Sovereign Debt: A Data Survey

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Sovereign debt and default is an eternal topic. Much research progress in the past 30 years

**Literature is still dominated by theory**

- Many good ideas/ mechanisms have not been brought to the data rigorously
- Much missed potential; time for an "empirical revolution"
- The good news: plenty of new (micro) data available & data easier to access

This is a broad survey of the world of sovereign debt data (including "hidden jewels"), based on 15 years of research experience in the field

**Main aim here: facilitate new high-quality empirical work, theory testing**
Sovereign Debt in the Twenty-first Century

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Abstract

How will sovereign debt markets evolve in the twenty-first century? We survey how the literature has responded to the eurozone debt crisis, placing "lessons learned" in historical perspective. The crisis featured: (i) the return of debt problems to advanced economies, (ii) a bank-sovereign "doom loop" and the propagation of sovereign risk to households and firms, (iii) rollover problems and self-fulfilling crisis dynamics, (iv) severe debt distress without outright sovereign defaults, (v) large-scale sovereign bailouts from abroad, and (vi) creditor threats to litigate and hold out in a debt restructuring. Many of these characteristics were already present in historical debt crises and are
What I will cover

The world of sovereign debt data:

1. Country level data: Debt levels (*the classic*) and debt composition (*rich new data*)
2. Instrument level data: bonds and loans, prices (*this is the frontier*)
3. Who holds sovereign debt?
4. Sovereign defaults and restructurings

Note: Nice previous survey by Abbas/Rogoff 2019: “Guide to Sovereign Debt Data”
Part 1: Country data on debt stocks (levels and composition)
Debt levels (public debt as % of GDP)

- Much progress on debt stock data, with some remaining gaps (composition)
- Beware of definitions, e.g. difference between "central" and "general" government debt. Helpful and detailed IMF/World Bank guide on debt statistics & concepts [here](#).

**Standard datasets on Debt-to-GDP ratios:** World Bank IDS, OECD, Eurostat (surprisingly hard to download data for full sample of advanced & emerging economies)

**Ready-to-use datasets (incl. historical data):**
- Reinhart and Rogoff (60+ countries) since 1800, [here](#)
- Jorda, Schularick, Taylor (20 advanced countries since 1870), [here](#)
- IMF Global Debt Database (worldwide, partly back to 1950), [here](#)
- IMF Historical Public Debt Database (starts in 1800), [here](#)
- IMF Public Finance in Modern History Database, [here](#)
Main datasets with compositional break-downs:

- BIS Debt Security Statistics [here](#) (great for benchmarking when using micro data)
- External: Quarterly External Debt Statistics, World Bank IDS
- OECD, e.g. Sovereign Borrowing Outlook (maturity data used e.g. in Bai et al. 2019)

**Domestic vs. Foreign:**

- Reinhart/Rogoff (starts in 1900) [here](#)
- Abbas et al (IMF) 1900-2011, 13 countries [here](#)

**Short vs. Long:**

- Abbas et al (IMF) 1900-2011, 13 countries [here](#)
- De Graeve/Mazzolini 2023 20 countries since 1995, daily debt valuation by maturity

**Private vs. Official (government-to-government, multilateral):**

- Horn et al. 2020 200 Years of Official International Lending (public data to come)
Country level data: Debt owed to China

Overseas lending by China opaque, systematically underreported ("hidden debt")

- Horn et al. 2021 compile a ”consensus” dataset of 5000 loans & grants by Chinese state creditors 1950-2017 ($520 bn total). Then use micro data to estimate aggregate debt stocks owed to China, by country, 2000-2017
- Full micro- & country-level data here (update until 2021 coming soon)
- Result: World Bank IDS missed 50% of Chinese overseas lending, in aggregate
- Related: Deep dive into 100 Chinese loan contracts in Gelpern et al. 2022, dataset

We show: China has become the world’s largest official creditor
The rise of China as an official creditor

Aggregate external public debt owed to different official creditors in billion USD
The World Bank debt transparency initiative has generated a wealth of new, public data.

Main novelty; the World Bank **IDS now available bilaterally - by counterparty** - select "Counterpart-Area" in the IDS DataBase (300+ creditors)

This means that you can download the composition of Argentina’s or Egypt’s external government debt by lending country (US vs. UK vs. Russia), for multilaterals even at the level of individual lenders (e.g. Arab Monetary Fund, African Development Bank).

