

# Bank of England

## BoC–BoE Sovereign Default Database: Methodology and Assumptions

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The views expressed this report are solely those of the authors. No responsibility for them should be attributed to the Bank of Canada or the Bank of England.

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## Abstract

Until recently, few efforts were 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), in partnership with the Bank of England (BoE), developed a comprehensive database of sovereign defaults in 2014. The database is posted on the Bank of Canada's website and updated annually. The BoC–BoE database draws on datasets published 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 2022 on both a country-by-country and a global basis. In addition, we include country and global data on estimated stocks of domestic arrears—late payments by governments—also valued in US dollars. For most countries, data are from 1995 to 2022. Regular updates of the BoC–BoE database help researchers analyze the economic and financial effects of individual sovereign defaults and, importantly, the impact on global financial stability of episodes involving multiple sovereign defaults.

*Topics: Debt management; Development economics; Financial stability; International financial markets*  
*JEL codes: F34, G10, G14, G15*

## Résumé

Jusqu'à récemment, peu d'efforts avaient été 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, en 2014 la Banque du Canada a développé une base de données exhaustive de défauts souverains en partenariat avec la Banque d'Angleterre. La **base de données**, qui se trouve sur le site Internet de la Banque du Canada, est mise à jour annuellement et repose sur des ensembles de données publiées par diverses sources, publiques et privées. Elle permet de produire, à partir de ces données et de nouvelles informations, des estimations complètes du montant des engagements financiers étatiques, à savoir les prêts bancaires, les obligations et autres titres négociables, de même que les prêts publics en situation de défaut, tous exprimés en dollars américains, pour la période allant de 1960 à 2022. Cette information est présentée à la fois pays par pays et de manière agrégée, c'est-à-dire à l'échelle mondiale. De plus, nous présentons les données par pays et à l'échelle mondiale des estimations de la valeur des arriérés intérieurs, c'est-à-dire des retards de paiement des États, également exprimés en dollars américains. Pour la plupart des pays, les données ont été recueillies entre 1995 et 2022. Les mises à jour régulières de la base de données de la Banque du Canada et de la Banque d'Angleterre aident les chercheurs à 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*

# 1. Introduction

Government debt defaults are a recurring feature of public finance.<sup>2</sup> These defaults typically involve low-income and emerging-market economies, although recent cases include advanced-economy sovereigns. The frequency of these defaults has resulted in 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.<sup>3</sup>

Even so, comprehensive data on sovereign defaults have been hard to come by. This reflects several factors. An important reason is the lack of a 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. It compiles a comprehensive country-by-country and global dataset of government debt in default that applies a common standard for determining when defaults occur.

This paper is organized as follows. We start by proposing a definition of when a sovereign default has occurred on loans from official and private creditors. We also outline how we identify domestic arrears (section 2). We next describe the main components of the BoC–BoE database (section 3). We highlight how we compile the data and, where applicable, the methods employed to develop estimates (section 4). We also score the reliability of the data for each country (section 5). The final section offers some conclusions (section 6). A separate document includes a list of references and an appendix listing our sources for the country-by-country and aggregate data.

## 2. Identifying sovereign defaults and domestic arrears

Sovereign debt is the term commonly used to denote debt issued by national governments and certain fiscally autonomous territories. Like other types of debt, sovereign debt is a contractual obligation to pay interest or principal in full on the due date. A failure to meet this contractual obligation is a clear-cut example of a sovereign default. Another example is a failure by a government to honour debt it has lawfully guaranteed and where there are clear provisions for the guarantor to make timely payment. That said, sovereign defaults are often not so explicit because government responses to financial distress can take many forms. In some cases, we can conclude that a default has effectively occurred because actions by the sovereign result in economic losses by creditors even without an actual interruption of debt service. 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),<sup>4</sup> we consider that a default has occurred when any of the following is true:

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<sup>2</sup> For the latest commentary on the database and our findings, see the companion paper, “BoC–BoE Sovereign Default Database: What’s New in 2023?” available on our web page.

