

# Sustainable future bonds: Boosting multilateral development banks lending and improving the global reserve system

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## Abstract

Multilateral development banks (MDBs) are crucial players to finance a greener, more socially inclusive and sustainable future, given their unique financial model that provides low-cost and long-term investments in areas aligned with the Sustainable Development Goals (SDGs) and the Paris Climate commitments. To fulfill their potential, MDBs need a stepwise increase in financing, which has been a challenge given the reluctance of their shareholders to provide additional paid-in capital. We present a novel proposal for MDB hybrid capital that is designed to boost MDB funding while supplying the international reserve system with a new safe asset, the Sustainable Future Bonds (SFB). Under the SFB proposal, a tiny fraction of the global foreign reserves would be rechanneled to MDBs, and given liquidity enhanced mechanisms, SFB would serve as an additional safe reserve asset for central banks' portfolios. As our conservative estimation shows, by deploying just 0.5 percent of global foreign reserves for the Sustainable Future Bonds, at least \$45 billion per year in fresh capital to MDBs would be mobilized. At that pace, by 2030, MDBs will have \$360 billion in capital injections, which, depending on their leverage capacity, could result in new lending from \$1.6 trillion to \$1.9 trillion.

## 1 | THE FOREIGN RESERVE AND GLOBAL DEVELOPMENT MISMATCH

The international financial system is currently characterized by a mismatch. On the one hand, emerging market and developing economies (EMDEs) excluding China need to mobilize \$1 trillion in external resources per year—or 4.2 percent of their gross domestic product (GDP)—to finance a big push of global investment that allows them to meet the United Nations 2030 Sustainable Development Goals (SDGs) and Paris Climate commitments (Songwe et al., 2022). On the other hand, about 12 percent of global GDP is parked as reserves at central banks in advanced economies and EMDEs. We propose a new instrument, which we

call Sustainable Futures Bonds, to help reconcile the mismatch between needs and resources.

The seemingly large, needed investments pale in comparison to the dire consequences of inaction (IPCC, 2022). Unchecked climate change would cost \$2 trillion per year in the United States alone, and projected global output could be reduced by at least 10 percent of GDP (Benshoff, 2022; Winter & Kiehl, 2022). This is not to mention the human toll that climate change can cause directly and indirectly in the coming decades (WHO, 2021). If the international community is serious about solving the climate and development crises, it is imperative to match the global balance sheet and guarantee that the investment push is financed by all available resources.

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Given the fact that the cost of capital is at new highs and that private capital mobilization for these goals has been very limited (IMF, 2022, chapter 2; UNCTAD, 2023 p. 25–26), it is now beyond question that multilateral development banks (MDBs) need to be more crucial players to finance a green transition. MDBs need to catalyze investments into sustainable energy, infrastructure, manufacturing capabilities, resilience, and more to support structural transformation trajectories while reducing poverty and inequality and providing global public goods (Gallagher & Bhandary, 2023).

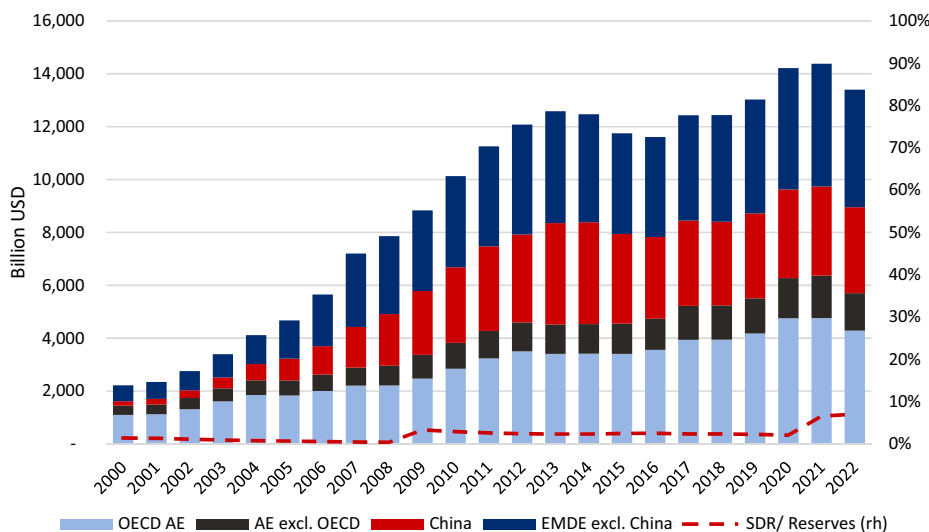
To reach their transformative potential, MDBs need sufficient funding. Optimizing MDBs' balance sheet is a welcome step and could increase MDBs collective lending capacity (Boosting, 2022; Humphrey, 2018; Munir & Gallagher, 2020; Shalal, 2023a),<sup>1</sup> but given the size of the climate challenge, it will not be enough unless MDBs also receive fresh capital from their shareholders. It is estimated that the International Bank for Reconstruction and Development (IBRD) alone should triple its annual lending to around \$100 billion per year, with a total loan exposure of \$1 trillion by 2030 (Kharas & Bhattacharya, 2023). Under the G20 India Presidency, the Independent Expert Group has called for MDBs as a group to provide an incremental \$260 billion in lending per year, of which \$200 should be in nonconcessional lending (The Triple Agenda, 2023).

Additional paid-in capital is essential for increasing the lending capacity of MDBs. Such an approach is not only the most economically optimal but also the most legitimate because by design, increases in paid-in capital will increase the voice and representation of developing countries. However, the major shareholders of the World Bank (WB) and other MDBs appear reluctant to increase MDB capital in the short term, despite the urgent need (Lawder et al., 2023). For many, the

hope lies in hybrid capital arrangements, also known as nonvoting capital, which are fixed-income instruments (like a bond) with equity-like properties (has perpetual maturity, or are expected to be rolled over into perpetuity), allowing MDBs to leverage these resources three to four times (Sala & Plant, 2022). Implementing hybrid capital arrangements was one of the recommendations in the Group of 20 (G20) Capital Adequacy Framework expert report (Boosting, 2022, p. 33–35).

Currently, the hybrid capital proposals being discussed focus on the rechanneling of Special Drawing Rights (SDRs). This is the case, for instance, of the African Development Bank proposal, which suggests that developed countries on-lend their SDRs to MDBs, who would use them as capital and leverage external resources for investments (AfDB, 2022). But given concerns from some central banks that this arrangement would not preserve SDRs' reserve asset characteristics (Paduano & Maret, 2023), Paduano and Setser (2023) have suggested the creation of SDR-denominated bonds. Under this proposal, countries that lend their SDRs to MDBs would receive, in exchange, an asset that could be held as foreign reserves (the SDR-denominated bonds). Apart from central banks, resistance over SDR rechanneling has also been raised by some MDBs, like the World Bank (Lawder, 2023).

SDRs are a formidable liquidity tool, but concentrating hybrid capital arrangements on rechanneling SDRs brings several limitations. First, even accounting for the \$650 billion SDR issuance in 2021, SDRs represent only 7 percent of global reserves (Figure 1), of which only less than 1 percent is being considered for rechanneling. So far, of the \$100 billion SDRs that the G20 has pledged to rechannel, countries have committed \$55 billion<sup>2</sup> to IMF internal funds (the Resilience and Sustainability Trust and Poverty Reduction and Growth



**FIGURE 1** Total Foreign Exchange Reserves, excl. SDRs (billion USD) and Accumulated SDRs as % of reserves, 2000–2022. SDR to USD exchange rate is calculated as 0.7. *Source:* IMF International Financial Statistics and IMF Finances.