Not just bilateral debt stocks, but also bilateral flows (commitments, disbursements, principal repayments), bilateral terms (grace, interest, maturity) and bilateral defaults/arrears (principal and interest).

More than a snapshot. Data goes back to 1970 (annual).

This opens **many new research opportunities**, e.g. by estimating gravity models or by exploiting (exogenous?) variation in creditor composition / types of lending.
Part 2: Instrument level data (prices and quantities)
Our field uses (too) little micro data. Some progress in recent years, but hopefully this was just the beginning. Much research potential left on big issues such as:

- **Maturity structure of sovereign debt**
  - Most theories remain untested (EM work by Arellano/Ramanarayanan, Broner et al.)
- **Currency composition of debt (foreign vs domestic)**
  - Perez/Ottonello 2019, Du/Schreger 2016 ⇒ much more to do on EM domestic debt
- **Interest rate structure (fixed vs floating, step-up)**
  - New theory (e.g. Aguiar et al. 2021), little empirical analysis
- **Rollover crises and debt repayment structure**
  - Much theory, little empirics (quantifying rollover risks/crises? role of debt management?)
- **Debtor-creditor (bank-firm-sovereign) linkages**
  - Pioneering work by e.g. Morelli et al 2022, Arellano et al 2017, Gennaioli et al. 2014
- **Returns on sovereign debt (fate of bonds in default?)**
  - Off-the-shelf return series ignore defaults, Meyer et al. 2022 correct for this bias
Sovereign bonds: In Stoppok/Trebesch 2021 we compared sovereign bond issuance data by commercial providers. Take aways:

▶ No database should be used without substantial cleaning
▶ *Deallogic*: high quality, but somewhat incomplete coverage
▶ *Bloomberg*: expensive, rather complete, but messy (duplicates, “ghost bonds“) and with strict download limitations
▶ *Refinitiv-Eikon*: reasonably priced, solid coverage of countries and variables, easy to learn ⇒ recommended as best standard resource

Maggiori, Neiman, Schreger et al. use *Morningstar* data in a cool way:

▶ Extract millions of corporate and sovereign bonds & stocks from (non-public) Morningstar fund holdings data & combine with commercial datasets, namely SDC Platinum, S&P Capital IQ, Dealogic, Orbis, Factset
▶ All codes made available on www.globalcapitalallocation.com
How to build a global census of bonds

It is now possible to construct a rather complete **census of sovereign (and corporate) bonds worldwide**. To do so, you can use two ”hidden jewels”:

1. CUSIP Global Services: You can purchase basic data on 25+ million CUSIPs/ISINs of stocks and bonds outstanding. This is a terrific source in the agenda of Maggiori/Neiman/Schreger et al. (details [here](#))

2. ECB collateral framework data ⇒ list of bonds eligible as collateral by the Eurosystem
   - ECB asset collateral lists [here](#). Currently 29,000 bonds in one compact database
   - Daily data back to 2010 (data quality improves over time). Covers issuer, ISIN, issuance date, maturity, coupon, guarantors.
Sovereign loans by banks and bank syndicates

- Commercial datasets have incomplete coverage (crucial to know limitations)
- Sources: A good option is Dealogic Loan Analytics (syndicated loans, e.g. Hale/Obstfeld 2016); SDC Platinum less complete; DealScan Refinitiv promising
- The best loan-level data is country-specific, available from selected central banks/regulators, but not public, i.e. hard to access

Bank lending from China:

AidData by Brad Parks et al. is finalizing a substantially improved Chinese loan database, covering overseas loans by state and private banks, 2000-2021 (release Q4 2023):

- Now by far the most complete loan-level source on Chinese overseas lending (broader than SAIS-CARI or BU teams; will be used to update our Horn et al. 2021 dataset)
- Also covers intransparent flows (via tax haven, SPVs), which are growing fast
We collected micro data on 7000 loans and bonds to African governments 2000-2020. Crucial part was to make use of very messy OECD Creditor Reporting System.

Full dataset can be downloaded as an Excel sheet from the Kiel Institute here.

Main take away: It is possible to make opaque public debt data ”public” (easier than you think). Others are now building similar database for Latin America.

