FINANCIAL REPRESSION IN THE XXIST CENTURY

Mundell Fleming Lecture

XXVIth Jacques Polak Annual Research Conference

EGrow seminar, 21 November 2025

Ricardo Reis

LSE

Public debt

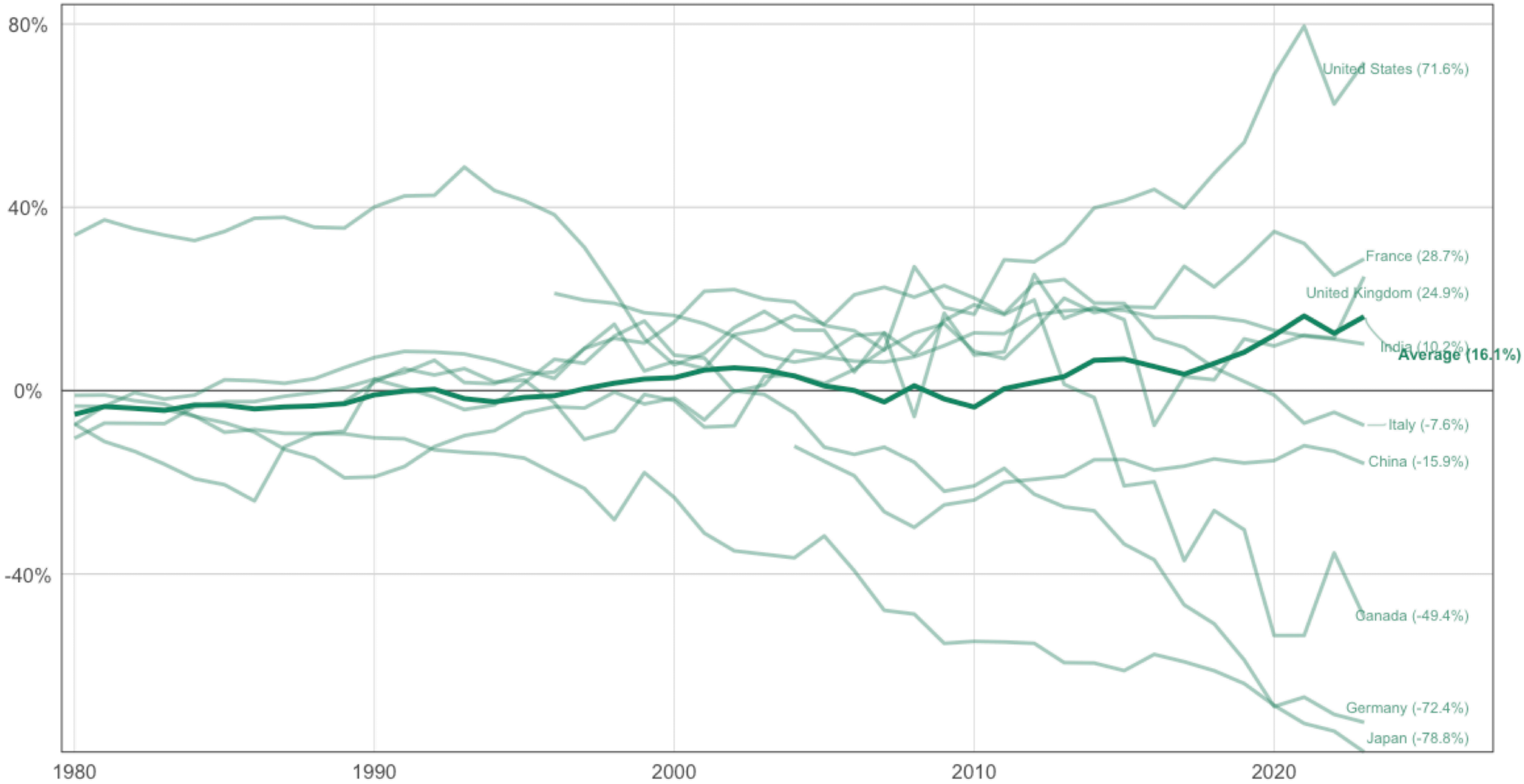
Table 1.2. General Government Debt, 2019–30

(Percent of GDP)

							Projections					
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Gross Debt												
World[1]	**83.8**	**98.9**	**94.0**	**89.9**	**91.3**	**92.3**	**95.1**	**96.7**	**97.5**	**98.2**	**98.9**	**99.6**
Advanced Economies	**103.6**	**122.0**	**115.5**	**109.3**	**108.2**	**108.5**	**110.1**	**110.9**	**111.5**	**112.0**	**112.6**	**113.3**
Advanced Economies excl. US	**100.4**	**114.8**	**109.1**	**101.7**	**99.5**	**98.4**	**99.7**	**100.2**	**100.2**	**100.4**	**100.4**	**100.7**
Canada[2]	90.2	118.1	112.6	104.2	107.7	110.8	112.5	110.9	109.4	107.9	106.2	104.1
Euro Area	83.6	96.5	93.9	89.5	87.4	87.7	88.7	89.7	90.4	91.1	91.9	92.9
France	98.1	114.8	112.7	111.3	109.7	113.1	116.3	119.1	121.6	123.9	126.1	128.4
Germany	58.7	68.0	68.1	65.0	62.9	63.9	65.4	67.0	68.5	70.4	72.5	74.8
Italy	133.8	154.3	145.7	138.3	134.6	135.3	137.3	138.5	138.6	138.2	137.7	137.7
Spain	97.6	119.2	115.6	109.4	105.0	101.8	100.6	99.0	97.6	96.0	94.5	93.0
Japan	236.4	258.4	253.7	248.3	240.0	236.7	234.9	233.7	232.1	231.2	231.1	231.7
United Kingdom	85.7	105.8	105.1	99.6	100.4	101.2	103.9	105.4	106.1	106.5	106.5	106.1
United States[2]	108.2	132.0	124.7	118.8	119.0	120.8	122.5	123.7	124.9	125.9	127.0	128.2
Emerging Market and Developing Economies	**54.5**	**64.1**	**63.2**	**63.4**	**67.4**	**69.5**	**73.6**	**76.7**	**78.4**	**79.7**	**80.9**	**82.0**

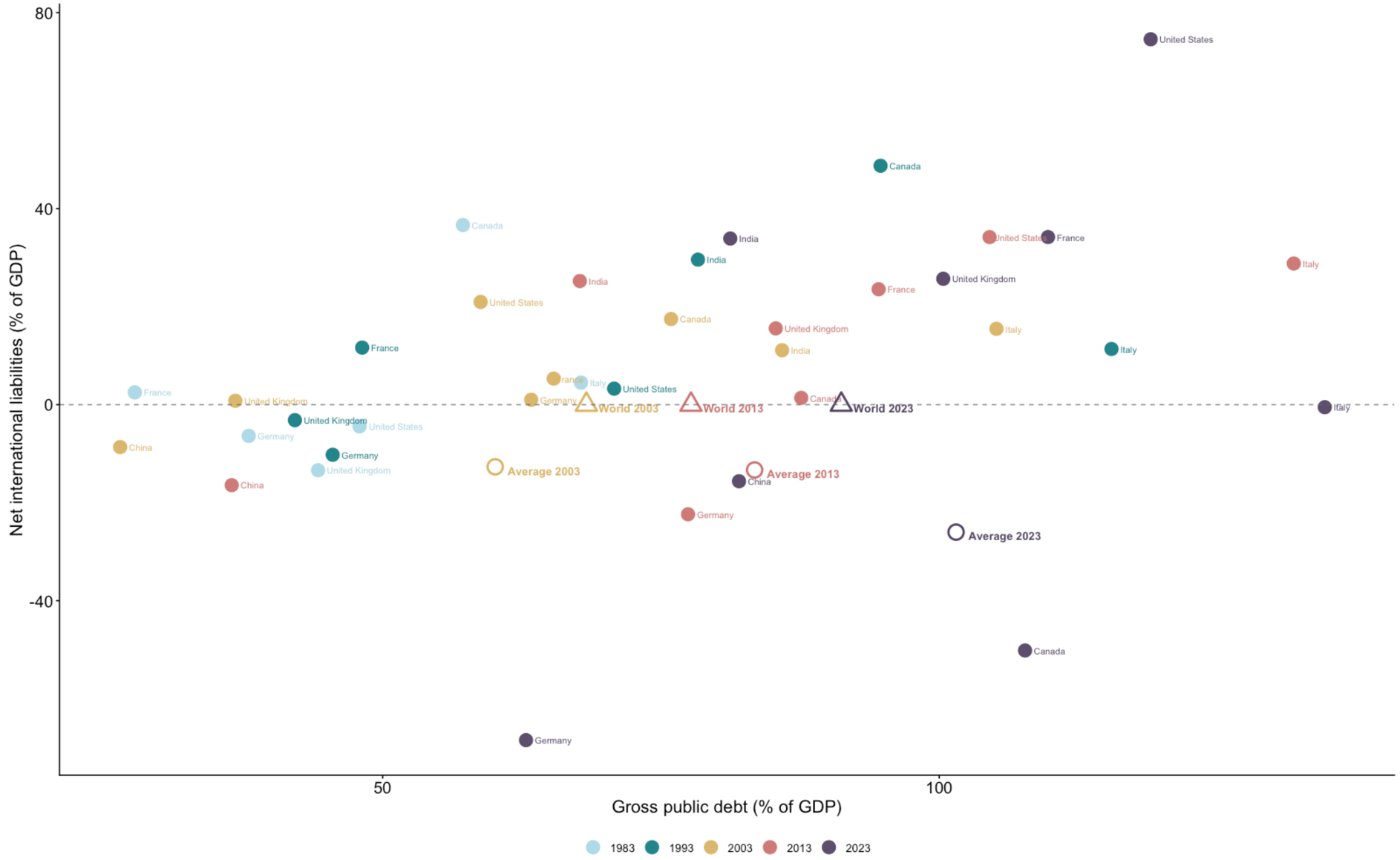
Source: Fiscal Monitor, April 2025

External debt (Net International Liabilities / GDP)

