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The BoC-BoE sovereign default database: What's new in 2019?

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by David Beers and Patrisha de Leon-Manlagnit

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The BoC-BoE Sovereign Default Database: What's New in 2019?

by

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Abstract

Until recently, few efforts have been made to systematically measure and aggregate the nominal value of the different types of sovereign government debt in default. To help fill this gap, the Bank of Canada (BoC) developed a comprehensive [database](#) of sovereign defaults that is posted on its website and updated in partnership with the Bank of England (BoE). Our database draws on previously published datasets compiled by various public and private sector sources. It combines elements of these, together with new information, to develop comprehensive estimates of stocks of government obligations in default. These include bonds and other marketable securities, bank loans and official loans, valued in US dollars, for the years 1960 to 2018 on both a country-by-country and a global basis. This update of the BoC-BoE database, and future updates, will be useful to researchers analyzing the economic and financial effects of individual sovereign defaults and, importantly, the impact on global financial stability of episodes involving multiple sovereign defaults.

Bank topics: Debt management; Development economics; Financial stability; International financial markets

JEL codes: F34, G10, G14, G15

Résumé

Jusqu'à tout récemment, peu d'efforts étaient consacrés à l'évaluation systématique des différents types de défauts souverains ainsi qu'au calcul de la valeur nominale globale des engagements qu'ils représentent. Afin de remédier à cette lacune, la Banque du Canada a développé une [base de données](#) exhaustive de défauts souverains, qui se trouve sur son site Web et qui est mise à jour en partenariat avec la Banque d'Angleterre. Cette base repose sur des ensembles de données compilées et préalablement publiées par diverses sources, publiques et privées. Elle permet de produire, à partir de données tirées de ces sources et de nouvelles informations, des estimations complètes du montant des prêts bancaires, des obligations et autres titres négociables, de même que des prêts officiels en situation de défaut, tous exprimés en dollars américains, pour la période allant de 1960 à 2018. Cette information est présentée à la fois pays par pays, et de manière agrégée, c'est-à-dire à l'échelle mondiale. La base de données actualisée de la Banque du Canada et de la Banque d'Angleterre, et ses mises à jour ultérieures, sera utile aux chercheurs souhaitant analyser les effets économiques et financiers de la défaillance d'emprunteurs souverains spécifiques, ainsi que – dimension importante – l'incidence sur la stabilité financière mondiale de multiples défauts souverains.

Sujets : Gestion de la dette; Économie du développement; Stabilité financière; Marchés financiers internationaux

Codes JEL : F34, G10, G14, G15

Non-technical Summary

Responding to the fragmented public information available on sovereign defaults, the Bank of Canada launched a unique database in 2014, which is now updated annually in partnership with the Bank of England. The database provides estimates of government debt in default, including obligations owed to official and private creditors, valued in US dollars for the 1960–2018 period, by country and debt type and aggregated globally. This dataset and related commentary on historical trends give researchers a more comprehensive picture than was previously available to support their analysis of the economic and financial effects of individual defaults and, importantly, of the impact on global financial stability of defaults by multiple sovereigns.

What we do

As there is no internationally agreed-upon definition of the characteristics of sovereign defaults, we outline our criteria for determining when a default occurs. We next describe the main components of the database and how they are compiled for the main creditor categories—the International Monetary Fund, the International Bank for Reconstruction and Development, the International Development Association, the Paris Club, China, other official creditors, foreign currency bank loans, foreign currency bonds, other foreign currency private creditor loans and local currency debt.

We note that due to challenges in documenting when sovereigns default and the amounts of debt involved, some of our country data are provisional. We explain how we develop these estimates, which we may revise in future database updates as new information becomes available. The paper concludes with a commentary highlighting major trends in the historical data. An appendix provides country-by-country information on our data sources.

What we find

Since 1960, 146 governments have defaulted on their obligations—well over half the current universe of 214 sovereigns.

Defaults had the biggest global impact in the 1980s, peaking at US\$450 billion or 6.1 percent of world public debt by 1990. Their scale has fallen substantially since then but rose from 0.3 percent in 2017 to an estimated 0.5 percent of world public debt last year.

As with other recent years, the distribution of defaults in 2018 is *highly skewed* in value terms: the top 3 sovereigns (Greece, Puerto Rico, Venezuela) accounted for 59 percent of total debt in default, and the top 10 for 90 percent.

Our evidence offers a more nuanced view of earlier research on sovereign default “clusters”—spikes in the number of defaults followed by sharp declines—once we take into account the debt owed to official creditors. Such defaults often take longer to resolve than defaults involving private creditors. The US-dollar amounts can be low in absolute terms, but the number of low-income sovereigns involved can persist for long periods.

Shares of sovereign debt in default, as a percentage of total government debt, are skewed towards lower values. About 72 percent of observations are equal to or below 10 percent of government debt. These data provide further confirmation of sovereigns' tendency to "selectively default." Only 37 sovereigns, 6.2 percent of observations, defaulted on shares ranging between 50 and 100 percent of the totals.

Defaults involving the Paris Club group of official creditors are declining in importance, but those involving other bilateral official creditors, including China, are growing.

Sovereign defaults on local currency debt are more common than sometimes supposed, involving 32 sovereigns since 1960.

Looking ahead, we conclude that defaults are likely to pick up again over the next decade, given growing public debt burdens in many advanced and emerging-market countries. And with cross-border investment in domestic debt markets, defaults on local currency debt could become as common as defaults on foreign currency bonds.

1. Introduction

Government debt defaults are a recurring feature of public finance. These defaults typically involve low-income and emerging-market economies, although recent cases include advanced-economy sovereigns. As a result, there is a prolific literature analyzing various aspects of sovereign debt crises—notably the political and economic factors that drive defaults, their domestic economic and financial effects and the global impact of episodes where multiple defaults are involved.¹

Even so, comprehensive data on sovereign defaults have been hard to come by. This reflects a number of factors. An important reason is that there is no single internationally recognized definition of what constitutes a sovereign default. As a result, standards used by government borrowers and their creditors to report defaults, if they report at all, differ, and information on the various types of defaulted debt must be mined from different sources. Launched in 2014, the Bank of Canada (BoC)–Bank of England (BoE) sovereign default database helps fill these gaps through the compilation of a comprehensive country-by-country and global dataset of government debt in default that applies a common standard for determining when defaults occur.

This working paper is organized as follows. We start by proposing a definition of when a sovereign default has occurred that encompasses loans from both official and private creditors (Section 2). We next describe the main components of the BoC-BoE database (Section 3). We highlight the sources we use to compile the data and, where applicable, the methods employed to develop estimates (Section 4). We also score the reliability of default data for each country (Section 5). We then provide a commentary looking at historical trends in the default data, which can deepen our understanding of their impact on global financial stability (Section 6). A special topic section looks at trends in the shares of government debt in default (Section 7), while the final section offers some conclusions (Section 8). The paper also includes a list of references, while Appendix A reprises our 2018 note on local currency defaults, and Appendix B provides a listing of our data sources for the country-by-country and aggregate data.

¹ For a comprehensive overview, see Tomz and Wright (2012).

2. Determining Sovereign Defaults

Like other types of debt, sovereign debt—the term commonly used to denote debt issued by national governments and certain fiscally autonomous territories—is a contractual obligation. A failure to meet this contractual obligation to pay interest or principal in full on the due date provides one clear-cut example of a sovereign default. Another example is a failure by a government to honour debt it has lawfully guaranteed where there are clear provisions for the guarantor to make timely payment. That said, because government responses to financial distress can take many forms, sovereign defaults are often not so explicit. In some cases, we can conclude that, even without an actual interruption of debt service, a default has effectively occurred because actions by the sovereign result in economic losses by creditors. Such losses can vary widely.

Consistent with much of the literature on sovereign defaults (Cruces and Trebesch 2011), and the practice of credit-rating agencies (Beers and Chambers 2006; Tudela et al. 2011),² we consider that a default has occurred when debt service is not paid on the due date or within a specified grace period, when payments are not made within the time frame specified under a guarantee or, absent an outright payment default, in any of the following circumstances where creditors incur material economic losses on the sovereign debt they hold:

- agreements between governments and creditors that reduce interest rates and/or extend maturities on outstanding debt
- government exchange offers to creditors where existing debt is swapped for new debt on less-economic terms
- government purchases of debt at substantial discounts to par
- government redenomination of foreign currency debt into new local currency obligations on less-economic terms
- swaps of sovereign debt for equity (usually relating to privatization programs) on less-economic terms
- retrospective taxes targeting sovereign debt service payments
- conversion of central bank notes into new currency of less-than-equivalent face value

² Sovereign ratings assigned by credit-rating agencies typically assess the likelihood of timely payment of government and central bank bills, notes, bonds and bank loans, not the likelihood of timely payment of loans contracted from the International Monetary Fund, the multilateral lending institutions and other official creditors.

3. Features of the BoC-BoE Sovereign Default Database

The BoC-BoE sovereign database—posted [here](#)—tabulates data on debt owed to official and private creditors for all sovereign defaults that we have identified between the years 1960 and 2018.³ For each year, we compile the data by type of creditor on both a country-by-country and an aggregated basis to show global totals. All country and global data on debt in default are expressed in nominal US dollars. Sovereigns in default at any point during the year, together with the amounts of debt affected, are shown in the annual totals. Anticipating future updates, the database also shows the date of the most recent revision.

In the August 2019 update, our first estimate puts total debt in default at US\$383.6 billion in 2018, sharply higher than the revised total of US\$225.3 billion in 2017. As in other recent years, the distribution of obligors is highly skewed. Just three sovereigns—Greece, Puerto Rico and Venezuela—accounted for 59 percent of the US-dollar value of debt in default globally, and the top 10 sovereigns in default for 90 percent. The data by major creditor categories (Chart 1) show that last year’s increase mainly reflected higher defaults impacting “other official creditors”—which excludes the International Monetary Fund (IMF), the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the Paris Club and China. Defaults in this category were mainly driven by the US\$111 billion restructuring of Greece’s official debt (loans from the European Stability Mechanism and other EU partners) at the conclusion of its stabilization program.⁴ Foreign currency bonds in default, meanwhile, rose US\$13 billion to US\$88 billion, reflecting a first-time default by Barbados, and higher interest arrears from the ongoing bond defaults by Venezuela, Puerto Rico and Mozambique.⁵ Local currency debt in default also rose sharply—from US\$3 million to US\$5.9 billion—due to the restructuring of Barbados’s obligations. Paris Club and China loans in default increased, as did loans due banks and other private creditors, while the values of defaulted debt in the remaining creditor categories were little changed.

³ The BoC-BoE database is distinct from and complements the data sets measuring the nominal value of sovereign debt restructuring agreements and creditor losses involving private creditors and Paris Club official creditors published by Cruces and Trebesch (2011) and Das, Papaioannou and Trebesch (2012), respectively.

