

# **A Journey in the History of Sovereign Defaults on Domestic Law Public Debt**

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# A Journey in the History of Sovereign Defaults on Domestic-Law Public Debt<sup>\*</sup>

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## Abstract

We introduce a novel database on sovereign defaults that involve public debt instruments governed by domestic law. By systematically reviewing a large number of sources, we identify 134 default and restructuring events of domestic debt instruments, in 52 countries from 1980 to 2018. Domestic-law defaults are a global phenomenon. Over time, they have become larger and more frequent than foreign-law defaults. Domestic-law debt restructurings proceed faster than foreign ones, often through extensions of maturities and amendments to the coupon structure. While face value reductions are rare, net-present-value losses for creditors are still large. Unilateral amendments and post-default restructuring are the norm, but negotiated pre-default restructurings are becoming increasingly frequent. We also document that domestic-law defaults typically involve debt denominated in local currency and held by resident investors. We complement our analysis with a collection “sovereign histories”, which provide the fine details about each episode.

JEL classification: E62, E65, F34, G01, H12, H63, K00, K41

Keywords: Public debt, sovereign default, domestic law, database.

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# 1 Introduction

Sovereign debt markets in emerging economies have experienced radical transformations in recent decades. As many sovereigns began to tap international capital markets, bonds replaced bank loans, and increasingly perfected clauses were added to bonds to facilitate debt restructuring (Buchheit et al., 2019; IMF, 2020). Another critical, yet less discussed, change is the increased relevance of domestic debt markets (Gelpern and Panizza, 2021; Reinhart and Rogoff, 2008). Traditionally, domestic debt markets for emerging sovereigns were either non-existing or closed to foreigners (CGFS, 2007). Emerging sovereigns could only borrow from foreign investors in foreign currencies and international markets (Eichengreen and Panizza, 2005). Since the 90s, as a result of financial deepening and economic growth, governments are increasingly relying on domestic borrowings to fund their financing needs (Gelpern and Setser, 2004; Burger and Warnock, 2006; IMF, 2020).<sup>1</sup>

Despite this growing importance of domestic debt markets, the very definition of what constitutes a sovereign default in domestic debt remains elusive (Gelpern, 2008; Gelpern and Panizza, 2021). Some authors have focused on sovereign debt denominated in local currency (Kohlscheen, 2009; Jeanneret and Souissi, 2016; Beers and de Leon-Manlagnit, 2019). Others (Sturzenegger and Zettelmeyer, 2008; Reinhart and Rogoff, 2011; Duggar, 2013) have focused on whether the creditors are domestic residents. In contrast, there is no systematic work focused on sovereign defaults under domestic law. This is, according to leading legal experts (Gelpern and Panizza, 2021; Gulati and Weidemaier, 2015) and key policy institutions (IMF, 2021), a major gap in the economic literature.<sup>2</sup>

In this paper, we present our efforts to fill this gap. We introduce a novel database identifying sovereign defaults on debt instruments governed by domestic law. Our database focuses on explicit defaults towards private creditors and is the first effort to systematically record domestic sovereign defaults that are identified on the basis of the legal jurisdiction. We use it to present key stylized facts that may prove informative for theoretical work.<sup>3</sup> We also shed light on a range of related issues, including the incidence of selective sovereign defaults (Broner et al., 2010, 2014; Mendoza and D’Erasmus, 2016; Gelpern and Panizza, 2021) and the extent to which different definitions of what constitutes domestic debt coincide (Burger and Warnock, 2006; Gelpern, 2008; Bradley et al., 2016).<sup>4</sup>

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<sup>1</sup>Brazil and Mexico exemplify this trend. Bank of International Settlements data reveals that domestic debt accounted for 22% of Mexico’s public debt in 1995. By 2010 that share was over 80%. In Brazil, the share increased from 54% in 1995 to over 90% in 2010.

<sup>2</sup>IMF (2021) notes that the lack of better data about sovereign defaults on domestic-law debt instruments is preventing better grounded policy work on the resolution of sovereign debt crises. This is worrying considering that many sovereigns currently at risk of distress borrow domestically (IMF, 2021).

<sup>3</sup>Recent theoretical quantitative contributions study domestic sovereign defaults. Bocola (2016) and Sosa-Padilla (2018) study the nexus between domestic defaults and bank crises. Aguiar et al. (2015), Mendoza and D’Erasmus (2016) and Arellano and Kocherlakota (2014) analyze their distributional implications. Erce and Mallucci (2018) study borrowing and default decisions when sovereigns can discriminate between domestic and foreign debt. Thaler (2021) models the effect default on access to domestic sovereign debt markets.

<sup>4</sup>Our work complements Asonuma and Trebesch (2016), who compile a database with information on 184

Our definition of domestic public debt, grounded on whether government debt is governed by the domestic law, highlights a dimension that crucially shapes the restructuring process: debt jurisdiction (Gelpern and Panizza, 2021; IMF, 2021). While the residence of investors and the currency denomination have implications for the macroeconomic consequences of sovereign default, the jurisdiction directly affects governments’ ability to restructure debt. As described in Chamon et al. (2018) or IMF (2020, 2021), the terms of government debt issued in the domestic jurisdiction can be more easily restructured using legislative or executive measures, with repercussions for market access.

Moreover, domestic sovereign debt markets are the backbone of domestic financial systems. According to CGFS (2007), domestic bond markets promote financial stability not only by reducing currency mismatches but also by creating a benchmark (market-determined) yield curve that reflects the costs of borrowing domestically at different maturities. In economies lacking well-functioning domestic debt markets, banks may find it hard to price and provide long-term lending. As a result, defaulting upon domestic-law debt may affect the financial standing of the private sector over and beyond what a default of debt governed under foreign laws may do (Gelpern and Panizza, 2021; IMF, 2021). In fact, as the consequences of sovereign default are increasingly borne domestically, government incentives to default have likely changed. While governments defaulting externally are concerned about being excluded from international capital markets, those defaulting domestically are more concerned with their financial stability (Sosa-Padilla, 2018; Thaler, 2021) and distributional implications (Mendoza and D’Erasmus, 2016).<sup>5</sup>

To build our database we reviewed a large number of sources, ranging from IMF official documents to local news articles, and identified 134 events of restructuring of domestic-law debt instruments in 52 countries from 1980 to 2018. We organized the information in two distinct products: a database on domestic defaults and a collection of “sovereign histories” (Erce et al., 2021). The database collects variables that measure the timing and size of domestic defaults, as well as the terms and restructuring methods used. Where information was available, the database was constructed using a bottom-up approach, collecting information at the debt instrument level and aggregating it to obtain episode-level variables. Sovereign histories keep track of the complexity and heterogeneity of domestic defaults, and report finer details of each episode. In particular, each sovereign history provides an overview of the events leading to the default and the available details of the restructuring process for each debt instrument involved.<sup>6</sup>

We draw various lessons from our database and our sovereign histories. First, domestic-law defaults are a global phenomenon occurring in every continent. While they are more frequent in poor and middle-income countries, they also happen in advanced economies. Second, domestic-law defaults are increasingly frequent. Combining our data with the database

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restructuring events of sovereign debt instruments governed or held externally.

<sup>5</sup>According to IMF (2020) “While debt governed by domestic law is often easier to restructure than international debt from a legal perspective, restructuring such debt can negatively impact financial stability”.

<sup>6</sup>Domestic-law defaults receive little international coverage, and documenting them is a challenging exercise. This marks the value of our “sovereign histories”.

on foreign defaults of [Asonuma and Trebesch \(2016\)](#), we find that in the 1980s around 10 percent of default episodes involved domestic-law debt. In the 2000s, around 70 percent of default episodes did. Between the late 1990s and 2016, domestic defaults have actually become more frequent than foreign ones. More often than not, governments operate selective defaults. Third, defaults on bonded debt are the most common form of domestic-law defaults. Defaults on bank loans and deposits are fairly rare nowadays. Fourth, the median size of domestic-law defaults has increased over time, reaching around 11% of GDP in the last decade. The size of domestic defaults varies greatly depending on the instruments involved in each episode. Defaults that involve deposits, bonds with CACs or multiple debt instruments are typically larger than those involving bank loans or bonds without CACs. Fifth, an extension of maturities is by far the most frequent form of restructuring, featuring in almost 80% of the episodes. Amendments to the coupon structure are also fairly frequent, while face value reductions are rare. Sixth, domestic debt restructuring often proceeds much faster than external one, but it can also protract significantly. Seventh, net-present-value losses for creditors during domestic-law sovereign debt restructuring are sizable. Eighth, negotiated preemptive restructurings are gaining traction. Ninth, despite financial globalization the triple coincidence is very much alive. Domestic-law defaults typically involve debt denominated in domestic currency and held by domestic investors.