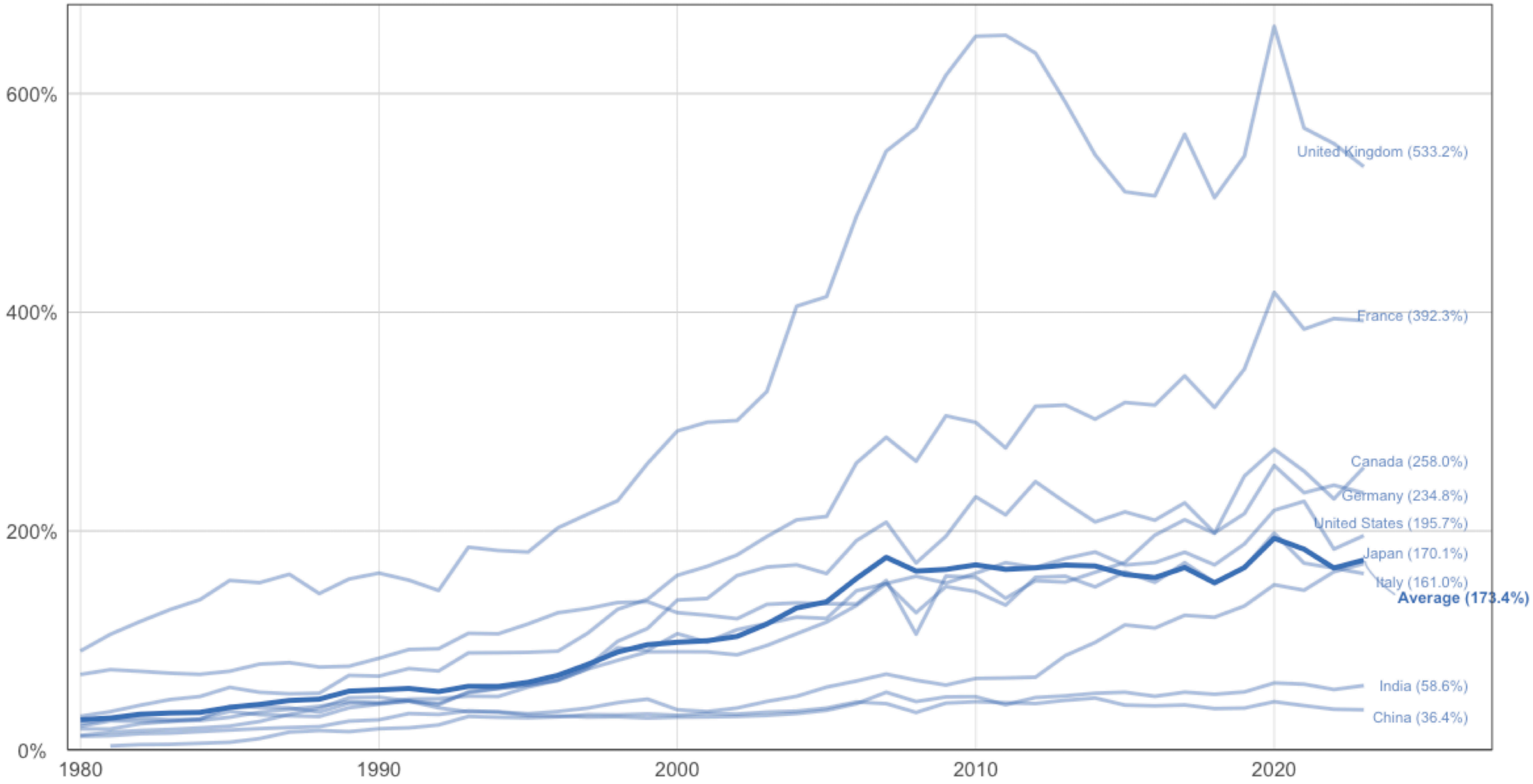


Source: Lane Milesi-Ferretti (2018)