⁴ Official debt restructurings like Greece’s are included in the database since they result in net present value creditor losses. See also footnote 19.

⁵ Smaller defaults involve not yet completed exchanges of old Argentine defaulted bonds, and non-performing bonds issued by Nauru and Zimbabwe.

The other main changes in this update are:

- enhanced coverage, with the addition of separate data for defaults on China's official loans
- inclusion of default data for IDA, the sister institution of the IBRD
- inclusion of annual data (where available) for each country's total central government debt
- revisions of country and aggregate default data for 1960–2017
- a special topic section examining historical patterns in the shares of government debt in default
- addition of two tabs at the bottom of the main database spreadsheet that open related spreadsheets—DATA provides a downloadable format for the global and country default data, while DEBTOTAL, the second tab, provides country data on total government debt stocks

Within the country and global totals, debt in one or more of the following creditor subcategories is included:

- IMF
- IBRD
- IDA
- Paris Club
- China
- other official creditors
- private creditors
- foreign currency bank loans
- foreign currency bonds
- local currency debt

In addition to the country-by-country components, in most cases the database contains the following aggregate data for the period starting in 1960 and ending in 2018:

- total debt in default (in nominal US dollars)
- total debt in default by creditor type (in nominal US dollars)
- total debt in default by debtor type (in nominal US dollars)
- number of sovereign governments
- number of sovereign governments in default

- outstanding Paris Club debt (in nominal US dollars)
- global general government or public debt (in nominal US dollars)
- global gross domestic product (GDP) (in nominal US dollars)

4. Data Sources and Data Estimation

To construct the BoC-BoE database, we utilize data published by the Asian Development Bank (2019 and earlier years); the IMF (2019 and earlier years); the Paris Club (2019a, 2019b); the World DataBank (World Bank Group 2019); the IBRD's annual financial statements (2018 and earlier years); IDA's annual financial statements (2018 and earlier years); Tweedie, Hagan and Tiwari (2012); Das, Papaioannou and Trebesch (2012); Cruces and Trebesch (2011); Tudela et al. (2011); Beers and Chambers (2006); and Suter (1992). We combine elements of these datasets, together with information from national governments and other sources, to develop our estimates of stocks of bank loans, bonds and other marketable securities, other private creditor claims, and IMF, IBRD, IDA, Paris Club, China and other official loans in default for the years 1960 through 2018.

It is important to highlight that some of our data is, in fact, estimated. As Cruces and Trebesch (2011) and others have noted, documenting which sovereigns have defaulted, the time frame of such defaults and the amounts of debt affected can be challenging. This is particularly true for local currency defaults, which often are not acknowledged as such by the governments involved and which have been little studied in the literature. Even in better-documented cases where defaults are resolved through a formal debt-restructuring process, different sources can, at times, provide contradictory information.

Consequently, while we have relied on sources we consider credible, our database of sovereign defaults may not be exhaustive. We may have overlooked some defaults, and we may ultimately revise our estimates of the US-dollar amounts of debt in default. As we gain additional information on defaults, we will include the data in future database updates. Any errors in the identification and estimation processes employed are, of course, the sole responsibility of the authors.

Below we outline how we estimate values of different types of defaulted debt:

IMF lending. This category refers to IMF loans to member governments and obligations to pay IMF membership quotas. The IMF does not report late payments as defaults because it is a preferred creditor—meaning that generally it is paid ahead of other types of creditors and, when payments are late, expects ultimately to be repaid. Even so, there are cases (in the 1960s) where IMF loans were reprofiled in tandem with restructurings of other debts owed by sovereigns and (throughout the 1960–2017 period) where payment arrears have persisted for extended periods. In addition, the IMF has written off some loans to countries receiving official debt relief under the Multilateral Debt Relief Initiative (MDRI). Our sources on payment arrears and reschedulings are IMF annual reports, Article IV reports on member countries, use of IMF credit as reported in the IMF’s *International Financial Statistics*, and reports by the IMF on cases of “protracted arrears.” Utilizing these data and information on loan charges, we compute cumulative interest arrears and charges and apply them to the principal amount of loans and overdue quota amounts reported as being in arrears for at least six months.⁶ Since IMF lending is denominated in special drawing rights, we use applicable end-of-period exchange rates to convert amounts of estimated defaulted loans into US dollars. Because MDRI-related loan write-offs are funded by donor governments and do not impair the IMF’s balance sheet, they form one component of the other official creditor data category discussed below.

MLI lending. This category refers to loans by multilateral lending institutions (MLIs) to member governments. Many MLIs—all owned or controlled by groups of governments—have preferred creditor status but, like the IMF, have periodically experienced late payments on their loans. Reporting practices on such loans vary, although IBRD, IDA and the largest regional development banks publish reasonably comprehensive data on arrears of principal and interest when they persist for six months or more. We publish separate IBRD and IDA country data on their loans in arrears for the years 1985–2018. In the global totals, we also show the value of IBRD and IDA loans in arrears for the years 1980–84, a period when they did not identify the relevant individual countries. Our sources are the IBRD’s and IDA’s annual financial statements. Apart from the IBRD and IDA data just noted, MLI lending, including all MDRI-related write-offs, is one component of our proxy for other official debt in default described below.

⁶ Exceptions that we also include, given their size, are short-lived arrears to the IMF by Romania, Argentina and Greece of US\$1 billion in 1986, US\$2.9 billion in 2003 and US\$2.2 billion in 2015, respectively.

Paris Club lending. This category refers to loans extended by the Paris Club, an informal group of 22 bilateral official lenders, to other governments. Das, Papaioannou and Trebesch (2012) have published comprehensive data on sovereign debt restructurings involving the Paris Club for the years 1956–2010. These and more recent data are also available directly from the Paris Club’s website (2019a) and generally show the year and the amounts of each restructuring. In some cases, the Paris Club separately identifies amounts of restructured loans and interest arrears. However, the data do not include the annual amounts of unpaid loans and accrued interest for the entire default period, although there are some cases (e.g., Sudan) where we also utilize IMF data on Paris Club loan arrears.

Despite these limitations, we publish data on Paris Club loans in default separately from the data on other official creditors. Where a default has occurred but we have insufficient information about the amount of debt involved, we show asterisks rather than values for the applicable year, and we record the default in the annual global total number of defaults. For some long-running defaults not yet resolved, we show IMF estimates where available or Paris Club country data for total loans, published annually for 2008 and subsequent years, as a proxy for the actual amounts involved. Our proxy values based on Paris Club data have two drawbacks: on the one hand, they may include bilateral loans to debtors that are still performing; on the other, they exclude interest arrears on non-performing loans and so underestimate the totals.

China. This new category refers to bilateral official loans by China, including government-guaranteed loans from two of its development banks: China Export-Import Bank and China Development Bank. Like a number of other bilateral official creditors, China’s lending agencies do not publish comprehensive data on debt in arrears or debts that have been restructured. Instead, our data primarily draw on estimates of debt write downs and debt restructurings compiled by Hurley, Morris and Portelance (2018) and Kratz, Feng and Wright (2019), from analysis of China’s official lending by Horn, Reinhart and Trebesch (2019), as well as from reports by borrowers, the IMF and the media since 2000. Nonetheless, the data are incomplete and so understate the annual totals since they do not include loans when they first become non-performing. In principle, many of them could be included indistinguishably in the other official creditor loans category discussed next.

Other official creditors. This category covers loan arrears by governments due to the MLIs and bilateral official creditors, including national export credit and development agencies, not

shown separately. In most cases, our source for the country-by-country data is the World DataBank, which reports cumulative annual amounts of unpaid interest and principal, as well as restructured debt and write-offs of interest and principal, in the years they occurred.⁷ With a few exceptions (noted in Appendix B), we use this data as our proxy for annual amounts of other official debt in default, on a country-by-country and aggregate basis, from 1970 onwards. For 1960–69, our data are drawn mainly from IMF Staff Reports, Bittermann (1973) and Bornschier, Pfister and Suter (1986). Where a default has occurred but we have insufficient information to estimate the amount of debt involved, we show asterisks rather than values for the applicable year, and we record the default in the annual global total number of defaults.

There are three main drawbacks with our approach to compiling the data. First, since the World DataBank country data are not available for 1960–69, we gather data for this period from the IMF and other sources, a process that may underestimate the number of governments and US-dollar values involved. Second, the country totals for 1970–2018 also underestimate the annual value of official debt in default because they do not take account of the total loan amounts outstanding when payment defaults take place. Third, as highlighted by Cruces and Trebesch (2011), there may be errors and omissions in some of the country data the World DataBank reports, which are based on information compiled by debtor governments.⁸ Despite these shortcomings, we believe that our use of alternate sources make the 1960–69 data nearly as comprehensive as the data for 1970–2018, and that for this latter period in most instances our proxy provides a reasonable approximation of the amounts of debt in default.

To calculate annual country-by-country values for this category and to minimize double-counting, where relevant we make the following adjustments:

- From the official creditor totals compiled by the World DataBank, we deduct IBRD and IDA loans in arrears in each year they are reported.
- We deduct Paris Club debt in default from the residual official creditor values in years when the latter are larger. We make this adjustment because the Paris Club reports its

⁷ The World DataBank data on official creditors' arrears exclude arrears on IMF lending. For sovereigns where we show loans in default from the IBRD, IDA, the Paris Club and/or China, we show *residual* World DataBank data values after deducting these amounts.

⁸ Cruces and Trebesch (2011) cite instances where data on debt restructurings from this source, which come from central banks and other national sources, are not consistent with data from other credible sources.

data in the year it reaches agreement with the debtor government, while the World DataBank records restructured official debt and debt write-offs in the years they occur.

- We deduct bilateral loans restructured, written down or forgiven by China in each year they are separately reported from the residual creditor values.
- Where, as a result of these steps, the residual value is negative, we show asterisks in the applicable year.

Our treatment of Liberia's official arrears in 2008 illustrates how we make these adjustments. To start, for this category the World DataBank reports cumulative arrears of principal and interest arrears, plus write-offs of principal and interest during the year, as US\$1,233 million. From this total, we subtract IBRD arrears of US\$179 million reported separately, and Paris Club restructurings of principal and interest of US\$1,043 million reported separately. We record the residual, US\$11 million, in the other official creditor category of the database.

Private creditors. This category refers to foreign currency–denominated lending to governments by foreign commercial creditors, including bondholders, banks and suppliers. For 1960–69, our principal sources are IMF Staff Reports and Bittermann (1973). For the 1970–2018 period, our main source for the country-by-country data is the World DataBank, which reports cumulative annual amounts of unpaid interest and principal for this category of creditors, as well as write-offs and restructurings. This dataset has the same drawbacks as the official creditor data taken from the same source and, in addition, does not always appear to properly differentiate public and publicly guaranteed borrowers from private sector borrowers. We utilize these data in cases where we do not have separate data on bank loans and foreign currency bonds, when the reported private creditor amounts are larger than the data on bank loans and bonds, and when we have sufficient information from other sources that shows arrears by private sector borrowers in the country are a small share of the total. To minimize double-counting, we subtract the annual bank loans and bond amounts from the annual private creditor values. Where a default has occurred but we have insufficient information to estimate the amount of debt involved, we show asterisks rather than values for the applicable year, and we record the default in the annual global total number of defaults.