We draw an additional lesson: domestic-law defaults are complex and heterogeneous. Summarizing them in a few indicators may conceal more than reveal. This is why we complement this paper with a collection of “sovereign histories” ([Erce et al., 2021](#)). Reading them, one quickly learns that shocks triggering domestic defaults are disparate ranging from regional economic crisis to fluctuations in commodity prices to wars, pandemics, extreme natural events, and political animosity. At the same time, governments’ approach to domestic default varies greatly from episode to episode. Some countries, like Jamaica in 2013, seek an early involvement of creditors and restructure government debt in a pre-default market friendly fashion. Other countries, like Peru, are still trying to reach an agreement with creditors on bonds that have been in default since the early 1990s.

The rest of this paper is organized as follows. Section [2](#) describes the construction of our database and the data sources we consulted. Section [3](#) introduces the database and the sovereign histories. Section [4](#) compares our database to existing databases covering other aspects of domestic default. Section [5](#) discusses domestic-law defaults overtime. Section [6](#) analyzes their geographic distribution. Section [7](#) reports descriptive statistics about the size of domestic defaults. Section [8](#) discusses the duration of domestic-law defaults. Section [9](#) describes net-present values losses. Section [10](#) examines how governments choose to default and restructure debt. Section [11](#) documents the relevance of domestic creditors and local currency debt in domestic-law defaults. Section [12](#) concludes.

## 2 Data and Sources

Sovereign debt is a contractual obligation referring to debt issued or guaranteed by the government of a sovereign state. Defaults can take place through a plethora of mechanisms, ranging from unilateral reduction of principal or coupons, forcible currency conversions, forcible conversions in other debt instruments, suspensions of payments, or freezes.<sup>7</sup>

Our database focuses on explicit domestic defaults towards private creditors on the basis of the legal jurisdiction. Consistent with the definitions adopted by rating agencies and the empirical literature on sovereign defaults ([Reinhart and Rogoff \(2008\)](#), [Beers and de Leon-Manlagnit \(2019\)](#)), we consider a domestic default event to have happened when one or more of the following events occur:

- A government fails to meet a principal or interest payment on a debt instrument on the due date or within a specified grace period (as Brazil in 1990 or Argentina in 2001).
- Debt instruments are written off the books without a proper compensation for debt-holders (as Liberia in 1989).
- Contractual terms of debt instruments are unilaterally amended by a government law-decree, such as the abrogation of indexation clauses (as Brazil in 1986) or the introduction of retrospective taxes targeting debt service payments (as Turkey in 1999).
- Absent an outright payment default, the government undertakes a restructuring exercise, that reduces interest rates and/or extends maturities of outstanding securities (as Greece in 2011 or Barbados in 2018).
- Deposits that are either guaranteed by the government or held by public banks are frozen and/or forcibly converted from foreign to local currency or into government bonds (as Pakistan in 1999).

Documenting domestic-law defaults, their timing, their size, and the details of the restructuring terms is a challenging exercise. Given the limited attention paid by the international community to these events, information about domestic-law defaults needs to be collected across a large and dispersed number of sources.<sup>8</sup> As a result, the compilation of our database and the drafting of our sovereign “histories” was an intensive effort that required the consultation of several and diverse sources. In order to minimize errors, where feasible, we compared available details across different sources.

We consulted the databases in [Reinhart and Rogoff \(2008\)](#) and [Beers and de Leon-Manlagnit \(2019\)](#) that contain information on domestic sovereign default episodes, and [Asonuma and](#)

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<sup>7</sup>Other authors have considered less explicit definitions of domestic default, such as episodes of high inflation and financial repression.

<sup>8</sup>This is especially true for episodes involving smaller countries and not involving bonded debt.

Trebesch (2016) that contain information on external sovereign default episodes, as well as reports from the major rating agencies (S&P, Moody’s and Fitch) listing episodes of sovereign payment difficulties, both domestic and external.

We complemented these resources with information collected from an extensive google search and a press review through Factiva, a news search tool that enables the consultation of more than 32,000 sources that include local and international newspapers, journals, and magazines. Factiva proved very useful especially to identify domestic defaults in African countries that are widely publicized in the local press but receive little to no-coverage in the international press. The news search on Factiva was carried out using keywords, such as “country name” + “domestic debt” + “default” in English, French and Spanish, and analyzing the results obtained. We also conducted additional searches using the following terms: “restructuring”, “rescheduling”, “reprofiling”, “missed payments”, and “unpaid” instead of “default”; and searches using “internal” and “local” instead of “domestic’.

To process the information we proceeded as follows. For each identified domestic default event, we systematically scrutinized official documents from the IMF. These often provide detailed information on the restructuring process, including volumes, terms and the type of assets involved, as well as on the economic background in which defaults and restructuring episodes unfolded. Among them, program documents and Article IVs, proved especially useful. We also searched into the websites of the countries’ Ministries of Finance, debt management agencies and Central Banks to cross-check the information and to add any additional details we could found.<sup>9</sup> Whenever possible, we consulted the parliamentary resolutions, bills, and decrees that amended the terms of the debt instruments.<sup>10</sup>

We also browsed other resources to gain additional knowledge about each default episode. Additional sources included country reports from the World Bank and the OECD, rating agencies publications, policy reports from development banks, local and international media, debt exchange offers, academic books, and research papers.<sup>11</sup>

The information was organized and systematized in two distinct products. First, a database collecting key information about defaults and restructurings, which we describe in this paper. Second, a collection of documents, named “sovereign histories”, that provides a detailed summary of each sovereign debt restructuring of liabilities governed under domestic law.

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<sup>9</sup>Whenever possible, we contacted local authorities to confirm the accuracy of the information.

<sup>10</sup>Many of these sources are not in English. Hence, in the collection of the histories we may have run in a language bias. We are more familiar with the English, Spanish, Italian, and French terminology for sovereign defaults than with the terminology in other languages.

<sup>11</sup>In Erce et al. (2021) we provide a episode by episode listing of all the references where we found relevant information.



### 3 The Database and the Sovereign Histories

The database was constructed using a bottom up approach. We first collected information at liability level in order to build a database of *default events*. Then we aggregated the *default events* to obtain a database of *default episodes*, where episode-level variables measure different aspects of default. We bundled different default events into a single episode when one of these two conditions were met: (i) two or more default or debt restructuring events occurred in the same or in the following year (as in Nicaragua 1994); (ii) the government announced a comprehensive restructuring of public debt (as in Grenada 2013).

Our efforts led to the identification of 134 *default events* on different instruments (bonds, bank loans or deposits), which we further group into 76 sovereign default and restructuring *episodes*. The sample spans from 1980 to 2018 and covers events in 52 countries in all five continents. Our exercise went beyond the mere identification of each event. We also collected finer details on the default, such as the type of instruments involved, the volumes involved, or the restructuring strategy pursued.

Variables in the database measure different aspects of sovereign defaults. A first set of variables measures the timing of defaults. In particular, we collect information on the start and end dates of each default event at the monthly level. The start date is either the date in which debt instruments entered in default or were frozen, or the date of the announcement of the debt restructuring exercise. The end date is either the date in which debt payments resumed and deposits were unfrozen, or to the data in which restructuring plans were agreed and executed. Often, a comprehensive restructuring marks the end date of default episodes. Another set of variables measures the size of defaults. In particular, we collect information on the dollar value of the instruments involved and we compute aggregate default volumes for three categories of instruments: bonds, bank loans, and deposits. To ease the comparison with existing databases on domestic debt, we also collected information on the domicile (domestic or foreign) of the investors and the currency denomination (local or foreign) of the instruments involved. The database also includes variables that monitor how governments restructure each instrument. These variables keep track of the way in which governments amend the terms of its debt and of the net-present-value (NPV) losses for creditors. In particular, we collected information on whether the terms were amended through a face value reduction, a change in the maturity structure, or an amendment of the coupon structure. We also classified default events in either pre-default or post-default restructurings depending on whether the government was in default or not at the time the restructuring plan was announced. Finally, we also classified domestic defaults in unilateral or negotiated, depending on whether the government involved creditors in the design of the restructuring plan.

Our “Sovereign histories” provide the full narrative for each of the 76 default episodes. In particular, each history is structured in two sections. The first section provides an overview of the events leading to either the default or the restructuring. The second section provides the full details of the restructuring process for each instrument involved. Take for instance the case of Grenada’s default in 2013. The restructuring exercise involved T-Bills, government



bonds, arrears to domestic suppliers, loans, and guaranteed loans. Each asset received a different treatment and investors were also discriminated on the basis of their residence and identity. In the sovereign history of Grenada, we detail the terms and the timing of the restructuring process for each asset and each creditor. The detail of the information provided in each history makes the collection of our sovereign histories a unique source of examples for the ongoing policy and academic debates. Take, for instance, the debates surrounding the impact on the incidence and duration of default episodes of financial and legal innovations in sovereign financing strategies (IMF, 2020). Our histories speak to these debates as they document the seldom use of collective action clauses under domestically issued debt (as in Barbados) and provide the finer details of cases where sovereign debt was collateralized (as in St. Kitts & Nevis), or where the exit from the default required financial engineering operations, such as transforming deposits into bonds (as in Serbia) or designing payment structures that accommodate for natural disasters (as in Grenada).