Trust) (ONE, 2023). But SDR rechanneling outside the IMF has proven to be a hurdle. Moreover, if SDR on-lending to MDBs is successful, only a handful of development institutions that are SDR prescribed holders could potentially benefit (IMF 2023). Finally, given the unequal allocation of SDRs in favor of advanced economies, relying on SDRs for backing up MDBs would potentially exclude the participation of some EMDEs that have received rather smaller shares of SDRs.

Instead, rechanneling foreign reserves can be much more effective funding for MDBs. It would not only avoid bureaucratic hurdles of rechanneling SDRs but could potentially mobilize more resources, more participating countries, and catalyze resources to a larger number of development institutions.

Between 2000 and 2022, total reserves increased by ten times for EMDEs and by four times for advanced economies. For many countries, foreign reserve levels are in excess of any metric (Arslan & Cantú, 2019). Holding excess reserves carries significant social costs, so by rechanneling excess reserves to MDB funding, countries could not only mitigate these costs but also contribute to closing the financing gap in the Global South (Gallagher & Shrestha, 2012; Rodrik, 2006).

The idea of using foreign reserves for development purposes is not new, and previous IMF balance of payment manuals have suggested that central banks allocate excess reserves to WB bonds (IMF, 1993). In 2010, to scale up green investments, the IMF staff suggested the creation of a “Green Fund,” which could be capitalized by reserve assets (Bredenkamp & Pattillo, 2010). Recently, in light of pandemic-related challenges and the need to finance a just transition, the discussion on how to optimize foreign reserves for social purposes has been rekindled (Plant, 2022). But given the central bank's interest in preserving the liquidity feature of foreign exchange reserves, rechanneling foreign reserves to MDBs requires financial engineering. With this proposal, central banks' foreign reserves will not decline but marginally change their composition to include an asset that accounts for central banks' management priorities (liquidity, safety, and return) and also addresses sustainability considerations.

## 2 | SUSTAINABLE FUTURE BONDS: HOW IT WOULD WORK

We propose the creation of Sustainable Future Bonds to unleash the potential of foreign reserves for development purposes. This would require four steps. First, MDBs would issue hybrid capital instruments—the Sustainable Future Bonds. Second, central banks from advanced economies and EMDEs would purchase these instruments in exchange for a small portion of their reserves (e.g., starting from 0.5% of foreign reserves). Third, MDBs would leverage their new resources, expand their balance

sheet, and increase lending to their clients. Finally, the liquidity of Sustainable Future Bonds would be supported by arrangements among central banks. Potentially, SFB could also be purchased by the private sector or other public entities, which could further improve the liquidity aspect of the SFB.

The first step is already under way, as the WB and other MDBs are discussing hybrid capital options (Boosting, 2022; WB, 2023a). The Sustainable Future Bonds would be a nonvoting equity instrument that would allow MDBs to issue more plain vanilla bonds and expand their balance sheets. Although investors in Sustainable Future Bonds would not gain commensurable voting power, they would be remunerated, which is an advantage compared to conventional paid-in capital that often does not distribute dividends to shareholders (Humphrey, 2022, p. 23). For hybrid capital, an important consideration is whether instruments are perceived by rating agencies as a permanent contribution to MDBs' resources, a crucial consideration for maintaining a solid credit rating. For this reason, Sustainable Future Bonds would be either perpetual or expected to be rolled over into perpetuity.

Central banks are the natural investors in Sustainable Future Bonds. In fact, central banks and other official institutions already invest in similar instruments, such as WB bonds, and the IMF has suggested this as a way for countries to provide development aid without jeopardizing the reserve asset quality of their portfolio (IMF, 1993; WB, 2023b). Safety, return, and liquidity are the three aspects that central banks often consider when managing their reserve assets (Fender et al., 2019). Investing in Sustainable Future Bonds would respect this triad. Concerning safety, MDBs' preferred credit status and high rating ensure the safety of the central bank's portfolio. Triple A rating is not exclusive to the WB, and currently, more than 16 development institutions are investment graded according to S&P Global Ratings (2022), meaning a central bank's reserves could also be channeled to regional development banks. Moreover, the fact that hybrid capital would rank higher than paid-in capital would reinforce the safety of that asset and further minimize the risks of central banks losing investments in Sustainable Future Bonds. Regarding the remuneration of Sustainable Future Bonds, IBRD instruments could serve as a benchmark for returns on these instruments, which would provide a balance between covering a central bank's opportunity costs and offering a cheap funding source for MDBs. What is more, Sustainable Future Bonds would allow central banks to expand their role in climate objectives, a consideration that has been increasingly important to monetary authorities (Diggle & Bartholomew, 2021; Epstein, 2019). In that sense, from the perspective of the central bank, investing in SFB would not represent a decline in foreign reserve assets but a marginal diversification to include a new asset that would be sustainable, safe, profitable, and liquid.

The liquidity of the Sustainable Future Bonds would be supported by arrangements between central banks. First, central banks would agree to exchange Sustainable Future Bonds for hard currencies on demand. This SFB liquidity arrangement would replicate the functioning logic of the IMF Special Drawing Rights Market, where central banks can bilaterally exchange SDRs for hard currencies. In the case of the SDR market, in the event there are not enough voluntary buyers, the IMF can enforce countries with strong balance of payments positions to provide freely usable currency in exchange for SDR (the so-called designation mechanisms; see IMF, 2021). But the fact that it has not been activated since 1987 (IMF, 2021) demonstrates that collaboration between central banks combined with trust in the underlying asset can be sufficient to guarantee the liquidity of a reserve asset. Central banks have been strengthening collaboration to enhance international stability and boost trade as the signing of an increasingly large network of swap agreements provides evidence (Kring et al., 2022). The marginal cost of expanding collaboration to provide liquidity to SFB is marginal, while the benefits for central banks' portfolio management and the support of a green economy are immense.

One may also argue that participating in such a liquidity agreement would create a potential obligation for central banks to liquidate foreign reserves. But given the small volume of Sustainable Future Bonds compared to the total foreign exchange reserves, this should not be of concern (we recommend starting from only 0.5 percent of foreign reserves). Moreover, if more central banks with a strong balance of payment position join the arrangement, potential demand for hard currency can be better shared among central banks. Finally, several institutional arrangements could further mitigate this exposure; for instance, there could be a cap limiting the possible conversion of Sustainable Future Bonds to hard currencies, the creation of a liquidity pool, and even the setup of a repo arrangement that accepts Sustainable Future Bonds as collateral. Regarding the repo arrangement, with a small adaptation, it would be possible to make use of already existing mechanisms to support the liquidity of SFB. More specifically, the Federal Reserve has set up a repo facility for Foreign and International Monetary Authorities (FIMA), which became standing in 2021 (FED, 2022). Under the FIMA repo facility, any foreign central banks with an account at the FED can raise dollars temporarily by providing U.S. Treasuries securities as collateral (FED, 2022). To support the liquidity of SFB, the FED could consider including SFB as a FIMA-eligible asset as well.

Another arrangement central banks could agree upon is to use Sustainable Future Bonds to settle final claims among themselves. A number of central banks throughout the globe are experimenting with local

currency cross-border payment systems. Some examples are the projects under the Innovation Hub from the Bank of International Settlement (BIS), the Local Currency Payment System (SML in the Portuguese acronym) from Brazil, Argentina, Paraguay, and Uruguay, as well as the Malaysia-Indonesia-Thailand agreement, to mention some cases (Banco Central do Brasil, 2023; Bank Negara Malaysia, 2017; BIS, 2023; Fritz et al., 2023). Under these arrangements, the central bank of a deficit country would need to settle claims with its counterparty from the surplus economy, and the Sustainable Future Bonds could be used for that purpose. In that sense, the Sustainable Future Bonds could become a supranational currency among central banks that has been missing so far.