Foreign currency bank loans. This category refers to foreign currency–denominated bilateral and syndicated loans to governments by commercial banks. For bank loan defaults resolved through a formal restructuring process and involving interest arrears, the amounts of

debt restructured (or subject to debt buybacks) reported by Cruces and Trebesch (2011) and others generally serve as our starting point. Utilizing available information on the original terms of the loans, which typically include a variable rate of interest (often the London Interbank Offered Rate [LIBOR]) plus a spread, we compute cumulative interest arrears for the years prior to the resolution of the default and add them to the loan amounts outstanding for each year we determine the default values. In cases where a payment default did not precede a bank debt restructuring, we include the debt amount in the year(s) in which the workout process occurred. Where bank loan defaults remain unresolved, we develop our annual estimates of default amounts from information on the original loans reported by Exotix Capital (2019) and others; we may revise these data based on updated information as and when the debt is formally restructured. When defaulted obligations are denominated in another currency, we use applicable end-of-period exchange rates to convert amounts into US dollars. Where a default has occurred but we have insufficient information to estimate the amount of debt involved, we show asterisks rather than values for the applicable year, and we record the default in the annual global total number of defaults.

Foreign currency bonds. This category refers to foreign currency-denominated bonds and other marketable securities issued by governments. Where bond interest is due but unpaid, we estimate cumulative interest arrears for the years from the start to the end of the bond default based on reported bond coupons. We add these amounts to the outstanding face value of the bond for each year of default. In cases where no payment default has occurred but old bonds are subject to an exchange proposed by the government for new bonds, which results in creditor losses, we view the face value of eligible bonds to be in default from the point when a government announces an exchange to when it is completed. We view a resumption of normal debt service on existing bonds or, more typically, the completion of a bond exchange as the point at which a bond default has been resolved. This is the case in a bond exchange even when some bondholders—known as holdout creditors—do not tender their bonds.⁹ Where defaulted bonds are denominated in another currency, we use applicable end-of-period exchange rates to convert amounts into US dollars. In cases where foreign currency bonds are *repudiated*, i.e., when debt is not recognized by a new government, regime or successor state

⁹ Holdouts are not always the only creditors who fail to participate in bond exchanges. Some bonds may be mislaid, forgotten or locked up in estates, and such creditors can surface long after the conclusion of a bond exchange. In some instances, the government may later issue additional debt on the same terms as the bond exchange to settle these claims.

or states (e.g., Cuba 1961–62, Yugoslavia 1992), we record the face value of the repudiated bonds in the years they default but do not include estimates of interest arrears unless and until the bonds are recognized by current or successor governments or regimes.¹⁰

Local currency debt. This category refers to debt issued by a government in its own currency.¹¹ As already noted, local currency debt defaults are only sporadically reported as such. As a result, our estimates, which we gather from Mas (1995), national sources and IMF country reports, are provisional. The majority of these defaults tend to be resolved quickly. In most cases, we identify the principal amount of the debt involved and, where relevant, estimate interest arrears based on prevailing interest rates on government debt near the time of the default. To convert amounts of estimated defaulted debt into US dollars, we use the market exchange rate—or, where exchange controls are an important consideration, the black market rate—prevailing at the start of the default.¹² When central banks exchange bank notes on unfavourable terms, we generally use the amounts outstanding reported in the IMF's *International Financial Statistics* closest to the exchange date. Where a default has occurred but we have insufficient information to estimate the amount of debt involved, we show asterisks rather than values for the applicable year, and we record the default in the annual global total number of defaults.

Summary data. In this section of the BoC-BoE database, we aggregate the country-by-country data for sovereign defaults in global totals. The data on the total number of sovereign issuers are the authors' estimates. We tabulate data on the number of sovereigns in default based on the total number of sovereigns reported in default in the database for each year. The global total nominal US-dollar amounts for Paris Club, other official creditor and private creditor categories in 2018 are the authors' estimates. The categories for data on sovereign defaults by debtor are based on IMF definitions for advanced economies (5 sovereigns in the database) and for Heavily Indebted Poor Countries (HIPC) (39), and on the JP Morgan Emerging Market Bond Index (EMBI) Global Diversified Index definitions for emerging- and frontier-market sovereigns (50). The other developing countries group (52) includes all

¹⁰ As a result, we do not include values for sovereign bond repudiations prior to 1960, e.g., Russia (1918) and China (1949).

¹¹ For sovereigns that are members of monetary unions, we consider debt denominated in the common currency to be *foreign currency* for purposes of this analysis. Empirically, their default dynamics are similar to defaults on foreign currency denominated debt by sovereigns outside monetary unions. See also Appendix A.

¹² In the few cases involving confiscatory currency reforms where central bank data is unavailable, we develop estimates based on the ratio of currency to GDP in countries with comparable GDP per capita. We note these cases in Appendix B.

other sovereigns in the database. Our roll-up of the country data covering the 146 sovereigns in the database, along with the aggregate value of Paris Club lending, as well as world public debt and world GDP, sourced from the IMF *World Economic Outlook* (IMF 2019b) and the World DataBank (World Bank Group 2019), provides a global perspective on the scale of annual sovereign defaults from 1960 onwards.

5. Assessing Data Reliability

Using a similar approach to that followed by Cruces and Trebesch (2011), we score the relative data quality of our country-by-country estimates of debt in default. On a scale of 1 (denoting high reliability) to 4 (denoting least reliability), we determine a summary score based on the average of the subscores assigned to four variables:

- a. years in which default occurred
- b. types of debt in default
- c. characteristics of debt restructured (e.g., interest rate, original maturity)
- d. consistency of information from different sources

Of course, there must be an element of judgment in an exercise that measures data reliability in relative terms. The following example, for Jamaica, helps illustrate the process we follow. We highlight Jamaica because, under our definition, it has been in default on seven debt types—IMF, Paris Club, other official creditors, private creditors, foreign currency bank loans, foreign currency bonds and local currency debt—at various times over the 1960–2018 period.

For Jamaica, since we have a fair degree of confidence that we have identified all cases of default and the years in which they occurred, we assign a score of 3 to variable a. We are relatively more confident that we have identified all the types of debt involved in each case, so we score variable b at 2. We assign a score of 3 to variable c, which addresses our knowledge about the characteristics of the debt restructured, because we are less confident about our estimates of the value of debt restructured in the 1970s and 1980s than debt restructured more recently. We find that the information from the different sources we consulted is reasonably consistent, but since arrears owed to official creditors come from the World DataBank and are subject to revision, we assign a score of 3 to subcategory d. Finally, we average the results of the subcategories, resulting in an overall score of 3.

6. Sovereign Defaults in Historical Perspective

The BoC-BoE database and its future updates are helpful to researchers analyzing the economic and financial effects of sovereign defaults on debt owed to official and private creditors from 1960 onwards. The dataset is particularly useful since it facilitates comparisons of the scale of individual and multiple default events with earlier episodes. As such, it can contribute to our understanding of ongoing risks to global financial stability. In the commentary that follows, we highlight some of the most noteworthy trends.

From the historical record, we know that for nearly 200 years the story of sovereign defaults has centred mainly, though not exclusively, on foreign currency bonds and other marketable securities.¹³ Cross-border bond financing for governments emerged in the 1820s, when newly independent states in Latin America and other regions, as well as some longer-established sovereigns, began issuing bonds denominated in foreign currency in European financial centres. Defaults soon followed on a substantial scale and persisted well into the 20th century. Defaults on local currency–denominated debt also occurred but, from the available evidence for the pre-1960 era, appear to have been less frequent (Reinhart and Trebesch 2014).

After the Second World War, owing to pervasive national controls on capital movements, cross-border bond issuance by governments fell to low levels, as did defaults, and both remained low over nearly four decades. For a relatively brief period, in the 1970s and 1980s, foreign currency–denominated loans by banks eclipsed bonds in importance. Many developing and East European countries defaulted on bank loans in the 1980s and 1990s, leading to creditor losses. The banks' subsequent exit from this business, in turn, resulted in many low- and middle-income sovereigns regaining access to cross-border bond markets in the 1990s, which continues to this day.

The period since the 1990s is also noteworthy because of growing cross-border investments in the local currency–denominated market debt of emerging-market sovereigns.¹⁴ This development was a factor in a number of defaults involving such sovereigns as Russia and Argentina, where restructurings of their foreign currency bonds were also involved. These

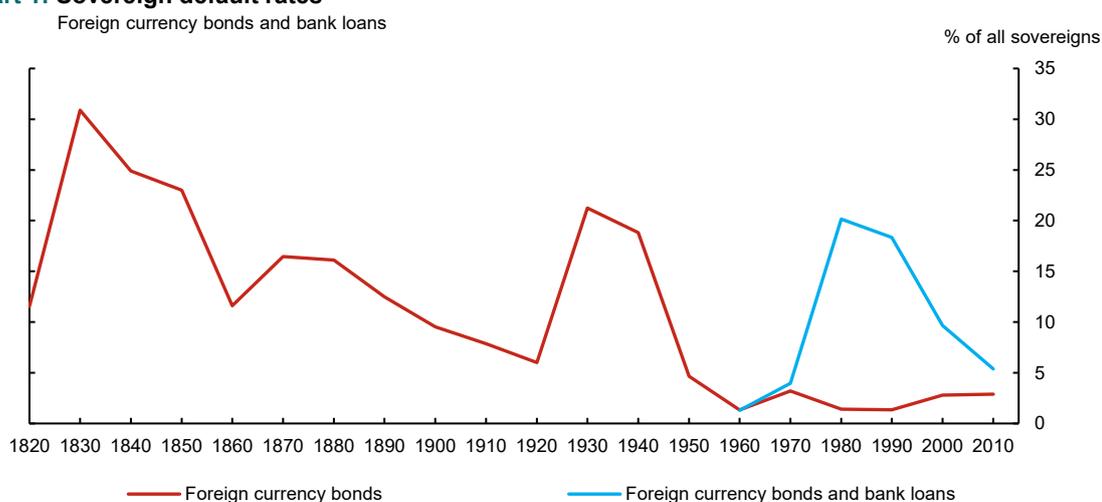
¹³ This section of the report draws in part on previous work published by Beers and Chambers (2006), Cruces and Trebesch (2011), Rieffel (2003), Reinhart and Rogoff (2009) and Suter (1992).

¹⁴ For further commentary on the frequency of sovereign defaults on local currency debt, see Appendix A of this paper.

latter defaults, though also increasing, nonetheless remain well below their pre-Second World War historical peaks.