While digging for domestic-law defaults, we found 30 episodes of accumulation of domestic arrears, defined as overdue payments by governments to suppliers, civil servants and pensioners. Given that basic information regarding these episodes, such as starting date, volumes, and clearance strategy were often impossible to accurately reconstruct (arrears are usually reported as flows and in a discontinued manner), we describe them in our stories and report the information we collected in Appendix A, but don't include them in our database.<sup>12</sup>

## 4 Comparison with existing databases

Our definition of domestic debt is based on the law governing the debt instruments. We consider domestic debt any government security that is issued under domestic law, regardless of the residence of the investors and the currency denomination. Other works have used different definitions of domestic debt. In particular, Reinhart and Rogoff (2008) classify debt according to the residence of investors, while Beers and de Leon-Manlagnit (2019) classify debt according to its currency denomination.

Table 1 compares our database against the database of Beers and de Leon-Manlagnit (2019), that is based on the currency denomination of the instruments in default, and the database of Reinhart and Rogoff (2008), that is based on the residence of the creditors. Each cell of the table reports the number of defaults jointly reported in the databases specified by the corresponding row and column. For instance, the cell corresponding to the first row and the second column reports the number of defaults in our database that are also reported in Beers and de Leon-Manlagnit (2019). The diagonal reports the total number of default episodes reported by each database. The last column reports the number of defaults that

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<sup>12</sup>Often governments accumulate arrears over multiple years, and these tend to be disputed, forcing reconciliation processes (through domestic courts or ad-hoc tribunals) to validate the claims before resolving them. Arrears are usually settled either by cash payments or through an exchange with newly issued debt to creditors. Beers et al. (2021), studies domestic arrears using data obtained from IMF documents.

are common to all three databases. To identify overlapping episodes that might have been reported with slightly different starting dates, we consider a time window of  $(-2, +2)$  years around our domestic debt default episodes.

**Table 1. Domestic Defaults: Comparing Databases**

Database	Our Data	B&LM (2019)	R&R (2008)	All
Criterion	Law	Currency	Residence	All
Our Data	75	20	17	10
B&LM (2019)	20	38	15	10
R&R (2008)	17	15	26	10

Number of defaults reported by the database specified by the row and by the database specified by the column. To identify overlapping episodes, we consider a time window of  $(-2, +2)$  years. Data for local currency defaults are from [Beers and de Leon-Manlagnit \(2019\)](#). Data for defaults on domestic residents are from [Reinhart and Rogoff \(2008\)](#).

We find that our database contains about half of the 38 default episodes reported in [Beers and de Leon-Manlagnit \(2019\)](#) and 17 of the 26 default episodes reported in [Reinhart and Rogoff \(2008\)](#), suggesting that there is substantial overlap between the legal jurisdiction, domicile, and currency. There are two key reasons why our database does not capture some of the default episodes reported in the other databases. First, the time span is different. Second, our database does not include *de facto* defaults, such as those associated with hyperinflation or changes in the legal tender.<sup>13</sup> That said, our database extends significantly the coverage of domestic defaults. It reports 30 default episodes that are not included in [Beers and de Leon-Manlagnit \(2019\)](#) database, and 41 default episodes that are not included in [Reinhart and Rogoff \(2008\)](#). Table 16 in the Appendix B reports the full list of domestic default episodes included in our database and compares them with those in [Beers and de Leon-Manlagnit \(2019\)](#) and in [Reinhart and Rogoff \(2008\)](#).

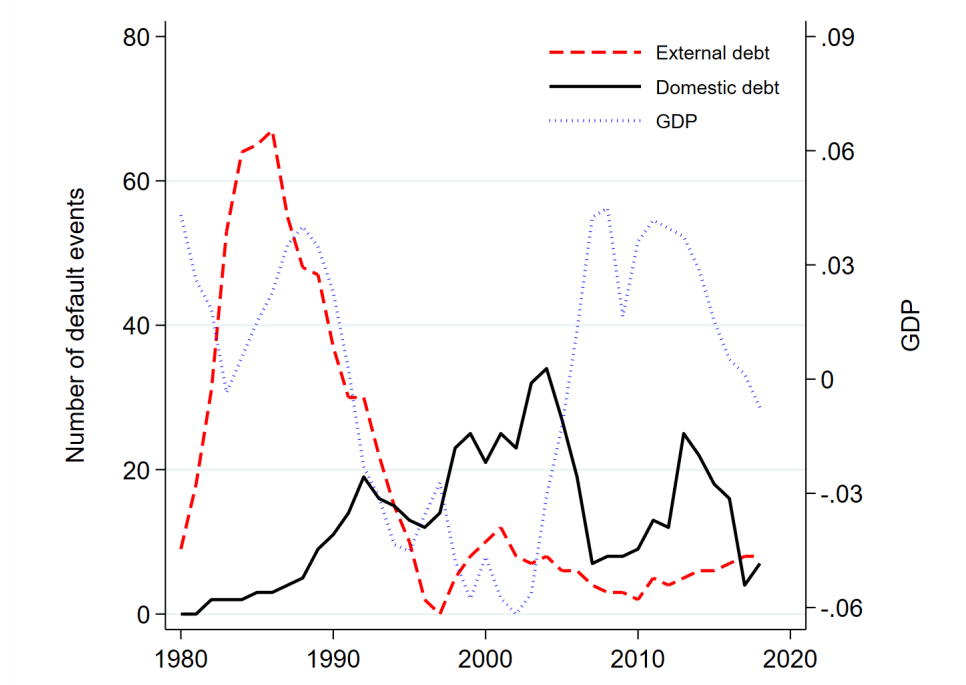
## 5 The Chronology of Domestic-Law Defaults

Domestic-law defaults have happened in each of the four decades spanned by our database. The black line in Figure 1 reports the total number of domestic default events occurring in overlapping four-year windows from 1980 to 2018. Domestic defaults were relatively rare in the first half of the 1980s and became increasingly frequent in the 1990s and in the 2000s, peaking in 2004. The incidence of domestic defaults declined markedly in the second half of the 2000s before inching up again in the first half of the 2010s, reflecting high debt levels and

<sup>13</sup>Appendix C explains for each default episode the reason why they are included in either [Beers and de Leon-Manlagnit \(2019\)](#) or [Reinhart and Rogoff \(2008\)](#) and not in our database.

subdued growth in the aftermath of the Global Financial Crisis. The incidence of domestic defaults declined sharply in the second half of the 2010s reaching a trough in 2018, just before the onset of the COVID-19 crisis.

**Figure 1. Distribution of Domestic Default Events**



The solid black (dashed red) line plots the four-year rolling sum of domestic (external) default events. External defaults are as reported by [Asonuma and Trebesch \(2016\)](#). The dotted blue line is the cyclical component of low and middle-income countries aggregate GDP obtained applying the Hodrick-Prescott filter to the annual series.

The red-dashed line in Figure 1 plots the total number of external default events, as reported by [Asonuma and Trebesch \(2016\)](#), using overlapping four-year windows from 1980 to 2018. Foreign-law debt restructuring peaked in the mid 1980s and declined sharply thereafter. This contrasts with domestic-law defaults, which peaked in the late 1990s. These patterns underscore how the expansion of domestic debt markets in the 1990s has translated into a greater involvement of domestic debt in defaults.<sup>14</sup>

We also explore the relation between the timing of domestic defaults and economic cycles. The dotted blue line in Figure 1 plots the cyclical component of GDP in low and middle-income economies, which make up the bulk of our sample.<sup>15</sup> Default events are more frequent

<sup>14</sup>The increase in the frequency of defaults on domestic-law debt relative to defaults on external law ones since the nineties suggests that the partial substitution of external debt for domestic one has increased governments' inclination to operate selective defaults, as suggested by [Erce and Mallucci \(2018\)](#).

<sup>15</sup>Of the 134 domestic default events, 112 occurred in low or middle-income economies.

when economic growth falls below the trend. Domestic defaults are more frequent in bad times (Tomz and Wright, 2007).

**Table 2. Default Events by Instrument and Decade**

	Full Sample	1980-1989	1990-1999	2000-2009	2010-2018
<b>Default Events</b>					
Bonds	84	6	24	32	22
Bank loans	32	2	11	9	10
Deposits	18	4	11	3	0
Total	134	12	46	44	32
<b>Default Episodes</b>					
Diverse instruments	21	2	9	7	3
Total	76	9	35	17	15

Number of default events involving bonds, bank loans or deposits. Default episodes that involve diverse (multiple) instruments are double counted.

