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BoC–BoE Sovereign Default Database: What's new in 2022?

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Introduction

Since 2014, the Bank of Canada (BoC) has maintained a comprehensive database of sovereign defaults to systematically measure and aggregate the nominal value of the different types of sovereign government debt in default. The database draws on published datasets compiled by various public and private sector sources. It combines elements of these with new information to develop comprehensive estimates of stocks of government obligations in default. These include bonds and other marketable securities as well as bank loans and official loans, valued in US dollars, for the years 1960 to 2021 on both a country-by-country and a global basis.

The database is posted on the BoC's website and is updated annually in partnership with the Bank of England (BoE). Regular updates of the BoC–BoE database will be useful to researchers analyzing the economic and financial effects of individual sovereign defaults and, importantly, the impacts on global financial stability of episodes involving multiple sovereign defaults.

In this paper, we:

- highlight developments in sovereign debt defaults in 2021, including high-level details on the 16% decline in the US-dollar value of sovereign debt in default from 2020 to 2021
- describe functionality improvements to the database
- update key insights regarding the number, size and types of defaults
- give a historical overview of debt defaults, their persistence in highly indebted poor countries, and the shift in bilateral lending toward non–Paris Club lenders[1]
- provide an update on our continued efforts to include reliable estimates of domestic fiscal arrears in the database

The 2022 edition of the database contains a number of enhancements:

- more data for defaults on China's official loans since 2000
- updated annual data (where available) for each country's total central government debt
- minor revisions to country and aggregate default data for 1960 to 2020
- new data, by country and globally, on domestic arrears, most comprehensively in the years 2000 to 2021

We also updated one tab at the bottom of the main database spreadsheet: DATA provides a downloadable format for the global and country default data.

All data are downloadable in the CSV, JSON and XML formats.

[1] The permanent members of the Paris Club are Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, the Netherlands, Norway, Russia, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States. For more information, see the Paris Club website.

Key insights from the 2022 edition

The total value of sovereign debt in default fell, even as gross world public debt increased

We estimate the total value of sovereign debt in default at US$375.3 billion in 2021 (0.4% of world public debt). This is a decrease of US$72.3 billion, or 16%, from the revised total of US$447.7 billion in 2020. By contrast, gross world public debt grew by about 10%. The reduction in sovereign debt in default was driven mainly by a decline of US$78.9 billion in foreign currency bonds in default. This decline reflects the resolution of defaults by Ecuador and Argentina on most of their bonds, which offset higher arrears on bonds by Belize, Mozambique, Nauru, Puerto Rico, Suriname, Venezuela and Zambia.

Local currency debt in default fell by US$5.2 billion. This was due mainly to the completion of Iraq's 2020 restructuring of its short-term obligations.

The upward trend in global debt slowed in 2021, but the level remains high

According to data from the International Monetary Fund (IMF), government debt in 2021 was 98.3% of world gross domestic product (GDP), down slightly from 99.5% in 2020 but still close to its highest level since the 1950s. Moreover, the IMF's April 2022 *World Economic Outlook* notes that *total debt*—including that of households, non-financial corporations and governments—now exceeds 250% of global GDP and is accumulating at a pace comparable to that seen in the two world wars of the 20th century. IMF staff also highlighted that even as the exceptional fiscal costs of the COVID-19 pandemic ease, Russia's invasion of Ukraine is dampening the global economic recovery and resulting in new fiscal pressures.[2]

Defaults to official creditors increased slightly overall in 2021

Paris Club loans in default fell, but loans in default from China and other bilateral lenders increased.[3] In all, official creditor loans in default increased by US$14.4 billion. Changes in the values of defaulted debt in other creditor categories were less significant.

For sovereigns that participated in the Debt Service Suspension Initiative (DSSI),[4] we include 2020 and 2021 debt-service deferrals by bilateral official creditors as defaults in the database for sovereigns that the IMF and the World Bank consider to be already in or at high risk of

[2] See International Monetary Fund (2022b).

[3] These creditor categories exclude the International Monetary Fund, the International Bank for Reconstruction and Development and the International Development Association.

[4] In response to the global COVID-19 economic and financial shock, in 2020 and 2021, the G20—together with the International Monetary Fund and the World Bank—launched the DSSI. This initiative offers temporary relief on debt-service payments owed to bilateral official creditors by 73 low-income countries. The G20 also asked private creditors to participate on comparable terms, but this request was ignored. For more information about the DSSI, see World Bank Group (2022).

debt distress. The suspension period for debt-service payments, originally set to run from May through December 2020, was later extended through December 2021. Participation in the program by debtor sovereigns was voluntary, and the debt relief provided was intended to have a neutral effect on net present value.

