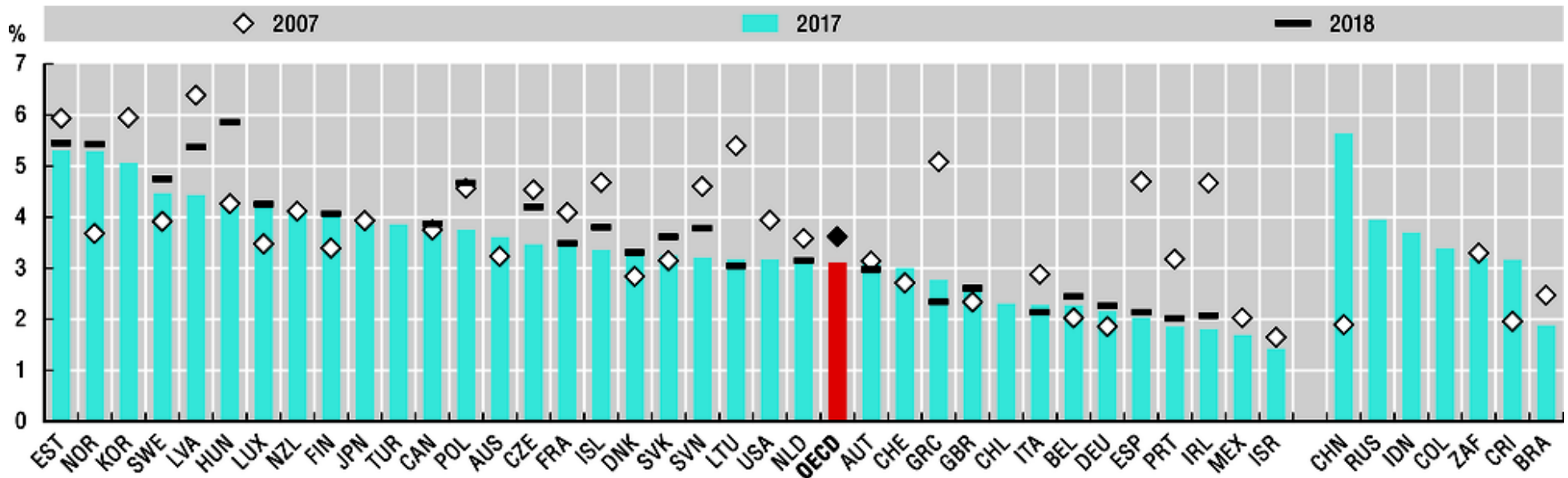
# ADVANCED ECONOMY DEBT (% of GDP)



Rogoff  
Kose et al., *Global Waves of Debt*, World Bank, December 2019, IMF debt database

EXPENDITURE ON INFRASTRUCTURE INVESTMENT HAS BEEN FALLING

Government investment as percentage of GDP, 2007, 2017 and 2018



Source OECD National Accounts Statistics: <https://doi.org/10.1787/888934031845>

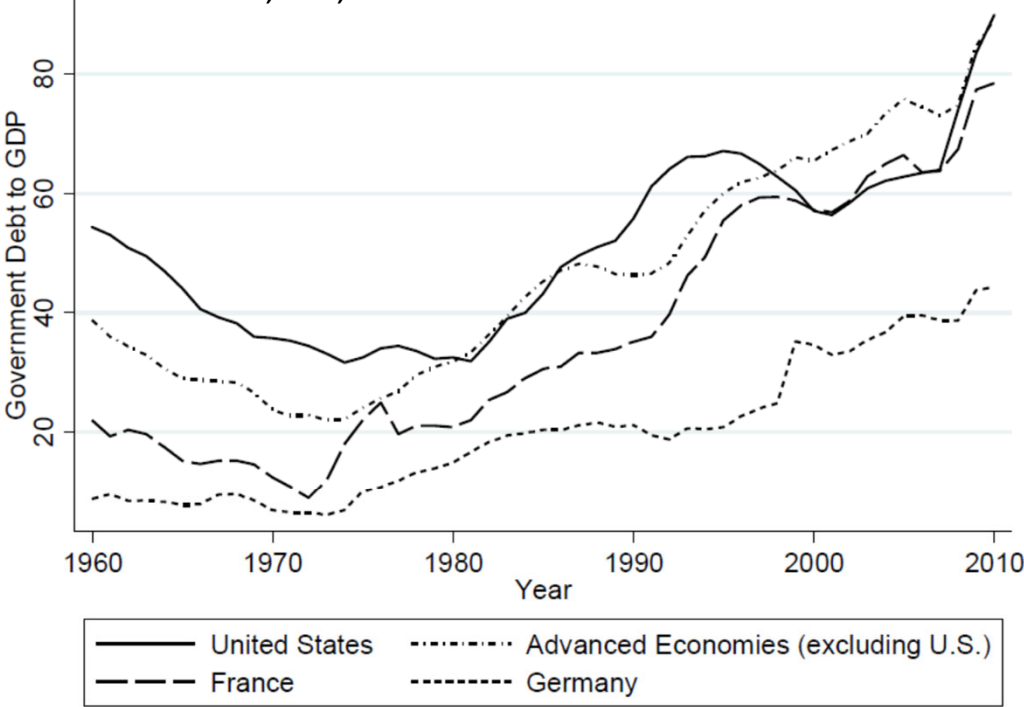
# Negative $r - g$ the norm over two centuries

