Sovereign Debt

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Introduction

Sovereign debt is different. But it is different in more than one way.

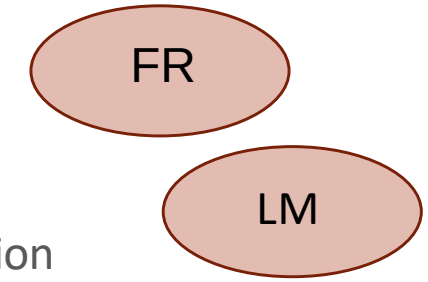
1. A safe and liquid asset that can help circumvent agency problems and financial frictions
2. An asset that comes with its own frictions: particularly an enforcement (willingness to pay) problem.

Aim of this survey: to explain under what conditions either of these views may be relevant, and what they imply for the economy

- Benefits of sovereign debt as a safe asset
- Costs of living with risky sovereign debt

Plan:

- Safe sovereign debt
- Sovereign default
- Costs of sovereign default *risk*
- Policy implications and conclusion



Safe and liquid sovereign debt

Assumptions:

1. No or low default risk
   - Power to tax, enforcement problem solved by domestic political institutions
2. Private borrowing constraints

- Then, buying and selling government debt acts as a substitute for private borrowing (Woodford 1990, Holmstrom-Tirole 1998)
  - Government's power to tax enables agents to indirectly borrow against future income after all.

- In this case sovereign debt relaxes private constraints
  - Trade-off: public good properties of sovereign debt versus timing of tax distortions (e.g. Aiyagari and McGrattan, 1998)

Safe and liquid sovereign debt

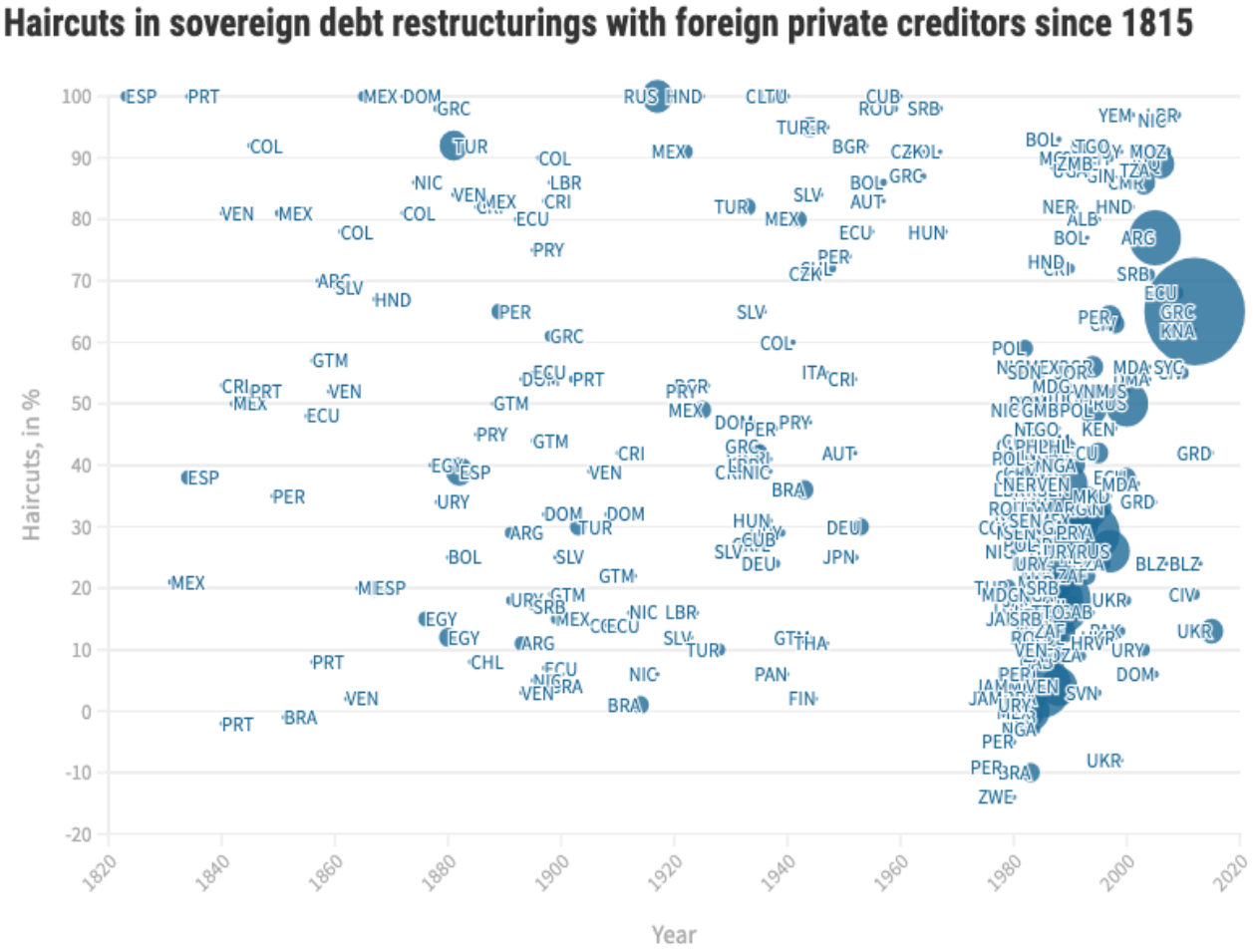
Implication: debt is valuable beyond the claim to future primary surpluses it represents (Brunnermeier et al 2020, Reis 2021)