Complementary to the arrangements among central banks, the liquidity of sustainable future bonds could potentially be enhanced by the demand from the private sector as buyers in the secondary market. For some commercial actors, the remuneration of SFBs may not be as attractive once SFBs are thought to provide low-cost funding for MDBs while being sufficiently high to cover central banks' opportunity costs. Issuing SFB in the primary market directly to the private sector may make SFB too costly for MDBs. But if there is interest from the private sector, especially from those entities with long-term investment strategies, SFB could be purchased in the secondary market.

Moreover, SFB could also be acquired by public entities. Notably, the WB has recently unveiled a plan to issue hybrid capital to its shareholders. According to this proposal, once shareholders consent to augment the WB's paid-in capital, it is possible to use existing hybrid capital assets for conversion into paid-in contributions, all while maintaining the current voting distribution (Hay, 2023). This new approach opens up new possibilities for SFB investors. Sovereign entities may potentially acquire SFB from central banks and employ them to bolster their own paid-in capital shares, thereby offering hard-currency liquidity to central banks.

The Sustainable Future Bonds are not only a solution for MDB scarcity of funding but have the potential to improve the international reserve system. The reliance on the dollar as the international reserve currency is widely recognized as a key source of global imbalances (Stiglitz, 2010). Although the status of the dollar continues to dominate, there is a growing tendency for countries to diversify their foreign exchange reserves (Arslanalp & Simpson-Bell, 2021). The Sustainable Future Bonds would supply the international reserve system with one more safe reserve asset.

Some may object to the need to inject capital into MDBs given the calls for MDBs to consider their already-existent callable capital—a sovereign guarantee to MDB bondholders—in risk assessment (Boosting, 2022). Yet, it is unclear how much such a policy alone would impact MDBs' lending capacity.

Sustainable Future Bonds, instead, would be viewed as a fresh additional commitment from MDB shareholders, allowing the banks to stretch their balance sheet and undoubtedly increase their lending capacity.

## 2.1 | Sustainable future bonds: An illustrative example

To better understand the mechanism behind Sustainable Future Bonds, it may be helpful to rely on a hypothetical example. SFB is an instrument that could be potentially issued by any MDB. In this section, we take the balance sheet of the World Bank Group's International Bank for Reconstruction and Development (WB IBRD) as an example. To represent central bank investors in SFB, we take Banco Central do Brasil (BCB) and the People's Bank of China (PBOC).

Let us first consider an initial situation (Table 1, left side) where the WB IBRD holds total assets of \$300 billion, of which \$220 billion is in the form of loans to clients and \$80 liquid assets (investment portfolio). From the liability side, WB operations are financed by bonds held by the private sector (\$250 billion), and \$50 by equity (including shareholders paid-in capital and retained earnings). Under this situation, leverage (equity-to-loans) is 22.7 percent (\$220 loans/\$50 equity). Note that, although in this illustrative example we use the current leverage of 22.7%, the World Bank is considering the reduction of its equity-to-loans equity to 19% (WB, 2023d), which could potential further increase the volume of resources mobilized by the SFB.

At the same time, Central Bank of Brasil (BCB) is holding \$300 as foreign reserves, and the PBoC holds \$3200 (Table 1, right side). In this example, foreign reserves are invested in US Treasury bills, or other equivalent reserve assets.

Consider now that the WB decides to issue \$10 billion in Sustainable Future Bonds (Table 2), which is hybrid capital and thus would be registered as equity from an accounting perspective. The BCB decides to invest 1 percent of their foreign reserves in Sustainable Future Bonds (\$3 billion), and the PBoC purchases the remaining \$7 billion. Both central banks use US Treasury bills to pay for the Sustainable Future Bonds, which then compose WB assets as cash holdings.

Considering the current WB leverage ratio (22.7 percent in that example), the \$10 raised with the Sustainable Future Bonds will bring an additional \$44 from capital markets. Followed by that, the WB would be able to increase its lending to clients by up to \$54, which would be translated into new investments in the SDGs and climate goals (Table 3).

As Sustainable Future Bonds yield a positive return, central banks may choose to keep these assets in their portfolio. But in case, central banks need liquidity to

TABLE 1 Initial hypothetical situation, approximate values in USD billion, as of Dec. 2022.

WB clients	WB IBRD		BCB		PBOC	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
\$220 investments	\$220 loans from the WB	\$80 liquid assets \$220 Loans to Clients	\$250 bonds with private sectors \$50 equities	\$300 reserves (incl. cash, US treasury Bills, gold)	\$3200 reserves (incl. cash, US treasury Bills, gold)	

Note: Approximate values based on WB (2023c), and IMF International Financial Statistics.

Source: Compiled by authors.

TABLE 2 World Bank issues sustainable future bonds.

WB clients	WB		BCB		PBOC	
	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets
\$220 investments	\$220 loans from the WB	\$80 liquid assets \$220 Loans to Clients + \$10 cash (US Treasury bills)	\$250 bonds with private sectors \$50 equities + \$10 Sustainable Future Bonds	\$300 reserves (incl. cash, US treasury Bills, and gold) -\$3 US Treasury bills + \$3 Sustainable Future Bonds	\$300 reserves (incl. cash, US treasury Bills, and gold) -\$7 US Treasury bills + \$7 Sustainable Future Bonds	

Source: Compiled by authors.

TABLE 3 Expanding the World Bank balance sheet.

WB clients	WB		BCB		PBOC	
	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets
\$220 investments + \$54 investments in SDGs and climate	\$220 loans from the WB + \$54 loans from the WB	\$90 liquid assets \$220 Loans to Clients +44 cash -\$54 cash + \$54 loans to clients	\$250 bonds with private sectors + \$44 bonds with private sectors \$50 equities \$10 Sustainable Future Bonds	\$297 reserves (incl. cash, US treasury Bills, and gold) \$3 Sustainable Future Bonds	\$3193 reserves (incl. cash, US treasury Bills, and gold) \$7 Sustainable Future Bonds	

Source: Compiled by authors.

stabilize their foreign exchange rate, pay debt, or honor any other short-term obligation, they would be able to exchange their SFB for cash. Let us assume in Table 4 that BCB will need to convert all its reserves to USD cash. In that case, the PBOC would purchase Brazil's SFB in exchange for cash. In this hypothetical example with only 2 central banks, the PBOC purchases all the SFB at the BCB portfolio. If more central banks with a strong balance of payment position join the arrangement, potential demand for hard currency can be better shared among central banks.

Apart from serving as an additional reserve asset for central banks, Sustainable Future Bonds could also serve as a medium of exchange between them. Consider that the BCB and the PBOC have a bilateral arrangement to make trade and investment payments in local currencies. After a given period, the central bank from the surplus economy will accumulate net claims on the central bank from the deficit economy. Brazil has recurring surpluses with China (UNCTAD Stat, 2023), so as Table 5 shows, Brazil would be the surplus economy and China the deficit economy, which means BCB would accumulate claims on PBOC. Sustainable Future Bonds could serve as a supranational medium of exchange and be used to settle this obligation between central banks. As Table 5 shows, in this specific example, the PBOC paid \$1 to the BCB, clearing the net claims.

## 2.2 | Who could purchase sustainable future bonds?

Central banks from economies with a sound external liquidity position should be the main investors in Sustainable Future Bonds. Here, we identify which economies could potentially purchase SFB—based on their external liquidity position—and how much in foreign exchange reserves could be mobilized for SFB.