We include debt-service payments suspended under the DSSI for these countries because, without the DSSI, many countries—some already with other debt arrears—would likely have sought debt relief. Total DSSI debt-service deferrals in the database in 2021 amount to US$5.7 billion, about 1.5% of the total stock of debt in default we identified globally.

This new edition updates the historical data

Since 1960, 151 governments—two-thirds of the existing 215 sovereigns—have defaulted on their obligations.[5]

Defaults had the biggest global impact in the 1980s, reaching US$450 billion, or 6.1% of world public debt, by 1990. The scale of defaults has fallen substantially since then. Over the past decade, between 0.3% and 0.9% of world public debt has been in default. For 2021, the amount is estimated at 0.4%. In dollar terms, total sovereign debt in default decreased by 16% in 2021, in contrast to a 10% increase in gross world public debt.

The distribution of defaults remains skewed

As in recent years, for 2021 the distribution of defaults is highly skewed in terms of value: 84% of the US-dollar value of debt in default globally was from 10 sovereigns, and just three sovereigns—Venezuela, Puerto Rico and Sudan—accounted for 52%.

Our database includes debt owed to official creditors. As a result, we see sovereign default clusters, which we define as spikes in the number of defaults followed by sharp declines. The data show that while the US-dollar amounts can be low in absolute terms, defaults to official creditors often take longer to resolve than defaults involving private creditors. A high number of low-income sovereigns often remain in default to official creditors for long periods.

Sovereigns tend to default selectively on debt

Only 6% of sovereigns defaulted on shares ranging between 50% and 100% of their total outstanding government debt. In contrast, about 72% of sovereigns defaulted on 10% or less of their total outstanding government debt. These data confirm sovereigns' tendency to default selectively; shares of sovereign debt in default are skewed toward lower values.

[5] While 157 sovereigns are listed in the database, 6 (Bahamas, Kosovo, Sint Maarten, Palau, Tuvalu, and West Bank and Gaza) include only domestic arrears, which we consider to be *effective* defaults, although not on conventional sovereign obligations. For more information on domestic arrears, see the section "Domestic arrears in the sovereign default database: An update," on page 11 of this note.

Sovereign defaults on local currency debt are more common than sometimes assumed. Since 1960, 36 sovereigns have defaulted on local currency debt.

Although the amount of defaults fell in 2020–21, the IMF expects defaults to pick up again over the medium term (IMF 2022b). Among issuers of foreign currency bonds, Mozambique, Nauru, Puerto Rico, Suriname, Venezuela and Zambia remain in default. So far this year, Sri Lanka, Russia and Ukraine have joined them.[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 onward. The database is particularly useful because it facilitates comparisons of the scale of individual and multiple default events with earlier episodes. Thus, 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 over 200 years the story of sovereign defaults has centred mainly, though not exclusively, on foreign currency bonds and other marketable securities.[7] 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 debt denominated in local currency also occurred, but, from the evidence available for the pre-1960 era, they appear to have been less frequent (Reinhart and Trebesch 2014).

After the Second World War, because of pervasive national controls on the movement of capital, cross-border bond issuance by governments fell to low levels, as did the incidence of defaults. Both remained low over nearly four decades. For a relatively brief period, in the 1970s and 1980s, bank loans denominated in foreign currency were more important than bonds. Many developing and Eastern European countries defaulted on bank loans in the 1980s and 1990s, resulting in creditor losses. The banks' subsequent exit from this business resulted in many low- and middle-income sovereigns turning to cross-border bond markets in the 1990s, an approach to financing that continues today.

[6] Interest payments of US$100 million on two Russian Federation bonds remained unpaid after a 30-day grace period expired on June 26, 2022, reflecting the impact of Western financial sanctions. Russia offered ruble payments instead, an option not permitted in the bonds' terms and conditions. In Ukraine's case, the government requested and received a waiver from bondholders to defer two years of interest on its bonds.

[7] This section of our updated 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).