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Source: Mihalyi and Trebesch (2023) Who Lends to Africa and How?
Secondary market (bond price data):

- **Bloomberg**: very good coverage, combines quote data by 10 or more dealers. Beware which price source you choose: default source BGN not necessarily the best (often imputed prices). I used CBBT on **Greek bond prices 2010-12**, data much more credible

- **Refinitiv-Eikon/Datastream**: good coverage, easier/cheaper to access

- **JP Morgan morganmarkets**: excellent bond-level source for EM and advanced economies. Limitations: (i) only available at financial institutions/IMF/ECB, (ii) only data on bonds currently in the index are easy to get, (iii) bonds in default drop out. EMBIG since 1992 reconstructed bond-by-bond (incl. defaults) in Meyer et al. 2022

- **CRSP** is great for US Treasuries (data 1925-today). Free data since 2001 [here](#)

- **Tick by tick (intraday) data**: e.g. by Refinitiv-Eikon or by MTS (largest trading platform for sov. bonds, great for Eurozone). Coming: **TRACE** data on sov. bonds

- **Auction data**: country-specific, rarely public e.g. Mexico in Cole et al. 2022
Instrument level: historical bond data

Much to learn from history: major crises are rare, fascinating parallels to today

▶ **Emerging markets:** Meyer et al. 2022 collect and combine >250,000 monthly sovereign bond prices 1815-2016. The pre-1990 data is fully available [here](#).

▶ **United Kingdom:** Ellison/Scott 2020 collect prices and characteristics of all UK gilts 1694-2018. Data available [here](#).

▶ **United States:** Hall et al. 2021 assemble prices, quantities, descriptions of all securities issued by US Treasury 1776-1960. Data available [here](#).

▶ **Interwar years:** End et al. 2019 compile issuance data on 3800 debt instruments 1913-46 for 18 countries. Data available [here](#).

▶ **Outlook:** Graciela Kaminsky has rich issuance data for LatAm. Indarte/Xu are collecting new, long-run sov. bond data. Josefin Meyer and I are finalizing a 200-year micro database on global capital flows & prices (corporate, sovereign, stocks, bonds).

▶ **Great historical survey** on international macro finance data sources by Chenzi Xu
Part 3: Who holds sovereign debt?
Growing knowledge on who holds sovereign debt. Type of asset holders increasingly important in international macro (e.g. Maggiori 2022; Broner et al. 2021)

Classic, country-level source: Arslanalp/Tsuda (IMF database)
- Yearly since 1990 (100 countries), quartely since 2004 (48 countries)
- Holdings data for banks, non-banks, official, CB (foreign/local)
  - For emerging markets - paper and data here
  - For advanced economies - paper and data here

Also the availability of **micro data on holders of sovereign debt** has greatly increased ⇒ much research potential

- **Bloomberg** and **Refinitiv Eikon** allow to identify major holders of each bond. Hurdle: has to be extracted by hand or by scraping. Example: Morelli et al 2022 use Bloomberg to identify bond holdings by >80 global banks in 2008 (for hundreds of bonds)

- Related (US focused, no hand-coding needed): Factset, Eikon eMAXX Bondholders

- **Bankscope** has long-run data on sovereign debt holdings by bank (not broken down by country/bond), this source was used by Gennaioli et al. 2018

- Maggiori/Schreger et al. (see above) study holdings with mutual fund data by **Morningstar** and now also using the **ECB Securities Holdings Statistics**, (Eurozone paper here, data not public)
Part 4: Sovereign defaults and restructurings
Sovereign default databases

What is a sovereign default? Less clear than you think (definitions: Gelpern et al. 2019)

Classic, binary measures of sovereign default (yearly):

▶ Reinhart/Rogoff 2009: best source on external/domestic defaults since 1800 (data here), comprehensive update coming soon (Farah Yacoub et al.)