For this estimation, we excluded all economies that recently exhibited signs of debt distress (a total of 70 economies; see Annex 1). This assessment is based on two distinct observations. First, we considered economies with signs of debt distress those classified as “medium,” “high,” or “in debt distress” by the IMF's Low Income Countries Debt Sustainability Assessment for PRGT-Eligible Countries (as per June 2023; see IMF, 2023b). Second, we also excluded economies with limited access to international bond markets. Hence, economies that presented sovereign bond spreads above 900 basis points at least once between January 1, 2023 and July 31, 2023 (most recent data as of the writing of this text) are not included as potential investors for Sustainable Future Bonds.

After the exclusion of economies with signs of debt distress, we remain with a list of 110 economies. To assess how much SFB could be potentially mobilized

TABLE 4 Sustainable future bonds exchange for cash.

WB clients		WB		BCB		PBOC	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
\$274 investments	\$274 loans from the WB	\$80 liquid assets \$274 Loans to Clients	\$294 bonds with private sectors \$50 equities \$10 Sustainable Future Bonds	\$297 reserves (incl. cash, US treasury Bills, and gold) \$3 Sustainable Future Bonds -\$3 Sustainable Future Bonds +\$3 cash		\$3193 reserves (incl. cash, US treasury Bills, and gold) \$7 Sustainable Future Bonds -\$3 cash +\$3 Sustainable Future Bonds	

Source: Compiled by authors.

**TABLE 5** Sustainable future bonds as medium of exchange among Central Banks.

WB clients	WB		BCB		PBOC	
	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets
\$274 investments	\$274 loans from the WB	\$80 liquid assets \$274 Loans to Clients	\$294 bonds with private sectors \$50 equities \$10 Sustainable Future Bonds	\$297 reserves (incl. cash, US treasury Bills, and gold) \$3 Sustainable Future Bonds + \$1 Sustainable Future Bonds - Claims on Central Bank B	\$3193 reserves (incl. cash, US treasury Bills, and gold) \$7 Sustainable Future Bonds - \$1 Sustainable Future Bonds	-1 Central Bank A debt

Source: Compiled by authors.

From these economies, we build three possible scenarios with distinct criteria for participation: “Broad,” “Medium,” and “Strict” (see Table 6). The “broad” criteria represent the full potential of resource mobilization through SFB and include all 110 economies that do not present signs of debt distress (as per the explanation above). In the “medium” criteria, economies must have adequate Foreign Exchange Reserve levels (excluding SDRs) following the 3-month import cover rule, which then includes 95 economies. Finally, Under the “strict” criteria, economies need to present adequate availability of foreign liquidity to cover import needs and short-term debt obligations. Under the “strict” criteria, we identify countries based on two distinct approaches. First, we included economies in which foreign reserves are at “strict” criteria; economies must have access to the Federal Reserve permanent swap agreements, which provide a dollar-denominated and unlimited source of external liquidity. This means that, even without presenting adequate levels of foreign reserves following the conventional approaches, economies with access to FED permanent swaps have sufficient liquidity to tackle foreign liquidity needs and hence could allocate a small fraction of their foreign exchange reserves to purchase sustainable future bonds. Altogether, 61 economies are included under the “strict” criteria. Annex 2 lists the economies included under each category and their individual potential contributions to Sustainable Future Bonds.

Considering that central banks reallocated only 0.5 percent of their foreign exchange reserves per year to purchase Sustainable Future Bonds, by the most conservative estimation (the “strict” criteria) this would account to \$45.2 billion mobilized from 61 economies (Table 7). This can be increased to \$56.1 billion per year under the “moderate” criteria and up to \$60.5 billion under the “broad” criteria as Table 7 shows.

Despite having a sound external liquidity position, some central banks may face legal and political restrictions on purchasing sustainable future bonds. Delving into these (often self-imposed) restrictions is beyond the scope of this paper, but the resistance that some central banks have expressed to the rechanneling of Special Drawing Rights can be mimicked in the case of Sustainable Future Bonds. For instance, the European Central Bank has resisted SDR rechanneling to MDBs over concerns it could impact their monetary independence once it could be interpreted as a “monetary financing”—a funding of a fiscal expenditure (Paduano, 2023).<sup>3</sup> Although these rules may, at the moment, prevent some central banks from purchasing Sustainable Future Bonds, they can be revised and amended in the medium term. But such legal and political limitations are not universal among central banks, and some central banks have more leeway to choose which assets may be included in their portfolio.



**TABLE 6** Summary: Criteria for identifying economies purchasing sustainable future bonds.

Category	Criteria	Operationalization
<b>Broad</b> (full potential of resource mobilization)	Solvent economies. All economies are included, except those presenting signs of debt distress	Economies are <u>excluded</u> from the “broad” criteria if: 1. They are classified as “medium,” “high,” or “in debt distress” by the IMF LICs DSA for PRGT-Eligible Countries (as of June 2023) OR 2. They presented sovereign bond spreads above 900 basis points at least once between January 1, 2023 and July 31, 2023.
<b>Medium</b> (medium potential of resource mobilization)	Adequate foreign exchange reserve levels compared to import needs.	Economies are <u>included</u> in the “medium” criteria if: 1. Foreign exchange reserves levels (excluding SDRs) cover at least three months of import. Data on foreign exchange reserves is provided by the IMF International Financial Statistics, and data on import from WB World Development Indicators. The calculation is based on 2021, as per data availability.
<b>Strict</b> (limited potential of resource mobilization)	Adequate availability of foreign liquidity to cover import and short-term debt obligations.	Economies are <u>included</u> in the “Strict” Criteria if: 1. Foreign exchange reserves levels (excluding SDRs) cover three months of import (same calculation as in the “medium” criteria) AND short-term external debt (following the Guidotti-Greenspan rule). Data on short-term external debt available from the WB World Development Indicators. The calculation is based on 2021, as per data availability. OR 2. Their central banks have a permanent and unlimited swap agreement with the Federal Reserve (FED, 2023).

Source: Compiled by authors.

**TABLE 7** Estimation: Resources available for sustainable future bonds.

Criteria	Resources for SFB (0.5% of foreign reserves, USD billion)	2022 foreign reserves (USD billion)	No. of eligible economies	No. of economies w/data on foreign reserves 2022
Broad	60.5	12,100	110	97
Moderate	56.1	11,212	95	86
Strict	45.2	9049	61	61

Source: Authors' estimations based on data from IMF International Financial Statistics and WB World Development Indicators.

Given the shifting global landscape, marked by energy price volatility and escalating climate shocks, central banks are recognizing the need to include green objectives in their mandates. Their efforts include incorporating climate risk assessments into their regulatory frameworks, supporting green finance initiatives, and even considering climate-related factors in their monetary policy decisions (NGSF, 2023). Green and sustainability criteria could also be included in foreign exchange management practices. Although a survey from the BIS shows that most central banks currently do not have sustainability considerations in the pursuit of their policy objectives, most of the surveyed central banks believe there is scope to include sustainability as a reserve management objective (apart from liquidity, safety, and return) without necessarily adjusting mandates (Fender et al., 2019).

Green bonds have been a preferred asset for the central banks looking to incorporate sustainability criteria (Fender et al., 2019), but currently, green and

sustainable assets are not enough to address the central banks' potential demand. In 2022, the sustainable bond market, including green, social, sustainable, and sustainability-linked bonds, issued \$858 billion of new assets, representing only 13% of global market issuance that year (Climate Bond Initiative, 2022). Moreover, the accessibility of green bonds is often constrained, given large oversubscriptions in primary markets and low secondary market turnover (Fender et al., 2019). In that sense, SFBs could supply central banks with fresh, sustainable assets for their balance sheets, which could also spur the expansion of development finance to support a more stable and sustainable world economy.