$$value\ of\ debt\ stock = \mathrm{E}\{PV(future\ primary\ surpluses)\} + \mathrm{E}\{PV(future\ service\ flow)\}$$

- Governments get a free lunch. But the size of the lunch is limited!
- Implications for sustainability of fiscal policy in advanced countries today.
  - Debate kicked off by Blanchard (2019).
- Trade-off: $r < g$ if marginal liquidity services are large (if debt is low)
  - Important mechanism although governments do not maximize debt prices

Sovereign Defaults/Restructurings

- **A lot**. At least 300 since 1815 (Meyer et al 2021)
- Tend to happen in **clusters**, reflecting boom-bust cycles
- Average (NPV) investor losses ("haircut"): **44%**
- Haircuts/negotiation periods differ for preemptive and post-default restructurings (Asonuma-Trebesch 2016)
  - Pre: 1 year/18%
  - Post: 6 years/48%



The costs of default (for the debtor)

An obsession of the early (1980s-mid 1990s) sovereign debt literature

- Because it addresses question why sovereign debt can exist at all in the absence of contract enforcement against a sovereign.

Theory

- Exclusion from capital markets, higher borrowing costs
  - Eaton and Gersovitz (1981), Bulow and Rogoff (1988, 1990), Kletzer and Wright (2000)
- Trade costs and/or sanctions
  - Mitchener and Weidenmier (2005) for 1870-1914, Borensztein and Panizza (2009) for trade finance, Mendoza and Yue (2012)
- Reputational spillovers and/or negative signals about the economy
  - Cole and Kehoe (1998); Sandleris (2008), Hébert and Schreger (2017)
- Role of secondary markets
  - Broner et al (2010)

The costs of default (for the debtor)

Empirics:

- Capital market exclusion, higher borrowing costs: yes, but temporary (Cruces-Trebesch 2013)
- Trade costs: yes (Rose 2005, Asonuma et al 2016) but no-one understands why
- Reputational spillovers: indirect evidence (defaults lead to generalized runs)
- Exposures of domestic financial system (Gennaioli et al 2018).

Output costs? (via all channels)

- Hard to separate from causes of defaults
- Kushinov-Zimmermann (2017): large but temporary. Peaks at 4 percent of output after 5 years. Marchesi and Masi (2021): permanent.

Measuring sovereign risk

- **Probability of default** is unobserved
- Using **observed bond prices**, we can infer the (yield) compensation required by investors to hold a sovereign bond

$$q_t = \sum_{s=0}^{\infty} \frac{d_{t+s}}{(1+\boldsymbol{r})^s}$$

- Solve for **yield** $\boldsymbol{r}$ to match price q_t when promised payments are d_{t+s}
- Compute **sovereign spread** as the difference between the yield implicit in sovereign bonds and the yields of similar bonds that are considered risk-free

What's reflected in the spread?

- Default risk and expected haircut in case of default, but also
- Liquidity premia, ambiguity premia, risk premia

When do governments default?