The twin debt problem

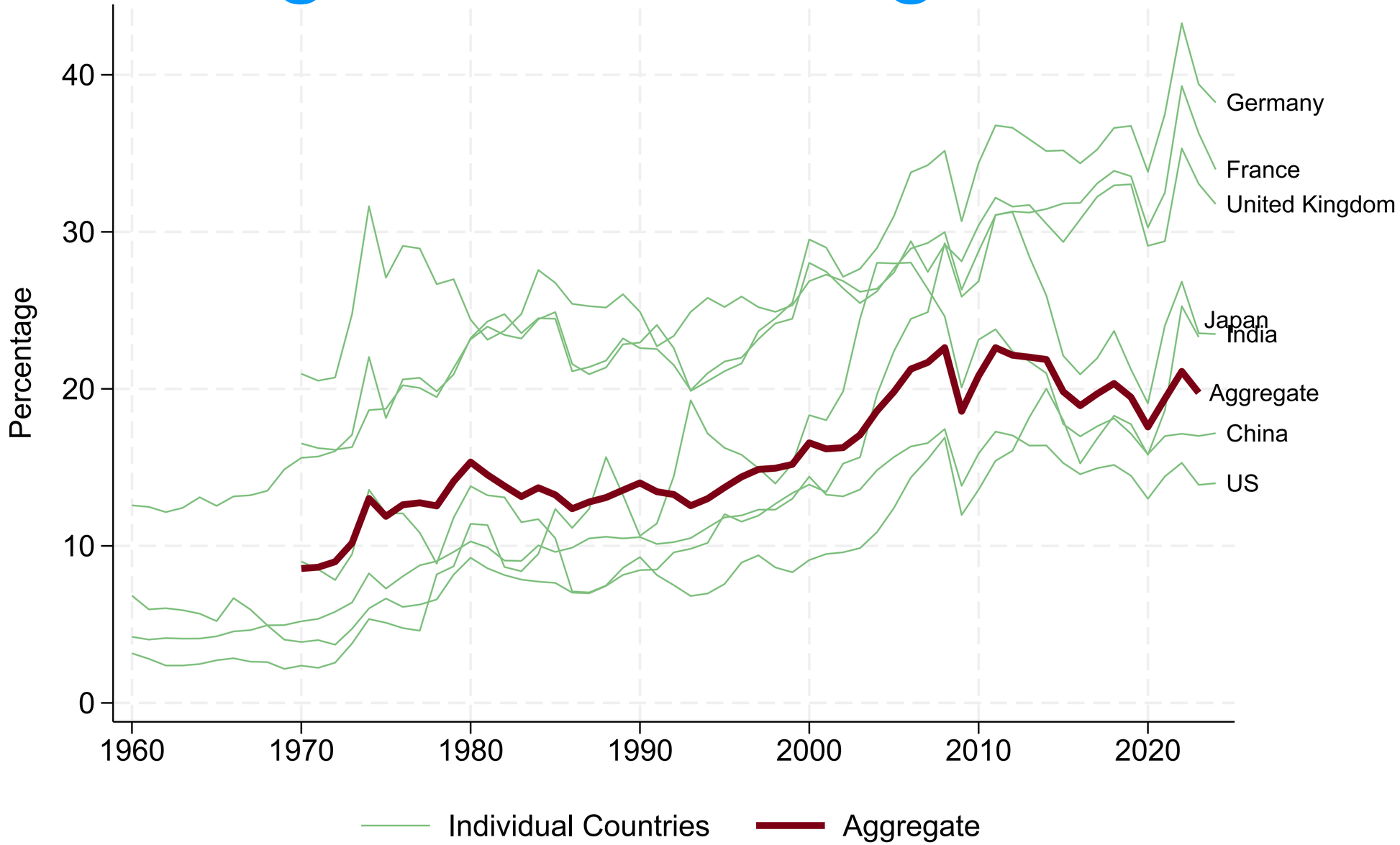


Gross liabilities (% GDP) high for all G-7

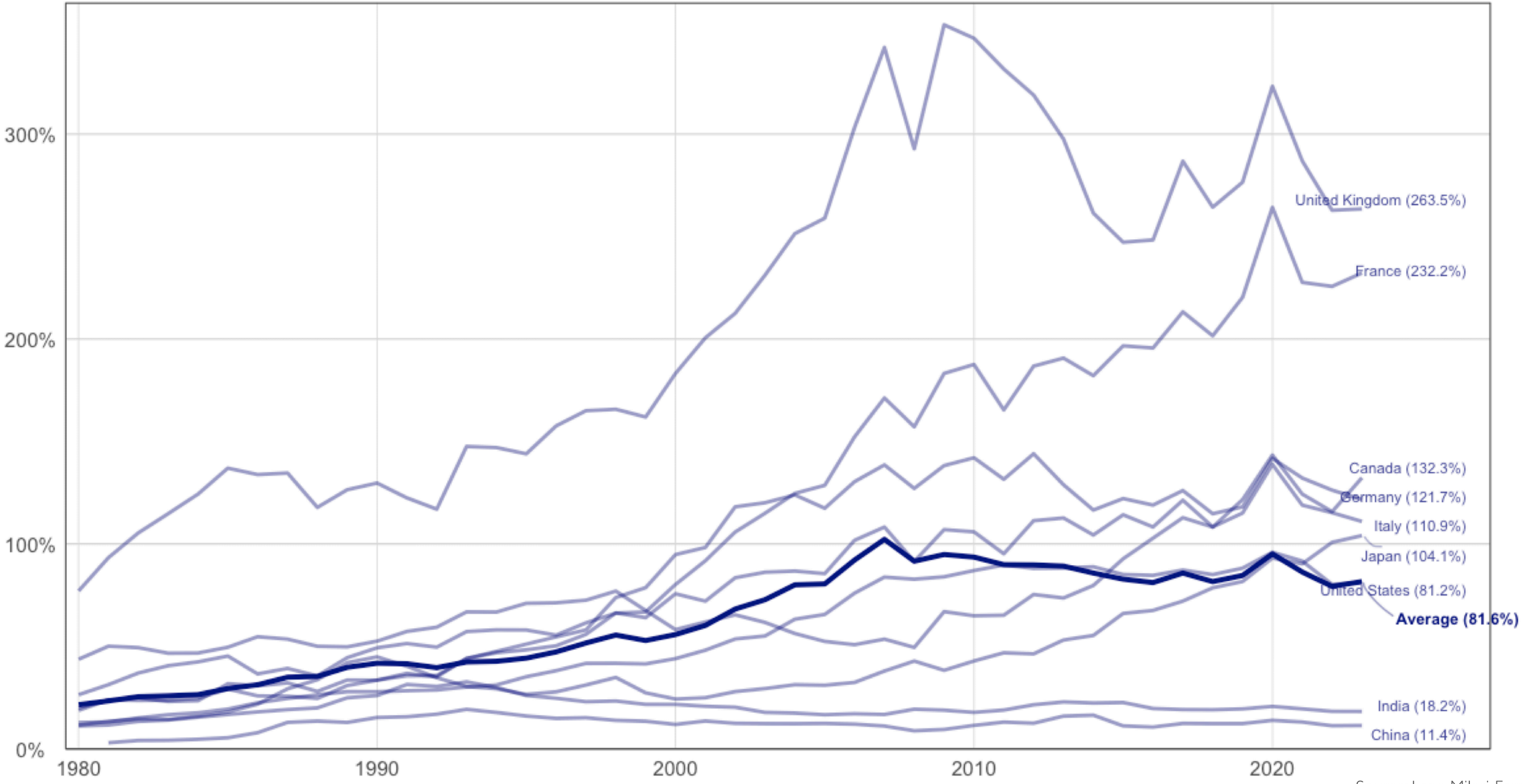


Source: Lane Milesi-Ferretti (2018)

Tax the foreigners! Sellers of goods (Imports / GDP)



Tax the foreigners! The creditors (Gross debt liabilities / GDP)



Source: Lane Milesi-Ferretti (2018)

This lecture

- *Financial repression policies*:
  - Policies that lower the twin debts—loosen the budget constraints in terms of required surpluses to service the debt—-by transferring resources from the holders of external/public debt to the country/government, excluding outright default

- *XXIst century:*
  - Common in 1945-85, less so in 1985-2025, coming back now
  - Different financial claims outstanding, different theories on how policies work, new empirical measures and estimates of their potential
  - Assess their current revenues, potential for more, their trade-offs

Conceptually, budget constraints

- Accounting:

$$\Delta \text{ Net liabilities} = \text{Net payouts from liabilities} - \text{Net Income}$$

- Economics:

No Ponzi scheme on the liabilities

- Then:

$$\text{Debt} = \text{EPV (net income)}$$
$$- \text{ change in market value of the debt}$$
$$+ \text{ EPV (discounts on debt returns)}$$

Public Debt =

EPV(of primary surpluses)

- Conventional term
  - Tax the financial sector or creditors

\+ Market devaluation of the liabilities

- Sovereign default
  - Unexpected inflation

\+ EPV (discounts on public liabilities)

- Often ignored
  - Seignorage from physical currency
  - Whenever service and so a discount
  - Make supply of service scarcer

External Debt =

EPV (trade balance and transfers)

- Conventional term
  - Tax the foreign creditors

\+ Market devaluation of the liabilities and revaluation of assets

- Valuation terms
  - Unexpected depreciation of currency

\+ EPV (exorbitant privilege)

- Composition of assets and liabilities
  - Exorbitant privilege
  - Global insurance premiums
  - Make supply of services scarcer

The three classes of financial repression

Debt = EPV (net income)

- Raise resources directly, independent of the stock of debt

− change in market value

- Raise resources by changing value of the stock of debt unexpectedly.

+ EPV (discounts)

- Raise flow of resources that are proportional to the stock of debt.

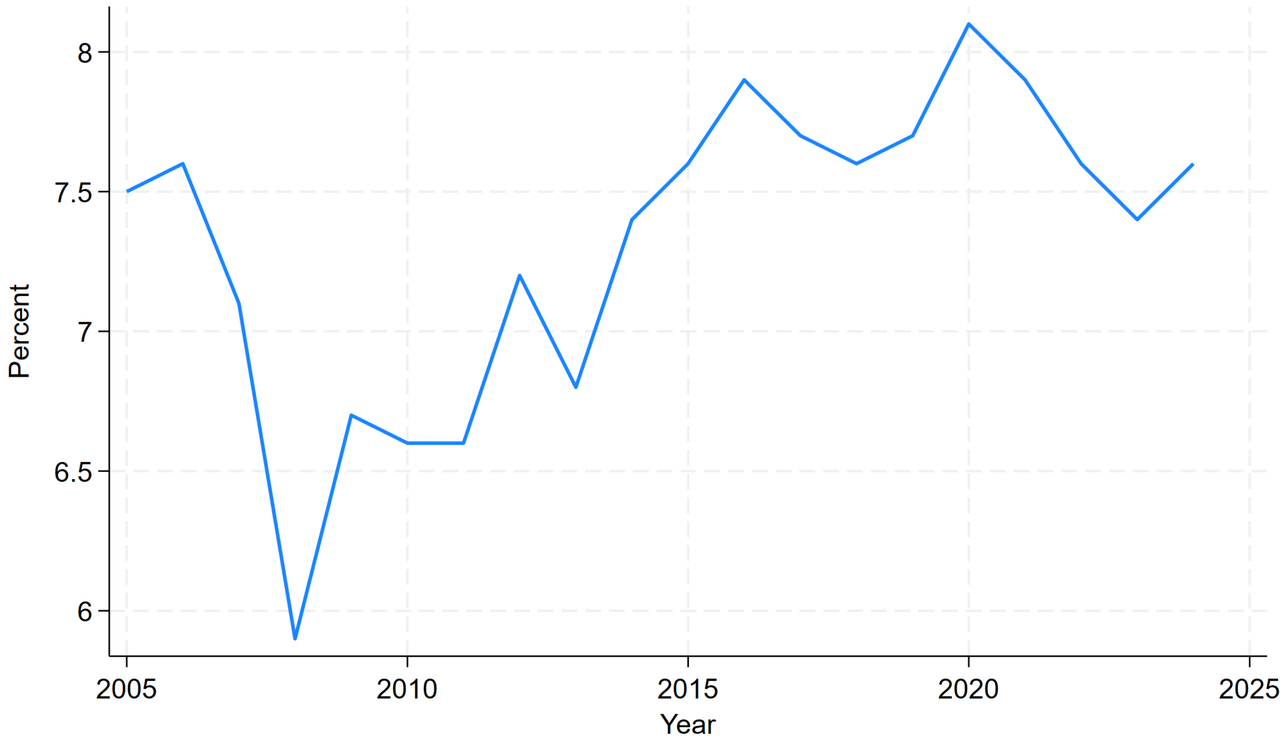
- Zero benchmark:
  - *ad valorem* tax on returns raises first term, but lowers third term
  - Permanent increase in value of flow of service raises third term, lowers second term