<b>ADVANCED ECONOMY AVERAGE</b>	<b>61% of all country/years <math>r-g &lt; 0</math></b>
United States	62%
United Kingdom	55%
Japan	71%
Germany	50%
<b>EMERGING ECONOMY AVERAGE</b>	<b>75% of all country/years <math>r-g &lt; 0</math></b>
China	100%
India	62%
Brazil	56%
Mexico	57%

Data source: Paulo Mauro and Zhou, IMF (2020) lingRogoff



Clearly,  $r - g < 0$  has not interfered with steady upward march in government debt  
 Chart from Pierre Yared, *JEP*, 2019

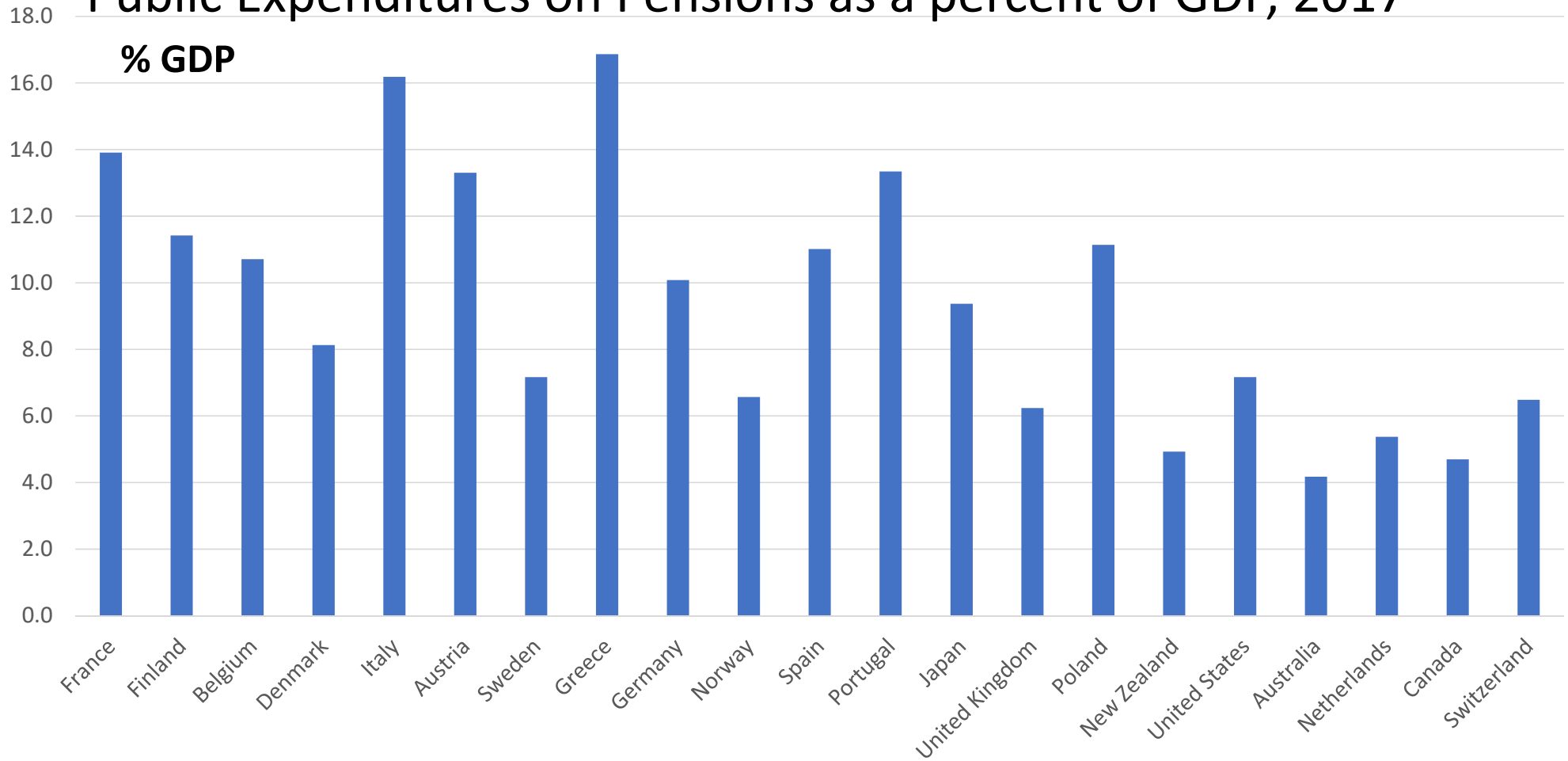


Government debt to GDP is gross central government debt as a percentage of GDP from Reinhart and Rogoff (2011). GDP is from from Feenstra, Inklaar, and Timmer (2015). The sample of advanced economies is a balanced panel which includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States. The line for advanced economies (excluding the U.S.) represents the GDP-weighted average for each observation year.

# Contingent liabilities have risen even faster than conventionally measured public debt

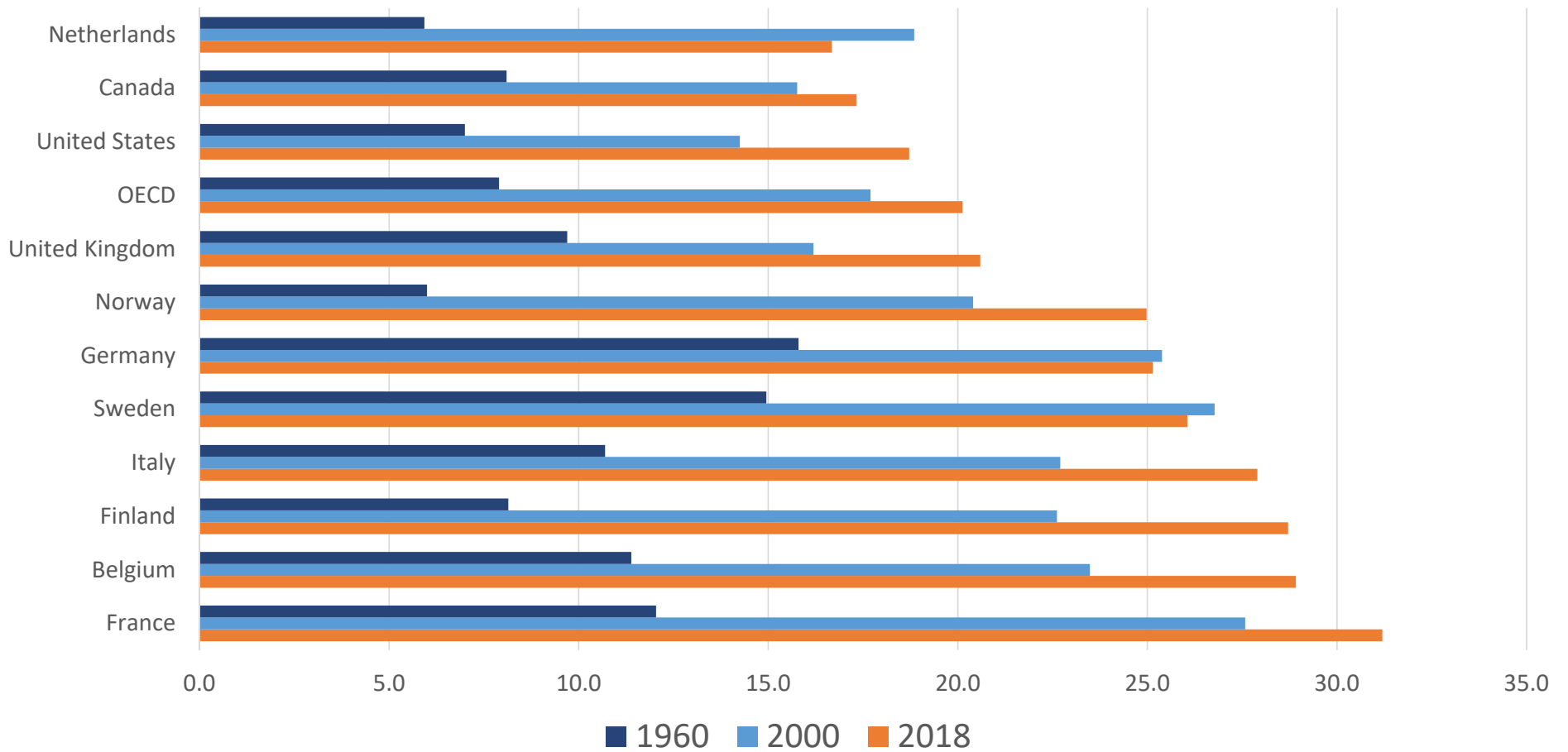
- After the Great Depression and World War II, state and local debt, as well as corporate debt, had shrunk drastically after years of defaults, Depression and War (Reinhart and Rogoff, 2010b, Reinhart, Reinhart and Rogoff, 2012)
- The modern welfare state, featuring especially old-age pension and health guarantees did not exist, but today these are far larger than conventional debt by any measure (Auerbach, Gokhale and Kotlikoff, 1991)