Certain central banks may express reservations regarding sustainable future bonds due to their lack of a fixed maturity date. But it is crucial to highlight that assets without maturity are nothing alien to central banks. Gold and the IMF's Special Drawing rights are examples of common foreign reserve assets that do not have

a maturity date but continue to be import foreign reserve assets. Moreover, some central banks are including equities in their portfolios. For instance, the Swiss National Bank holds equities (shares), which currently account for 25% of their total portfolio (SNB, 2023). Hence, the lack of a maturity date should not prevent central banks from considering SFB as an asset in their portfolio. Moreover, the absence of a fixed maturity date does not necessarily imply a high liquidity risk. Similar to SDRs, the liquidity of SFB would be supported by the mutual agreements of central banks to exchange SFB for hard currency, as explained in the previous section.

### 2.3 | What level of resources may sustainable future bonds mobilize?

The creation of Sustainable Future Bonds does not require a dramatic change in the composition of central bank portfolios. We suggest that countries with a sound external positions begin by dedicating only 0.5 percent per year of their foreign exchange reserves to SFB.

If central banks deploy just 0.5 percent of their total foreign reserves for Sustainable Future Bonds, according to strict criteria of central bank eligibility, at least \$45 billion per year in fresh capital to MDBs would be mobilized in the form of equity. At that pace, by 2030, MDBs will have almost \$360 billion in capital injections. Considering a leverage ratio of 22.7 percent (equity-to-loans), which is current levels of WB IBRD leverage, this would result in an additional capacity to issue plain vanilla bonds up to \$1.24 trillion; hence, MDB lending portfolio would reach almost \$1.6 trillion. If MDB lowers their equity-to-loan more resources could be leveraged from the SFB. Currently, discussions suggest the WB may lower the leverage ratio to 19% (Shalal, 2023b; WB, 2023d). Under this scenario, with the same \$45 billion per year being allocated to SFB, MDBs would be able to issue an additional \$1.54 trillion of plain-vanilla bonds up to 2030, achieving a total lending capacity of almost \$1.9 trillion in the same period. So, depending on the future leverage ratio and adopting a strict criterion of participation, sustainable future bonds could mobilize from \$1587 billion to \$1900 billion up to the end of this decade.

Under this proposal, advanced economies as well as EMDEs can contribute. For instance, China and Japan hold the largest volumes of foreign reserves—\$3.3 and \$1.2 trillion, respectively—and both have sufficient liquidity positions to face short-term external needs. These two countries are not the only economies with large volumes of reserves that could join the SFB. Apart from China and Japan, as of December 2022, 19 economies have total reserves above \$50 billion, of which 10 are EMDEs (like India, Brazil, Saudi Arabia, Thailand, and Mexico, among others; see Figure 2).

Moreover, if more central banks join the initiative, more liquidity will be generated for the Sustainable Future Bonds, increasing their role as an international reserve asset.

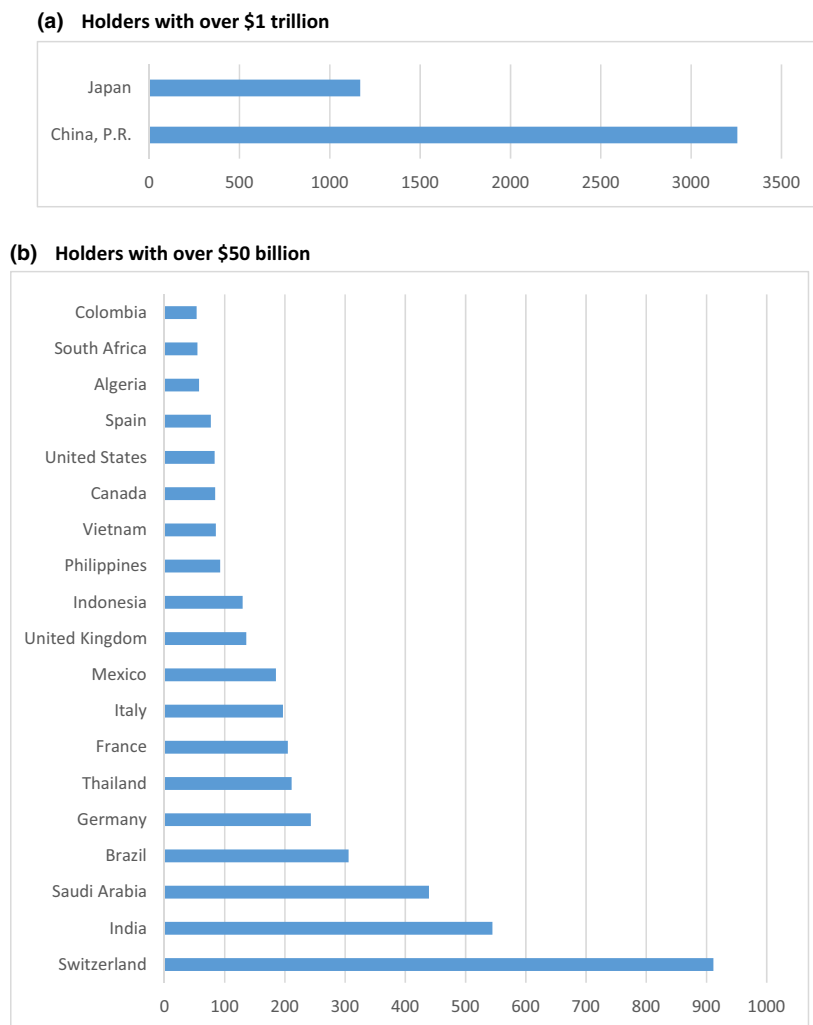
This proposal leverages small foreign exchange commitments by central banks in order to open a new and more sustainable global investment climate while improving the international reserve system by supplying a true supranational currency.

## 3 | CONCLUSION

MDBs have a crucial role to play in mobilizing the resources necessary to foster low-carbon, resilient, and socially inclusive development trajectories. Given the setbacks from COVID-19 and a subsequent parade of external shocks, the level of ambition needed to mobilize these resources requires a stepwise increase in MDBs financing that can only be met by increases in their base capital.

Sustainable Future Bonds offer a timely, viable, and safe alternative for investing in a sustainable future. By marginally changing the composition of central banks' foreign reserves to include Sustainable Future Bonds, we could significantly increase the resources available for development purposes. Considering a conservative scenario, if central banks from economies with a sound external liquidity position invested just 0.5 percent of foreign reserves in SFB, we could result in mobilizing at least \$45 billion per year in fresh capital for MDBs. At that pace, by 2030, MDBs will have almost \$360 billion in capital injections, which could result in new lending from \$1.6 trillion to \$1.9 trillion, depending on whether MDB leverage capacity is maintained or expanded in future years. To finance a sustainable future, it is crucial to strengthen MDB' balance sheet through an increase of MDB's paid-in capital, and the Sustainable Future Bond is not aimed to substitute MDB's capitalization. As Sustainable Future Bonds do not crowd out the fiscal ability of countries, it is feasible and desirable that both policies are pursued in complementarity. Moreover, Sustainable Future Bonds are not only a suitable funding source for MDBs, but they would also enhance the strength of the international reserve system once they supply central banks with an additional safe and sustainable asset available for their portfolios.

2023 opened a window of opportunity to put the global economy on track for a more sustainable future. The G20 is kicking off a critical three-year window of developing country leadership as India's presidency will be succeeded by Brazil and South Africa. Prime Minister of Barbados Mia Mottley's Bridgetown Initiative is gaining substantial traction to address immediate financing needs, particularly of climate-vulnerable countries, and generally reform the global financial



**FIGURE 2** Top Holders of Total Foreign Exchange Reserves (excluding SDRs), in USB billion, as of Dec. 2022 (Considering only countries with strong external liquidity position). (a) Holders with over \$1 trillion. (b) Holders with over \$50 billion. *Source:* IMF International Financial Statistics.

architecture. Perhaps most critically, the World Bank itself is facing a crucial inflection point as Ajay Banga steps in as the new World Bank President and the institution moves forward with undertaking vital reform through its Evolution Roadmap.