We categorize government instruments in three categories: bonds, bank loans, and deposits. Table 2 reports the evolution over time of the incidence of defaults by instrument. As shown in the first column, defaults on bonded debt are by far the most common form of domestic default: of the 134 events, 84 involve bonds, 32 involve bank loans, and 18 involve deposits. Looking at the evolution over time of the composition of defaulted debt, a clear pattern emerges. Defaults on bonded debt have become an increasingly large fraction of total domestic defaults. In the 1980s, 50% of the restructuring episodes involved bonded debt. In the last two decades, the share of domestic defaults involving bonded debt has risen to around 70%. Over the same period of time, the percentage of defaults involving deposits has dropped, declining from 33% in the 1980s to 0% in the 2010s. Finally, the incidence of defaults involving bank loans has remained fairly constant over time.<sup>16</sup> To investigate the frequency of domestic defaults that involve multiple (diverse) instruments, we focus on default episodes. We find that almost 30% of the 76 default episodes in our sample involve diverse instruments.

## 6 The Geography of Domestic Sovereign Defaults

Domestic-law sovereign default is a global phenomenon. Table 3 breaks down the number of defaults by continent. Looking at the number of events, America is the continent where

<sup>16</sup>These findings suggest that the shift in governments' foreign borrowing from bank loans in the 1980s to tradable bonds in the 1990s has also involved domestic debt and is reflected in the greater involvement of bonded debt in default episodes.

most restructurings have occurred. All of them in Latin America: South American countries recorded 39 events; Central American countries recorded 10; and Caribbean countries recorded 27 default events. Africa, with 31 events, is next runner up. Europe also recorded a high number of default events: 16. The vast majority of the defaults occurred in emerging European countries, such as Macedonia and Ukraine. Yet, defaults have also involved two euro area countries: Greece and Cyprus. Domestic defaults are less frequent in Asia, where we only discovered 10 events. Bundling the events into episodes, as described in paragraph 3, we observe a similar ranking despite various restructurings in America occurred subsequently, triggering a large drop in the number of defaults when moving from events to episodes.

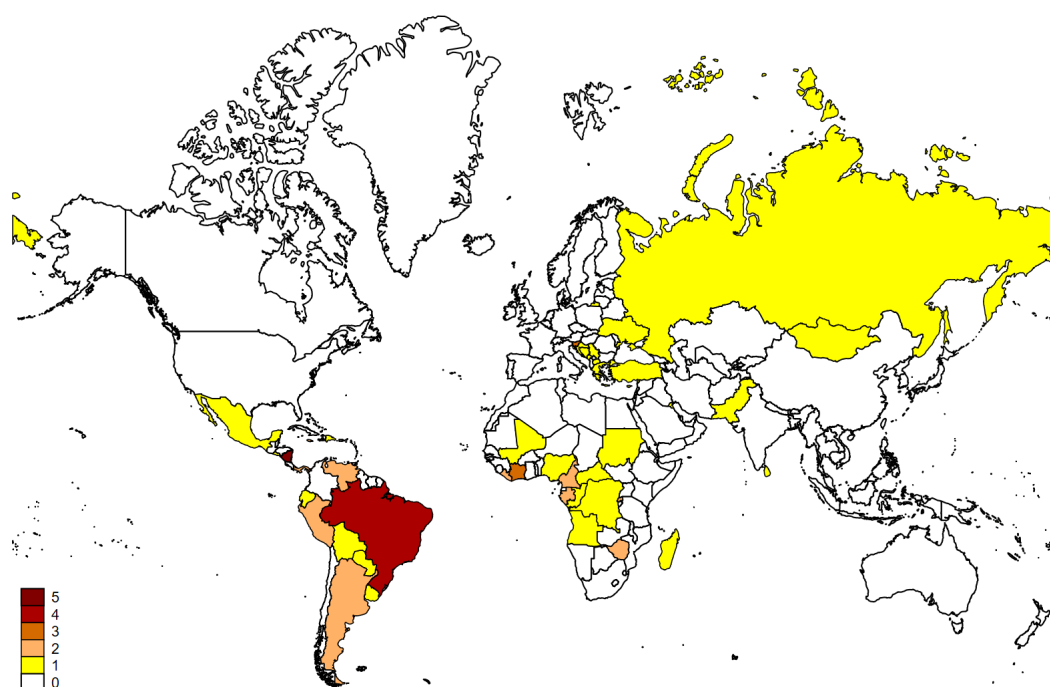
**Table 3. Domestic Default Events and Episodes by Continent**

	Total	Africa	America	Asia	Europe	Oceania
Bonds	84	13	54	7	9	1
Bank loans	32	17	13	1	1	0
Deposits	18	1	9	2	6	0
$N^\circ$ of events	134	31	76	10	16	1
$N^\circ$ of episodes	76	25	33	5	12	1

Total number of domestic-law debt restructurings across continents from 1980 to 2018.

An interesting aspect of the geography of sovereign domestic-law default episodes is that almost a third of the 52 countries in our sample are serial defaulters ([Reinhart and Rogoff, 2004](#)). They have defaulted more than once. Nicaragua is the front runner with 5 default episodes since 1980, followed by Brazil with 4 default episodes. [Figure 2](#) plots the world map. Countries are color-coded according to the total number of default episodes in that country. Serial defaulters are found in every continent, but they are especially numerous in Latin America, where 9 countries have defaulted domestically multiple times.

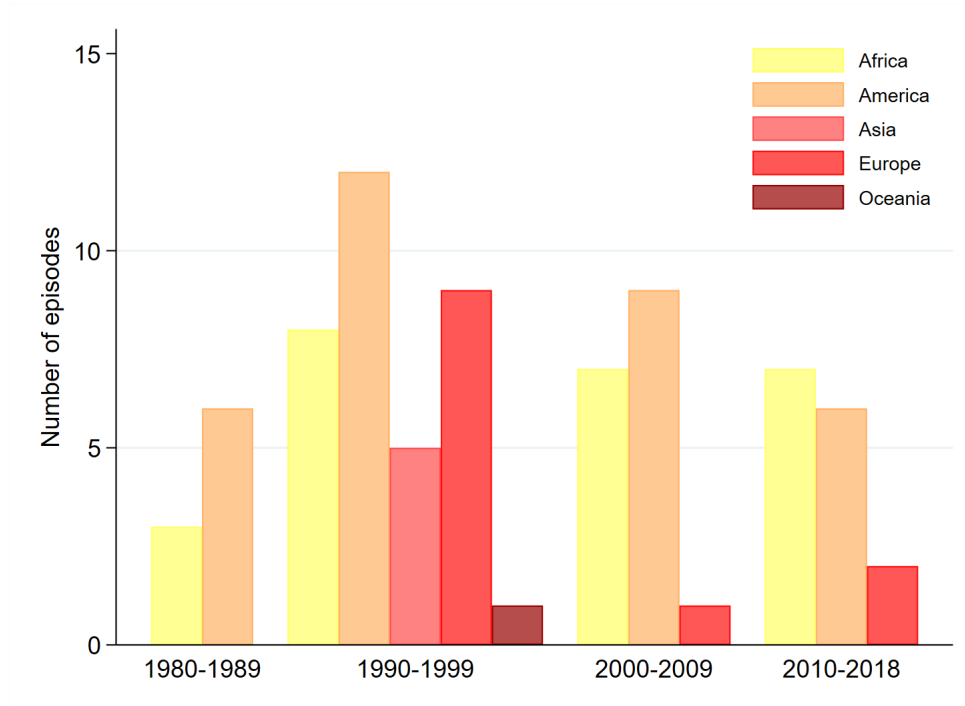
Figure 2. Distribution of Domestic Default Episodes



Total number of default episodes per country.

Figure 3 shows how the geography of domestic defaults has evolved over time. The number of domestic-law defaults has been persistently high in Latin American countries. In each of the four decades from 1980 to 2018, Latin America recorded at least 6 domestic defaults. In Africa, domestic defaults have increased from the 1980s to the 1990s, likely reflecting progresses in the development of domestic financial markets. Since then, the number of defaults has remained broadly constant over the decades. Finally, domestic-law default episodes in Europe have peaked in the early 1990s, when the dissolution of the Soviet Union and the break-up of Yugoslavia have left many countries in poor financial standing. The euro-area debt crisis has also left its mark. The two European defaults in the 2010s are those of Greece and Cyprus.