<sup>3</sup> For a comprehensive overview, see Tomz and Wright (2012).

<sup>4</sup> 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, multilateral lending institutions and other official creditors.

debt service is not paid on the due date or within a specified grace period

payments are not made within the period specified under a guarantee

Even absent an outright payment default, creditors incur material economic losses on the sovereign debt they hold in any of these circumstances:

- 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 favourable terms
- government purchases of debt at substantial discounts to par
- government redenomination of foreign currency debt into new local currency obligations on less favourable terms
- swaps of sovereign debt for equity (usually related to privatization programs) on less favourable terms
- retrospective taxes targeting sovereign debt service payments
- conversion of central bank notes into new currency of less-than-equivalent face value

In contrast, identifying cases of domestic arrears—also known as fiscal or expenditure arrears—is more straightforward. Domestic arrears are late payments to civil servants, taxpayers, suppliers, contractors and/or pensioners. The time frame for when payments are considered late varies because it is usually defined under local law. In most instances, payments are considered in arrears if they are not made after 30, 60 or 90 days.

### 3. Features of the BoC–BoE database

The [database](#) tabulates data on debt owed to official and private creditors for all sovereign defaults that we have identified between the years 1960 and 2022.<sup>5</sup> 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.

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

International Monetary Fund (IMF)

International Bank for Reconstruction and Development (IBRD)

International Development Association (IDA)

Inter-American Development Bank (IADB)

Paris Club

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<sup>5</sup> The BoC–BoE database is distinct from and complements the datasets 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.

China

other official creditors

foreign currency bank loans

foreign currency bonds

other private creditors

local currency debt

domestic arrears

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 2022:

total debt (excluding domestic arrears) in default

total identified domestic arrears, most comprehensively for the 1995–2022 period

total debt in default by creditor type

total debt in default by debtor type

number of sovereign governments

number of sovereign governments in default

number of sovereign governments with identified domestic arrears

outstanding Paris Club loans

outstanding Chinese official loans

global general government or public debt

global emerging-market and developing-country gross domestic product (GDP), excluding China (in nominal US dollars)

global 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 (2022 and earlier years); the IMF (2022 and earlier years); the Paris Club (2022); the World Bank Group (2022 and earlier years) and the World Bank Group (2022); the IBRD's annual financial statements (2022 and earlier years); IDA's annual financial statements (2022 and earlier years); IADB's annual financial statements (2022 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 2022. For domestic arrears, the data are most comprehensive for the years 1995 through 2022.

We highlight that some of our data are estimated. As Cruces and Trebesch (2011) noted, documenting which sovereigns have defaulted, the period of such defaults and the amounts of

debt affected can be challenging. This is particularly true for both local currency defaults and domestic arrears, which are not always 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 that we consider credible, our database of sovereign defaults may not be exhaustive. We may have overlooked some defaults and domestic arrears, and we may revise our estimates of the US-dollar amounts for each. In calculating US dollar values of stocks of domestic arrears, in cases where there are multiple exchange rates, we use the parallel rate to be conservative. As we gain more information on defaults and domestic arrears, we will include the data in future database updates. Any errors in the identification and estimation processes employed are, of course, our sole responsibility.

Below we outline how we estimate values for different types of defaulted debt and for domestic arrears.

**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 it is generally 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 (from 1960 to 2022) 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 payment rescheduling 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 calculate 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.<sup>6</sup>

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—owned or controlled by groups of governments—have preferred creditor status but have periodically experienced late payments on their loans like the IMF. Reporting practices on such loans vary, although IBRD, IDA, and IADB 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 1985–2022. In the global totals, we also show the value of IBRD and IDA loans in arrears for the years 1980–1984, a period when they did not identify the relevant individual countries. Our sources are the annual financial statements of the IBRD, IDA, and IADB’s. Apart from the IBRD,

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<sup>6</sup> Given their size, we also include short-lived arrears owed 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.

IDA, and IADB 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.

**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 (2022) website. The data 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 in some cases (e.g., Sudan) we also use 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 available IMF estimates 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: - first, they may include bilateral loans to debtors that are still performing; and second, - they exclude interest arrears on non-performing loans and so underestimate the totals.