The price of climate action is significant, but the cost of inaction will be catastrophic. With the future hanging in the balance, Sustainable Future Bonds are one piece of the equation for financing a new avenue for vital green and inclusive development.

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### CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

### DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

### ENDNOTES

<sup>1</sup> This also includes MDBs accepting lower credit ratings, which Munir & Gallagher, 2020 estimate could generate additional lending capacity up to 127 percent.

<sup>2</sup> This total excludes the US pledge of \$21 billion, which failed to get congressional approval (ONE, 2023).

<sup>3</sup> This argument was used despite the fact currently Eurosystem national central banks do hold supranational bonds (like from the European Investment Banks) in their portfolio, as part of the ECB's Asset Purchase Programm (Paduano, 2023).

### REFERENCES

- AfDB. (2022) Leveraging the power of Special Drawing Rights: how developed countries can help boost Africa's development. 26 May. Available from: <https://www.afdb.org/en/news-and-events/interviews/leveraging-power-special-drawing-right>

- s-how-developed-countries-can-help-boost-africas-development-51910 [Accessed 1 October 2023].
- Arslan, Y. & Cantú, C. (2019) The size of foreign exchange reserves. *BIS Paper*, No. 104. Available from: [https://www.bis.org/publ/bppdf/bispap104a\\_rh.pdf](https://www.bis.org/publ/bppdf/bispap104a_rh.pdf)
- Arslan, S. & Simpson-Bell, C. (2021) US Dollar Share of Global Foreign Exchange Reserves Drops to 25-Year Low. *IMF Blog*, 5th May. Available from: <https://www.imf.org/en/Blogs/Articles/2021/05/05/blog-us-dollar-share-of-global-foreign-exchange-reserves-drops-to-25-year-low>
- Banco Central do Brasil. (2023) SML – Local currency payment system. Available from: [https://www.bcb.gov.br/en/financiestabilite/sml\\_en](https://www.bcb.gov.br/en/financiestabilite/sml_en) [Accessed 1 October 2023]
- Bank Negara Malaysia. (2017) Governor's opening remarks at the launching of local currency trade settlement between Bank Indonesia and Bank Negara Malaysia and Bank Indonesia and the Bank of Thailand. 11th December. Available from <https://www.bnm.gov.my/-/governor-s-opening-remarks-at-the-launching-of-local-currency-trade-settlement-between-bank-indonesia-and-bank-negara-malaysia-and-bank-indonesia-and-the-bank-of-thailand> [Accessed 10 September 2023]
- Benshoff, L. (2022) The future cost of climate inaction? \$2 trillion a year, says the government. *NPR*, 7th April. Available from: <https://www.npr.org/2022/04/07/1091258821/the-future-cost-of-climate-inaction-2-trillion-a-year-says-the-government>
- BIS. (2023) Innovation: about the BIS innovation Hub. Available from: <https://www.bis.org/about/bisih/about.htm?m=3099>
- Boosting MDBs' investing capacity. (2022) An independent review of Multilateral Development Banks' capital adequacy frameworks. Available from: [https://www.dt.mef.gov.it/en/attivita\\_istituzionali/rapporti\\_finanziari\\_internazionali/banche\\_sviluppo/revisione\\_indipendente/index.html](https://www.dt.mef.gov.it/en/attivita_istituzionali/rapporti_finanziari_internazionali/banche_sviluppo/revisione_indipendente/index.html)
- Brendenkamp, H. & Pattillo, C. (2010) Financing the response to climate change. IMF Staff Position Note, N. 10/06. Available from: <https://www.imf.org/external/pubs/ft/spn/2010/spn1006.pdf>
- Climate Bond Initiative. (2022) Global state of the market report 2022. Available from: <https://www.climatebonds.net/resources/reports/global-state-market-report-2022>
- Diggle, P. & Bartholomew, L. (2021) Climate change and central banks: the case for violating neutrality. *VoxEU Column*, 12 Aug. Available from: <https://cepr.org/voxeu/columns/climate-change-and-central-banks-case-violating-neutrality>
- Epstein, G. (2019) *The political economy of central banking: contested control and the power of finance, selected essays of gerald epstein*. Cheltenham: Edward Elgar Publishing.
- FED. (2022) Policy tools: foreign and international monetary authorities (FIMA) repo facility. Available from: <https://www.federalreserve.gov/monetarypolicy/fima-repo-facility.htm>
- FED. (2023) Credit and liquidity programs and the balance sheet. March 15. Available from: [https://www.federalreserve.gov/monetarypolicy/bst\\_liquidityswaps.htm](https://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm)
- Fender, I., McMorro, M., Sahakyan, V. & Zulaica, O. (2019) Green bonds: the reserve management perspective. *BIS Quarterly Review*, September.
- Fritz, B., Kaltenbrunner, A., Mühlich, L. & Orsi, B. (2023) South-south monetary regionalism: a case of productive incoherence? *New Political Economy*, 28, 1–14.
- Gallagher, K.P. & Bhandary, R.R. (2023) World Bank evolution as if development and climate change really mattered: four Foundations for Successful Reforms. *GEGI Policy Brief*. Boston University. Available from: <https://www.bu.edu/gdp/2023/03/24/world-bank-evolution-as-if-development-and-climate-change-really-mattered-four-foundations-for-successful-reform/>
- Gallagher, K.P. & Shrestha, E. (2012) The social cost of self-insurance: financial crisis, reserve accumulation, and developing countries. *Global Policy*, 3(4), 501–509.
- Hay, J. (2023) MDB hybrid market begins with AfDB and World Bank. *Global Capital*, September 14. Available from: <https://www.globalcapital.com/article/2c6w39issrlcxitvpbdvk/sri-green-and-social-bonds-and-loans/mdb-hybrid-market-begins-with-afdb-and-world-bank> [Accessed 2 October 2023]
- Humphrey, C. (2018) The role of credit rating agencies in shaping multilateral finance: recent developments, and policy options. Inter-Governmental Group of 24, G24, April 2018.
- Humphrey, C. (2022) *Financing the future: multilateral development banks in the changing world order of the 21st century*. Oxford: Oxford University Press.
- IMF. (1993) Balance of payments manual, fifth edition. Available from: <https://www.imf.org/en/Publications/Books/Issues/2016/12/30/Balance-of-Payments-Manual-157>
- IMF. (2021) Questions and answers on special drawing rights. 23rd August. Available from: <https://www.imf.org/en/About/FAQ/special-drawing-right>
- IMF. (2022) Global financial stability report—navigating the high-inflation environment. October. Available from: <https://www.imf.org/en/Publications/GFSR/Issues/2022/10/11/global-financial-stability-report-october-2022>
- IMF. (2023) Questions and answers on special drawing rights. Available from: <https://www.imf.org/en/About/FAQ/special-drawing-right> [Accessed 11 October 2023].
- IMF. (2023a) IMF executive board approves the applications of five institutions to become holders of special drawing rights. IMF Press Release No. PR2347. Available from: <https://www.imf.org/en/News/Articles/2023/02/21/exec-board-approves-applications-5-institutions-become-holders-sdr>
- IMF. (2023b) List of LIC DSAs for PRGT-eligible countries. June 30. Available from: <https://www.imf.org/external/pubs/ft/dsa/dsalist.pdf>
- IPCC. (2022) The evidence is clear: the time for action is now. We can halve emissions by 2030. Available from: <https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii>
- Kharas, H. & Bhattacharya, A. (2023) The trillion-dollar bank: making IBRD fit for purpose in the 21st century. Brookings Center for Sustainable Development. Working Paper No. 181. Available from: <https://www.brookings.edu/research/the-trillion-dollar-bank-making-ibrd-fit-for-purpose-in-the-21st-century/>
- Kring, W. N., Mühlich, L., Fritz, B., Gallagher, K. P., Pitts, J. D., Zucker-Marques, M., & Gaitán, N. (2022). *Global financial safety net tracker*. Global development policy Center Boston University, and Lateinamerika Institut, Freie Universität Berlin. Available from: <http://gfsntracker.com>
- Lawder, D. (2023) Exclusive-World Bank chief to 'push' its balance sheet, vows to protect 'AAA' rating, *Reuters*, 14 June. Available from: <https://www.reuters.com/article/worldbank-banga-lever-age-exclusive-idCAKBN2Y0001>
- Lawder, D., Singh, K. & Shalal, A. (2023) Yellen rejects World Bank capital increase; no challengers to U.S. nominee to lead lender. *Reuters*, 30 March. Available from: <https://www.reuters.com/business/us-expects-bidens-nominee-ajay-banga-be-elected-world-bank-chief-2023-03-29/> [Accessed 11 October 2023].
- Munir, W. & Gallagher, K.P. (2020) Scaling up for sustainable development: benefits and costs of expanding and optimizing balance sheet in the multilateral development banks. *Journal of International Development*, 32(2), 222–243.
- NGSF. (2023) Monetary policy and climate change: key takeaways from the membership survey and areas for further analysis. July. Available from: [https://www.ngfs.net/sites/default/files/medias/documents/monetary\\_policy\\_and\\_climate\\_change\\_-\\_key\\_takeaways\\_from\\_the\\_membership\\_survey.pdf](https://www.ngfs.net/sites/default/files/medias/documents/monetary_policy_and_climate_change_-_key_takeaways_from_the_membership_survey.pdf)
- ONE. (2023) Data-drive: special drawing rights. Available from: <https://data.one.org/data-dives/sdr/> [Accessed 24 May 2023]
- Paduano, S. (2023) SDR rechanneling and ECB rules: why rechanneling SDRs to multilateral development banks is not always and everywhere monetary financing. *Financing for Development Lab*. Policy Note 7, May 2023. Available from: [https://findevlab.org/wp-content/uploads/2023/05/FDL\\_SDR-Rechanneling-and-ECB-Rules.pdf](https://findevlab.org/wp-content/uploads/2023/05/FDL_SDR-Rechanneling-and-ECB-Rules.pdf)