**Figure 3. Evolution of Domestic Default Episodes by Continents**



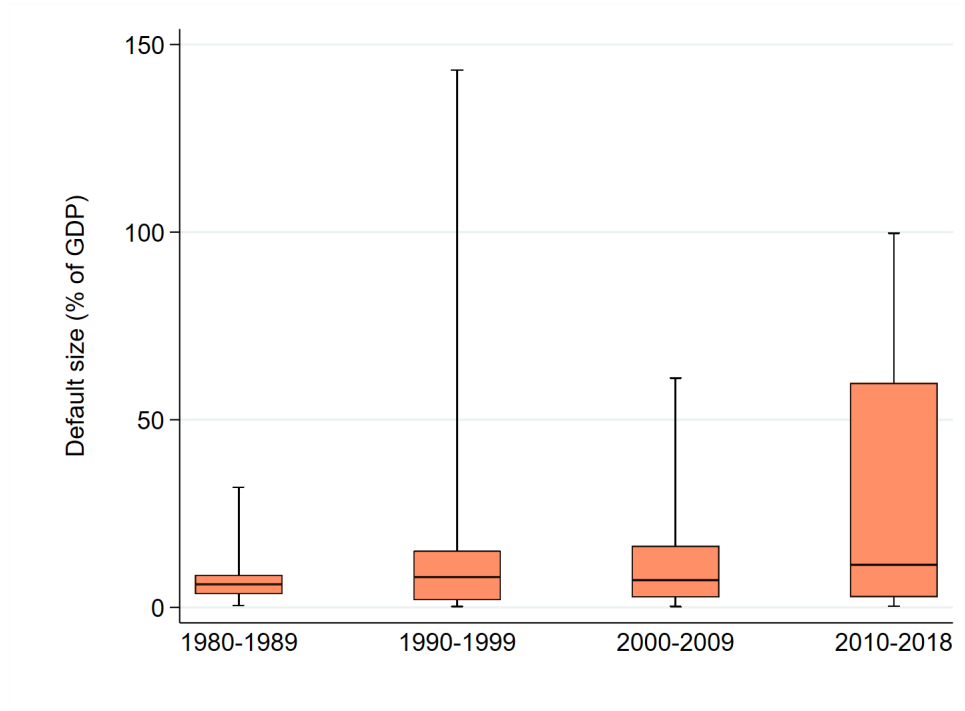
Total number of default episodes in each continent for each decade.

## 7 The Size of Domestic Sovereign Defaults

Our database also tracks the volume of sovereign debt involved in each default. Figure 4 reports the median size of debt in default as a fraction of GDP in the four decades spanned by our sample. While the median size of domestic debt in default has increased from the 1980s to the 1990s, it has remained roughly constant in 2000s and then increased from 2010 to 2018, reaching around 11%. Median values mask significant heterogeneity. Peak values are more than 10 times larger than median values. For example, the Kuwait's deposit freeze in 1990 involved deposits worth 143% of GDP and the large restructuring in St. Kitts & Nevis in 2011 involved public liabilities worth 99% of GDP.



Figure 4. Median Default Size by Decade



Median size of default as a fraction of GDP by decade.

The size of default also varies greatly depending on the instruments involved. Table 4 reports summary statistics on the size of debt in default using our sample of 134 events. The first two rows of Table 4 report summary statistics for domestic and foreign default events. Data for foreign default events is taken from [Asonuma and Trebesch \(2016\)](#). The comparison between default volumes in domestic and foreign default events suggests that domestic-law defaults are smaller than foreign ones. The size of domestic defaults, however, varies greatly depending on which instrument is involved in the default event. Defaults on domestic bonds are generally small in size and yet, when bonds feature collective action clauses, the average volume of restructured debt reaches 27% of GDP, which is much larger than the average default volume of any other instrument.

Defaults that involve deposits are also large, with an average volume of debt in default of 23% of GDP. Defaults on domestic bank loans display the lowest average volume of debt in default: only 6.5% of GDP.<sup>17</sup> Notably, around half of the default events that involve bank loans have occurred in Africa, and 3 of these episodes occurred in Cote d'Ivoire. Finally, we examine domestic-law default episodes that involve multiple instruments. For these, more comprehensive, restructuring episodes we find the average volume of debt involved is sizable, reaching 22 percent of GDP.

<sup>17</sup>This may reflect the authorities' intention to protect banks in an environment in which other sources of funding are not available.

**Table 4. Default Volumes by Instrument in Default**

	Mean	Median	SD	Min	Max	N
<b>Default Events</b>						
Foreign-law	13.2%	6.0%	20.9%	0.1%	183.1%	178
Domestic-law	9.8%	3.5%	18.8%	0.0%	143.2%	134
Bonds	8.1%	3.6%	14.7%	0.0%	84.1%	84
Bonds with CACs	27.1%	13.9%	30.3%	3.0%	84.1%	7
Bank loans	6.5%	1.8%	15.2%	0.1%	84.1%	32
Deposits	23.2%	15.1%	32.7%	2.1%	143.2%	18
<b>Default Episodes</b>						
Diverse instruments	22.3%	14.9%	23.9%	4.4%	99.7%	17

Summary statistics for volumes of debt involved in the restructuring as a percentage of GDP.  
Data for foreign-law debt comes from [Asonuma and Trebesch \(2016\)](#).

## 8 The Duration of Domestic Sovereign Defaults

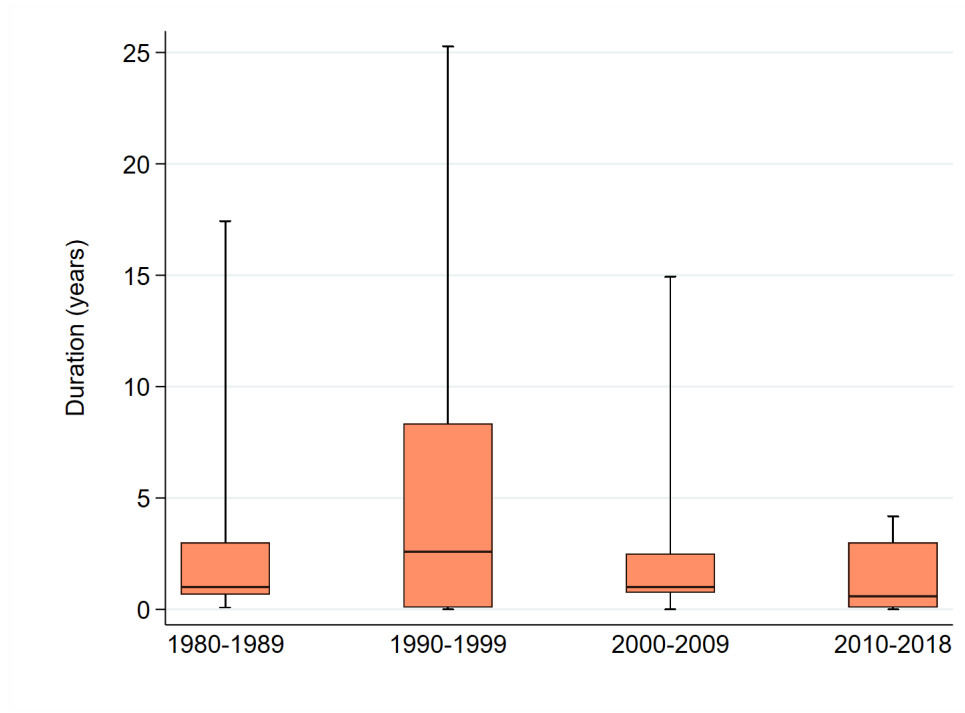
The median duration of domestic defaults has changed over time. As shown in Figure 5, the median duration was 12 months, in the 1980s. In the 1990s the median duration tripled, almost reaching 3 years, as the number of domestic defaults also increased dramatically.<sup>18</sup> Since the 2000s, the duration of domestic defaults has been on a downward trend. In the last decade, the median duration of debt restructuring has fallen to 7 months, reflecting the increasing role of pre-default restructurings and the adoption of collective action clauses (CACs).<sup>19</sup> In some cases, such as Barbados 2018, CACs were introduced retroactively to accelerate the restructuring process. As a result of such strategy, the duration of Barbados' debt restructuring was just 5 months.<sup>20</sup>

<sup>18</sup>The resolution of domestic defaults in the Balkans, Liberia and Peru was extraordinarily slow.

<sup>19</sup>As we highlight in Section 10, the negotiation process between governments and creditors has shifted from unilaterally sanctioned restructuring operations to a more frequent involvement of private creditors ahead of defaults.

<sup>20</sup>A similar strategy was pursued in Greece 2011. Also St Kitts & Nevis used CACs during its 2012 bond restructuring, but in this case, given the English law tradition of the country, the CACs were already included in domestic bonds.

**Figure 5. Median Duration of Domestic Defaults**



Median default duration by decade. We define the duration of a sovereign debt restructuring as the time between its start (defined by either an actual default or the announcement of a restructuring) and its end (defined as either when arrears are cleared or when a debt restructuring is agreed or enacted). As in [Asonuma and Trebesch \(2016\)](#), when the information on the starting or ending month was missing we took the following approach: in case start and end years are different, we take June; in case start and end years are the same and we have no information regarding start and end months, we take June; in case start and end year are the same and we have information regarding either the start or the end month, we set the missing month to the mid-point of the remaining part of the year.