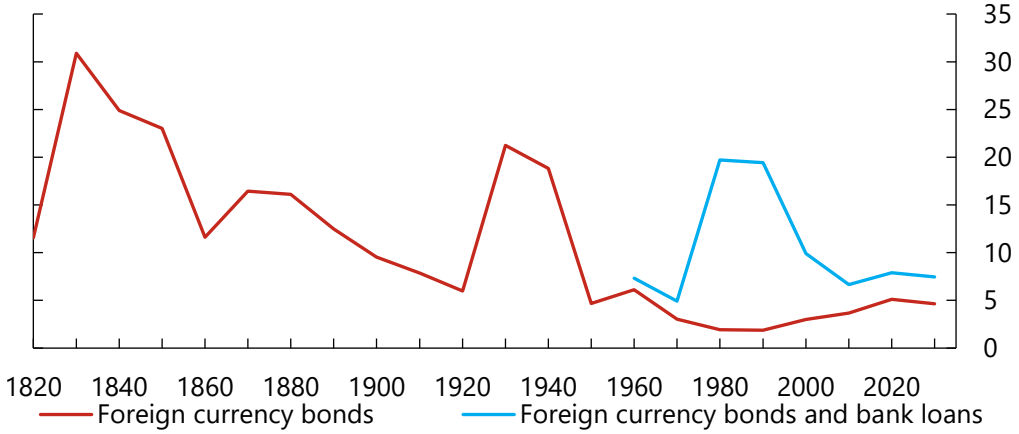
The period since the 1990s is also noteworthy because of growing cross-border investments in market debt denominated in the local currency of emerging-market sovereigns.[8] This development was a factor in defaults involving such sovereigns as Russia and Argentina, where the restructuring of their foreign currency bonds also played a role. While these defaults on foreign currency bonds are increasing, they nonetheless remain well below their historical peaks from before the Second World War.

Chart 1 provides a snapshot of trends in defaults on foreign currency bonds and bank loans from 1820 to 2021.[9] Because for much of this period the historical data on bonds are limited, we calculate unweighted default *rates*, that is, governments in default as a percentage of *all* governments.[10] For bonds, three peak default periods stand out:

- from the 1830s through the 1850s, when default rates exceeded 25%
- in the 1870s, when default rates averaged 18%
- in the 1930s, when they reached 21%

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 cross-border financial markets immediately following the Second World War limited access to bond markets to only the most creditworthy borrowers. As a result, defaults on new issues were low.

Chart 1: Sovereign default rates (every decade and 2021)
Foreign currency bonds and bank loans



Note: Default rates are 10-year averages of annual data except for 2020 and 2021.
Sources: Suter (1992) and BoC–BoE Sovereign Default Database 2022

Last observation: 2021

[8] For further commentary about sovereign defaults on local currency debt, see Beers, Jones and Walsh (2020).

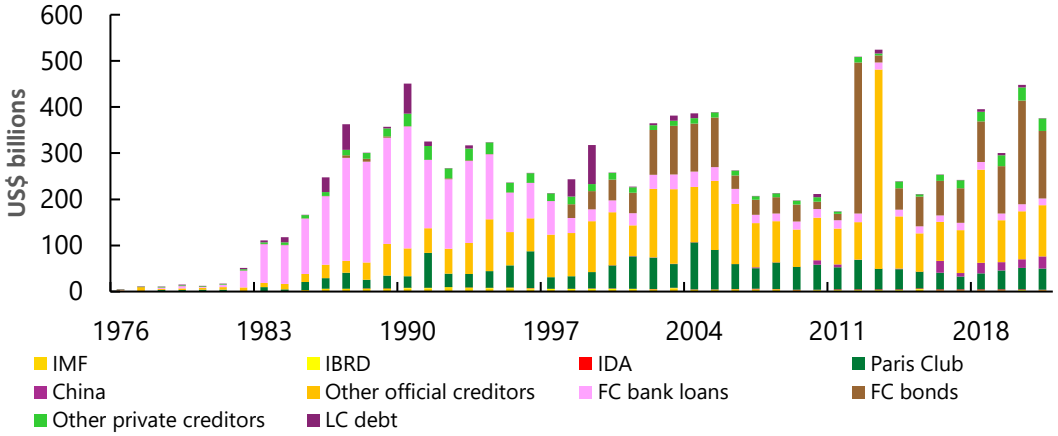
[9] The data in **Chart 1** are based partly on data previously published by Beers and Chambers (2006).

[10] By our count, the total number of sovereigns globally was 36 in 1820, 65 in 1900, 105 in 1950 and 215 in 2021. Reinhart and Rogoff (2009) calculate historical sovereign default rates weighted by estimated aggregated gross domestic product. However, because of reliability issues with the national income data of many countries before the Second World War, we do not replicate this approach here.

Before 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 multilateral institutions quickly gained prominence. These institutions, as well as national export credit and development agencies, were launched in part to fill perceived gaps in public finance left by shrinkage in cross-border bond markets. They increasingly targeted loans to the governments of developing countries, mainly on concessional terms. Initially, defaults on official loans were low.

By the 1980s, however, the sharp rise in sovereign defaults on foreign currency bank loans (**Chart 1** and **Chart 5**) was accompanied by growing sovereign defaults on loans from official creditors. Even arrears on IMF loans surfaced, although they were small compared with defaults to other creditors. The factors driving both bank loans and official loans into default were often closely linked, most notably the adverse fiscal impact in many countries from the spike in both world oil prices and US short-term interest rates. The increase in US interest rates directly influenced the cost of syndicated bank loans contracted by many sovereign borrowers and helped ratchet up the real burden of their public debt. Sovereign debt in default reached US$450 billion by 1990, with debt owed to official creditors accounting for about 21% of the total (**Chart 2**). By 1995, the share of official creditor debt exceeded 50%.