Zero on average, yet large all the time

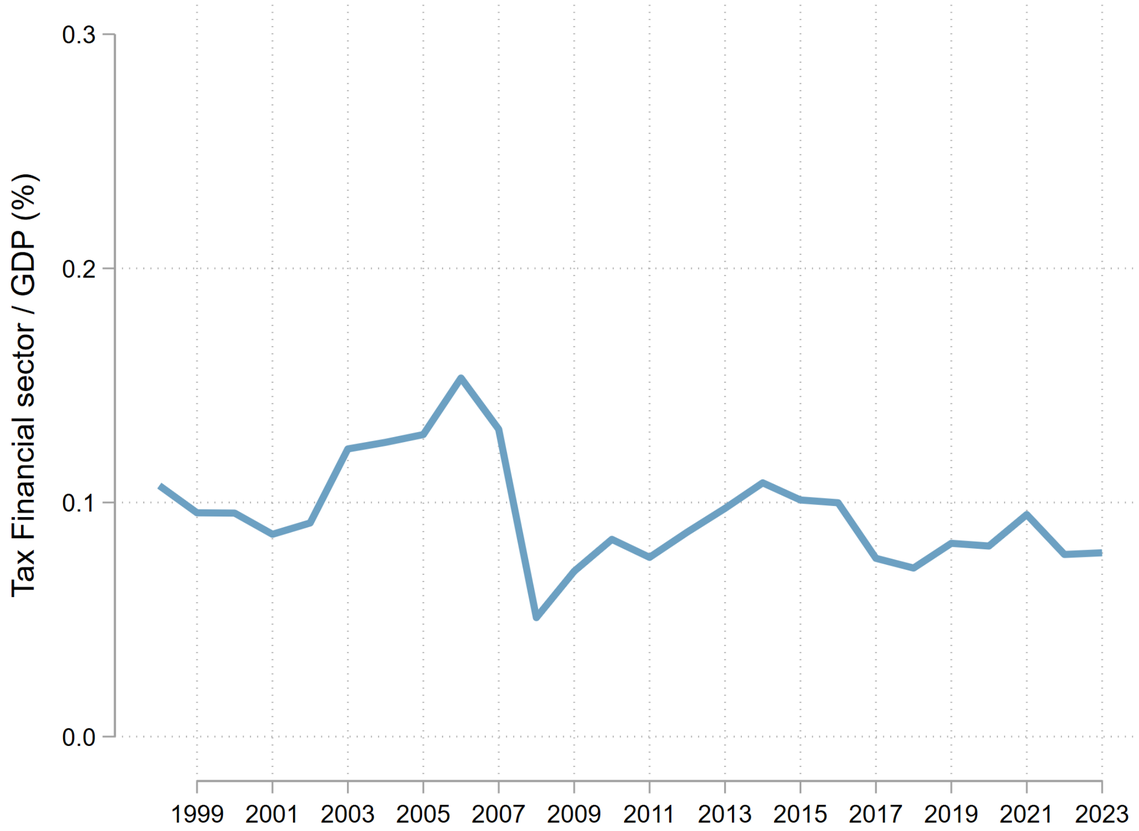
- On the left, return on foreign liabilities. Rose for the US after 2010s
- On the right: interest paid on debt minus average return on capital

Surpluses: taxing the VA of the financial sector

US financial sector value added / GDP

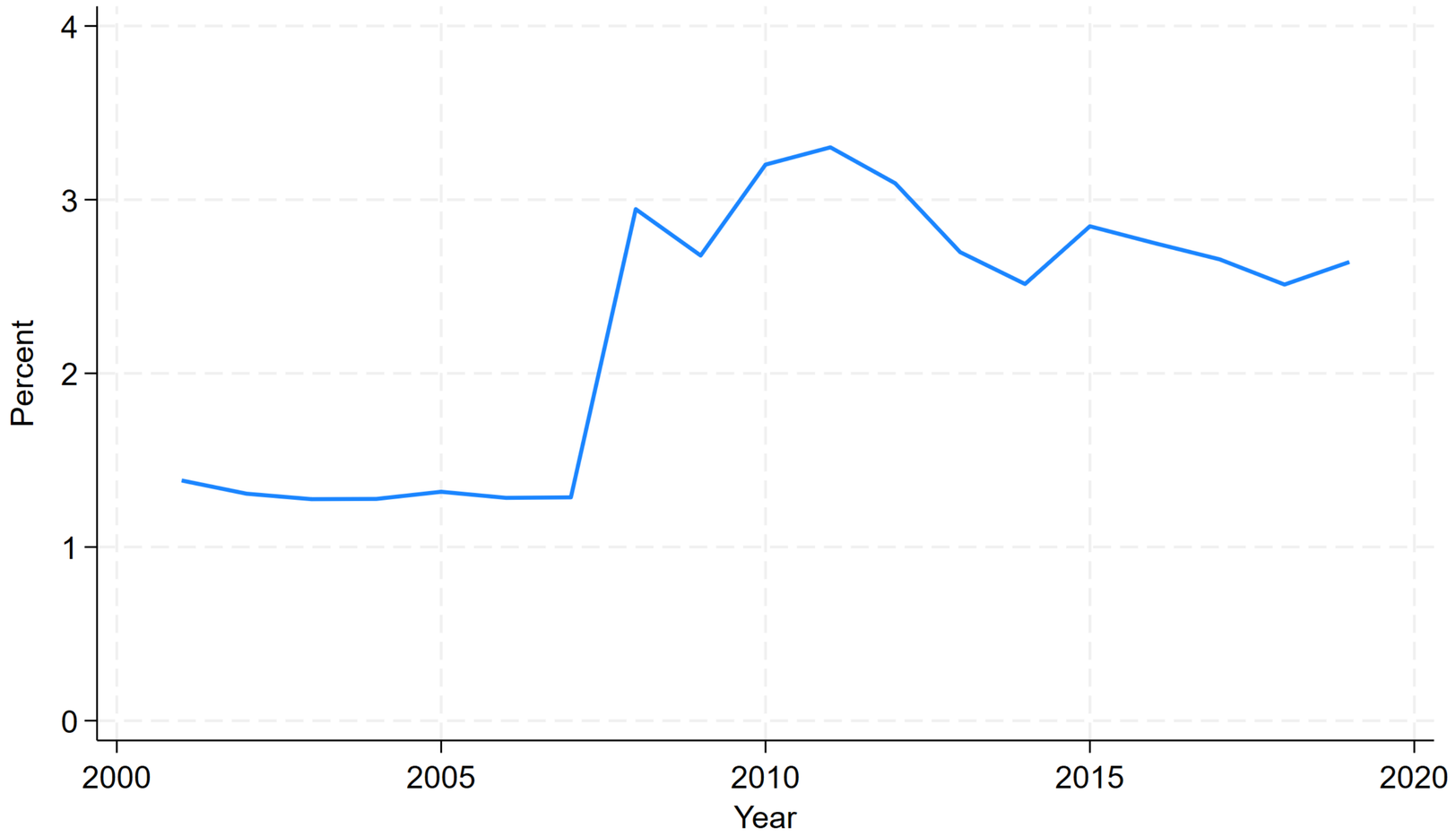


Taxes / GDP



Surpluses: taxing flows in the financial sector

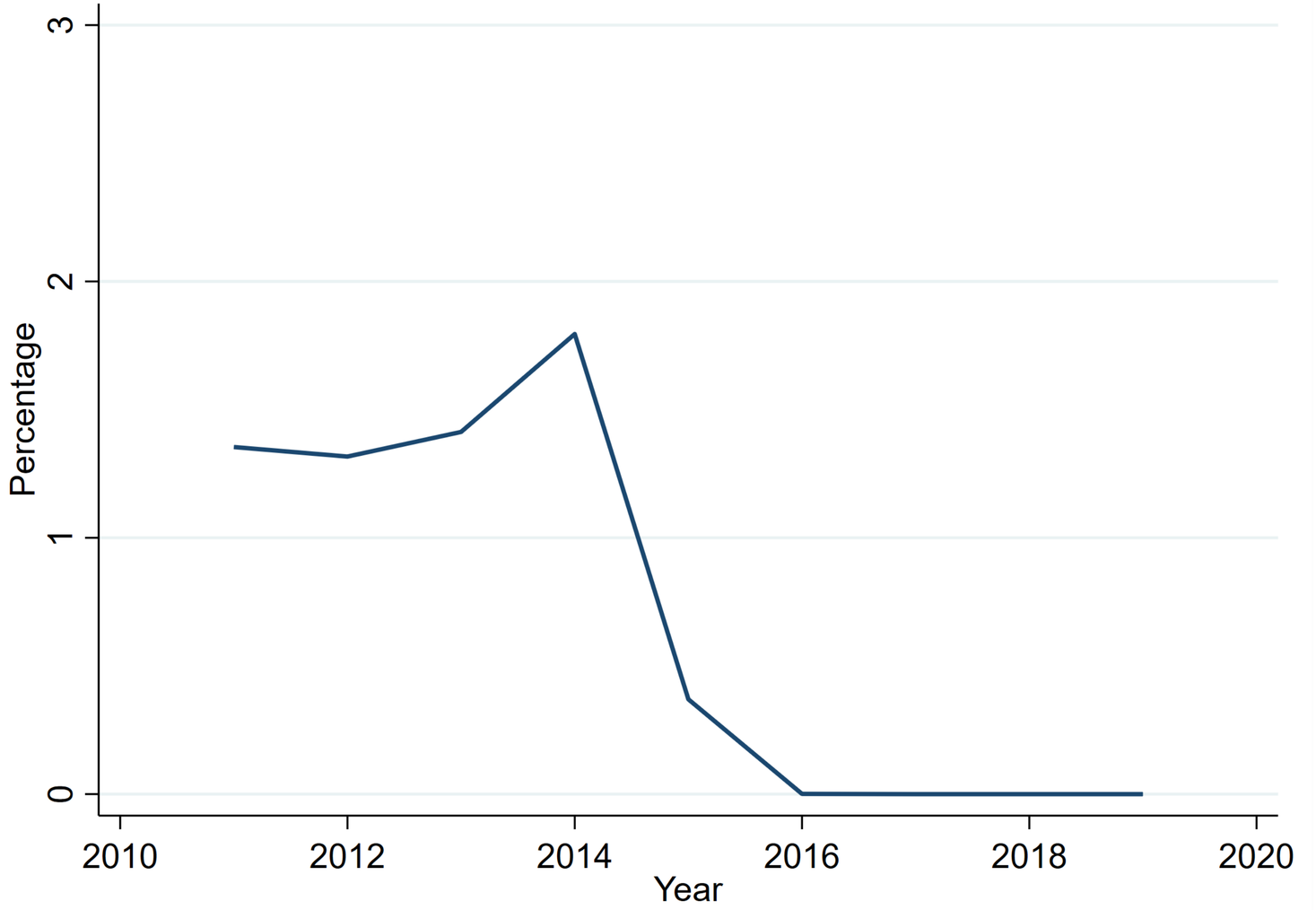
Revenue from tax on capital inflows / tax revenues