**China.** This category refers to bilateral official loans by China, including loans from two of its development banks: the Export-Import Bank of China and the China Development Bank. Like several other bilateral official creditors, China’s lending agencies do not publish comprehensive data on debt in arrears or debts that have been restructured or written down. Consequently, our data draw primarily from the following:

AidData database of Chinese lending (2021)

instances where China has provided debt relief, compiled by Hurley, Morris and Portelance (2018) and Kratz, Feng and Wright (2019)

an analysis of China’s official lending, by Horn, Reinhart and Trebesch (2019)

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, they could be included indistinguishably in the other official creditor loans category discussed next.

**Other official creditors.** This category covers loan arrears and debt write-downs by governments owed to 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 International Debt Statistics (IDS), 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.<sup>7</sup> With a few exceptions (noted in the Appendix), we

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<sup>7</sup> IDS data on official creditors’ arrears exclude arrears on IMF lending. For sovereigns where we report loans in default from the IBRD, IDA and the Paris Club, we show residual World DataBank values after deducting these amounts.



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 1960–1969, 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:

- Since IDS country data are not available for 1960–1969, we gather data for this period from the IMF and other sources. This process may underestimate the number of governments and US-dollar values involved.
- The country totals for 1970–2022 also underestimate the annual value of official debt in default because they do not account for the total loan amounts outstanding when payment defaults take place.
- As Cruces and Trebesch (2011) note, the country data the World Bank’s DataBank reports, which are based on information compiled by debtor governments, may contain errors and omissions.<sup>8</sup>

Despite these shortcomings, we believe that our use of alternate sources makes the 1960–1969 data nearly as comprehensive as the data for 1970–2022, and that, for this latter period, 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 in the IDS, we deduct IBRD, IDA and IADB loans in arrears in each year they are reported.
- For most years, we do *not* deduct bilateral loans restructured, written down or forgiven by China. These are largely compiled from other sources, and we believe that these loans were not reported by debtor sovereigns to the World Bank IDS until recently.
- If the residual value is negative because of these steps, we show asterisks in the applicable year.

Our treatment of Liberia’s defaulted official loans in 2003 illustrates how we make these adjustments. To start, for this category the IDS reports cumulative arrears of principal and interest arrears, plus write-offs of principal and interest during the year, as US\$2,143 million. From this total, we subtract IBRD arrears of US\$348 million reported separately, IDA arrears of US\$33 million reported separately and Paris Club restructurings of principal and interest of US\$717 million reported separately. We record the residual, US\$1,045 million, in the other official creditor category of the database.

**Private creditors.** This category refers to overseas loans to governments from foreign commercial creditors, including bondholders, banks, suppliers and subscriptions, denominated in foreign currency. For 1960–1969, our principal sources are IMF staff reports and Bittermann (1973). For the 1970–2022 period, our main source for the country-by-country data is the IDS,

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<sup>8</sup> 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.

which reports cumulative annual amounts of unpaid interest, principal and fees 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. In addition, in some instances, it does not 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 bilateral and syndicated loans to governments by foreign commercial banks in a foreign currency. For bank loan defaults resolved through a formal restructuring process and involving interest arrears, we generally start with the amounts of debt restructured (or subject to debt buybacks) reported by Cruces and Trebesch (2011) and others. 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.<sup>9</sup> In cases where a payment default does 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 Tellimer (2019) and others; we may revise these data based on updated information if 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 external bonds and other marketable securities issued by governments in a foreign currency. 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.<sup>10</sup>

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<sup>9</sup> By agreement between banks and their national regulators, LIBOR is being replaced by new benchmarks that, where applicable, will be used to calculate interest arrears on future bank loans.

<sup>10</sup> 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

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 or states (e.g., Cuba in 1961–62, Yugoslavia in 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.<sup>11</sup>

**Other Private creditors.** This category consists of overdue debt to foreign suppliers and overdue membership fees.

**Local currency debt.** This category refers to debt issued by a government in its own currency.<sup>12</sup> 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 -parallel market rate—prevailing at the start of the default.<sup>13</sup> When central banks exchange bank notes on unfavourable terms, we use the amounts outstanding reported by the IMF 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.