Chart 2: Total sovereign debt in default by creditor (1976–2021)



Note: IMF is International Monetary Fund. IBRD is International Bank for Reconstruction and Development. IDA is International Development Association. LC is local currency, and FC is foreign currency.

Source: BoC–BoE Sovereign Default Database 2022

Last observation: 2021

Many of the defaults on official loans continued for long periods because of the borrowers' internal economic and political difficulties and the reluctance of creditors to reschedule loans. By the 1980s, however, official debt restructuring led by the Paris Club became a frequent occurrence. Yet defaults on official debt persisted. This logjam started to ease in the mid-1990s, thanks in part to the multilateral Heavily Indebted Poor Countries (HIPC) Initiative, launched with strong support from the IMF and the World Bank (IMF 2016).

Under the program, which is now nearing completion, 41 low-income governments became eligible for substantial reductions in their official debt, subject to the implementation of agreed-upon economic policy reforms.[11] Bilateral official creditors wrote off much of the debt, while the IMF and other multilateral institutions also agreed to participate through the Multilateral Debt Relief Initiative.[12] As a result, apart from China's loans in default, the dollar amounts of debt in default owed to the IMF, World Bank, Paris Club and other official creditors have fallen in most years since 2006 (**Chart 2**).

Nevertheless, three recent developments are worth highlighting. The first is the spikes in problematic official debt that occurred in 2013 and in 2018 (**Chart 2**). The spikes resulted from the restructuring (without any interruption of scheduled debt service) of loans to Greece, Ireland and Portugal agreed to by their EU partners.[13] Fiscal pressures in the euro area generally have eased since then, though only partially for Greece and Italy. Greece delayed its payment of US$2.2 billion to the IMF in 2015 and restructured another US$110.9 billion of official debt following the completion of its stabilization program in 2018.[14]

The second noteworthy development is that defaults persist in the majority of HIPC countries, amounting to nearly US$85 billion in 2021, a record high (**Chart 3**). 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 bondholder holdouts, but, like bondholders, these official creditors can also delay the resolution of defaulted debt. However, many HIPC sovereigns are defaulting on new loans contracted with official and private creditors after they received HIPC debt relief.[15]

[11] Somalia began receiving HIPC debt relief in 2020, and Sudan became eligible in 2021. Another candidate—Eritrea—has not yet commenced the process.

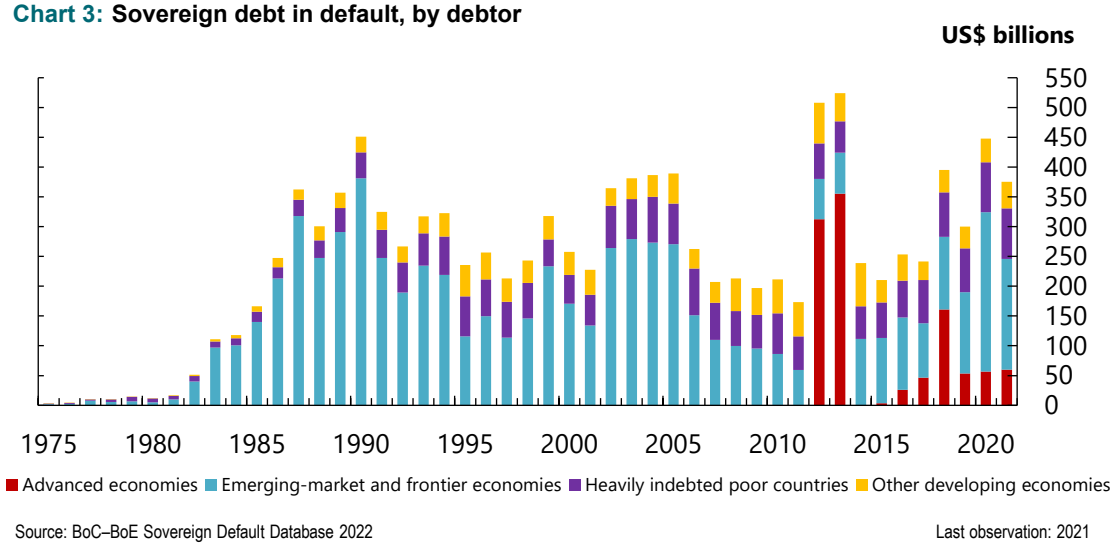
[12] Government donors funded write-offs of IMF and multilateral institution loans to avoid damaging the institutions' balance sheets and weakening their preferred creditor status. Under the Multilateral Debt Relief Initiative, these write-offs can reach 100%.