- Brazil, October of 2009
- Transaction tax on equity and fixed income flows
- Extended to derivatives, peaked at 6% in 2012, some of it repealed in mid 2013, many remained with constant tinkering
- Debatable effectiveness at managing capital flows

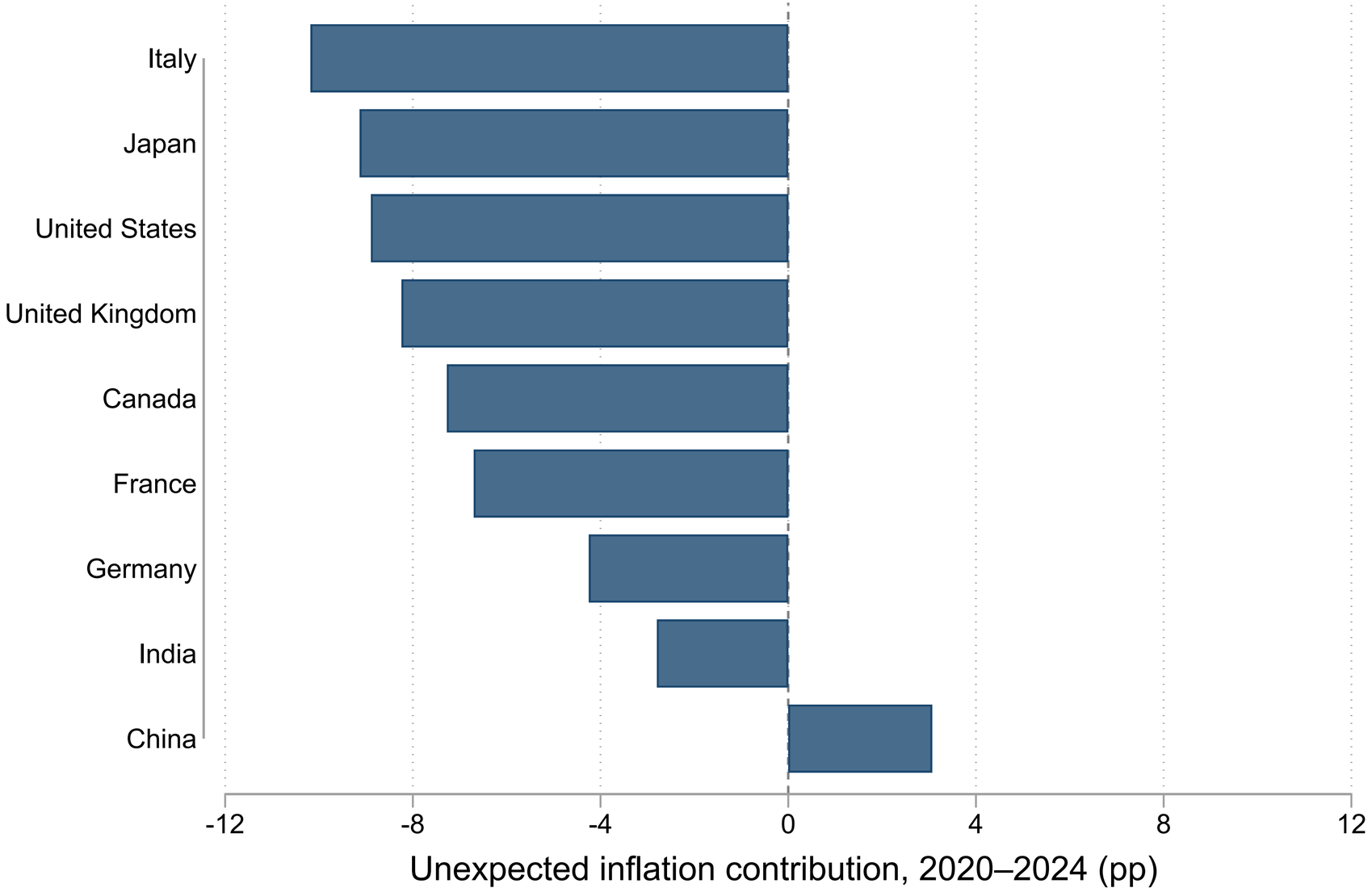
Surpluses: taxing stocks in the financial sector

Tax revenue on pension funds / total



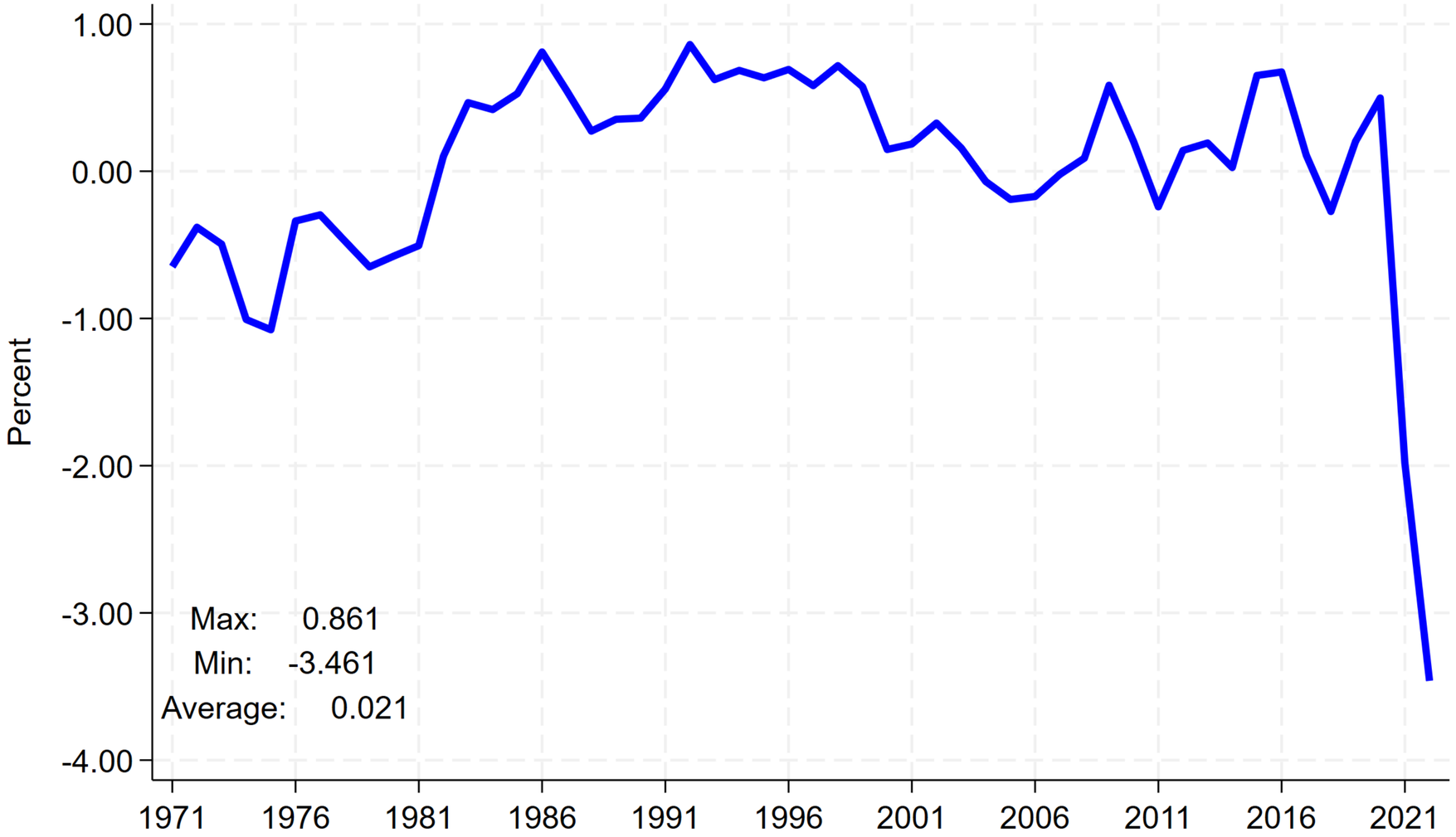
- Ireland, 2011
- 0.6% levy on pension funds' assets for the next three years, rising to 0.75\% in 2014 and 0.15\% in 2015.
- Example of one-off-tax on holders of assets