Chart 1 provides a snapshot of trends in defaults on foreign currency bonds and bank loans from 1820 to 2018.¹⁵ Because of limited historical bond data for much of this period, we calculate unweighted default *rates*, i.e., governments in default as a percentage of *all* governments.¹⁶ For bonds, three peak default periods stand out—between the 1830s and 1850s, when default rates exceeded 25 percent; in the 1870s, when default rates averaged 18 percent; and in the 1930s, when they reached 21 percent. Of note, too, is the sharp decline in bond defaults after the Second World War that persisted through the 1980s. The resolution of many pre-war bond defaults was the main driver of the fall in the default rate. At the same time, the fragmentation of the early post-Second World War cross-border financial markets limited bond market access to only the most creditworthy borrowers, and so defaults on new issues were low.

Chart 1: Sovereign default rates



Default rates are 10-year averages of annual data and 8-year average for 2010.
Source: Suter (1992) and BoC-BoE Database

Last observation: 2018

Prior to the Second World War, sovereign defaults on official loans played only an intermittent role. Then, after 1945, lending to governments by the IMF and other newly established MLIs quickly gained prominence. These institutions, together with national

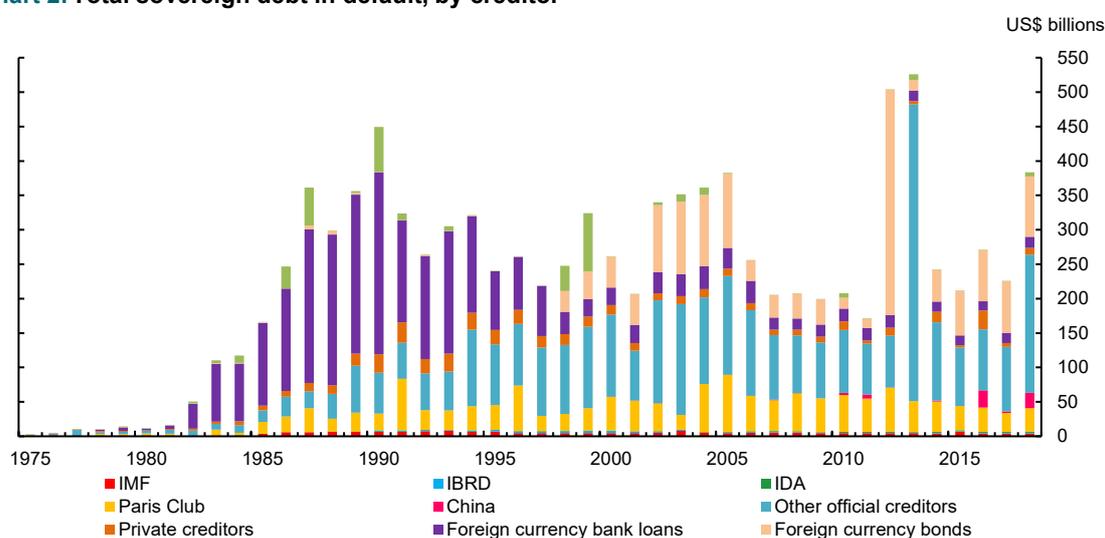
¹⁵ The data in Chart 1 are partly based on data previously published by Beers and Chambers (2006).

¹⁶ By our count, the total number of sovereigns globally was 36 in 1820, 65 in 1900, 105 in 1950 and 214 in 2018. Reinhart and Rogoff (2009) have calculated historical sovereign default rates weighted by estimated aggregated GDP. However, due to reliability issues relating to pre-Second World War national income data in many countries, we have not replicated this approach here.

export credit and development agencies, were launched in part to fill perceived gaps in public finance left by the shrinkage in the cross-border bond markets. They increasingly targeted loans to developing country governments on concessional terms, and initially defaults on official loans were low.

By the 1980s, however, the sharp rise in sovereign defaults on foreign currency bank loans shown in Chart 1 was accompanied by growing defaults on loans from official creditors. Even arrears on IMF loans surfaced, although their size was minor compared with other creditors. The factors driving both bank loans and official loans into default were often closely linked, owing to the adverse fiscal impact in many countries from the spike in world oil prices and in US short-term interest rates. The latter directly influenced the cost of syndicated bank loans contracted by many sovereign borrowers and helped ratchet up the real burden of their public debt. As seen in Chart 2, sovereign debt in default reached US\$450 billion by 1990, with debt owed to official creditors accounting for about 21 percent of the total. By 1995, the share of official creditor debt exceeded 50 percent.

Chart 2: Total sovereign debt in default, by creditor



Source: BoC-BoE Database

Last observation: 2018

Many of the defaults on official loans continued for long periods, owing to internal economic and political difficulties of the borrowers and the reluctance of creditors to reschedule loans. However, by the 1980s, official debt restructurings led by the Paris Club became a frequent occurrence. Yet defaults on official debt persisted. This logjam eased beginning in the mid-1990s, thanks in part to the multilateral HIPC initiative, launched with strong support from the IMF and the World Bank (IMF 2016a).

Under the program, now nearing completion, 39 low-income governments became eligible for substantial reductions in their official debt linked to implementation of agreed economic policy reforms.¹⁷ Bilateral official creditors wrote off much of the debt, while the IMF and other MLIs also agreed to participate through the MDRI.¹⁸ As a result, and as seen in Chart 2, the dollar amounts of IMF, World Bank, Paris Club and (apart from China) other official debt in default have mostly fallen since 2006.

That said, three recent developments are worth highlighting. One is the spike in problematic official debt that occurred in 2013 and again last year (Chart 2). In the first instance, this resulted from the restructuring (albeit without any interruption of scheduled debt service) of loans to Greece, Ireland and Portugal agreed to by their European Union partners.¹⁹ While fiscal pressures in the euro area have abated since then, Greece remains a partial exception, as highlighted by the delay in its payment of US\$2.2 billion due to the IMF in 2015, the restructuring of another US\$110.9 billion of official debt following the completion of its stabilization program in 2018, and the still-open question of whether the country will receive additional debt relief from its official creditors in the future.²⁰

The second noteworthy development is that defaults persist in the majority of HIPC countries, amounting to about US\$15 billion in 2018 (Chart 3), their highest level since 2010. This is partly due to the slow pace at which some non-Paris Club official creditors are implementing debt relief. Official creditor holdouts may be less well known than litigious holdout bondholders but, like them, can also delay the resolution of defaulted debt. Increasingly, however, it is evident that some sovereigns are also defaulting on new loans contracted from official and private creditors after they received HIPC debt relief.²¹

A third development is the sea change underway in the composition and scale of bilateral official lending. Since the 1980s, sovereign debt owed to bilateral official and private

¹⁷ Three sovereigns—Eritrea, Somalia and Sudan—remain eligible for HIPC debt relief but have not yet commenced the process.

¹⁸ Government donors funded write-offs of IMF and MLI loans, which under the MDRI can reach 100 percent, to avoid damaging the institutions' balance sheets and weakening their preferred creditor status.

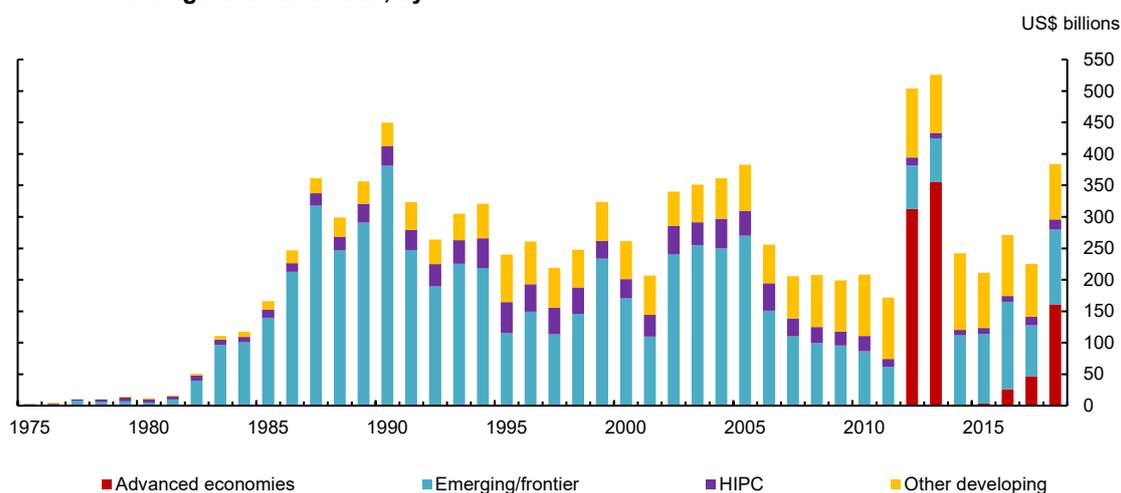
¹⁹ For Greece, creditors reduced interest rates and charges and deferred debt service, while they extended average maturities of European Union/euro area official loans to Greece, Ireland and Portugal by up to seven years. These official debt restructurings are consistent with our definition of sovereign defaults because they result in creditor losses in present-value terms.

²⁰ For details about Greece's 2018 restructuring of official debt agreed to with euro area official creditors on 21 June 2018, see Khan and Brunnsden (2018).

²¹ For example, two HIPC sovereigns—the Republic of Congo and Mozambique—defaulted on US\$2.8 billion of bonds and bank loans between 2016 and 2018.

creditors has generally been restructured according to the “comparability of treatment” principles set by the Paris Club.²² Despite occasional frictions with other official creditors, and with bank creditors and bondholders, these arrangements have been broadly effective in resolving sovereign defaults.

Chart 3: Sovereign debt in default, by debtor



Source: BoC-BoE Database

Last observation: 2018

The issue now, however, is that the Paris Club no longer represents all the large bilateral official creditors. With some members placing more emphasis on grants, its stock of loans to emerging market and developing countries, US\$315 billion in 2018, has been relatively static in recent years. By contrast, bilateral loans from China, India and the Gulf states have grown sharply and, in aggregate, are now larger than those of the Paris Club (Hurley, Morris and Portelance 2018). Yet these “new” official creditors have not yet formally joined the Paris Club, a situation that, if it persists, could result in more fragmented and protracted resolutions of sovereign defaults.²³

In this context, China’s bilateral official lending has generated particular interest. According to independent estimates, its Belt and Road Initiative (BRI), launched in 2013, could result in US\$1 trillion or more of new financing by 2027 (PwC 2016; Morgan Stanley 2018).

Emerging-market and low-income sovereigns are the largest BRI recipients. Meanwhile, the

²² Comparability of treatment refers here to the principle that any debt relief the Paris Club provides to sovereigns should broadly be replicated by other bilateral official and private creditors.