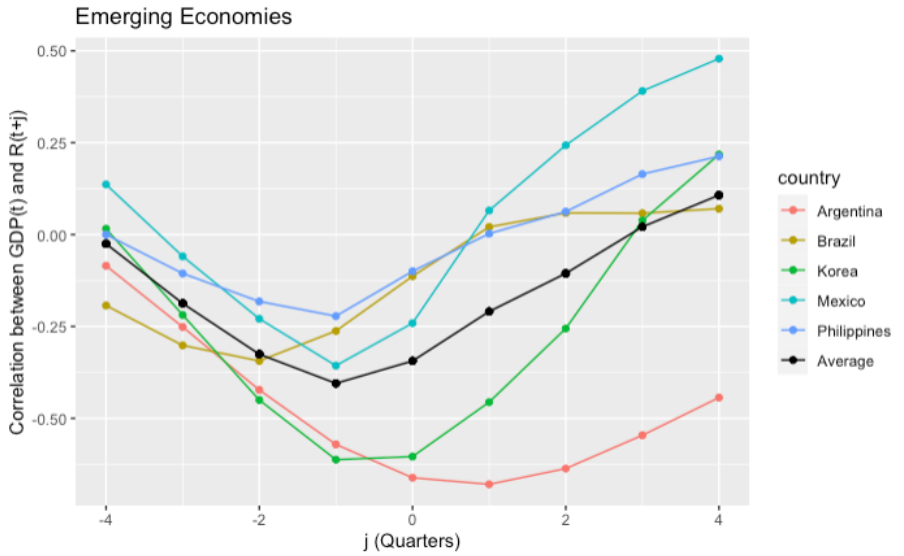
Anticipation of default closely related to spikes in spreads

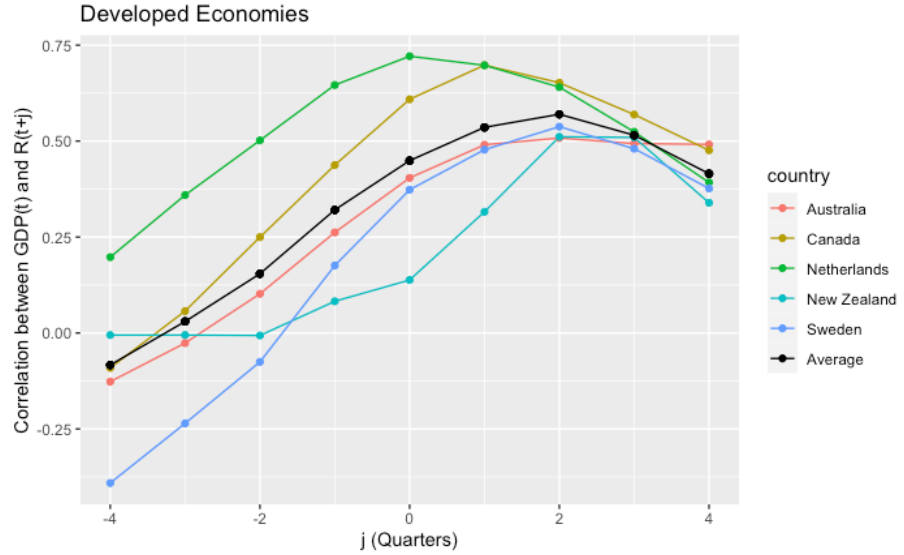
Resources	Borrowing costs	Political factors
• Business cycles (countercyclical sovereign spreads) • Terms of trade • Wars, civil conflicts affecting productivity	• Especially when trying to rollover debt • Both risk-free rate and risk premium • Global factors • Multiple equilibria	• Swifts in political preferences, reputation

Costs of sovereign *risk*

Costs related to default risk (even *without default)*

- **Countercyclical spreads** in EEs
- induce **procyclical borrowing** (Neumeyer and Perri, JME 2005)
  - ⇒ **procyclical fiscal policy**
- Evidence of **"graduation"**
- Public-private interactions
  - Pass-through of **sovereign risk to private borrowing rates**
  - **Sovereign-bank nexus**





Why are governments exposed to sovereign risk?

Three frictions

Incomplete markets (limited state-contingency)	Lack of commitment to repayment policies	Debt dilution: lack of commitment to future borrowing policies

Debt dilution can account for majority of risk

- **Long-term debt:** prices depend on future (expected) prices
- Future prices depend on **future borrowing** decisions
- Time-inconsistency problem causes **overindebtedness**

Mitigating sovereign risk

Institutions and strategies to attack the underlying frictions

Fiscal rules

- Directly affect size of fiscal deficits (and borrowing)
- What should be the anchor of fiscal rules?

State-contingent Debt

- Conditional distribution of repayments
- ***Puzzle*: why is sovereign debt noncontingent?**
- Optimal **design** problem: how best to index sovereign debt?

Concluding remarks

- Sovereign debt is **different** from private debt
  - For advanced and developing economies – but for different reasons
- Sovereign risk is **costly**
- Sovereign risk is a key reason why **business cycles** look so different in developing economies
- Themes
  - **Why** does sovereign risk materialize?
  - What can be done to **mitigate** sovereign risk?