# Public Expenditures on Pensions as a percent of GDP, 2017



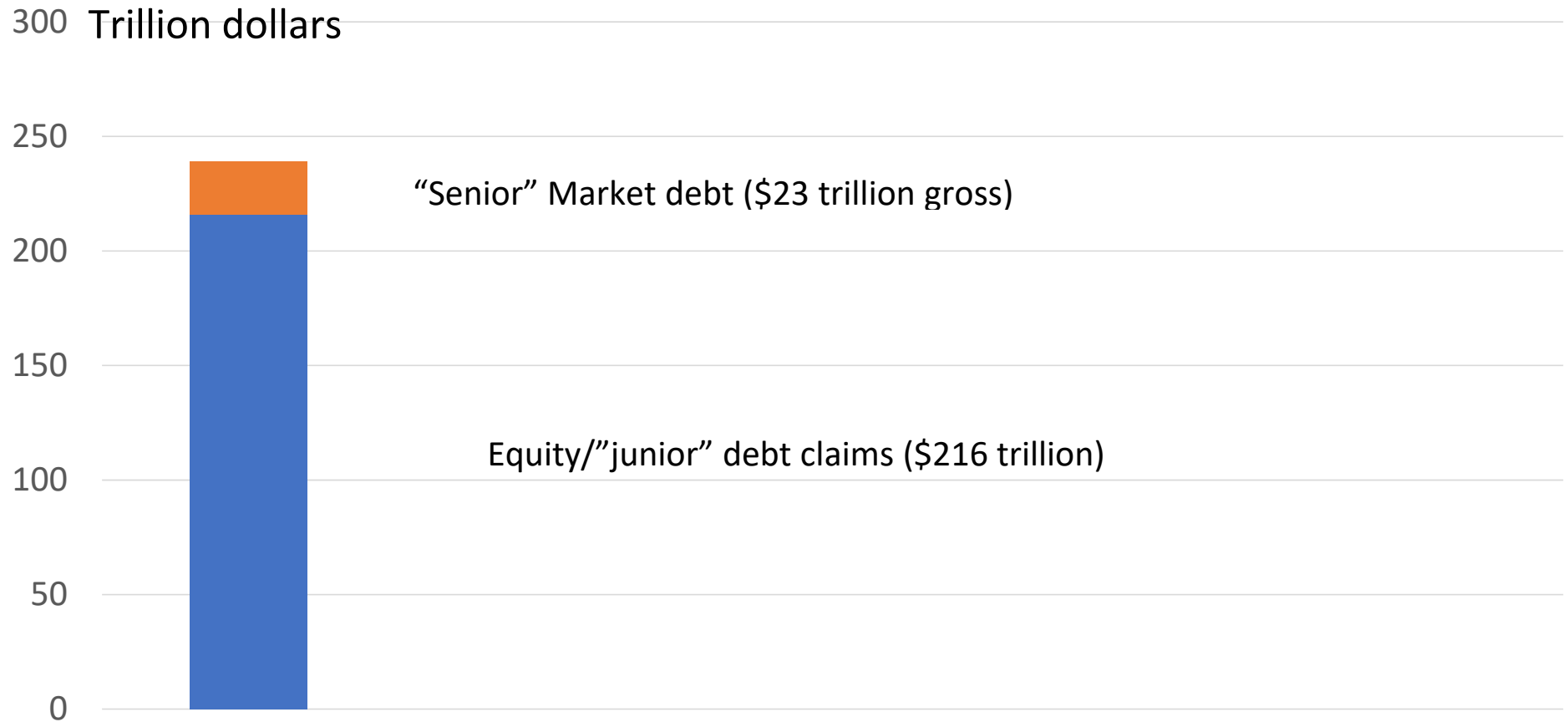
Source: Rogoff, 2020, based on OECD, 2019

# Social expenditures as a percent of GDP, 1960, 2000 and 2018



Source: Rogoff, 2020, based on OECD 2019

# One major factor making “safe debt” so safe: Measures of Debt in the Modern Welfare State



Source: Rogoff, 2020. Estimate of PDV of federal obligations from Kotlikoff (2019)