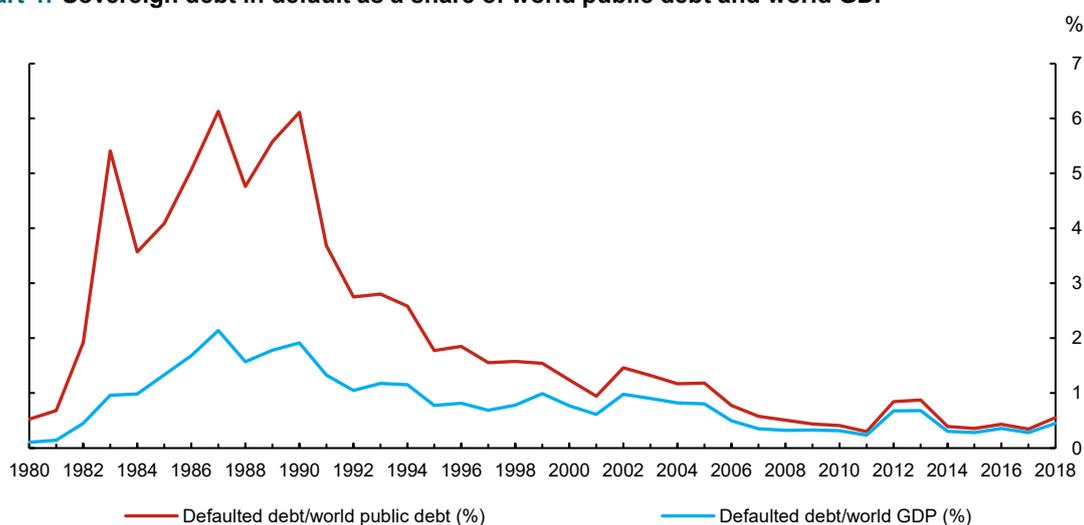
²³ However, China, India, Abu Dhabi and Kuwait have participated in some Paris Club meetings on an ad hoc basis (Paris Club 2019b).

available data on defaulted Chinese official loans indicate that, since 2010, they have increased relative to those due the Paris Club (Chart 2) and, at times, overlap with them.

Chart 4 scales the nominal value of debt in default by nominal global public debt and GDP to measure the relative importance of sovereign defaults. At the start of the 1980s, sovereign defaults had minimal impact globally. However, by the middle of the decade, fiscal stresses affecting low- and middle-income countries were significant—the sovereign debt that defaulted, was restructured and, in many cases, was ultimately written down peaked at about 6 percent of global public debt in 1990. The increase was milder in terms of global GDP, rising from near zero to just over 2 percent.

Chart 4 also highlights that the global footprint left by these debt workouts has since faded, despite Argentina’s big default in 2001 and the more recent restructurings of sovereign bonds and official loans in the euro area. Nonetheless, the frequency of such events could be on the rise again and may be more closely correlated with rising public debt burdens than at any time since the 1930s. With many advanced, emerging-market and low-income governments grappling with fiscal challenges, these are trends worth watching alongside other potential risks to global financial stability.

Chart 4: Sovereign debt in default as a share of world public debt and world GDP



Source: BoC-BoE Database

Last observation: 2018

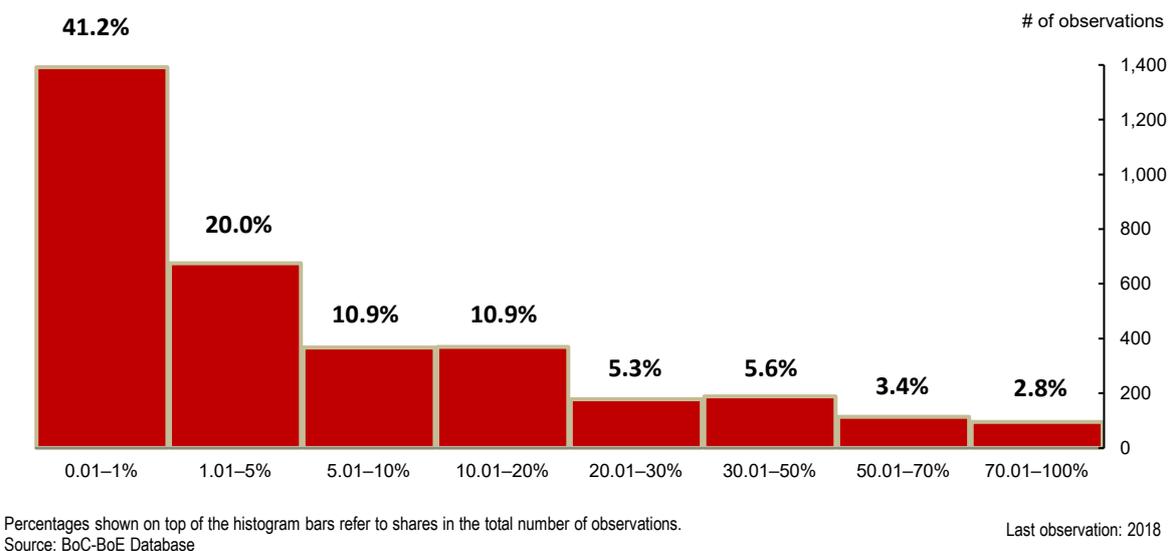
7. Special Topic: When Sovereigns Default, How Big a Share of Government Debt is Involved?

Since the BoC-BoE database was launched in 2014, we have tracked the relationship of sovereign debt in default and world public debt *globally*, as highlighted in Chart 4. With this year’s addition of historical central government data for most of the 146 sovereigns in the database, we can now examine shares of the total stock of government debt in default on a country-by-country basis. Our interest in this data stems from the fact that governments do not generally default on the totality of their obligations. More commonly, sovereigns “selectively default” on portions of the debt, and the shares evidently vary over time and across countries. This section outlines how we compiled the data and presents our preliminary findings.

Chart 5 shows the distribution of shares of government debt in default for 141 sovereigns, covering the period 1960 to 2018, a sample of 3,379 observations. For the vast majority, we use data on central government debt drawn from the IMF Global Debt Database (2019a and Mbaye, Badia and Chae 2018). In a few cases where that data is unavailable—e.g., Cambodia, Georgia and Mauritius—we use *general government* debt as a proxy because borrowing is largely under the control of the national government. There are also three instances where we use *external* debt as a proxy for central government debt—the Cook Islands, Somalia and Yugoslavia. Almost all the external debt of the Cook Islands and Somalia consists of government borrowings, largely from official bilateral and multilateral creditors. As a centrally planned economy, Yugoslavia’s external indebtedness was closely tied to state control of the foreign trade and banking sectors, mainly reflecting external financing lent by domestic banks to “socialized” or publicly owned enterprises (Fleming and Sertic 1962).²⁴

²⁴ Adjustments to the data were made to both the debt data numerators and denominators to ensure consistent treatment. For example, IMF loans in arrears for most countries are subtracted from the total sovereign default values since they are made to the central bank, not the government. However, they are included in the default values of monetary union countries where the IMF lends directly to governments. Interest arrears due to private and official creditors (excluding the IMF) are also added to the government debt data when national authorities do not include them.

Chart 5: Distribution of sovereign default shares in government debt, 1960–2018



As the chart highlights, the distribution of the shares of sovereign debt in default is skewed towards lower values, with about 72 percent of observations equal to or below 10 percent of government debt. This confirms the tendency of sovereigns to engage in “selective default.” Only 37 sovereigns, 6.2 percent of observations, defaulted on shares of government debt ranging between 50 percent and 100 percent of the totals.²⁵ The largest shares, above 70 percent, have occurred during periods of economic distress (e.g., Mexico, Puerto Rico and Russia) and political conflict (e.g., Angola, Iraq and Sudan).

Shares of government debt in default also appear to be linked to the length of time of defaults. In particular, small amounts in default tend to persist. The average time frame when sovereigns default on 10 percent or less of government debt is about 17 years. This reflects a mix of cases involving “holdout” official and private creditors noted earlier, as well as new arrears. In contrast, defaults involving 50 percent or more of total debt only persist for about 17 months on average before they decline. Exceptions are countries with extended periods of conflict and/or subject to international sanctions (e.g., Cambodia, Iraq, Somalia, Sudan and Zimbabwe).

²⁵ There are 11 observations in the sample (involving Barbados, Bulgaria, Cambodia, Myanmar, Nicaragua, Somalia, South Sudan), representing 0.3 percent of the total 3,379, with values ranging from 100.01 percent to 110 percent, which we treat as equivalent to 100 percent. The reasons for this anomaly include confiscatory currency reform cases, where by convention national statisticians do not count central bank currency as part of government debt, and cases where interest arrears are not counted as part of government debt.

In seeking to explain such “selective defaults,” one focus in the literature is on differing governing laws and/or currency denominations of subsets of public debt (Erce and Mallucci 2018). Another is on the treatment of sovereign debt owed to official and private creditors, which often varies (Schlegl, Trebesch and Wright 2019). In cases of defaults involving different types of creditors, the length of time the sovereign takes to resolve defaults can indicate the relative priority given to creditors in each category, and our data do highlight the preferred treatment generally given to multilateral lenders like the IMF and the IBRD. By drilling down further into this new data in future updates of the working paper, we should gain additional insights about these differences in sovereign default dynamics.

8. Conclusion

The BoC-BoE database is useful to researchers analyzing the economic and financial effects of individual sovereign defaults and, importantly, the impact on global financial stability of episodes involving multiple sovereign defaults. Our database draws on previously published datasets compiled by various official and private sector sources. It combines elements of these, together with new information, to develop estimates of stocks of government obligations in default. These include bonds and other marketable securities, bank loans and official loans in default, valued in US dollars, from 1960 onwards on both a country-by-country and a global basis. The database applies a common standard for determining when defaults occur. However, documenting which sovereigns have defaulted, the time frame of such defaults and the amounts of debt affected can be challenging. While we have used sources we consider reliable, our database of sovereign defaults may not be exhaustive. Additional information on defaults, as it becomes available, will be incorporated in future database updates.

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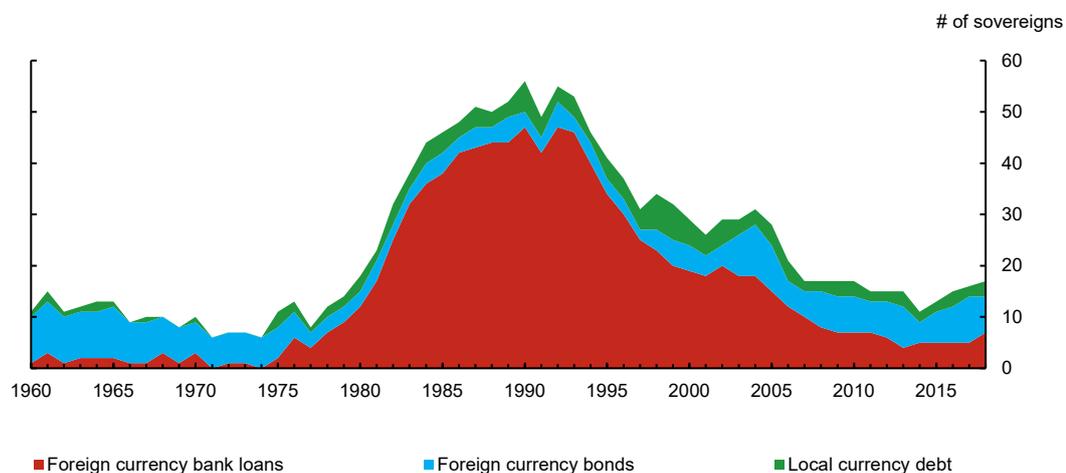
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Appendix A: How Frequently Do Sovereigns Default on Local Currency Debt?