[13] For Greece, creditors reduced interest rates and charges and deferred debt service. They also extended average maturities of EU or 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.

[14] See Khan and Brunsden (2018) for details about Greece's 2018 restructuring of official debt agreed to with euro area official creditors.

[15] 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 2019. And in 2020 and 2021, Chad, Ethiopia and Zambia signalled an intent to pursue broad debt restructuring.

Chart 3: Sovereign debt in default, by debtor



Source: BoC–BoE Sovereign Default Database 2022 Last observation: 2021

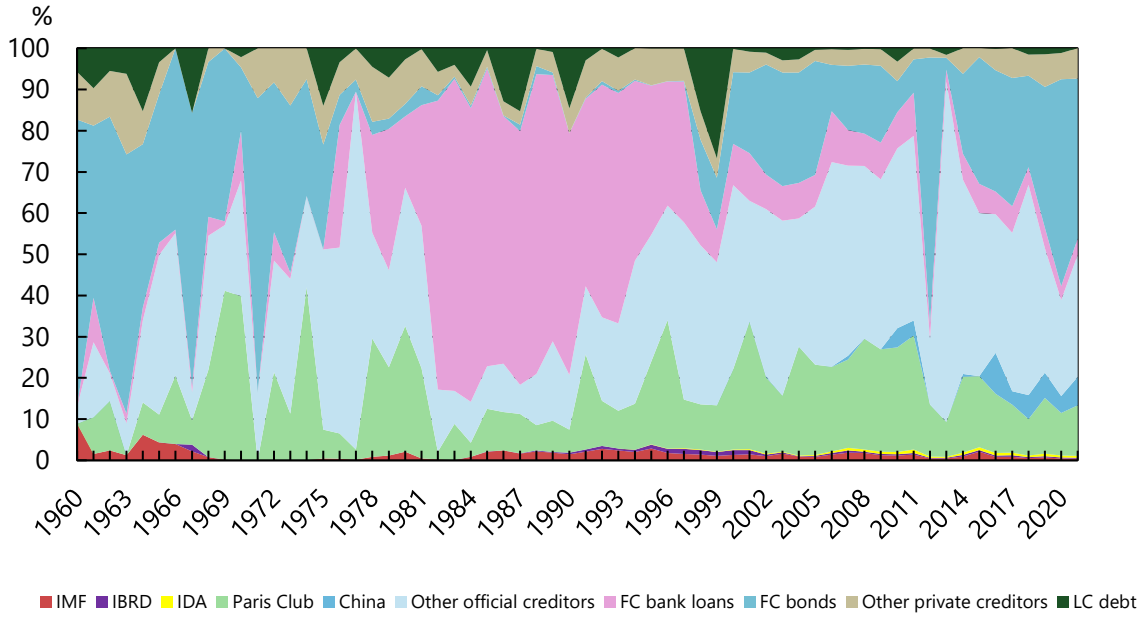
The third development is the significant shift underway in the composition and scale of bilateral official lending. Since the 1980s, sovereign debt owed to bilateral official and private creditors has generally been restructured according to the "comparability of treatment" principles set out by the Paris Club.[16] Despite occasional frictions with other official creditors and with bank creditors and bondholders, these arrangements have been broadly effective in resolving sovereign defaults.

The Paris Club, however, no longer represents all the large bilateral official creditors (**Chart 4**). With some members placing more emphasis on grants, its stock of loans to emerging-market and developing economies—US$333 billion in 2021—has been relatively unchanged in recent years. By contrast, bilateral loans from China, India and the Gulf states have grown sharply; in aggregate, they are now larger than those of the Paris Club (Hurley, Morris and Portelance 2018). These "new" official creditors have not yet formally joined the Paris Club, although China, India and Saudi Arabia—all G20 members—have agreed to cooperate with the Paris Club in the new Common Framework for Debt Treatments beyond the DSSI.[17]

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

[17] China, India, Abu Dhabi, Kuwait and a few other governments have periodically participated in some Paris Club meetings on an ad hoc basis (Paris Club 2021). For a description of the G20 Common Framework, see Republic of Italy (2021).