Table 5 explores the duration of the default and restructuring process in our sample of 134 default events. We define the duration of a sovereign debt restructuring as the time between its start (defined by either an actual default or the announcement of a debt restructuring operation) and its end (defined as either when arrears are cleared or when a debt restructuring is agreed or enacted). As shown in Table 5, around 40% of domestic-law debt restructurings were resolved within 6 months. Yet, a non-negligible fraction of episodes took a very long time to get resolved. Almost one third of the domestic restructuring events lasted more than 3 years, and a 6% of them lasted more than 12 years. Peru is the most extreme case: the government began to negotiate a solution in 1992 and is yet to reach an agreement with creditors. The comparison with the duration of foreign law debt restructuring is striking. While just a little over ten percent of foreign law episodes got resolved in less than six months, four of every ten domestic episodes did.

**Table 5. Distribution of Domestic Defaults' Duration**

	Less than 6	Between 6 and 12	Longer than 36
Domestic-law Defaults	42%	13%	28%
Foreign-law Defaults	13%	24%	29%

The table reports the percentage of domestic- and foreign-law events lasting less than 6 months, from 6 to 12 months, and longer than 36 months. Data for foreign-law debt comes from [Asonuma and Trebesch \(2016\)](#).

Table 6 provides summary statistics for the duration of our domestic-law defaults and restructurings. Domestic defaults are on average resolved faster than foreign defaults. There are, however, instances in which the resolution took more than a decade. Defaults on bank loans feature the longest duration, followed by defaults on deposits. Defaults on bonds feature, instead, the shortest average duration, especially when they encompass CACs.<sup>21</sup> Finally, episodes that involve restructuring diverse instruments take very long to be resolved, lasting on average more than 5 years.

**Table 6. Duration (months)**

	Mean	Median	SD	Min	Max	N
<b>Default Events</b>						
Foreign-law	38.3	17.0	50.2	1.0	271.0	184
Domestic-law	32.8	11.5	55.7	0.0	303.0	134
Bonds	20.6	2.0	45.9	0.0	303.0	84
Bonds with CACs	8.7	5.0	10.6	2.0	32.0	7
Bank loans	55.1	38.5	65.5	0.0	301.0	32
Deposits	50.4	24.5	64.9	0.0	206.0	18
<b>Default Episodes</b>						
Diverse instruments	71.6	48.0	70.9	1.0	209.1	21

Summary statistics for duration of domestic- and foreign-law defaults. Data for foreign-law debt comes from [Asonuma and Trebesch \(2016\)](#). As in [Asonuma and Trebesch \(2016\)](#), when the information on the starting or ending month was missing we took the following approach: in case start and end years are different, we take June; in case start and end years are the same and we have no information regarding start and end months, we take June; in case start and end year are the same and we have information regarding either the start or the end month, we set the missing month to the mid-point of the remaining part of the year.

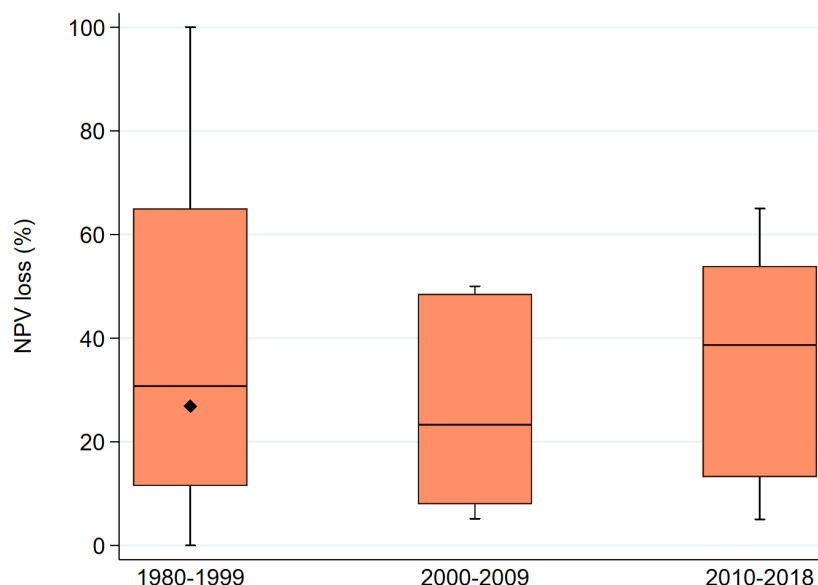
<sup>21</sup>According to [Bai and Zhang \(2012\)](#), the duration of restructuring of foreign-law bonds is over 12 months. Five times more in the case of foreign bank loans.

## 9 Investors' Losses in Domestic Sovereign Defaults

The changes in the financial terms and conditions of the debt instruments determine the size of creditors' losses. Losses are traditionally measured in terms of their net present value. Unfortunately, our sources often fail to report all the details of the restructuring terms.<sup>22</sup> Consequently, we decided not to try to compute investors' NPV losses ourselves and to rely, instead, on estimates provided by our sources. Using these, we gathered information on NPV losses for 48 instruments in 28 distinct default episodes.<sup>23</sup>

Figure 6 summarizes NPV losses at episode level.<sup>24</sup> Median NPV losses are sizable at 31%. That said, the distribution of NPV losses has a wide support. In 39% of default episodes, NPV losses were smaller than 24%. However, in the worst 11% of the episodes, NPV losses reached 70% or higher. Analyzing the evolution of creditors' losses over time, we find that median losses have increased from 23% in the 1990s to almost 40% in the 2010s.

**Figure 6. Median Creditors' Losses by Decade**



Median value of creditors' losses as a fraction of the NPV of the instrument by decade. Median NPV losses in the 1980s equaled 70%, but as we have data on NPV losses for just 3 default episodes in the decade, we add them together with those of the 1990s. The dot in the first box represents the median value computed from 1990 to 1999.

<sup>22</sup>In particular, discount rates for the different instruments are rarely available, making the comparison between the net present value of old and new instruments impossible.

<sup>23</sup>We compared the median size and duration of the 48 events with that of the full sample. The median duration is almost identical. Instead, likely reflecting that NPV data is more readily available for recent bond restructurings, the median size is somehow larger in the NPV-sample.

<sup>24</sup>Episode level NPV losses are the average of NPV losses at the instrument level weighted by debt size.

The size of NPV losses varies greatly depending on the instrument involved. As shown in Table 7, creditors' losses are smaller when government defaults on deposits, and are larger when bank loans are involved. Losses on bonds fall in the middle. When we compare investors' losses in domestic and external restructurings, we find that investors' losses on domestic debt are larger than those reported by [Asonuma and Trebesch \(2016\)](#) for foreign law debt.

**Table 7. NPVs of Creditors' Losses by Instrument in Default**

	Mean	Median	SD	Min	Max	N
Foreign law	38%	33%	27%	-10%	97%	178
Domestic law	41%	48%	23%	-5%	100%	48
Bonds	40%	47%	23%	-5%	100%	32
Bonds with CACs	44%	49%	16%	23%	65%	7
Bank loans	50%	54%	19%	5%	65%	8
Deposits	37%	31%	29%	0%	74%	8

Summary statistics for creditors' losses. Losses are expressed as a percentage of the NPV of the liability in default.

## 10 The Mechanics of Debt Restructuring

In this section we shed light on the approach followed by governments to restructure domestic-law debt. On the footsteps of the external sovereign default literature ([Enderlein et al., 2012](#); [Asonuma and Trebesch, 2016](#); [Reinhart and Trebesch, 2016](#)), three dimensions are especially relevant for us. First, we classify restructuring episodes in either pre-default or post-default. Second, we check whether restructurings were either unilateral or negotiated. Finally, we collect information on how the original terms were amended distinguishing between cases featuring a modification of maturities, a change in coupons, or a reduction of face values.

Pre-default restructurings happen when the government is able to reach a restructuring agreement with creditors before default. Post-default restructurings, instead, happen when the government defaults on its debt before a restructuring process is started. Table 8 reports the split between pre-default and post-default restructurings. About 39% of the domestic debt restructurings are pre-default.<sup>25</sup> The incidence of pre-default restructuring is in line with the one found by [Asonuma and Trebesch \(2016\)](#) for external defaults: 39%. Table 8 also compares the size, the duration, and investors' losses for pre-default and post-default restructurings. Pre-default restructurings are quicker, they involve broadly the same volumes of debt, and deliver smaller losses than post-default ones.

<sup>25</sup>Pre-default restructurings have become more frequent over time. While only 30% of the restructurings were pre-default before 2000, their incidence increased to 41% after 2000.

**Table 8. Pre-default versus Post-default: Main Features**

	% (all events)	Size (% of GDP)	Duration (months)	NPV Losses
Pre-default	39%	10.4%	2.2	31.8%
Post-default	61%	10.7%	50.9	40.6%

The table reports average values for pre-default and post-default domestic-law debt restructurings.

Turning to the restructuring procedure, we identify two: unilateral and negotiated conversions. As in [Enderlein et al. \(2012\)](#), we determine that a unilateral conversion occurs when contractual terms are modified unilaterally by the debtor government. This occurred, for instance, in Turkey in 1999. Negotiated conversions, instead, are characterized by the involvement of creditors. Governments may approach investors informally or propose an exchange offer. Governments often choose an informal approach when they seek to restructure selectively a portion of the debt (as in the case of Antigua and Barbuda in 1998) or when they have a direct relation with the creditor (as it is generally the case with bank loans). Exchange offers are more often used in larger restructurings that involve multiple instruments and investors.