**Public debt reduction has not always been orthodox  
--even in advanced economies**  
*Reinhart, Reinhart and Rogoff (JIE 2015)*

Factors Behind Debt Reversals:

Fiscal Adjustment, Restructuring, Inflation, Growth, and Real Interest Rates

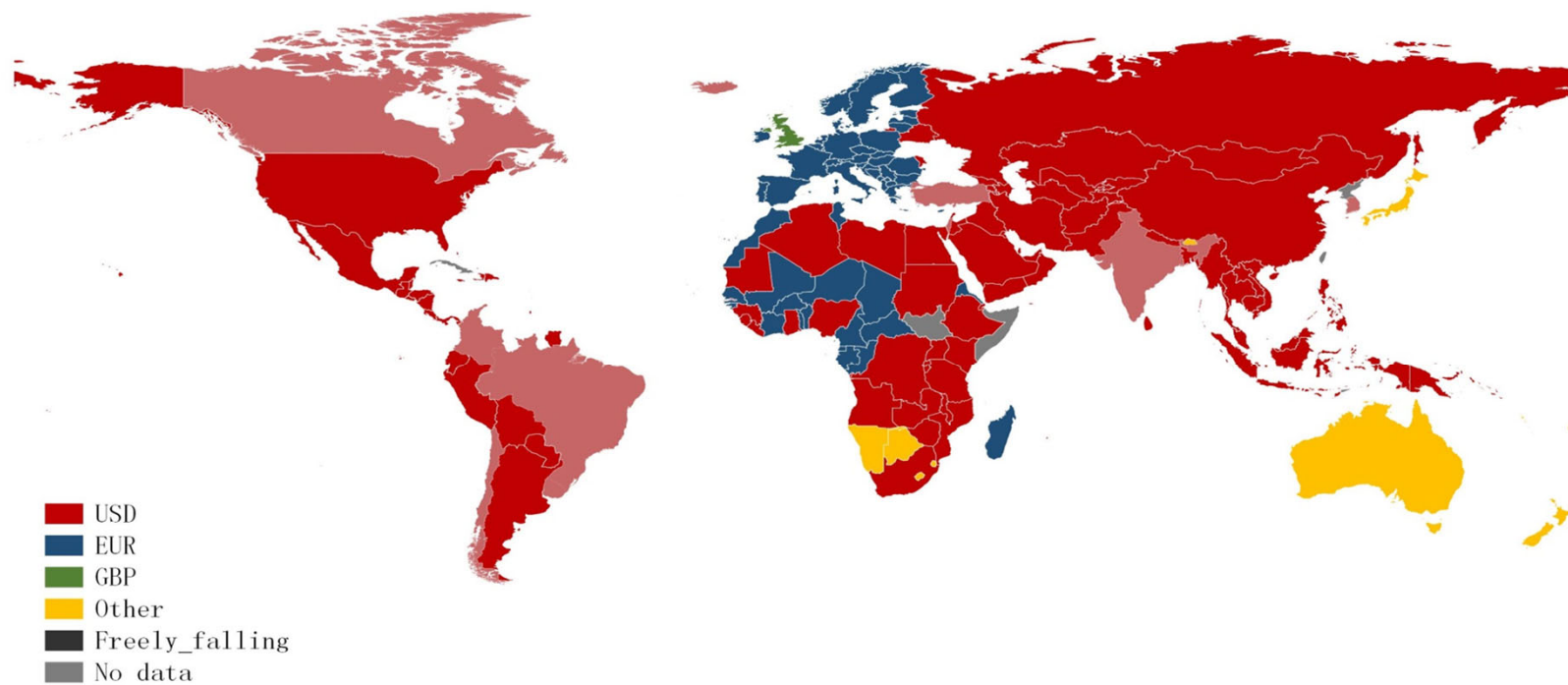
	Growth > median	Primary balance > median	Real rates < median	Inflation > median	Default or restructure
Total sample, 70 episodes					
Number of episodes	38	41	41	41	16
Share	0.54	0.61	0.59	0.59	0.23
Post-war cases, 36 episodes					
Number of episodes	21	16	30	30	9
Share	0.58	0.48	0.86	0.83	0.25
Peacetime, 34 episodes					
Number of episodes	17	25	11	11	7
Share	0.50	0.74	0.32	0.32	0.21

Memorandum items:

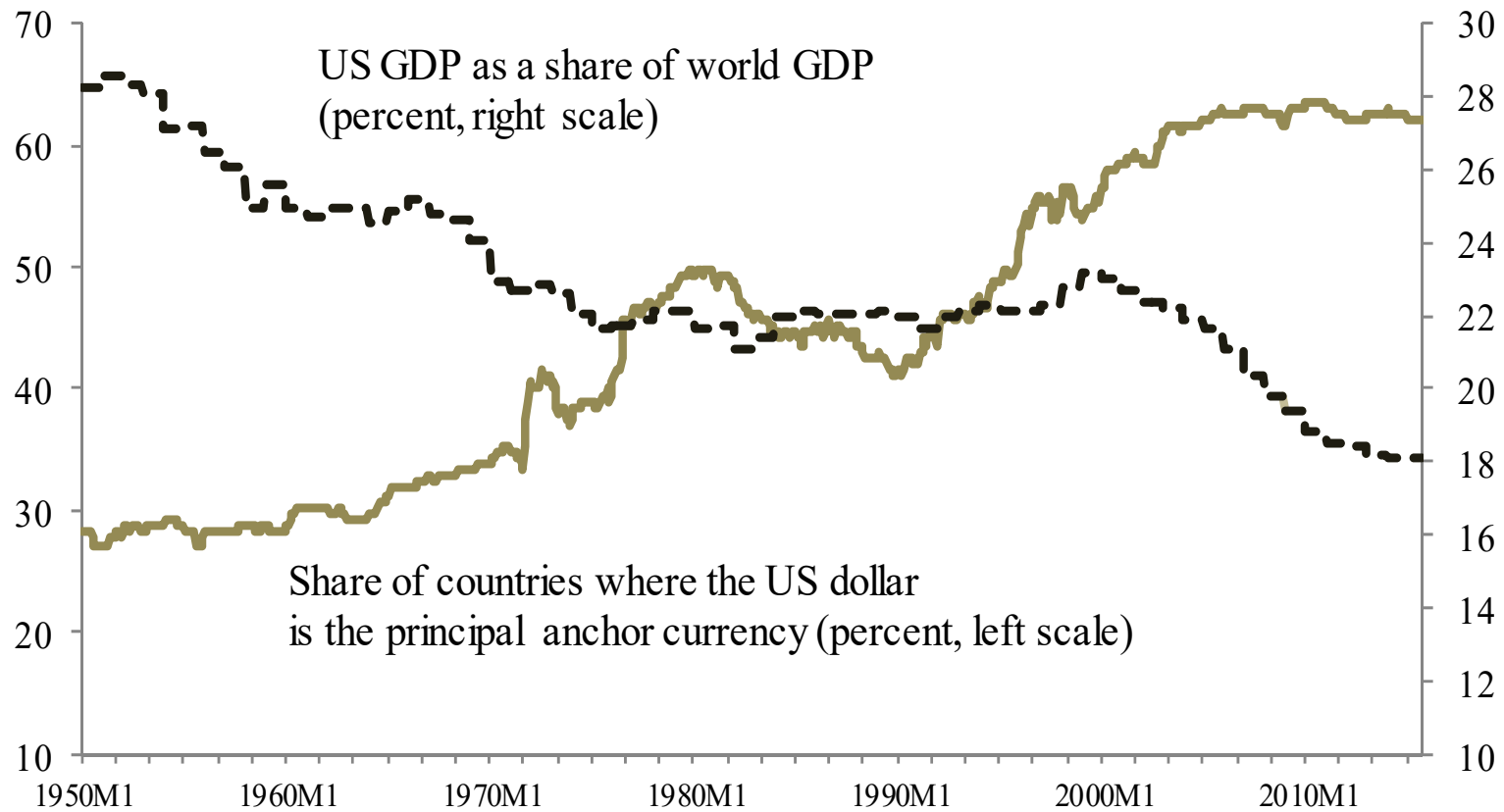
Share of debt reduction episodes associated with deflation