Unexpected inflation: post-pandemic



- Inflation surge across the advanced economics from 2021 onwards
- Exercise: calculate the change in debt due to unexpected inflation, using WEO data on expectations in 2019 and on actual values in 2024
- Significant numbers

Unexpected inflation: post Bretton Woods



- Using professionals' expectations, same exercise for the US since 1971
- Average is quite close to 0 over 50 years
- But large revenue in 1970s, drag in 1982 - 2003, very large in 2021-22

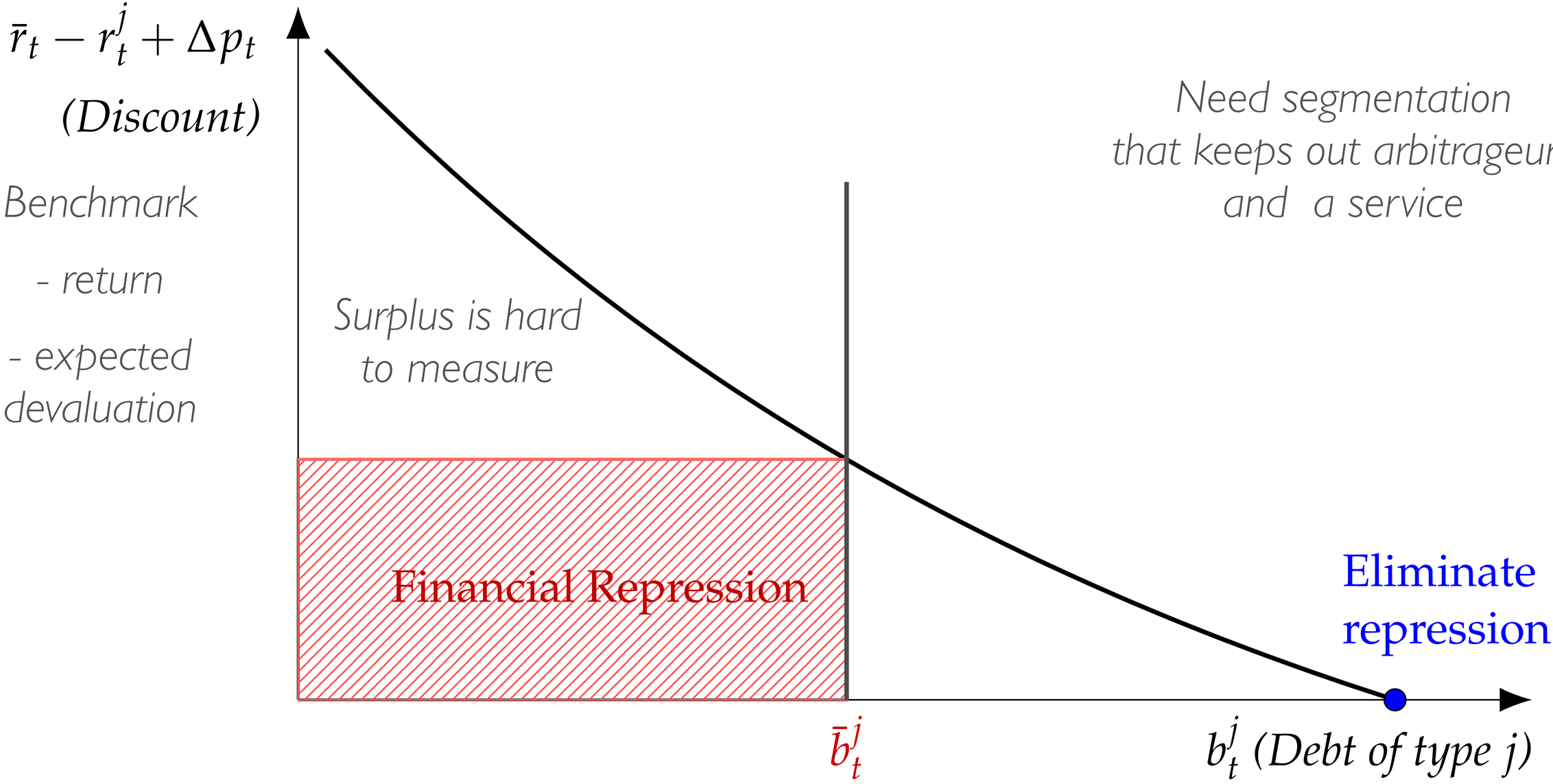
Source: Acalin Ball (2025)

Unexpected inflation: determinants and future

- **Size of the effect depends on**
  - composition of the debt: indexed to inflation, duration of the portfolio
  - inflation dynamics: delay after loose policy, and persistence afterwards
  - extent of the surprise: subdued and slow-to-move expectations

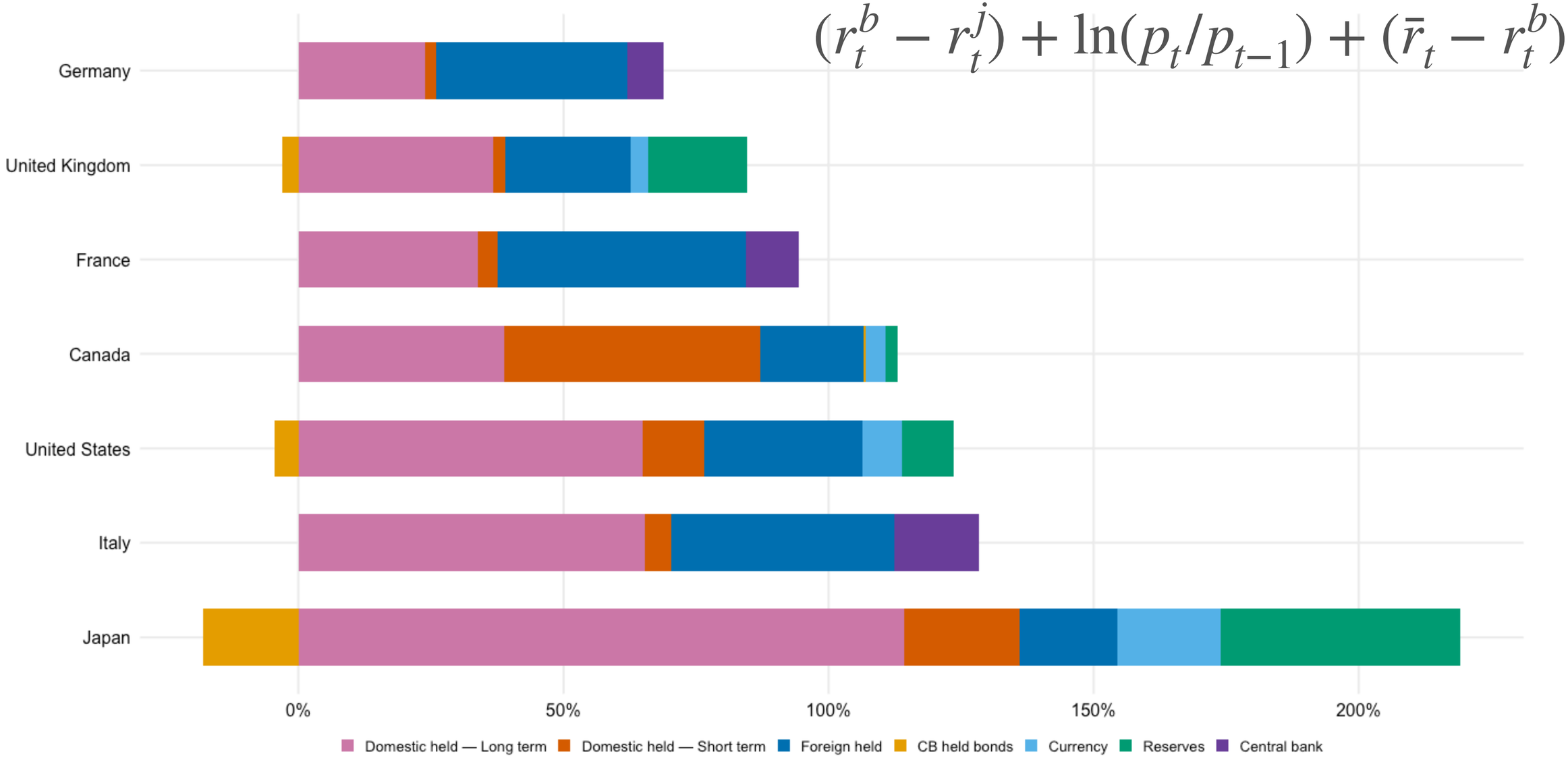
- **Data on expectations right now shows:**
  - In UK data, long-horizon swap prices overreact when the traders' expectes inflation rises (Bahaj, Czech, Ding, Reis, 2025)
  - US professionals' survey expectations of US long-run inflation have become more sensitive to short-run inflation shocks (Reis, 2025).
  - Cost of buying insurance against EA inflation tail events at long horizons through swaption contracts has decisively and persistently increased (Hilscher, Raviv, Reis, 2025)

The service flow and discounts



Types of government liabilities and sequencing

$$(r_t^b - r_t^j) + \ln(p_t/p_{t-1}) + (\bar{r}_t - r_t^b)$$



Currency

Service:

Anonymous transactions/store of value

Discount:

Zero minus interest rate paid for deposit at the central bank

Optimal:

Friedman rule (but then cannot choose an inflation target)

In principle could by tokenized CBDC

Digital money

Service:

Liquidity for banks

Discount:

Interest on reserves minus interest on overnight government bond (ONRRP)

Optimal:

Abundant / ample reserve system

(Or lending rate close to deposit rate)

Long-term bonds

Service:

Safe stream of income for 20-30 years

Duration for pensions and life insurance

Discount:

30-10yr spread from preferred habitat

Optimal:

Supply more long-term bonds

Currency denomination

For an international currency

Service:

Match imports with store of value

Insurance, if appreciate in crisis

Discount:

Cross-currency basis (CIP deviation)

Optimal:

Domestics have advantage in doing it

Funding LOLR

Service:

Emergency lending for both domestics and foreigners

Discount:

Spread on lending facility (including swap lines)

Optimal:

Narrow corridor

Domestic assets

Capital controls

Service: Access to the capital stock

Discount: tax, or CNH-CNY spread

Exchange rate volatility

Mundell's work (Nobel lecture)

Service: save on the limited risk-bearing capacity of currency arbitrageurs

Optimal: international currency

Bonds and the convenience yield

$$(r_t^b - r_t^j) + \ln(p_t/p_{t-1}) + (\bar{r}_t - r_t^b)$$

- **Service:** pledgeability
  - From being information-insensitive, deep liquid markets, regulation
  - Regulation too: liquidity ratios, risk-weighted capital requirements, exemption from leverage limits, eligibility rules central bank lending…
- **Three approaches to measuring this pervasive wedge / convenience yield**
  - Narrow to minimize segmentation: supra-nationals or AAA corporate bonds
  - Broad to avoid MM biases: return on capital stock, or bond-stock correlations
  - Model-based to separate out risk: empirical SDFs from asset pricing

Quantifying US financial repression

Table 1: Assessing the size of US financial repression revenues

			Revenue % GDP	
			2015-19	*2021-25*
Panel I. Direct taxation term				
Income taxes collected over the financial sector			0.089	
				0.086
Panel II. Unexpected inflation term				
Expected inflation	*Actual inflation*	*Debt/GDP (%)*		
1.560	1.554	61.9	-0.023	
2.016	4.938	84.1		*1.955*
Panel III. Discounts term				
Convenience service	*Discount spread*	*Relevant liability*		
Anonymity	IOR rate minus zero	Currency in circulation	0.094	*0.262*
Liquidity	ONRRP rate minus IOR	Bank deposits at the Fed	0.024	*0.014*
Duration	30-10yr spread from preferred habit	Government bonds maturity $\geq$ 10yr	0.014	*0.023*
USD denomination	Treasury covered interest parity	US gross external liabilities	0.399	*-0.062*
Pledgeability	3yr AAA corporate minus treasury rate	Government bonds held by the public	0.438	*0.508*
	Return on capital minus treasury rate	Government bonds held by the public	3.914	*0.260*

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(1) Pledgeabiliy dominates, but may have fallen

(2) Large fall in revenues from USD dominance

(3) Old-fashioned repression form currency and unexpected inflation made a big comeback

(4) Actual sizes may be impossible to pin down because of a missing intercept

Potential for more revenues?

Table 2: The semi-elasticity of the demand curve for different bond-services

Service	**Semi-Elasticity** (per 100bp)	**References in the literature**
Anonymity	0 to 10%	Ball (2001), Lucas (1988), Benati et al. (2021).
Liquidity	50 to ∞%	Hamilton (1997), Smith and Valcarcel (2023), Afonso et al. (2025), Bahaj and Reis (2024), Lopez-Salido and Vissing-Jorgensen (2025).
Duration	175 to 250%	Greenwood and Vayanos (2014), Greenwood and Vissing-Jorgensen (2018).
USD denomination	1 to 20%	Bahaj et al. (2025*a*), Liao and Zhang (2024), Kubitza, Sigaux and Vandeweyer (2024).
Pledgeability	20 to 60%	Krishnamurthy and Vissing-Jorgensen (2012), , Jiang, Richmond and Zhang (2025), Fang, Hardy and Lewis (2025), Payne and Szoke (2025).

Note: This table lists bounds for estimates of the semi-elasticity of the service provided by the government liabilities listed in table 1, and the references to the articles that estimated them.

Distortions on the other side

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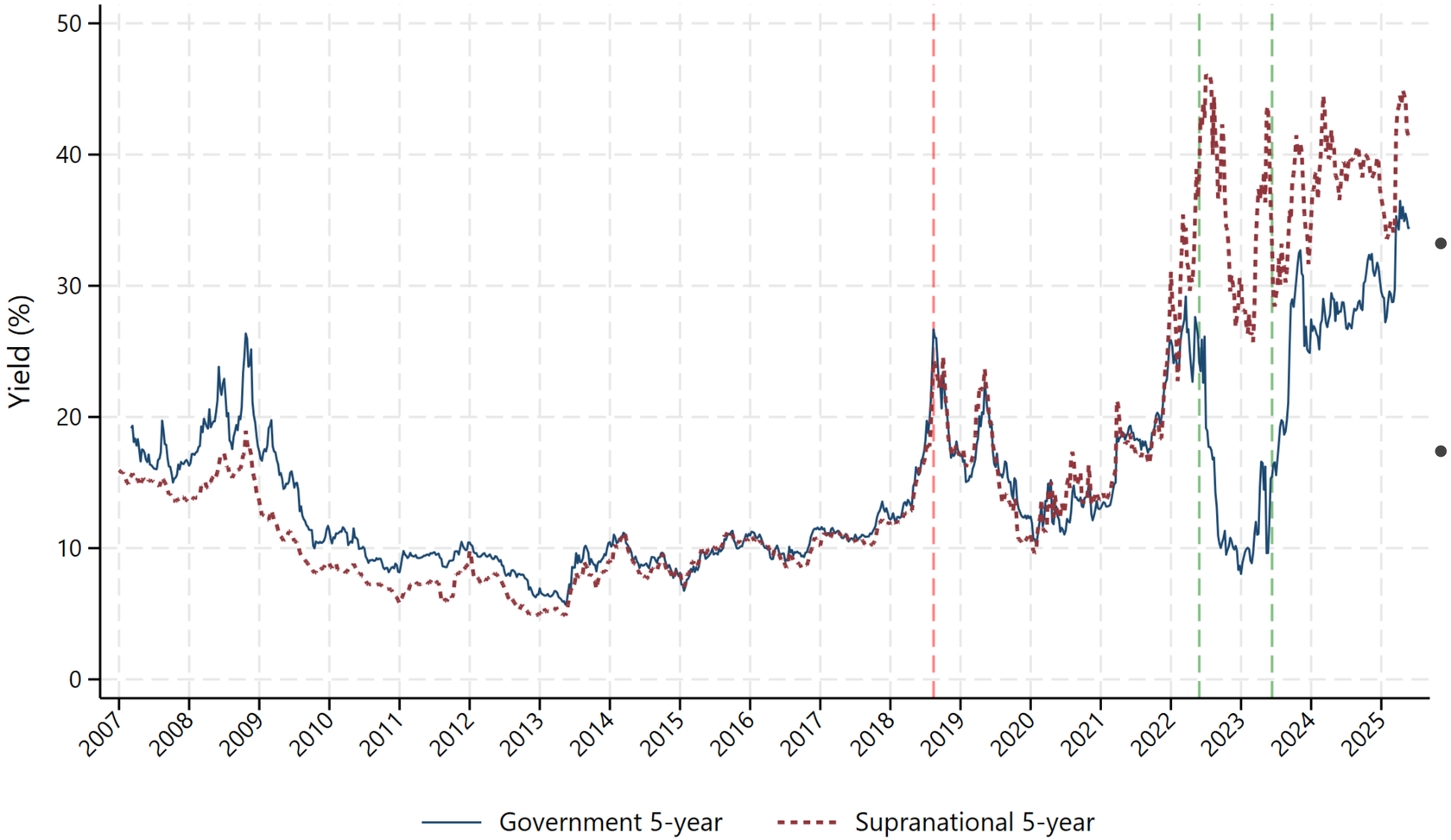
- **Financial repression is not in itself bad.** If financial regulation corrects market failures and also brings some revenue on top of it (financial repression) so be it. Like Pigouvian taxes.
- **Famous distortions:** unexpected inflation, reserve requirements, McKinnon (1960), Shaw (1963)
- **Understudied ones**: CIP deviations, regulation.

Modern cases: Turkey, June 2022



Source: Onen (2025)

- **Securities Maintenance Practice:** banks must hold long-term government bonds against loans, deposits, FX.
- **This lecture**: measure by supranational spread
- **Further**: interaction between fiscal and macroprudential policies that face fiscal or financial crisis leading to "unpleasant macroprudential arithmetics" (Reis, 2021)

Modern cases: Euro Area, September 2023

ECB adjusts remuneration of minimum reserves

27 July 2023

- Minimum reserves to be remunerated at 0%
- Change preserves the effectiveness and improves the efficiency of monetary policy

The Governing Council of the European Central Bank (ECB) today decided to set the remuneration of minimum reserves at 0%. The change will become effective as of the beginning of the reserve maintenance period starting on 20 September 2023.

Minimum reserves are reserve balances that credit institutions are required to hold with their Eurosystem national central bank on average over a maintenance period. Credit institutions are required to hold a minimum amount equivalent to 1% of specific liabilities, mainly customers' deposits. Minimum reserves are currently remunerated at the ECB's deposit facility rate (DFR).