- Paduano, S. & Maret, T. (2023) The ECB and SDRs. London school of economics global economic governance commission, Working Paper No. 2. Available from: <https://www.lse.ac.uk/ideas/projects/global-economic-governance>
- Paduano, S. & Setser, B. (2023) The magic of an SDR-denominated bond. *Financial Times*, 26 January. Available from: <https://www.ft.com/content/60a9e577-0bd3-4898-ac18-6ea9ff3573dd>
- Plant, M. (2022) Is there a better way to use global reserves? *Center for Global Development*. Available from: <https://www.cgdev.org/publication/there-better-way-use-global-reserves>
- Rodrik, D. (2006) The social cost of foreign exchange reserves. *International Economic Journal*, 20(3), 253–266.
- S&P Global Ratings. (2022) Supranationals. Available from: <https://www.spglobal.com/ratings/en/sector/governments/supranationals>
- Sala, L. & Plant, M. (2022) Hybrid capital and SDRs or the uninitiated. Center for global development, 28 November. Available from: <https://www.cgdev.org/blog/hybrid-capital-and-sdrs-uninitiated> [Accessed 11 October 2023].
- Shalal, A. (2023a) World Bank steering committee, Yellen urge more reforms at lender this year. Reuters. 13 April. Available from: <https://www.reuters.com/markets/yellen-press-additional-reforms-world-bank-this-year-2023-04-12/>
- Shalal, A. (2023b) Exclusive: World Bank may loosen loan ratio to free up \$4 billion a year. Reuters. 16 February. Available from: <https://www.reuters.com/business/finance/world-bank-may-loosen-loan-ratio-free-up-4-billion-year-2023-02-16/>
- Songwe, V., Stern, N. & Bhattacharya, A. (2022) *Finance for climate action: scaling up investment for climate and development*. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. Available from: <https://www.lse.ac.uk/granthaminstitute/publication/finance-for-climate-action-scaling-up-investment-for-climate-and-development/>
- Stiglitz, J.E. (2010) *The Stiglitz report: reforming the international monetary and Financial Systems in the Wake of the global crisis*. New York, NY: The New Press.
- Swiss National Bank. (2023) Foreign exchange reserves and Swiss franc bond investments. 30th June. Available from: [https://www.snb.ch/en/i/about/assets/id/assets\\_reserves](https://www.snb.ch/en/i/about/assets/id/assets_reserves)
- The Triple Agenda. (2023) Report of the independent experts group, Volume I. Available from: [https://www.g20.org/content/dam/gtwenty/gtwenty\\_new/document/Strengthening-MDBs-The-Triple-Agenda\\_G20-IEG-Report-Volume.pdf](https://www.g20.org/content/dam/gtwenty/gtwenty_new/document/Strengthening-MDBs-The-Triple-Agenda_G20-IEG-Report-Volume.pdf)
- UNCTAD. (2023) Trade and development report update. April. Available from: <https://unctad.org/publication/trade-and-development-report-update-april-2023>
- UNCTAD Stat. (2023) Data centre. Available from: <https://unctadstat.unctad.org/EN/> [Accessed 23 September 2023]
- WB. (2023a) Chair's statement: 107th meeting of the development committee. 12th April. Available from: <https://www.worldbank.org/en/news/statement/2023/04/12/chair-s-statement-107th-meeting-of-the-development-committee-mr-mohamed-bin-hadi-al-hussaini-minister-of-state-for-finance>
- WB. (2023b) Globally diverse investor demand drives over-subscription of World Bank USD 5 billion sustainable development bond. 4th April. Available from: <https://www.worldbank.org/en/news/press-release/2023/04/04/oversubscription-of-world-bank-usd-5-billion-sustainable-development-bond>
- WB. (2023c) Fiscal year data. Available from: <https://www.worldbank.org/en/about/annual-report/fiscal-year-data?dropid=annex-additional-data> [Accessed 17 June 2023].
- WB. (2023d) Spring meetings 2023: toward a new Era. 16th April. Available from: <https://www.worldbank.org/en/news/feature/2023/04/16/toward-a-new-era>
- WHO. (2021) Climate change and health. 30 th October. Available from: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
- Winter, D. & Kiehl, M. (2022) The global economic costs of climate change inaction. *Oxford Economics*, 20th December. Available from: <https://www.oxfordeconomics.com/resource/the-global-economic-costs-of-climate-inaction/>

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## APPENDIX

**ANNEX 1** List of economies with sign of debt distress, as of July 31, 2023.

	<b>Risk of debt distress PRGT eligible countries, low-income countries debt sustainability analysis, June 2023</b>	<b>Bond spreads above 900 percentual points at least once between January 1, 2023 and July 31, 2023</b>
Angola	n/a	Yes
Argentina	n/a	Yes
Belarus, Rep. of	n/a	Yes
Belize	n/a	Yes
Bolivia	n/a	Yes
Ecuador	n/a	Yes
Egypt	n/a	Yes
El Salvador	n/a	Yes
Gabon	n/a	Yes
Iraq	n/a	Yes
Lebanon	n/a	Yes
Nigeria	n/a	Yes
Pakistan	n/a	Yes
Russian Federation	n/a	Yes
Sri Lanka	n/a	Yes
Suriname	n/a	Yes
Tunisia	n/a	Yes
Ukraine	n/a	Yes
Venezuela	n/a	Yes
Honduras	Low	Yes
Ghana	In debt Distress	Yes
Mozambique	In debt Distress	Yes
Congo, Rep. of	In debt Distress	
Grenada	In debt Distress	
Lao People's Dem. Rep.	In debt Distress	
Malawi	In debt Distress	
São Tomé and Príncipe	In debt Distress	
Sudan	In debt Distress	
Zimbabwe	In debt Distress	
Ethiopia	High	Yes
Kenya	High	Yes
Maldives	High	Yes
Papua New Guinea	High	Yes
Tajikistan, Rep. of	High	Yes
Zambia	High	Yes