Total	0.07
War	0.11
Peace	0.03

# The Geography of Anchor Currencies, 2015



## Role of the Dollar and US Economy 1950-2015:

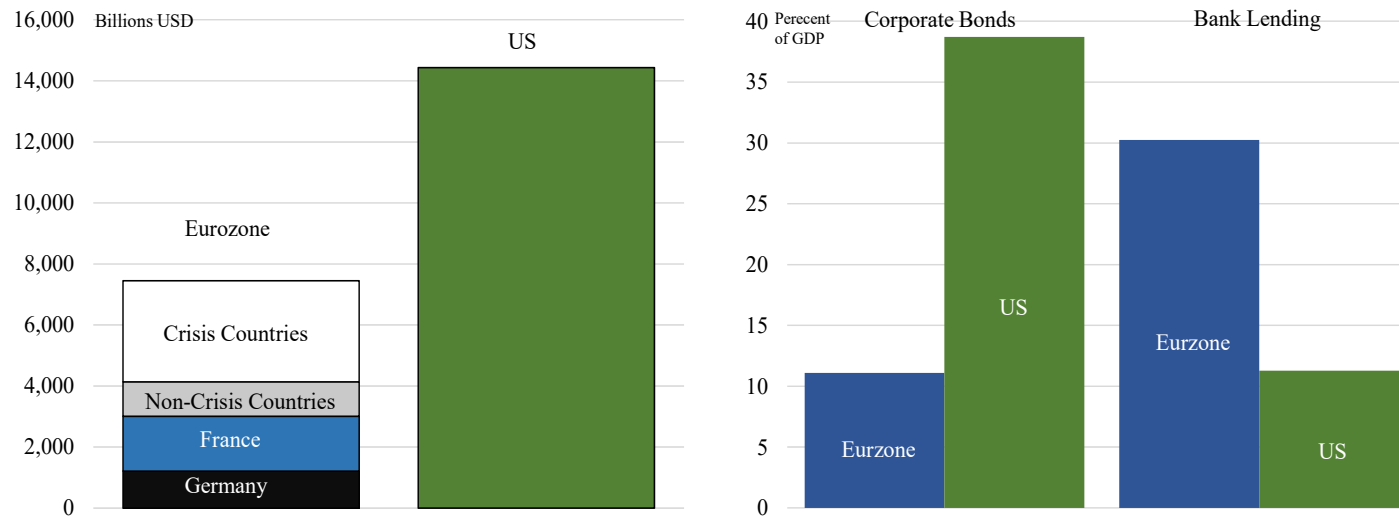


Source: Iltzetski, Reinhart and Rogoff, 2017

Rogoff



# Marketable Debt Outstanding, 2018



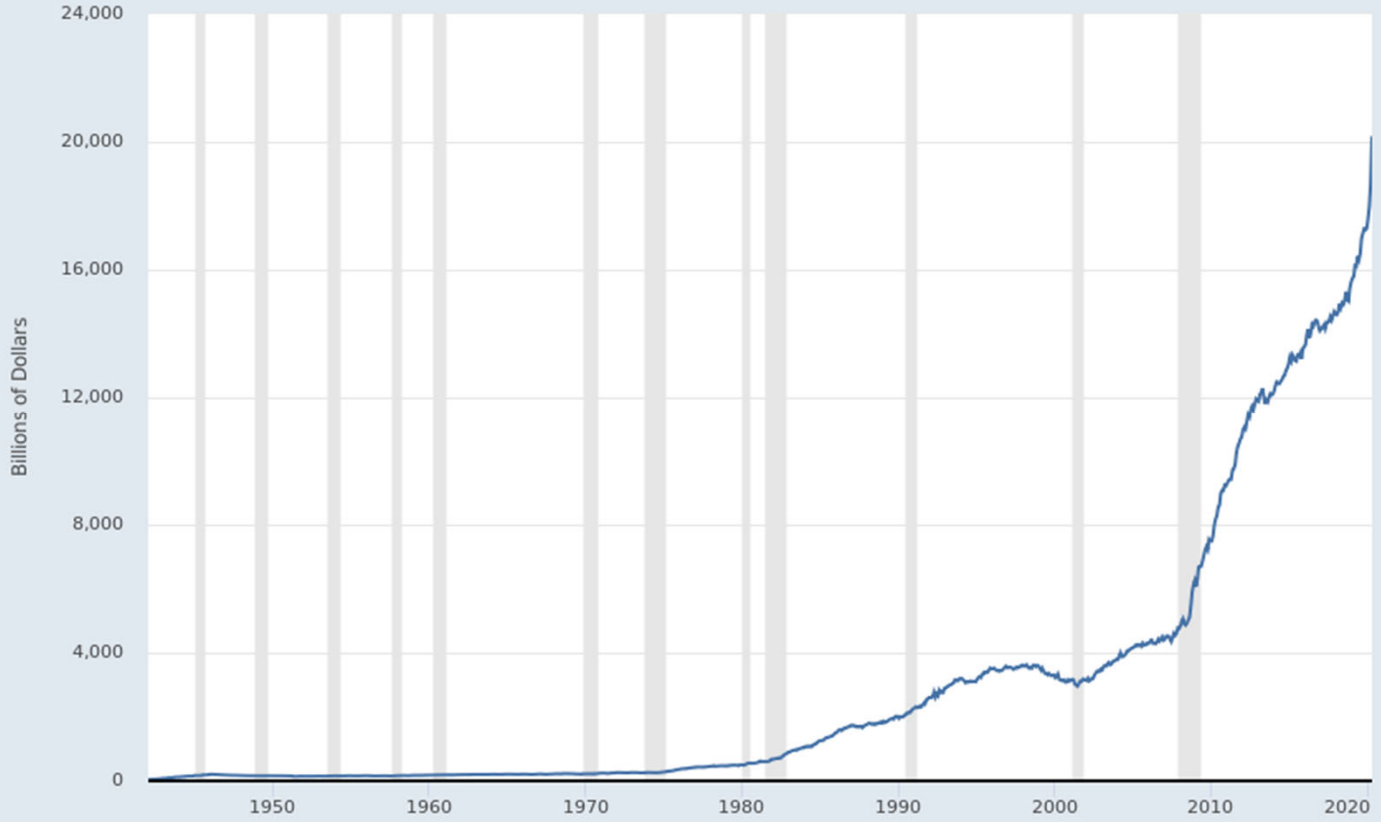
Note: The left panel shows the marketable central government outstanding in billions of US dollars in 2018 for France and Germany, all Eurozone countries (including France and Germany) and the US. The right-hand panel shows corporate bonds outstanding and total corporate bank lending as a percent of GDP in the Eurozone and the US.