▶ Further data sources on external default (modern and historical):
  ▶ Annual reports by S&P and Moody’s (gated)/ Salomon Brothers/ Suter’s 1992 book
  ▶ Helpful comparison of various yearly default measures 1950-2011 by Kuvshinov/Zimmermann 2019 (you can easily download their replication data)


Share/amounts of debt in default ⇒ defaults are selective & partial

▶ Arrears data in World Bank IDS very helpful. Bilateral arrears used in Schlegl et al. 2019, aggregate arrears used in Arellano et al. 2023

▶ Amounts in default also focus of Bank of Canada default dataset (Beers et al. 2022)
Measuring seniority (using arrears data)

Schlegl et al. 2019 study the pecking order of sovereign debt repayments: bondholders and multilaterals (IMF/WB) are more likely to be repaid (lower arrears, defaults happen later)
Sovereign debt restructurings

**Restructuring events** (dates, duration, basic characteristics):
- External banks & bondholders: Asonuma/Trebesch 2016. Data here
- Domestic debt restructurings: Erce et al. 2022, IMF
- Restructurings involving Chinese state creditors: Horn et al. 2022. Data here
- Combining all external restructurings (private, China, Paris Club):
  > 1000 restructuring events in Horn et al. 2022. Full database here

**Preemptive vs post-default?**
- 30-50% of restructurings are preemptive - without missing payments
- Asonuma/Trebesch 2016 classify deals as preemptive/post-default. Data here

**Creditor litigation?**
- Strong increase in defaults/restructurings involving creditor litigation
Hard vs. soft defaults (mainly: the size of haircuts)

Haircuts: how much do investors lose?

- Sturzenegger and Zettelmeyer 2008 developed the method to estimate NPV haircuts
- Cruces/Trebesch 2013 compute haircuts in 180 debt restructurings with foreign banks & bondholders 1970-2014 (updated soon). Data here
- Meyer et al. 2022 compute haircuts on external bonds since 1815. Historical haircut dataset 1820-2014 available here
- Outlook: several ongoing projects on haircuts in domestic debt restructurings; Schlegl et al. for haircuts on Paris Club; Horn et al. on haircuts vis-a-vis China (coming soon)

Coerciveness indicators (cooperative government approach?)

- Enderlein et al. 2012 propose 9 criteria to measure government actions and rhetoric vis-à-vis external creditors, e.g. ”threats to fully repudiate”, ”refusal to negotiate?”
- Dataset coded for defaults 1980-2009 (updated by Trebesch/Zabel 2016 & Gatien Bon)
Circle size = debt volume (real 2009 US$)

Average Haircut: 37%
Haircuts 1820-2014 (Meyer et al. 2022)

Circle size = debt volume (real 2009 US$)

Average Haircut: 43%
Announcing the Asonuma/Trebesch (2023) Sovereign Debt Restructuring Database
▶ Combines all of our restructuring data in one dataset. Release late summer/fall 2023.

Coverage:
▶ External private restructurings - with foreign banks/bondholders
▶ 204 debt exchanges, 1970-2022, plus ongoing defaults/negotiations

Variables:
▶ Start and end of negotiations/default, principal agreement
▶ Characteristics/terms, e.g. amounts, nr and type of old and new instruments, buy-backs
▶ Haircuts (from Cruces/Trebesch 2013 & Asonuma et al. 2023)
▶ Preemptive vs. post-default (Asonuma/Trebesch 2016, updated)
▶ Debtor coerciveness (Enderleim et al. 2012, updated)
▶ Litigation & holdouts (Schumacher et al. 2021, Fang et al. 2021)
▶ Creditor details (nr of banks, creditor committees, Asonuma/Joo 2020, Trebesch 2011)
▶ Much additional context information: deal/process narratives, sources, data quality
### Overview of variables - Sovereign Debt Restructuring Database

#### Variable Category | Variable(s)
--- | ---
**Deal identifiers** | Deal IDs, Country and Country Code, Restructuring Type
**Context** | Summary of Restructuring Terms and Context / Trigger of the crisis
**Timing variables** | Start, default and announcement (and dummy no exact start date), Start date of negotiations, Principal agreement or bond exchange offer date, End of restructuring: completion of exchange, Alternative and date / follow-up restructurings, Strictly preemptive / Weekly preemptive / Post default
**Restructuring Characteristics** | Debt Restructured (in US$), 3 dummies: Bond Exchange, Buy Back Deal, Bondy Deal, Defered Funded, All Fallen Due, Deal affects PFD, Deal includes short-term debt
**Restructuring Terms** | Number of old and new instruments, Single or different treatment? (depending on old instrument), Exchange Menu? (multiple options for creditors?), Interest rates of old and new debt, Maturity remaining of old debt and maturity of new debt, Principal Payments ("Bullet" or "Amortizing")