Chart 4: Proportion of debt in default by creditor (1960–2021)

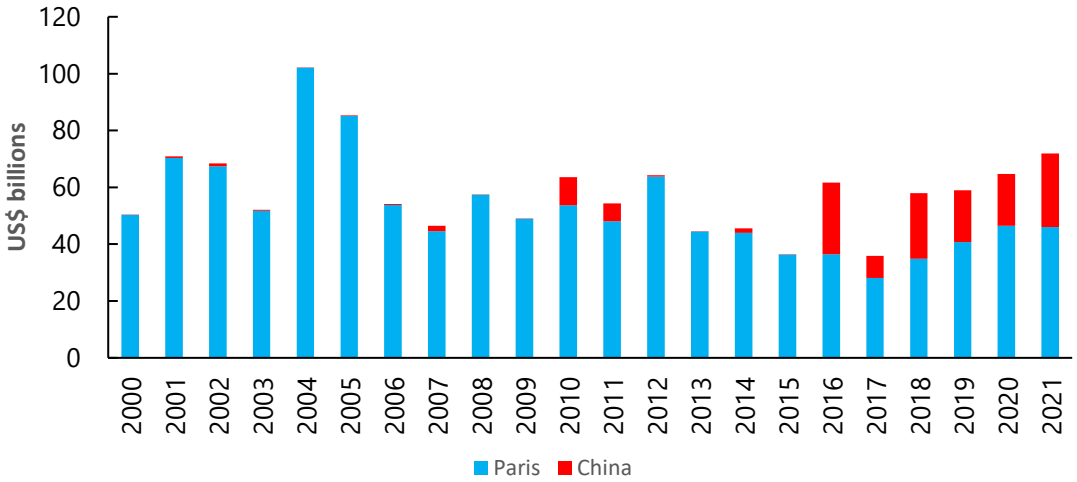


Note: IMF is International Monetary Fund. IBRD is International Bank for Reconstruction and Development. IDA is International Development Association. FC is foreign currency, and LC is local currency.

Source: BoC–BoE Sovereign Default Database 2022 Last observation: 2021

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 (PricewaterhouseCoopers 2016; Morgan Stanley 2018). Emerging-market and low-income sovereigns receive the most BRI funds. The available data on defaulted Chinese official loans indicate that, since 2010, they have increased relative to those in the Paris Club (**Chart 5**).

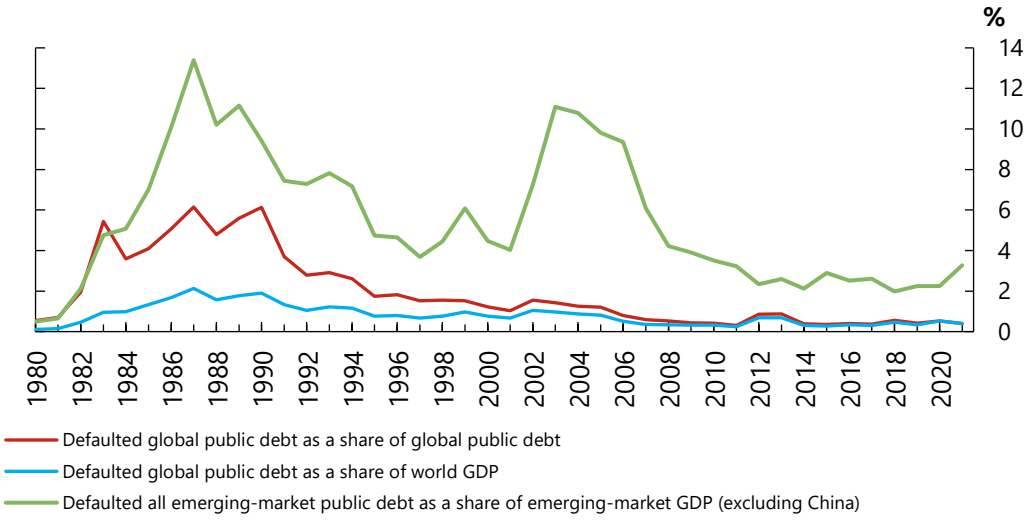
Chart 5: Official loans in default for Paris Club and China (2000–2021)



Source: BoC–BoE Sovereign Default Database 2022 Last observation: 2021

To assess the relative importance of sovereign defaults, we compare the nominal value of debt in default with global public debt and with global GDP and the combined GDP of emerging-market, frontier and other developing economies (excluding China) (**Chart 6**). At the start of the 1980s, sovereign defaults had minimal impact globally. However, by the middle of the decade, significant fiscal stresses affected low- and middle-income countries. The defaulted sovereign debt that was restructured and (in many cases) ultimately written down peaked in 1990, at 6.1% of global public debt. Relative to this group's GDP, the peak was sharper still, at 11.1%, but it was milder in terms of global GDP, rising from near zero to 1.9%.

Chart 6: Sovereign debt in default as a share of global public debt and global GDP



Source: BoC–BoE Sovereign Default Database 2022 Last observation: 2021

Chart 6 also shows that the global footprint left by these debt workouts has faded, despite large defaults in 2020 by Argentina, Lebanon and Ecuador and the restructuring of sovereign bonds and official loans in the euro area in 2012–13 and again, for official loans, in 2018.