## ANNEX 1 (Continued)

	<b>Risk of debt distress PRGT eligible countries, low-income countries debt sustainability analysis, June 2023</b>	<b>Bond spreads above 900 percentual points at least once between January 1, 2023 and July 31, 2023</b>
Afghanistan	High	
Burundi	High	
Cameroon	High	
Central African Rep.	High	
Chad	High	
Comoros, Union of the	High	
Djibouti	High	
Dominica	High	
Gambia, The	High	
Haiti	High	
Micronesia	High	
Samoa	High	
Sierra Leone	High	
South Sudan, Rep. of	High	
St. Vincent and the Grenadines	High	
Tonga	High	
Bhutan	Moderate	
Cabo Verde	Moderate	
Congo, Dem. Rep. of the	Moderate	
Guinea	Moderate	
Guyana	Moderate	
Kyrgyz Rep.	Moderate	
Lesotho	Moderate	
Liberia	Moderate	
Madagascar	Moderate	
Mauritania	Moderate	
Nicaragua	Moderate	
Rwanda	Moderate	
Solomon Islands	Moderate	
St. Lucia	Moderate	
Tanzania	Moderate	
Timor-Leste	Moderate	
Uganda	Moderate	
Vanuatu	Moderate	
Yemen	Moderate	

Source: Authors' elaboration based on (IMF, 2023a), Refinitiv and JP Morgan EMBI.

**ANNEX 2** List of economies that could potentially purchase Sustainable Future Bonds, according to according to external liquidity position criteria.

	<b>2022 reserves exc. SDR (USD million)</b>	<b>0.5% of foreign reserves for SFB</b>	<b>Strict</b>	<b>Moderate</b>	<b>Broad</b>
Japan	1,168,299	5841	Y	Y	Y
Switzerland	911,622	4558	Y	Y	Y
Germany	243,069	1215	Y	Y	Y
France	205,083	1025	Y	Y	Y
Italy	196,893	984	Y	Y	Y
United Kingdom	135,731	679	Y	Y	Y
Canada	84,077	420	Y	Y	Y
United States	83,220	416	Y	Y	Y
Spain	76,970	385	Y	Y	Y
Netherlands, The	45,281	226	Y	Y	Y
Portugal	28,615	143	Y	Y	Y
Croatia	28,406	142	Y	Y	Y
Belgium	27,122	136	Y	Y	Y
Austria	25,753	129	Y	Y	Y
Finland	11,301	57	Y	Y	Y
Greece	11,016	55	Y	Y	Y
Slovakia	8549	43	Y	Y	Y
Ireland	7484	37	Y	Y	Y
Lithuania	4610	23	Y	Y	Y
Latvia	3877	19	Y	Y	Y
Estonia	1822	9	Y	Y	Y
Slovenia	1210	6	Y	Y	Y
Cyprus	1159	6	Y	Y	Y
Malta	866	4	Y	Y	Y
Luxembourg	808	4	Y	Y	Y
China, P.R.: Mainland	3,255,765	16,279	Y	Y	Y
India	544,529	2723	Y	Y	Y
Brazil	305,850	1529	Y	Y	Y
Thailand	211,168	1056	Y	Y	Y
Mexico	185,308	927	Y	Y	Y
Indonesia	129,822	649	Y	Y	Y
Philippines	92,381	462	Y	Y	Y
Vietnam	85,285	426	Y	Y	Y
Algeria	57,502	288	Y	Y	Y
South Africa	54,680	273	Y	Y	Y
Colombia	53,317	267	Y	Y	Y
Bulgaria	39,014	195	Y	Y	Y
Kazakhstan	33,126	166	Y	Y	Y
Morocco	30,404	152	Y	Y	Y
Serbia	20,667	103	Y	Y	Y
Guatemala	19,708	99	Y	Y	Y
Dominican Republic	13,924	70	Y	Y	Y
Azerbaijan	10,663	53	Y	Y	Y
Paraguay	9392	47	Y	Y	Y

(Continues)

## ANNEX 2 (Continued)

	2022 reserves exc. SDR (USD million)	0.5% of foreign reserves for SFB	Strict	Moderate	Broad
Bosnia and Herzegovina	8762	44	Y	Y	Y
Costa Rica	7970	40	Y	Y	Y
Mauritius	7505	38	Y	Y	Y
Albania	5003	25	Y	Y	Y
Georgia	4426	22	Y	Y	Y
Jamaica	4380	22	Y	Y	Y
North Macedonia, Republic of	4120	21	Y	Y	Y
Armenia	4106	21	Y	Y	Y
Botswana	3948	20	Y	Y	Y
Mongolia	3278	16	Y	Y	Y
Montenegro	1942	10	Y	Y	Y
Fiji	1372	7	Y	Y	Y
Moldova	4473	22	Y	Y	Y
Uzbekistan	34,710	174	Y	Y	Y
Bangladesh	31,047	155	Y	Y	Y
Cambodia	17,462	87	Y	Y	Y
Saudi Arabia	439,234	2196	Y	Y	Y
China, P.R.: Hong Kong	424,029	2120	N	Y	Y
Korea	407,238	2036	N	Y	Y
Singapore	283,147	1416	N	Y	Y
Israel	190,499	952	N	Y	Y
Poland	161,026	805	N	Y	Y
Czechia	136,591	683	N	Y	Y
Malaysia	108,914	545	N	Y	Y
Denmark	89,513	448	N	Y	Y
Norway	64,793	324	N	Y	Y
Romania	52,181	261	N	Y	Y
Qatar	46,115	231	N	Y	Y
Kuwait	43,712	219	N	Y	Y
Hungary	38,758	194	N	Y	Y
Chile	35,880	179	N	Y	Y
China, P.R.: Macao	25,971	130	N	Y	Y
Oman	16,631	83	N	Y	Y
Uruguay	14,284	71	N	Y	Y
Panama	6252	31	N	Y	Y
Trinidad and Tobago	5805	29	N	Y	Y
Iceland	5326	27	N	Y	Y
Namibia	2566	13	N	Y	Y
Curaçao	2382	12	N	Y	Y
Seychelles	610	3	N	Y	Y
Antigua and Barbuda	396	2	N	Y	Y
St. Kitts and Nevis	272	1	N	Y	Y
Kosovo	1079	5	N	N	Y
Eswatini	424	2	N	N	Y
Sweden	55,388	277	N	N	Y



**ANNEX 2** (Continued)

	<b>2022 reserves exc. SDR (USD million)</b>	<b>0.5% of foreign reserves for SFB</b>	<b>Strict</b>	<b>Moderate</b>	<b>Broad</b>
Australia	44,390	222	N	N	Y
New Zealand	11,541	58	N	N	Y
Taiwan Province of China	559,956	2800	N	N	Y
United Arab Emirates	135,280	676	N	N	Y
Libya	75,803	379	N	N	Y
Bahrain, Kingdom of	3916	20	N	N	Y
Anguilla	75	0	N	N	Y
Montserrat	33	0	N	N	Y

Source: Authors' elaboration. Foreign reserve information from IMF, [2023a](#).