**Domestic arrears.** This category refers to overdue domestic payments for legally mandated or contractually required government expenditures—including payables for tax refunds, pensions, salaries, other services, and capital outlays. The timeframe in which late payments become arrears is typically governed by local law, most often after 30, 60 or 90 days. Our principal sources are the IMF, central banks, and governments. An issue with domestic arrears is that they are usually compiled on a *flow* rather than on a *stock* basis. The flow data are often revised, and the amounts repaid are often at a discount to face value. To develop stock estimates comparable with conventional sovereign defaults, we rely on the most recently reported flow and stock data, if any, and we add or subtract flow data to the available stock data to derive stock estimates for earlier or later years. These annual amounts, in turn, are converted into US dollars at year-end exchange rates. This data series is still being compiled and is most comprehensive globally for the 1995–2022 period.

**Summary data.** In this section of the BoC–BoE database, we aggregate the country-by-country data for sovereign defaults and domestic arrears into global totals. The data on the total number of sovereign issuers are our estimates. We tabulate data on the number of

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some instances, the government may later issue additional debt on the same terms as the bond exchange to settle these claims.

<sup>11</sup> As a result, we do not include values for sovereign bond repudiations prior to 1960 such as Russia (1918) and China (1949).

<sup>12</sup> 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, we view their default dynamics as much like defaults by sovereigns outside monetary unions on debt denominated in foreign currency.

<sup>13</sup> In the few cases involving confiscatory currency reforms where central bank data are unavailable, we develop estimates based on the ratio of currency to GDP in countries with comparable GDP per capita. We note these cases in the Appendix.

sovereigns in default based on the total number, excluding domestic arrears, in the database for each year. The number of sovereigns we have identified with domestic arrears in each year is shown separately. The global total nominal US-dollar amounts for Paris Club, China, other official creditor, and private creditor categories in 2022 are our 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 (39), and on definitions from the J.P. Morgan Emerging Market Bond Index Global Diversified Index for emerging- and frontier-market sovereigns (51). The other developing countries group (55) includes all other sovereigns in the database.

Our compilation of the country data covers 161 sovereigns, including sovereigns with identified domestic arrears only. The database includes:

- the overall value of Paris Club lending
- Chinese official lending
- world public debt
- emerging market and developing country GDP (excluding China) and world GDP

These data, sourced from the IMF World Economic Outlook (IMF 2022b, 2022c) and the World Bank Group (2022), provide a global perspective on the scale of annual sovereign defaults since 1960.

## 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 sub-scores assigned to four variables:

years in which default occurred

types of debt in default and/or domestic arrears

characteristics of debt restructured (e.g., interest rate, original maturity)

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 types of debt—IMF, Paris Club, other official creditors, private creditors, foreign currency bank loans, foreign currency bonds and local currency debt, as well as having domestic arrears—at various times over the 1960–2022 period.

We assign a score of 3 to variable for Jamaica since we have a low degree of confidence that we have identified all cases of default in which they occurred, and for domestic arrears in 1992–2022. 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 about debt restructured more recently. We find that the information from the different sources we consulted

is reasonably consistent. But we assign a score of 3 to subcategory d because information on external arrears owed to official creditors that come from the World Bank's DataBank are subject to revision. Finally, we average the results of the subcategories, resulting in an overall score of 3 (see "Appendix").

## 6. 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. In addition, we include data on sovereigns with domestic arrears, most comprehensively for the 1995–2022 period. The database applies a common standard for determining when defaults and domestic arrears occur. However, documenting which sovereigns have defaulted or had domestic payment arrears, the time frames of such episodes and the amounts of debt affected can be challenging. While we have used sources, we consider reliable, our database of sovereign defaults and domestic arrears may not be exhaustive. As more information on defaults becomes available, it will be incorporated in future database updates.