Additionally, IMF officials have recently voiced concern that sovereign defaults could rise in coming years.[18] The risk factors they highlight include:

- high global financial leverage, including both public and private debt burden
- the negative impact on global economic growth and public finances from the COVID-19 pandemic and Russia's invasion of Ukraine
- rising debt-service costs in emerging-market, frontier and developing economies
- the fact that nearly 60% of low-income sovereigns are already in, or close to, debt distress

[18] For additional details, see IMF (2022a, 2002c).

At the same time, the IMF has called on the G20 and the Paris Club to:

- speed up the resolution of current debt workout cases (Chad, Ethiopia and Zambia) under the new Common Framework
- extend the framework's remit beyond low-income countries (IMF 2021).

As governments grapple with increasing fiscal challenges, these trends are worth watching alongside other risks to global financial stability.

Domestic arrears in the sovereign default database: An update

From the inception of the BoC–BoE database in 2014, its coverage has been based on a broad definition of sovereign default—one that tracks both interruptions of scheduled debt service and changes in debt payment terms that result in creditor losses. For defaults involving private creditors, this includes marketable debt denominated in foreign and local currency. Still, other government fiscal actions suggest that the sovereign default perimeter should be extended further. Notably, substantial evidence indicates that late payments by governments for goods and services—called domestic, fiscal or expenditure arrears—also create obligations to domestic creditors that are effectively in default and must ultimately be resolved.

Both the definition and the determination of domestic arrears are relatively straightforward, at least in theory (Flynn and Pessoa 2014). Arrears are generally defined as any overdue payments for legally mandated or contractually required expenditures, including pensions, salaries, capital outlays and other services. The time frame in which late payments become arrears is typically governed by local law—most often penalties and interest charges can accrue when payments are late by more than 30, 60 or 90 days. When arrears accumulate over several years or their legality is disputed, governments and their creditors usually rely on domestic courts or ad hoc tribunals to reconcile and confirm claims before resolving them. Once finalized, these obligations are settled by some combination of cash payments and the issuance of new debt to creditors. At times, there are even haircuts on the amounts repaid, and payment of interest on amounts payable appears to be rare. Given these factors, and the often-extended time frame between when arrears emerge and when they are settled, it is clear that the domestic creditors involved incur material losses.

The clearance of arrears and the adoption of polices to discourage them from recurring are frequent objectives of IMF country programs. This is not surprising, given the adverse impact that government arrears have on private sector activity in affected countries.[19] But at the same time, IMF documents highlight that, like conventional sovereign defaults, domestic

[19] For a recent discussion, see International Monetary Fund (2019).

arrears recur and involve a broad spectrum of emerging-market, frontier and other developing sovereigns as well as (although less frequently) high-income sovereigns.

The published IMF data on domestic arrears has limitations. The data reported usually identify *flows* of arrears, not *stocks*, based on government estimates that are subject to change. Moreover, since the IMF rarely reports estimated stocks of arrears, comparisons with the value of conventional sovereign debt in default can be challenging. However, IMF practice is changing, and the IMF increasingly reports domestic arrears data on a stock basis and explicitly incorporates them into the data on public debt. As a result, we can begin to compare data on arrears with the conventional defaults we report in the BoC–BoE Sovereign Default Database.

In this year's database update, we developed estimates of stocks of arrears for many sovereigns, most comprehensively for the years 2000 to 2021. We also include historical arrears data for six other sovereigns that have not had conventional sovereign defaults. These data are included in a domestic arrears category for each country. In addition, we provide annual global totals for the sovereigns with arrears we have so far been able to identify. Going forward, we will continue to backfill missing data for previous years. With this coverage, we have two aims:

- to provide a more comprehensive picture of the scale of historical sovereign debt in distress
- to evaluate whether domestic arrears are best viewed as a coincident indicator or a driver of conventional sovereign defaults

Our main findings on the 2021 data:

- In aggregate, the stock of identified domestic arrears peaked at US$210 billion in 2016 and has trended downward to an estimated US$113 billion in 2021.
- By comparison, global defaults on conventional sovereign debt in 2016 and 2021 amounted to US$254 billion and US$375 billion, respectively. The available data highlight two facts:
    - Domestic arrears are sizable in relation to conventional defaults. In some instances, most notably in Iran between 2014 and 2021, arrears exceed the US-dollar value of the stock of conventional debt in default by large margins.
    - As seen most clearly in the data for Sub-Saharan African sovereigns, domestic arrears often persist for extended periods and recur.
- Domestic arrears are also correlated with conventional defaults: over half of the sovereigns in default in the 2000–2021 period also had domestic arrears.