Chart A1: Private creditor local currency vs. foreign currency debt defaults



Source: BoC-BoE Database

Last observation: 2018

(This section was originally published in the June 2018 working paper.)

A long-held view among some market participants is that governments rarely default on local currency sovereign debt.²⁶ After all, they argue, governments can service such obligations by printing money, which in turn can reduce the real burden of debt through inflation, dramatically so in cases like Hungary in 1945–46 and Zimbabwe in 2007–08.

Of course, high inflation can be a form of *de facto* default on local currency debt. Still, outside these exceptional episodes, contractual defaults and restructurings of local currency debt do occur and are more common than is often supposed. A key objective of our work updating the sovereign default database in this report is to document such cases.

Identifying local currency defaults is challenging in part because governments rarely acknowledge them. Another factor contributing to the limited visibility of these defaults is that impacted investors are mostly domestic residents with limited avenues of redress. Cross-

²⁶ This section of the paper draws in part on previous work published by Beers and Chambers (2006) and, on confiscatory currency exchanges, by Mas (1995).

border investment in sovereign local currency debt instruments, a phenomenon dating back to the 1990s, has undoubtedly contributed to greater awareness of more recent default cases.

Thus far, we have identified 31 sovereigns involved in local currency defaults between 1960 and 2017. These defaults take different forms. Perhaps most surprising is the number involving the exchange of old currency for new on confiscatory terms. We found that 16 sovereigns have undertaken such exchanges, with some (e.g., Ghana, North Korea, Myanmar and USSR/Russia) doing so more than once. Losses result because of the conditionality authorities typically impose—notably setting short time frames in which exchanges of old bank notes for new can occur, placing limits on amounts that can be exchanged, requiring that notes above such limits be deposited in blocked accounts, and barring participation by foreign holders of old currency in such exchanges.

The factors triggering confiscatory currency reforms appear to be idiosyncratic—they can follow a change in political regimes or be part of an official strategy to curtail black markets. As such, these defaults do not always reflect broader financial distress. Among the countries involved, there are only three cases (Nicaragua, USSR/Russia and Venezuela) where the government also defaulted on other types of local currency debt, although many more ultimately defaulted on their foreign currency debt. Other cases of default on local currency debt involve overdue interest and principal payments and/or restructurings of maturities (15), unilateral reductions in real interest rate coupons on inflation-linked debt (2), restructuring and conversion into foreign currency debt (1), and new taxes targeting local currency debt service (1).

Chart A1 tracks the annual number of defaults on local currency debt we have identified in the 1960–2017 period compared with defaults on foreign currency bank loans and bonds, the two other principal types of sovereign debt owed to private creditors. Through nearly half the survey period, defaults on foreign currency bank loans predominated. However, since the mid-1990s, as international banks curtailed their sovereign lending, defaults on foreign currency bonds have increased. The frequency of defaults on local currency debt has been more variable: their number gradually picked up after the 1970s but has trended down again since the early 2000s. Over the past decade, between four and eight sovereigns have defaulted on foreign currency bonds each year and between two and four on local currency debt.

Interestingly, since 1960, defaults on foreign and local currency market debt by the same sovereign have happened concurrently less than half the time. These patterns may be starting to shift, however, as government debt burdens grow alongside domestic debt markets, attracting higher cross-border investment. As a result, defaults on local currency debt could become as common as defaults on foreign currency bonds in future episodes of sovereign debt distress.²⁷

²⁷ Our efforts to identify local currency defaults currently focus on *securitized* debt. In other words, we exclude some types of domestic *fiscal arrears*—such as overdue payments to suppliers, civil servants and pensioners—even though, when lawfully contracted, these too are government obligations. With that in mind, where such arrears can be quantified, we may include them in future updates of the sovereign default database.

Appendix B

Below are the sources we use to compile the BoC-BoE database.

Global Aggregates

IFS, IMF (2013a, 2019b), J.P. Morgan (2018), Lazard (2015), Paris Club (2019a), World Bank (1980–2019), World DataBank.

1. Afghanistan (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Annual Reports (1997–2002), IMF Article IV Staff Reports (1965–67, 1976, 1981–87, 2005–12), IMF (2016a), Paris Club (2019a), World Bank Financial Statement (2000), World DataBank and IMF DataMapper via Haver. Note: World DataBank data on debt owed to other official creditors are not available prior to 1993 and for private creditors prior to 1992. Data on other official creditors in earlier years are based on IMF Staff Reports.

2. Albania (data reliability score: 3)

Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper via Haver.

3. Algeria (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Paris Club (2019a), World DataBank and IMF DataMapper.

4. Angola (data reliability score: 4)

Beers and Chambers (2006), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IFS, IMF (1993), IMF (2016a), IMF Article IV Staff Reports (2016, 2018), (IMF Staff Reports (2019), Kratz, Feng and Wright (2019), Linzmayer (2016), Paris Club (2019a), Paulson (1999), World DataBank and IMF DataMapper. Note: Angola's 1990 local currency default was the result of a confiscatory currency reform.

5. Antigua and Barbuda (data reliability score: 3)

Das, Papaioannou and Trebesch (2012), Durant (2012), IMF (2013e), IMF Article IV Staff Reports (2004–14), Paris Club (2019a), Schipke, Cebotari and Thacker (2013), IMF DataMapper.

6. Argentina (data reliability score: 3)

Argentina (2016, 2019), authors' conversations with IMF staff, Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Durant (2012), Exotix (2019), IMF Article IV Staff Reports (1961–66), Mander (2016), Paris Club (2019a), Sturzenegger and Zettelmeyer (2005), Suter (1986), U.S. SEC Financial Statements (2003, 2006, 2011, 2019), World DataBank and IMF DataMapper, World Development Report (1983).

7. Armenia (data reliability score: 4)

World DataBank and IMF DataMapper.

8. Azerbaijan (data reliability score: 4)

Exotix (2019), World DataBank and IMF DataMapper.

9. Bangladesh (data reliability score: 4)

World DataBank and IMF DataMapper.

10. Barbados (data reliability score: 1)

World DataBank and IMF DataMapper, Exotix (2019).

11. Belarus (data reliability score: 4)

World DataBank and IMF DataMapper.

12. Belize (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Durant (2012), Exotix (2019), IMF Article IV Staff Report (2014), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

13. Benin (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), IMF (2016a), IMF Staff Reports (1961–70, 2019), Paris Club (2019a), World DataBank and IMF DataMapper.

14. Bhutan (data reliability score: 4)

World DataBank and IMF DataMapper.

15. Bolivia (data reliability score: 3)

Beers and Chambers (2006), Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), FBPC (1970), IMF (2016a), IMF Article IV Staff Reports (1961–67), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

16. Bosnia & Herzegovina (data reliability score: 2)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), IMF Annual Reports (1993–95), Paris Club (2019a), Stanič (2001), World DataBank and IMF DataMapper.

17. Botswana (data reliability score: 4)

Kratz, Feng and Wright (2019), World DataBank and IMF DataMapper.

18. Brazil (data reliability score: 3)

Beers and Chambers (2006), Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1961–66), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

19. Bulgaria (data reliability score: 3)

Cruces and Trebesch (2011), CCFB (1987), Das, Papaioannou and Trebesch (2012), FBPC (1987), Paris Club (2019a), World DataBank and IMF DataMapper.

20. Burkina Faso (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), IMF (2016a), Paris Club (2019a), World DataBank and IMF DataMapper.

21. Burundi (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), Beers and Chambers (2006), World DataBank and IMF DataMapper.

22. Cabo Verde (data reliability score: 4)

Beers and Chambers (2006), Cruces and Trebesch (2011), IMF Article IV Staff Report (2003), World DataBank and IMF DataMapper. Note: Local currency debt in default in 1999–2001 reflects interest arrears and the conversion of some instruments into longer-term low-interest foreign currency debt financed by external donors.

23. Cambodia (data reliability score: 3)

Boughton (2001), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Annual Reports (1978–93), IMF Article IV Staff Reports (1972–91), IMF (2013a), Kratz, Feng and Wright (2019), Paris Club (2019a), Prasso (2001), Suter (1986), World Bank (2012), World DataBank and IMF DataMapper, Yun (2010). Note: The 1975 local currency default was the result of the Pol Pot regime's abolition of money. As central bank records are not available, currency data for Laos, with comparable per capita US-dollar GDP in 1975, was used to calculate a proxy value for Cambodian defaulted currency.

24. Cameroon (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IMF (2016a), IMF (2017), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019), World Bank (2012), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$1,057 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

25. Central African Republic (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IMF (2016a), IMF (2017), IMF Staff Reports (2019), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$147 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

26. Chad (data reliability score: 4)

Boughton (2001), IMF Annual Report (1984), Hurley, Morris and Portelance (2018), IMF Extended Credit Facility Arrangement Staff Report (2016), IMF (2016a), IMF (2017), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019a), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$722 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

27. Chile (data reliability score: 2)

Beers and Chambers (2006), Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1961, 1963–67, 1971–76), Paris Club (2019a), World DataBank and IMF DataMapper.

28. Colombia (data reliability score: 4)

World DataBank and IMF DataMapper.

29. Comoros (data reliability score: 3)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), World Bank Financial Statement (2000), World DataBank and IMF DataMapper.

30. Rep. of Congo (Brazzaville) (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), IMF (2016a), IMF (2017), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019a), Raynaud (2017), Wallace (2016), World Bank Financial Statements (2000–01), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$1,048 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

31. Dem. Rep. of Congo (Kinshasa) (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), FBPC (1965), Hurley, Morris and Portelance (2018), IMF Annual Reports (1988–89, 1992–2002), IMF (2016a), Paris Club (2019a), Rieffel (1985), World Bank Financial Statements (2000–02), World DataBank via Haver, World Development Report (1983).

32. Cook Islands (data reliability score: 2)

AsDB SDBS (2019), AsDB Asian Development Outlook (1994–2019), Beers and Chambers (2006).

33. Costa Rica (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1962–66), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

34. Côte d'Ivoire (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IMF (2012, 2016a), IMF Staff Reports (2019), Paris Club (2019a), World Bank (2012), World Bank Financial Statements (2001, 2005–08), World DataBank and IMF DataMapper. Note: Foreign currency bond data in 2011–12 include the restructuring of domestic law treasury bills denominated in CFA francs, the common currency of the West African Economic and Monetary Union.