### Variable Category | Variable(s)
--- | ---
**Haircuts** | Preferred Haircut $H_{1x}$, Underlying Discount Rate (Exit Yield), Market Haircut $H_{M}$, Face Value Reduction (in %), Price-based Haircut $H_{P}$, Source of haircut data (CT or ANR)
**Creditor Characteristics** | Number of creditors (banks/bondholders), Creditor Committee (yes/no) and Size of Committee, Committee Chair (Institution and Nationality), Vice Chair(s) (Institutions and Nationalities), Members of Creditor Committee
**Creditor Litigation** | Litigation (yes/no)?, Number, Attachment attempt (yes/no)?, Amount of debt under litigation (face value in m USD), Share of debt affected by litigation
**Participation in Bond Restructurings** | Number of new bonds and number of old bonds, Nr. Old Bonds with CACs and Share including CACs, Initial/Pre-CACs Holdout Rate, CACs used?

*For further definitions and explanations please see the accompanying Codebook.*

An additional sheet includes press narratives and other sources for most variables in the Main Database, data quality sub-indicators and further context (Press summary, Important Political Events, IMF Programm, Additional Backgorund Info and Comments)
## Extract 1 - Sovereign Debt Restructuring Database

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### Restructuring Characteristics
- **Debt restructuring (in US$)**
- **Bond exchange**
- **Buyback**
- **Brook Deal**
- Eroned
- **All other deals**
- **Debt includes short-term debt**
- **Debt includes long-term debt**
- **Debt includes new money (in US$)**
- **Debt restructuring fee (in US$)**
- **Debt restructuring fee (in %)**
- **Debt restructuring fee (in % of debt)**
- **Debt restructuring fee (in % of GDP)**

### Restructuring Terms
- **Debt restructuring fee (in US$)**
- **Debt restructuring fee (in %)**
- **Debt restructuring fee (in % of debt)**
- **Debt restructuring fee (in % of GDP)**

### Halothane (Eisai)
- **Market Risk**
- **Underlying (Eur/Year)**
- **Professional Fee (Eur/Year)**

### Notes
- The table includes data from various countries, with details on debt restructuring processes and fees.
# Extract 2 - Sovereign Debt Restructuring Database

## Deal Identifiers

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<th>Deal</th>
<th>Country</th>
<th>Country Code</th>
<th>Year of restructuring</th>
<th>Principal agreement and bond exchange offer date</th>
<th>Principal agreement and bond exchange offer date (in particular start and end of default / restructuring)</th>
<th>Eave of restructuring completion of bond exchange (NARRATIVE)</th>
<th>Eave of restructuring completion of bond exchange (FINANCIAL)</th>
<th>Case coverage across sources (Haircuts and Restructuring data) (main source in bold)</th>
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Data on sovereign debt has greatly improved over the past 15 years.

**Some take aways from this survey:**

- Great research potential with rich, new micro data (repayment/default motives; debtor-creditor linkages; rollover risks; optimal maturity & debt structure)

- New bilateral creditor-sovereign data offers great opportunities (How do government choose their creditors? Who defaults on whom? Shifts in creditor composition)

- Growing role of official creditors understudied (sovereigns, central banks, state banks, sovereign wealth funds). Much left to do on geopolitics of sovereign lending and default.

- Finally: Do not be afraid of building your own data, the returns can be very high
Thank you!

Feedback is very welcome: christoph.trebesch@ifw-kiel.de

Most of my datasets can be found here: https://sites.google.com/site/christophtrebesch/data

Twitter (for data updates): @Ch_Trebesch


List of references


Beers, D. et al. (2022): "BoC-BoE Sovereign Default Database",


List of References


List of References


Gelpern, A. et al. (2021): "How China Lends. A Rare Look into 100 Debt Contracts with Foreign Governments", Economic Policy


List of References


Maggiori, Neiman, Schreger et al. "The Global Capital Allocation Project"


Parks, B., Custer et al. (2021): "AidData's Global Chinese Development Finance Dataset"


Reinhart, C.; Rogoff, K. (2009): "This Time is Different: Eight Centuries of Financial Folly"