- **Policy decision:** remuneration of required reserves went from the interest on deposits to zero
- **This lecture:** this is financial repression, brings €6 bn per year
- **Further:** is this desirable, since there is a spread between the deposit rate commercial banks earn at the central bank and the deposit rates they pay their costumers? (Reis, 2023, Bahaj, Hosseini, Reis, 2025).

Modern cases: UK 2024-2025 pension reforms?

- In UK, 80% of pension funds' assets under management are invested abroad

- Both parties— Hunt in March 2024, Reeves in November 2025?—with proposals to limit tax benefits in ISAs (Roth IRAs) to investments in UK bonds and equity. **Financial repression**.

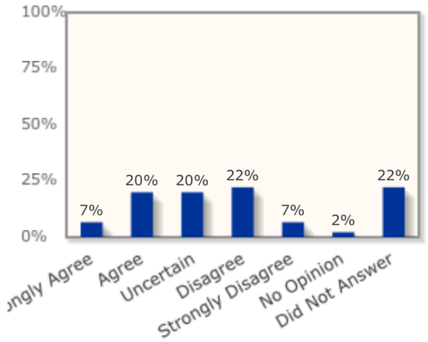
- **Further:** Draghi report call for domestic capital markets based on pensions funds to invest domestically and recover competitiveness (Reichardt Reis, 2025)

Source: FT and EC

Modern cases: raising the inflation target

If the European Central Bank changed its inflation target from 2% to 3%, the long-run costs of inflation for households would be essentially unchanged.

Responses



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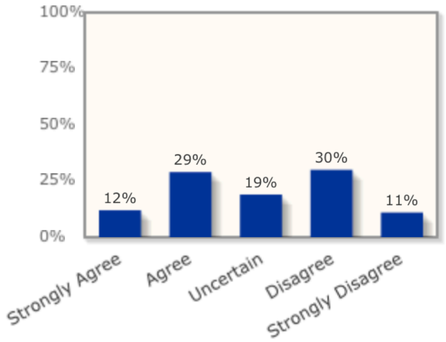
Source: European Clark Center Economic Experts Panel
Methodology

Responses weighted by each expert's confidence



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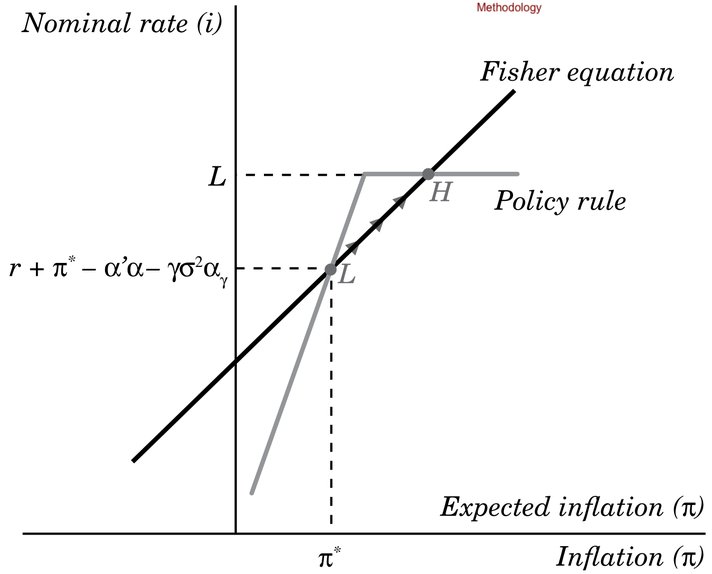
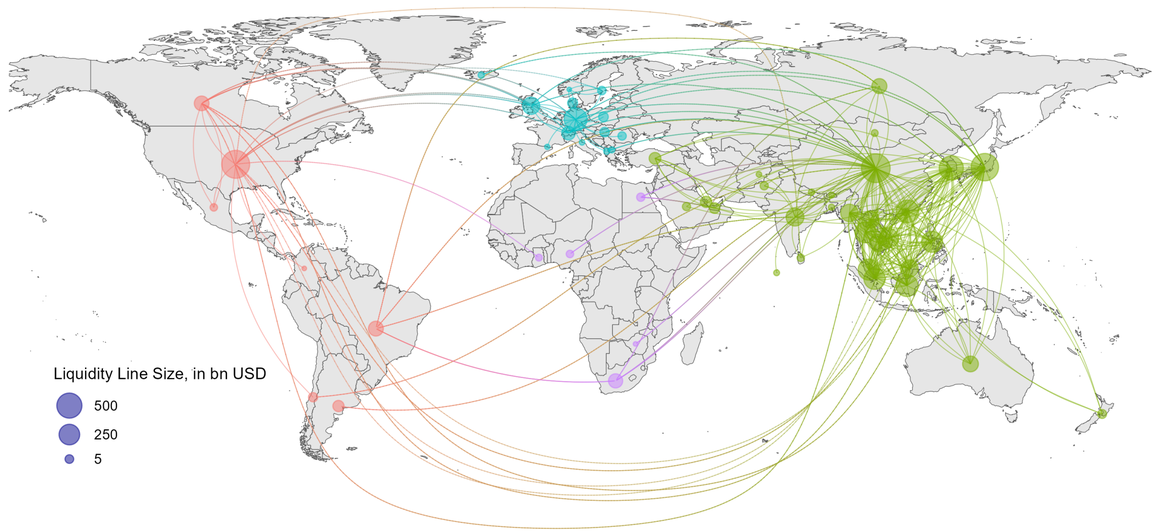
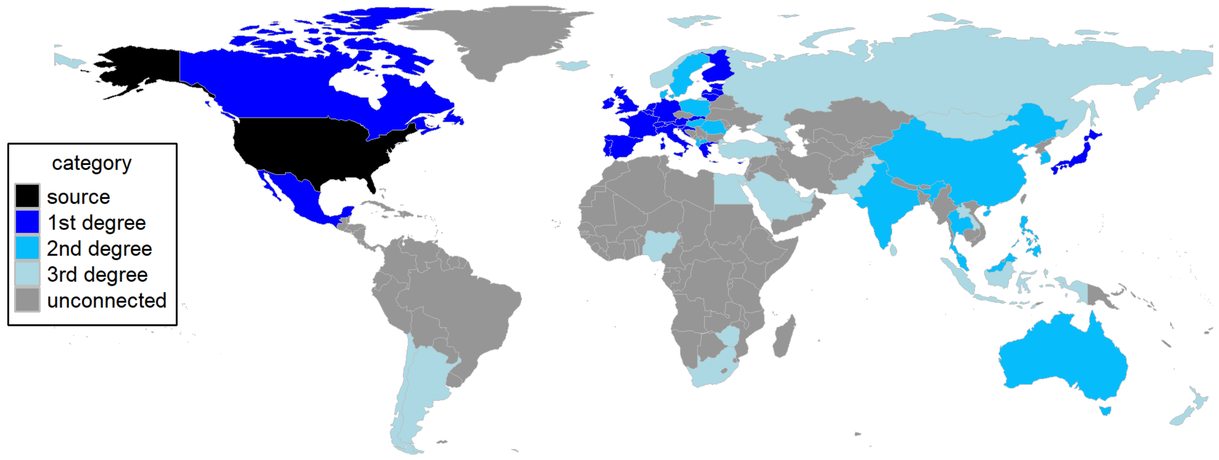


- By itself, if fully anticipated increase in inflation, then still **financial repression** through zero-interest-paying currency.
- Using the estimates in **this lecture:** extra 1% in the inflation target raises 0.12% of GDP per year in repression.
- **Further:** if ceilings on on interest rates of long-term government bonds, or with yield curve control (Japan 2016-24), repression can be large but leads to unanchored inflation (Reis, 2019)

Source: Clark Cent4er and Reis (2019)

Modern cases: international provision of USD





- Fed 2010 **swap lines**: lends USD to a foreign central bank, receiving in return as guarantee that central bank's currency as a guarantee, to be returned when the USD are repaid.

- Fed 2020 Foreign and International Monetary Authorities (**FIMA**) **repo** facility: foreign central banks can borrow USD overnight as long as they can offer US treasuries as collateral.

- Move from first to the second is **financial repression** (Bahaj Reis, 2022, Bahaj, Fuchs, Reis, 2024)

Source: Bahaj, Fiuchs, Reis (2024)

Modern cases: stablecoins and currency

- They **reduce the repression associated with currency**: digital form of payment with some anonymity. And, if deposit at central bank, can pass interest to depositors.

- They **reduce the repression associated with exchange rate volatility**: step towards USD becoming international currency.

- But, if domestic regulations stop them from paying interest, and foreign regulations stop them from being adopted, then **financial repression will continue**.

Source: Brookings Instittuion

Conclusions

- **An economic principle**: the budget constraint of the government and/or nation
- **Applied policy question**: financial repression policies raise revenue through three terms
- **Why come back in XXIst century?** Large gross debts, there are regulations with potential in place, it can persistently deviate from zero, it can grow significantly.
- **Should it come back?** Costs and benefits
- If they are actively used, **two open questions**
  - How much will elasticities adjust from short run to long run: **offshore markets**
  - **Role of the IMF**, from 1970-80s liberalization, to capital flow management, to …