35. Croatia (data reliability score: 1)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), IMF DataMapper.

36. Cuba (data reliability score: 4)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Economist Intelligence Unit (2017), Exotix (2019), FBPC (1962), Hurley, Morris and Portelance (2018), IMF Article IV Staff Report (1961), IFS, LeoGrande (2016), Kratz, Feng and Wright (2019), Paris Club (2019a), Rieffel (1985). Note: Cuba's 1961 local currency default was the result of a confiscatory currency reform. Cuba's foreign currency bonds defaulted in 1960–61 when they were repudiated by the government. We have revised values for defaulted Paris Club debt in 1986–2014 to reflect interest arrears restructured in the 2015 agreement. We have also revised the value of bank loans in default between 1985 and 2018 to reflect additional information on their terms.

37. Cyprus (data reliability score: 1)

European Commission (2013a), IMF (2013c), IMF DataMapper.

38. Czechoslovakia (data reliability score: 2)

CCFB (1986), FBPC (1986).

39. Djibouti (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Article IV Staff Report (2017), Paris Club (2019a), World DataBank and IMF DataMapper.

40. Dominica (data reliability score: 3)

Cruces and Trebesch (2011), Durant (2012), IMF (2004), IMF Article IV Staff Report (2013), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

41. Dominican Republic (data reliability score: 3)

Beers and Chambers (2006), Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), Exotix (2019), IMF Article IV Staff Reports (1961–70), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

42. Ecuador (data reliability score: 4)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Staff Reports (2019), Kratz, Feng and Wright (2019), Paris Club (2019a), Sturzenegger and Zettelmeyer (2005), World DataBank and IMF DataMapper.

43. Egypt (data reliability score: 4)

Bornschier, Pfister and Suter (1986), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1967, 1969), IMF Exchange Restrictions (1967), Malik (1990), *New York Times* (1987), Paris Club (2019a), Walters (1970), World DataBank and IMF DataMapper.

44. El Salvador (data reliability score: 4)

Beers and Chambers (2006), Das, Papaioannou and Trebesch (2012), Francis (2017), Paris Club (2019a), World DataBank and IMF DataMapper.

45. Equatorial Guinea (data reliability score: 4)

IMF Article IV Staff Report (2005), Hurley, Morris and Portelance (2018), IMF (2017), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019a), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$949 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

46. Eritrea (data reliability score: 4)

Hurley, Morris and Portelance (2018), World DataBank and IMF DataMapper.

47. Ethiopia (data reliability score: 4)

Beers and Chambers (2006), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

48. Fiji (data reliability score: 4)

World DataBank and IMF DataMapper.

49. Gabon (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), IMF (2013d), IMF (2017), IMF-Central African Economic and Monetary Community (2019), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper. Note: Other official creditor data in 2017 includes US\$829 million of debt restructured by Banque des États de l'Afrique Centrale (BEAC), the central bank of the common currency area.

50. Gambia (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), IMF Annual Reports (1985–86), IMF (2016a), Paris Club (2019a), World DataBank and IMF DataMapper.

51. Georgia (data reliability score: 4)

Authors' conversations with National Bank of Georgia staff, Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), Paris Club (2019a), World DataBank and IMF DataMapper.

52. Ghana (data reliability score: 3)

Beers and Chambers (2006), Bornschier, Pfister and Suter (1986), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IMF (2016a), IMF Article IV Staff Reports (1968–70), IFS, Krassowski (2014), Linzmayer (2016), Mas (1995), Paris Club (2019a), Suter (1986), World DataBank and IMF DataMapper. Note: Ghana's local currency defaults in 1979 and 1982 were the result of confiscatory currency reforms.

53. Greece (data reliability score: 1)

FBPC (1965), Flynn and Pessoa (2014), IMF (2013b, 2013d, 2015a), Khan and Brunsten (2018), Spink (2018), Zettelmeyer, Trebesch and Gulati (2013), IMF DataMapper.

54. Grenada (data reliability score: 3)

Asonuma, Li and Papaioannou (2017), Beers and Chambers (2006), Bloomberg (2016), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Durant (2012), IMF (2013d), IMF Staff Reports (2019), Paris Club (2019a), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

55. Guatemala (data reliability score: 3)

Beers and Chambers (2006), Das, Papaioannou and Trebesch (2012), Exotix (2019), Paris Club (2019a), World DataBank and IMF DataMapper.

56. Guinea (data reliability score: 4)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF (2016a), IMF Article IV Staff Reports (1966–70), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

57. Guinea-Bissau (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Article IV Staff Report (2014), Paris Club (2019a), IMF (2016a), World DataBank and IMF DataMapper.

58. Guyana (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Annual Reports (1984–90), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper, World Development Report (1983).

59. Haiti (data reliability score: 4)

Boughton (2001), Das, Papaioannou and Trebesch (2012), IMF Annual Reports (1988–89, 1993–94), IMF Article IV Staff Reports (1961–70), IMF (2016a), Paris Club (2019a), World Bank Financial Statement (2004), World DataBank and IMF DataMapper.

60. Honduras (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Annual Reports (1988–90), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

61. Hungary (data reliability score: 2)

CCBC (1976), FBPC (1976), World DataBank and IMF DataMapper.

62. India (data reliability score: 4)

Bornschiefer, Pfister and Suter (1986), Suter (1986), World DataBank and IMF DataMapper, World Development Report (1983).

63. Indonesia (data reliability score: 3)

Beers and Chambers (2006), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1966–70), Paris Club (2019a), World DataBank and IMF DataMapper.

64. Iran (data reliability score: 4)

Rieffel (2003), Suter (1992), World Bank (2013), World DataBank and IMF DataMapper.

65. Iraq (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Ghabra (1991), Hurley, Morris and Portelance (2018), IFS, IMF Annual Reports (1992–2003), IMF (2013a), IMF Article IV Staff Reports (2005–13), King (2004), Paris Club (2019a), World Bank Financial Statements (2001–03, 2005), World DataBank and IMF DataMapper. Note: World DataBank data on debt owed to other official creditors are not available prior to 2002. The 1990 local currency default stemmed from the actions of Iraq, then the occupying power in Kuwait, in converting Kuwaiti currency to Iraqi currency on confiscatory terms. The 1993 local currency default was the result of a confiscatory currency reform.

66. Ireland (data reliability score: 1)

European Commission (2013b), European Union (2013), IMF DataMapper.

67. Jamaica (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Durant (2012), Exotix (2019), Grigorian, Alleyne and Guerson (2012), IMF Annual Reports (1986–87), IMF Article IV Staff Report (2013), Paris Club (2019a), Rieffel (1985), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

68. Jordan (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), World DataBank and IMF DataMapper.

69. Kazakhstan (data reliability score: 4)

World DataBank and IMF DataMapper.

70. Kenya (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), Paris Club (2019a), World DataBank and IMF DataMapper.

71. Korea (North) (data reliability score: 4)

Alpert (2012), Exotix (2019), Haggard and Noland (2010), Hwang (2010), Linzmayer (2016), Paris Club (2019a), Yang (2012), Yonhap (2017). Note: North Korea's local currency defaults in 1992 and 2009 were the result of confiscatory currency reforms. In the absence of central bank data, we utilize Hwang's assumption that currency in circulation amounted to 2 percent of estimated GDP.

72. Kyrgyz Republic (data reliability score: 4)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Staff Reports (2019), Paris Club (2019a), World DataBank and IMF DataMapper.

73. Laos (data reliability score: 4)

IFS, Hurley, Morris and Portelance (2018), IMF Staff Report (1979), World DataBank and IMF DataMapper. Note: Laos's 1976 local currency default was the result of a confiscatory currency reform.

74. Lebanon (data reliability score: 4)

World DataBank and IMF DataMapper.

75. Lesotho (data reliability score: 4)

Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), World DataBank and IMF DataMapper.

76. Liberia (data reliability score: 3)

Boughton (2001), Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Annual Reports (1985–2008), IMF Article IV Staff Reports (1964, 1969–70), IMF (2016b), IMF Staff Reports (2019), Paris Club (2019a), World Bank (2012), World Bank Financial Statements (2000–08), World DataBank and IMF DataMapper.

77. North Macedonia (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Paris Club (2019a), Stanič (2001), World DataBank and IMF DataMapper.

78. Madagascar (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), *The Economist* (2002), Hurley, Morris and Portelance (2018), IFS, IMF (2005, 2016a), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

79. Malawi (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), IMF (2016a), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

80. Maldives (data reliability score: 4)

World DataBank and IMF DataMapper.

81. Mali (data reliability score: 3)

Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Article IV Staff Reports (1965–79), IMF (2016a), Paris Club (2019a), World DataBank and IMF DataMapper.

82. Mauritania (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF (2016a), IMF Staff Report (2018), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

83. Mauritius (data reliability score: 4)

World DataBank and IMF DataMapper.

84. Mexico (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

85. Moldova (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), World DataBank and IMF DataMapper.

86. Mongolia (data reliability score: 4)

Beers and Chambers (2006), Exotix (2019), Kratz, Feng and Wright (2019), World DataBank and IMF DataMapper.

87. Montenegro (data reliability score: 4)

World DataBank and IMF DataMapper.

88. Morocco (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

89. Mozambique (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IMF (2016a), IMF (2019c), Kroll (2017), Paris Club (2019a), Rieffel (1985), World Bank (2012), World DataBank and IMF

DataMapper. Note: The 1980 local currency default was the result of a confiscatory currency reform.

90. Myanmar (data reliability score: 4)

Hurley, Morris and Portelance (2018), IMF (2016a), IFS, Linzmayer (2016), Mas (1995), Paris Club (2019a), World Bank Financial Statements (2000, 2004, 2008–09), World DataBank and IMF DataMapper. Note: The 1964, 1985 and 1987 local currency defaults were the result of confiscatory currency reforms.

91. Nauru (data reliability score: 2)

Asian Development Bank (AsDB) Annual Reports (2001–08), Firebird Global Master Fund II Ltd. v. Republic of Nauru (2012), Mellor (2014), Pacific Islands Report (2003), IMF DataMapper.

92. Nepal (data reliability score: 4)

World DataBank and IMF DataMapper.

93. Nicaragua (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), IMF Annual Reports (1984–85), IMF (2007), IFS, IMF (2016a), Mas (1995), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper. Note: Nicaragua's 1988 local currency default was the result of a confiscatory currency reform.

94. Niger (data reliability score: 4)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

95. Nigeria (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IFS, Mas (1995), Paris Club (2019a), World DataBank and IMF DataMapper. Note: Nigeria's local currency defaults in 1967 and 1984 were the result of confiscatory currency reforms.

96. Pakistan (data reliability score: 3)

Bittermann (1973), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Report (1961), Paris Club (2019a), Sturzenegger and Zettelmeyer (2005), World DataBank and IMF DataMapper.

97. Panama (data reliability score: 2)

Beers and Chambers (2006), Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Annual Reports (1988–92), IMF (2013a), Paris Club (2019a), World DataBank and IMF DataMapper.