Table 9 reports the breakdown of restructuring events by instrument and procedure. While defaults on bonds and bank loans are usually resolved through negotiated restructurings, governments always took a unilateral approach when deposits were involved. Table 9 also shows that pre-default defaults are usually negotiated with investors, suggesting that governments take a more market-friendly approach for pre-default restructurings. On the contrary, post-default restructurings are often unilateral.

**Table 9. Restructuring procedure by instrument**

	Unilateral conversion	Negotiation
Bonds	38%	62%
Bank loans	29%	71%
Deposits	100%	0%
Pre-default	33%	67%
Post-default	63%	37%

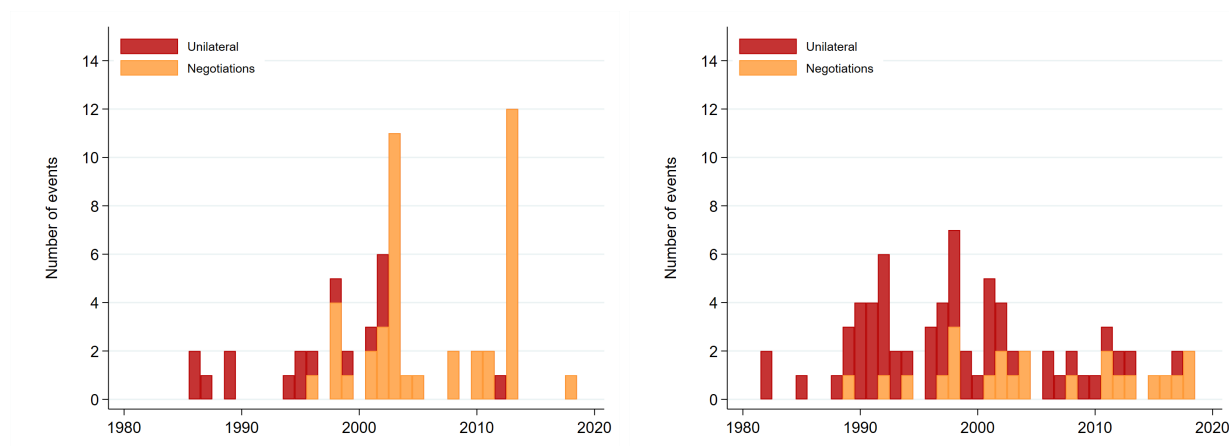
Domestic-law restructuring events by restructuring procedure and instrument.

Figure 7 plots the evolution over time of unilateral and negotiated defaults for pre-default and post-default restructurings. A clear pattern emerges. Along calls for increased trans-



parency and a more open dialogue between creditors and debtors, negotiated restructurings have become more frequent over time. This pattern is especially visible for pre-default restructurings. Since Slovenia’s debt restructuring in 2002, there has been only one unilateral restructuring (Argentina in 2012).

**Figure 7. Unilateral and Negotiated Restructuring Overtime: Pre- vs Post-Default Cases**



Breakdown of restructuring events in pre-default cases (left hand side chart) and post-default cases (right hand side chart) according to the procedure used.

Finally, we review how terms are amended when government debt is restructured.<sup>26</sup> Table 10 summarizes our findings. Maturity extension is by far the most common amendment. In 75% of the default events in our sample, the government amended the original maturity of instruments, typically extending it.<sup>27</sup> Maturity extensions vary greatly from case to case ranging from just a few months (as in Venezuela 2003) to 50 years (as in Bosnia 1992). Amendments to the coupon structure are also frequent and are featured in 62% of the restructuring events in our sample. Coupon amendments often involve a reduction of coupon and the exchange of variable-rate coupons for fixed-rate ones. There are, however, instances (such as Argentina’s 2001 Megaswap) in which coupon payments were increased, at least on a fraction of the instruments in default, to partly compensate investors for the losses inflicted by the restructuring.

<sup>26</sup>The terms of restructuring are a key determinant of the macroeconomic consequences of external sovereign defaults (Reinhart and Trebesch, 2016).

<sup>27</sup>There are, however, cases, such as Nicaragua 1994, in which maturities were actually reduced.

**Table 10. Restructurings by Amendment of the Terms**

	Maturity Change	Coupon Change	Face Value Reduction
Bonds	65	49	12
Bank loans	21	20	7
Deposits	14	14	5
<i>N</i> <sup>o</sup> of events	100 (117)	83 (100)	24 (100)

Number of restructurings by type of amendments of the original terms. Events featuring more than one type of amendments of terms are double counted. The number in parenthesis corresponds to the number of events for which information on the corresponding change is available. The numbers reported in parenthesis are bigger than the number of the events, as for several default episodes our sources did not report information about amendments of the terms at the security level.

Face value reductions are far less common. Only around 18% of the restructuring events in our database feature face value reductions. Pre-default restructuring almost never feature them.<sup>28</sup> The experiences of Uruguay in 2002, Jamaica in 2010, or Cyprus in 2013 shed a light on the reason why face value reductions are not welcomed by investors and are uncommon. In all these cases, amid a twin sovereign and bank crisis, the authorities approached investors to discuss the terms of a pre-default restructuring of sovereign debt. Creditors expressed their preference for a maturity extension over face value reductions, motivating their choice with the more negative impact that a face value reduction would have on their balance sheets.<sup>29</sup>

## 11 Triple Coincidence?

Our definition of domestic debt is based on the law governing the debt instruments, but we also collected information regarding other aspects of domestic. Namely, we gathered information regarding whether the domestic-law debt in default was held domestically and whether it was denominated in local currency. From our sources, data on the currency denomination and investors' residence of restructuring events were available for 87 of our 134 default events. We use this information to assess the extent to which domestic-law defaults involve debt denominated in domestic currency and held by domestic investors. Table 11 reports the mean share of domestic-law debt that involve local currency debt and the mean share of debt that is held by resident investors by decades.

<sup>28</sup>The only 3 cases where a pre-default restructuring involved face value reductions are Brazil 1996, Ukraine 1998 and Greece 2011.

<sup>29</sup>Restructurings that involve deposits are a special case. While the restructuring of bonds and bank loans normally only affect the terms of the securities, the restructuring of deposits typically involve transforming them into a different instrument: bonds. In 13 of the 16 restructuring episodes that involve deposits, investors were either given the option or were forced to convert deposits into bonds.

**Table 11.** Triple Coincidence

	Local currency	Domestic residents	No. events
1980-1990	63%	88%	8
1990-2000	66%	86%	29
2000-2010	44%	86%	21
2010-2018	79%	75%	29

Average share of restructured domestic-law debt denominated in local-currency debt and held by domestic residents. Data by decade.

In each of the four decades spanned by our database, the share of domestic-law debt restructuring that involve assets held by domestic investors exceeds 75%, indicating a strong overlap between residence and jurisdiction. The share of domestic-law restructurings involving local-currency debt hovered around 65% in the 1980s and 1990s before declining to 44% in the 2010s. In the last decade, however, the trend has reversed. The share of local-law restructurings involving debt instruments denominated in local currency has increased to 79%. All told, results suggest that triple coincidence is very much alive, despite financial globalization. The domestic nature of the law governing public debt in default often translates into the residence of creditors, who are mostly domestic residents, and, to a lesser extent, to the currency denomination of the debt, which is the local currency.

## 12 Conclusion

This paper introduces a novel database on domestic sovereign defaults based on the jurisdiction governing public debt: Domestic debt is defined as public debt issued under domestic law. The database contains 134 domestic-law default events in 52 countries from 1980 to 2018, and systematically reports information on the timing and outcome of each event.

The stylized facts we present in this paper provide interesting insights that can inform the growing theoretical work on this area. In particular we draw the following lessons:

1. Domestic defaults are a global phenomenon occurring in every continent.
2. Domestic defaults are frequent and, from the mid-1990s to 2016, have become more frequent than foreign ones. Moreover, governments operate selective defaults.
3. Domestic defaults on bonded debt are by far the most common form of domestic defaults. Defaults on bank loans and deposits, used to be more frequent, but are fairly rare nowadays.

4. The median size of domestic defaults has increased over time reaching around 11% of GDP in the last decade.
5. Maturity extension is the most frequent form of restructuring. Amendments to the coupon structure are also frequent, while face value reductions are relatively rare.
6. Investor losses are sizable, as large as those faced during foreign law defaults.
7. Domestic debt restructurings often proceed much faster than external ones, but they can also protract significantly.
8. Post-default restructurings were the norm, but governments show an increasing preference for negotiated, pre-default restructurings.
9. Despite financial globalization, the triple coincidence is very much alive.