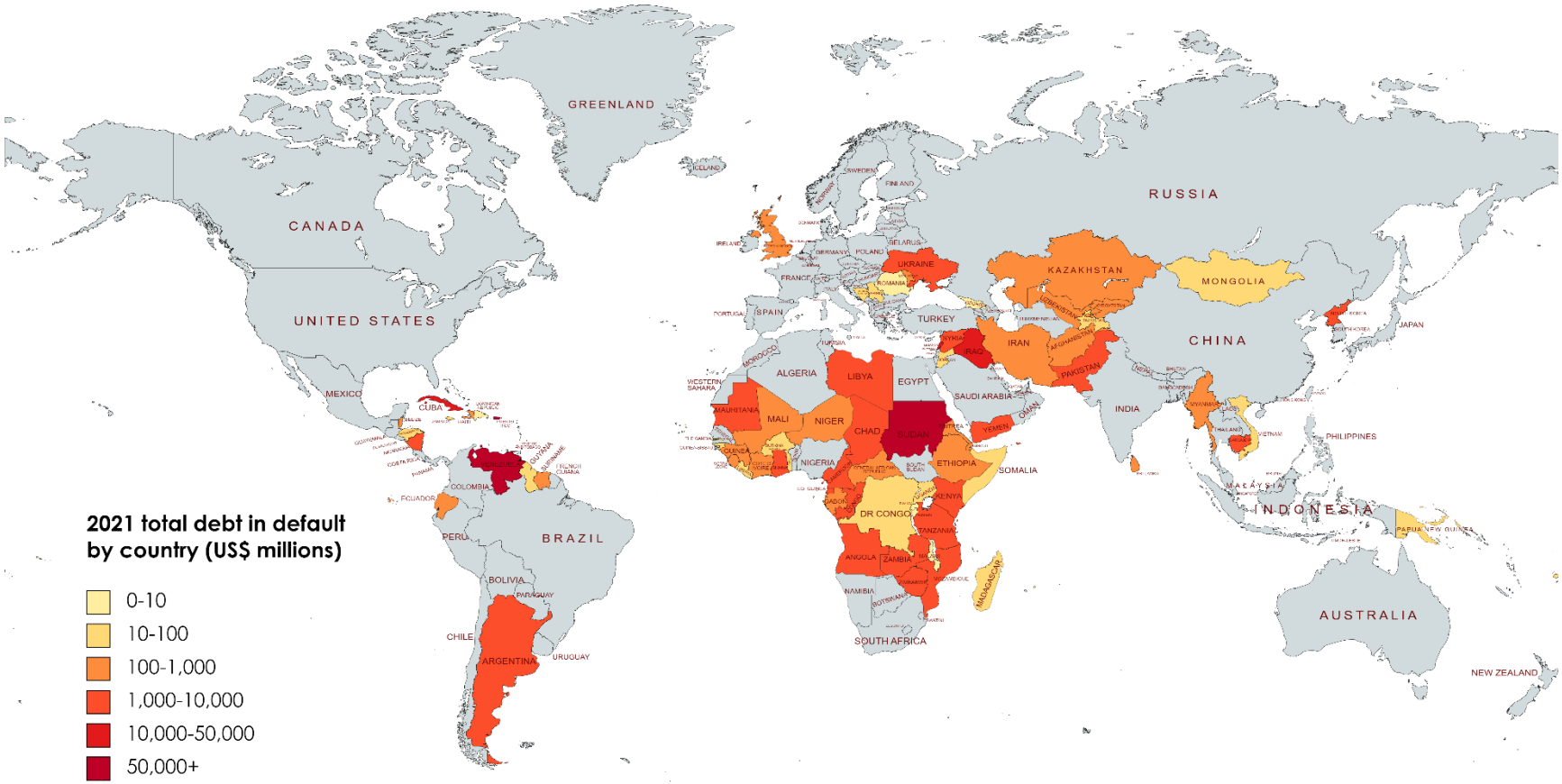
The actual scale of domestic arrears throughout 2000–2021 was almost certainly larger globally than our findings indicate, as our data do not cover all potential cases. For example,

Venezuela, whose arrears in recent years may have been and could still be significant, does not report them to the IMF.

Conclusion

In publishing this annual update of the BoC–BoE Sovereign Default Database and our related research, we aim to provide readers with meaningful insights into how and why sovereign defaults occur and what they mean for global financial stability. We will continue to enhance the accuracy, reliability and relevance of the data in future versions of the database, including our coverage of domestic arrears. We welcome questions and feedback on this project.

Appendix: Visualization of 2021 sovereign debt in default



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