98. Papua New Guinea (data reliability score: 4)

World DataBank and IMF DataMapper.

99. Paraguay (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), World DataBank and IMF DataMapper.

100. Peru (data reliability score: 3)

Bittermann (1973), Bornschier, Pfister and Suter (1986), Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Duggar and Leos (2015), IMF Annual Reports (1985–93), IMF Article IV Staff Reports (1969–71), IMF (2013a), Paris Club (2019a), Schipani and Wigglesworth (2015), World DataBank and IMF DataMapper, World Development Report (1983). Note: Local currency debt refers to domestic bonds that have been in default since the 1980s. Estimated amounts reflect an original face value of US\$343 million (as cited by Duggar and Leos [2015]) that over time has been impaired by exchange rate depreciation. The government acknowledges this debt, but amounts owing are in dispute with creditors and subject to domestic and foreign litigation.

101. Philippines (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper, World Development Report (1981).

102. Poland (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Diwan and Saldanha (1991), FBPC (1976), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

103. Portugal (data reliability score: 1)

European Commission (2013c), European Union (2013), Flynn and Pessoa (2014).

104. Puerto Rico (data reliability score: 1)

Chari, Leary and Phan (2018), Commonwealth of Puerto Rico (2016, 2017), Hitchcock, Petek and Aldrete-Sanchez (2015), Kaske and Sivaloganathan (2016), IMF DataMapper. Note: Bonds in default refer to “tax supported” obligations, meaning that they are a claim on government tax revenues and government-guaranteed obligations.

105. Romania (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), CCFB (1976), Das, Papaioannou and Trebesch (2012), Diwan and Saldanha (1991), Flynn and Pessoa (2014), FBPC (1979), IMF Annual Report (1986), IMF (2013a), Paris Club (2019a), Rieffel (1985), World DataBank and IMF DataMapper.

106. Rwanda (data reliability score: 3)

Das, Papaioannou and Trebesch (2012), IFS, Hurley, Morris and Portelance (2018), IMF (2016a), IMF Staff Reports (2019), Mas (1995), Paris Club (2019a), World DataBank and IMF DataMapper. Note: The 1995 local currency default was the result of a confiscatory currency reform.

107. St. Kitts & Nevis (data reliability score: 3)

Durant (2012), IMF (2013e), IMF Article IV Staff Reports (2001–14), Paris Club (2019a), Schipke, Cebotari and Thacker (2013), World DataBank and IMF DataMapper.

108. St. Lucia (data reliability score: 4)

World DataBank and IMF DataMapper.

109. St. Vincent and the Grenadines (data reliability score: 4)

World DataBank and IMF DataMapper.

110. Samoa (data reliability score: 3)

Hurley, Morris and Portelance (2018), World Bank Financial Statement (2007), World DataBank and IMF DataMapper.

111. São Tomé and Príncipe (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

112. Senegal (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

113. Serbia (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), IMF Annual Reports (1993–2000), Paris Club (2019a), Stanič (2001), World Bank Financial Statements (2001, 2006), World DataBank and IMF DataMapper.

114. Seychelles (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IMF (2013d), Paris Club (2019a), Schipke, Cebotari and Thacker (2013), World Bank Financial Statements (2003–07), World DataBank and IMF DataMapper.

115. Sierra Leone (data reliability score: 4)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Annual Reports (1985–94), IMF (2016a), Paris Club (2019a), Rieffel (1985), World Bank (2012), World DataBank and IMF DataMapper.

116. Slovenia (data reliability score: 1)

Beers and Chambers (2006), Cruces and Trebesch (2011), Stanič (2001).

117. Solomon Islands (data reliability score: 4)

AsDB SDBS (2019), IFS, IMF Article IV Staff Reports (2004–11), World DataBank and IMF DataMapper.

118. Somalia (data reliability score: 4)

Boughton (2001), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF Annual Reports (1985–2017), IMF (2013a), IMF (2016a), IMF Article IV Staff Report (2017), Paris Club (2019a), World Bank Financial Statements (2000, 2004, 2008–09), World DataBank and IMF DataMapper.

119. South Africa (data reliability score: 2)

Beers and Chambers (2006), Cruces and Trebesch (2011), IMF DataMapper.

120. South Sudan (data reliability score: 4)

IMF Article IV Staff Report (2017), IMF DataMapper.

121. Sri Lanka (data reliability score: 3)

CBSL (1996), Das, Papaioannou and Trebesch (2012), IFS, IMF (2001), Kratz, Feng and Wright (2019), Paris Club (2019a), World DataBank and IMF DataMapper. Note: The 1996 local currency default reflects the suspension of treasury bill auctions and rollover of maturing debt between January and March after the central bank was severely damaged by a terrorist bomb.

122. Sudan (data reliability score: 4)

Alden and Jiang (2019), Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IFS, IMF Annual Reports (1984–2017), IMF (2013d, 2016a), IMF Article IV Staff Report (2017), Mas (1995), Paris Club (2019a), Rieffel (1985), Reuters (2012), World Bank Financial Statements (2000, 2004, 2008–09), World DataBank and IMF DataMapper. Note: Sudan's local currency default in 1991 was the result of a confiscatory currency reform.

123. Suriname (data reliability score: 4)

Beers and Chambers (2006), IMF Article IV Staff Reports (2003–14), World DataBank and IMF DataMapper.

124. eSwatini (Swaziland) (data reliability score: 4)

World DataBank and IMF DataMapper.

125. Syria (data reliability score: 4)

Associated Press (2005), *Budapest Business Journal* (2008), IMF Article IV Staff Reports (1965, 2006, 2009), Paris Club (2019a), World Bank Financial Statements (2001–02), World DataBank and IMF DataMapper.

126. Tajikistan (data reliability score: 4)

World DataBank and IMF DataMapper.

127. Tanzania (data reliability score: 4)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Hurley, Morris and Portelance (2018), IMF Annual Reports (1985–86), IMF (2016a, 2016c), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

128. Thailand (data reliability score: 4)

World DataBank and IMF DataMapper.

129. Togo (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), IMF (2016a), IMF Staff Reports (2019), Paris Club (2019a), Rieffel (1985), World Bank Financial Statements (2004, 2008), World Bank (2012), World DataBank and IMF DataMapper, World Development Report (1983).

130. Tonga (data reliability score: 4)

Greenfield (2018), IMF Article IV Staff Report (2015), World DataBank and IMF DataMapper.

131. Trinidad & Tobago (data reliability score: 1)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Paris Club (2019a), IMF DataMapper.

132. Tunisia (data reliability score: 4)

World DataBank and IMF DataMapper.

133. Turkey (data reliability score: 3)

Bornschiefer, Pfister and Suter (1986), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Ferris (2011), IFS, IMF Article IV Staff Reports (1966, 2000), Paris Club (2019a), Rieffel (1985), Tudela (2011), World DataBank and IMF DataMapper. Note: Turkey's 1999 local currency debt default reflected the imposition of a withholding tax targeting government securities issued prior to December of that year.

134. Turkmenistan (data reliability score: 4)

World DataBank and IMF DataMapper.

135. Uganda (data reliability score: 3)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), Flynn and Pessoa (2014), Hurley, Morris and Portelance (2018), IMF (2016a), Paris Club (2019a), Rieffel (1985), World Bank (2012), World DataBank and IMF DataMapper.

136. Ukraine (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), China Aid Data (2012), Das, Papaioannou and Trebesch (2012), Exotix (2019), IMF (2015b), Kratz, Feng and Wright (2019), Olearchyk (2015), Paris Club (2019a), Sturzenegger and Zettelmeyer (2005), Ukraine (2014), World DataBank and IMF DataMapper.

137. Uruguay (data reliability score: 2)

Bittermann (1973), Cruces and Trebesch (2011), IMF Article IV Staff Report (1966), Sturzenegger and Zettelmeyer (2005), IMF DataMapper.

138. USSR/Russia (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Diwan and Saldanha (1991), Ferguson and Granville (2000), IFS, Mas (1995), Paris Club (2019a), Shpakovsky (2013), Sturzenegger and Zettelmeyer (2005), World DataBank and IMF DataMapper. Note: The 1991 and 1993 local currency defaults were the result of confiscatory currency reforms.

137. Uzbekistan (data reliability score: 4)

World DataBank and IMF DataMapper.

140. Vanuatu (data reliability score: 4)

Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), Radio New Zealand (2018), World DataBank and IMF DataMapper.

141. Venezuela (data reliability score: 3)

Banco Central de Venezuela (2017), Beers and Chambers (2006), Castellano, Figueroa and Lanau (2019), Cruces and Trebesch (2011), Culverhouse (2018), Exotix (2019), Foy, Rathbone and Allen (2017), IDB (2018), IFS, Martin (2017), Paraguassu (2017), Tudela (2011), World DataBank and IMF DataMapper. Note: Venezuela's 2016 local currency default was the result of a confiscatory currency reform.

142. Vietnam (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Exotix (2019), IFS, IMF Annual Reports (1984–93), IMF Article IV Staff Report (1989), Mas (1995), Paris Club (2019a), World DataBank and IMF DataMapper. Note: Vietnam's 1975 local currency default resulted from the conversion of South Vietnamese currency to North Vietnamese currency on confiscatory terms. The 1975, 1978 and 1985 local currency defaults were the result of confiscatory currency reforms. As central bank records are not available for 1978, currency data for Laos, with comparable per capita US-dollar GDP, was used to calculate a proxy value for converted Vietnamese currency.

143. Yemen (data reliability score: 4)

Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), Paris Club (2019a), World Bank (2012), World DataBank and IMF DataMapper.

144. Yugoslavia (data reliability score: 3)

Beers and Chambers (2006), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), IMF Article IV Staff Reports (1965–69), Paris Club (2019a), Stanič (2001), OECD (1984/1985 to 2002), World DataBank via Haver. Note: The 1991 default on a foreign currency bond was an effective debt repudiation, as responsibility for it was never assumed by Yugoslavia's successor states.

145. Zambia (data reliability score: 3)

Boughton (2001), Cruces and Trebesch (2011), Das, Papaioannou and Trebesch (2012), Hurley, Morris and Portelance (2018), Kratz, Feng and Wright (2019), IMF Annual Reports (1985–95), IMF (2016a), Paris Club (2019a), Rieffel (1985), World Bank (2012), World DataBank and IMF DataMapper.

146. Zimbabwe (data reliability score: 3)

Alden and Jiang (2019), CCFB (1981), Hurley, Morris and Portelance (2018), IMF Annual Reports (2001–17), IMF Article IV Staff Report (2017), Kratz, Feng and Wright (2019), Makoshori (2015), Paris Club (2019a), Republic of Zimbabwe (2015), World Bank Financial Statements (2001–17), World DataBank and IMF DataMapper. Note: Foreign currency bonds in default since 2009 reflect obligations owed to mining companies by the Reserve Bank that were assumed by the government in 2015.