Domestic defaults are complex and highly heterogeneous, and summarizing them using a limited number of variables may conceal more than reveal. Mindful of this risk, we complement this paper and our database with a collection of “sovereign histories” ([Erce et al., 2021](#)) that provide both an overview of the events leading to the default and the full details of the restructuring process for each debt instrument involved.

This paper is just a first step in the direction of exploiting our database to foster the understanding of public debt dynamics and sovereign defaults. Topics that are especially interesting, in our view, include: the co-existence domestic and external defaults, the role played by disasters in shaping default risk, the interplay between domestic defaults and financial stability, and the interaction between political instability, inequality, and sovereign risk. We plan to address these topics in future research.

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## Appendix A Payment Arrears

We found fragmented information on 30 events involving payment arrears with domestic suppliers. As the information about these events is often incomplete, we chose to report them in our sovereign histories but to exclude them from our database. In this appendix we review some empirical facts about domestic payment arrears, using the information from our admittedly incomplete sample.

### Chronology

As reported in Table 12, the number of default events involving domestic arrears peaked in the 1990s at the same time in which domestic defaults also peaked, suggesting that payment arrears often accumulate when governments default on domestic debt. As a consequence, the number default events involving domestic arrears as a fraction of the total number of defaults has remained fairly constant over time.

**Table 12. Events of Domestic Payment Arrears by Decade**

	Full Sample	1980-1989	1990-1999	2000-2009	2010-2018
Payment Arrears	30	3	15	9	3

Number of default events involving domestic suppliers by decade.

### Default Volumes

Domestic payment arrears tend to be large. Table 13 reports summary statistics for default volumes. The average volume of payment arrears as a fraction of GDP is close to 19%. That said, the distribution is skewed toward zero. The median value is 6%, suggesting that the volume of domestic arrears is moderate in most domestic default events.

**Table 13. Default Volumes as a Percentage of GDP**

	Mean	Median	SD	Min	Max	N
Payment Arrears	18.9	6.18	43.45	0.74	229.64	30

Summary statistics for domestic payment arrears as percentage of GDP.

## Duration

Payment arrears to employees and suppliers feature very long duration (Table 14). Their resolution is significantly slower than the resolution of defaults that involve any other debt instruments. Delays in the resolution of domestic arrears happen in part because the planning and execution of clearance operations are complex and normally involve a reconciliation process between the government and creditors to assess and validate the arrears. Once the validation process is completed, payment arrears are usually settled either by cash payments or through an exchange with newly issued debt.

**Table 14. Duration (months) of Domestic Payment Arrears**

	Mean	Median	SD	Min	Max	N
Payment Arrears	88.6	72.0	74.8	2.0	305.0	30

Summary statistics for the duration of events of domestic payment arrears.

## Investors' Losses

We only managed to find information for five events. For these events, investors' losses associated with domestic arrears are significant. On average 54% of the NPV of the unpaid liability is never repaid. For our very limited sample, average losses on payment arrears are larger than those on any other instrument.

**Table 15. NPVs of Creditors' Losses for Domestic Payment Arrears**

	Mean	Min	Max	N
Losses on payment arrears	54%	30%	74%	5

Summary statistics for creditor's losses for domestic arrears. Losses are expressed as a percentage of the NPV of the liability in default.



## Appendix B List of Defaults

**Table 16. Default and restructuring episodes**

Database Criterion	Our Dataset Law	Reinhart and Rogoff (2008) Residence	Beers and de Leon-Manlagnit (2019) Currency
Angola	2010	1992	1990
Antigua-Barbuda	1998, 2008		
Argentina	1989, 2001	1982, 1989, 2001	1982, 1989, 2002
Barbados	2018		2018
Bolivia	1982	1982, 1984	
Bosnia	1992		
Brazil	1986, 1990, 1993, 1996	1986, 1990	1983, 1986, 1990
Cameroon	1993, 2001		
Cabo Verde	1998, 2018		1999
Central African Rep.	1992		
Congo Dem. Rep.	1997		
Congo Rep.	1992		
Cote d'Ivoire	1989, 2001, 2011		
Croatia	1992		
Cyprus	2013		
Dominica	2003		
Dominican Rep.	1996	1981	
Ecuador	1997	1999, 2008	
El Salvador	2017	1981	
Gabon	1997, 2001		
Gambia	2017		
Ghana		1982	1982
Greece	2011	2012	
Grenada	2004, 2013		
Iraq			1990, 1993
Jamaica	2010, 2013		2010, 2013
Korea, North			1992, 2009
Kuwait	1990		
Liberia	1989, 2016		
Macedonia	1991		
Madagascar	2002		2002
Mali	2011		
Mexico	1982	1982	
Mongolia	1997		1997
Montenegro	1991		
Mozambique			1980
Myanmar		1984, 1987	1985, 1987
Nicaragua	1994, 1996, 1999, 2003, 2008	2003, 2008	1988, 2005
Nigeria	1995		1984
Pakistan	1998		
Panama	1988, 1998	1988	
Paraguay	2002		
Peru	1985, 1992	1985	1980
Russia	1998	1998	1991, 1993, 1998
Rwanda	1989, 1994		1995
Serbia	1991		
Seychelles	2010		
Slovenia	1991, 1995, 2002		
Solomon Islands	1996		1995
Sri Lanka	1996	1996	1996
St. Kitts and Nevis	2011		
Sudan	2007		1991
Suriname			2001
Turkey	1999		1999
Ukraine	1998		1998
Uruguay	2002		
Venezuela	1998, 2002	1995, 1998	1998, 2016
Vietnam		32 2000, 2006	1985
Zimbabwe	2001, 2006		2001, 2006

Domestic debt defaults and restructurings from 1980 to 2018. The first column lists episodes included in our database that follows the law criterion. The second column lists episodes included in [Reinhart and Rogoff \(2008\)](#) who classify domestic debt according to the residence of investors. The third column lists episodes included in [Beers and de Leon-Manlagnit \(2019\)](#) who classify domestic debt according to the currency denomination.

## Appendix C Comparison with existing datasets

After cross-checking our list of episodes with those reported by [Reinhart and Rogoff \(2008\)](#), we decided not to include various episodes they report. There were five main reasons: (i) the episode refers to arrears accumulation with suppliers (which we cover separately), (ii) the episode refers to a period of hyperinflation, (iii) the episode relates to foreign law debt (it is included because some debt-holders were residents), (iv) default corresponds to currency reforms, and (v) we found no information on the episode other than its presence in [Reinhart and Rogoff \(2008\)](#) database. Specifically, our database does not cover the following episodes:

- Bolivia (1984) and Angola (1992) are hyperinflationary episodes. For Angola, we found information regarding the accumulation of domestic arrears to suppliers since 1992.
- Argentina (1982) and Ecuador (2008) relate to external debt restructuring events reported in [Asonuma and Trebesch \(2016\)](#), which affected both foreigners and residents.
- Ghana (1982) and Myanmar (1984, 1987) correspond to defaults due to currency changes.
- Panama (1988) and Venezuela (1995) relate to an accumulation of domestic arrears toward suppliers.<sup>30</sup>
- For El Salvador (1981) and Dominican Republic (1981), we did not find any available information regarding the episodes.<sup>31</sup>

In our search, we identified 49 domestic-law default episodes involving residents, which were not covered in [Reinhart and Rogoff \(2008\)](#). Of these, 41 correspond to the period starting from 1980 until the last episode reported in that database.

After cross-checking our list of episodes with those reported by [Beers and de Leon-Manlagnit \(2019\)](#), we did not take into account various episodes they report. There were three main reasons: (i) the episode relates to foreign law debt (denominated in domestic currency), (ii) corresponds to a currency reform, and (iii) we found no information on the episode other than its presence in [Beers and de Leon-Manlagnit \(2019\)](#). Specifically, we did not include the following episodes:

- Angola (1990), Ghana (1982), Iraq (1990), (1993), Korea, North (1992), (2009), Mozambique (1980), Myanmar (1985), (1987), Nicaragua (1988), Nigeria (1984), Russia (1991), (1993), Sudan (1991), Venezuela (2016), Vietnam (1985) correspond to currency changes.

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<sup>30</sup>We report Panama (1988) in our database but as a deposit freeze episode.

<sup>31</sup>El Salvador (1981) is classified as a local currency default by Standard & Poor (2004), which reports government and central bank securities, bank loans, and central bank currency as local currency obligations.

- Argentina (1982) and Brazil (1983) relate to the external debt restructuring interventions reported in [Asonuma and Trebesch \(2016\)](#), which affected both foreign and local currency-denominated debt.
- Suriname (2001) relates to an accumulation of external arrears, amounting to U.S. \$36 million, on bank loans and not reported in [Asonuma and Trebesch \(2016\)](#).
- For Nicaragua (2005) we did not find any available information regarding the episode.

In our search, we identified 30 domestic-law default episodes involving local currency debt, which were not covered in [Beers and de Leon-Manlagnit \(2019\)](#).