Ilzetski, Reinhart and Rogoff (Economic Policy 2020).

**FRED**



— Market Value of Marketable Treasury Debt

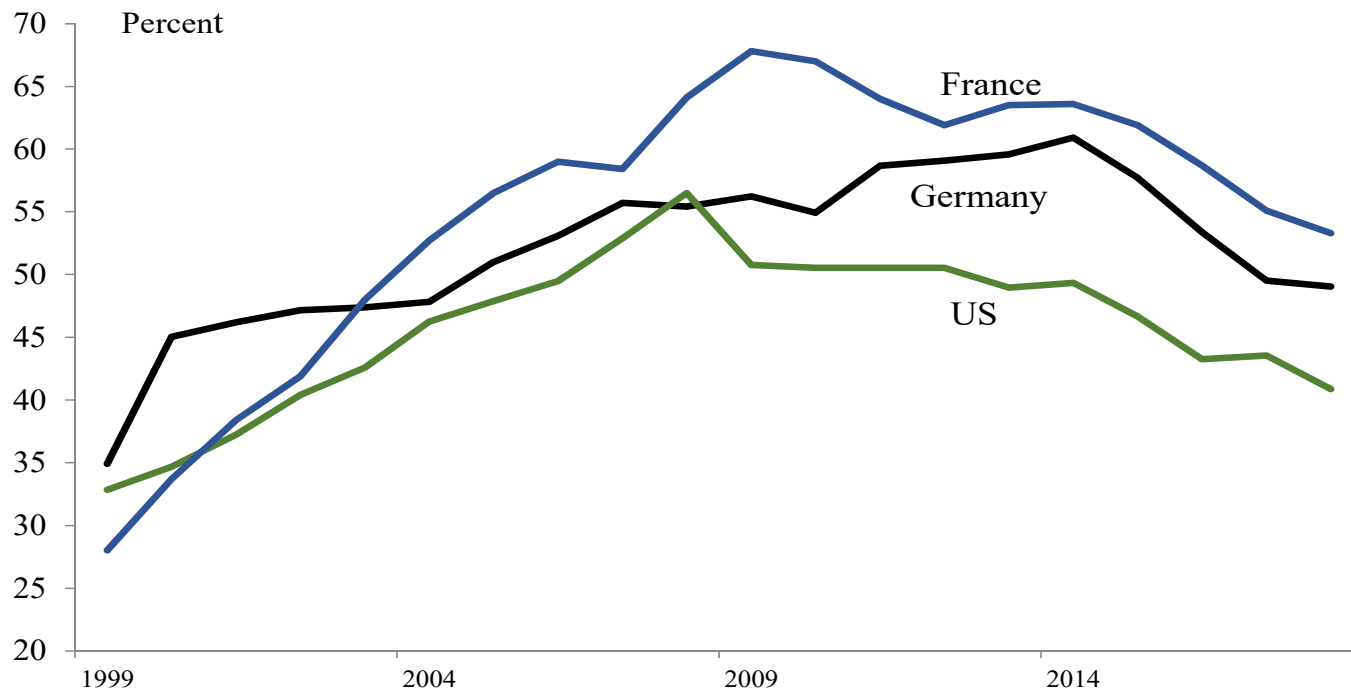


*Shaded areas indicate U.S. recessions*

Source: Federal Reserve Bank of Dallas

[myf.red/g/rkry](https://myf.red/g/rkry)

# Foreign Holdings as Share Marketable Government Debt



Note: Percent share of marketable government that is held by foreign investors (private and official sectors).  
Source: Ilzetski, Reinhart and Rogoff (Economic Policy 2020 forthcoming).

Thank you

