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THE GLOBAL FINANCIAL SAFETY NET—A STOCKTAKING

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**International Monetary Fund
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September 12, 2025

THE GLOBAL FINANCIAL SAFETY NET—A STOCKTAKING

EXECUTIVE SUMMARY

A stocktaking in a changing global context

- The Global Financial Safety Net (GFSN) is a set of institutions and mechanisms that provide countries with insurance against shocks and crises. It offers financing when crises occur and complements countries' policy responses in cushioning the impact of shocks. The GFSN comprises four layers: (i) international reserves, (ii) bilateral swap arrangements (BSAs), (iii) Regional Financing Arrangements (RFAs), and (iv) the International Monetary Fund.
- The context for this stocktaking is a global environment characterized by: more frequent shocks; an economic outlook marked by low growth, high debt, and trade tensions; transformative forces—digitalization, geoeconomic fragmentation, and climate transition—reshaping the global landscape; and eroded policy space, including in major economies, which could constrain policy responses to future crises.
- This global context could put the GFSN under strain. Although the GFSN is sizeable in aggregate, access is not evenly distributed, and its layers are not substitutable across countries. Taking stock of the GFSN's effectiveness and identifying areas for improvement requires deeper analysis, which is the purpose of this paper.

GFSN performance in recent years

- The GFSN performed reasonably well during systemic crises, notably the Global Financial Crisis (GFC) and the Covid-19 pandemic, helping to cushion their impact and preventing broader economic disruptions. Different GFSN layers have also helped countries and regions respond to numerous other shocks over the past two decades.
- However, the GFSN did not need to bear the full brunt of the GFC and Covid-19 pandemic, as unprecedented policy responses by major economies, including large-scale fiscal stimulus and extraordinary monetary easing, created significant positive spillovers that counteracted strains in the international financial system and softened the demand for the GFSN.
- Experience with the GFSN layers has been mixed:

- International reserves remain a first line of defense and the largest global shock absorber. However, reserve adequacy is highly uneven. Some countries, especially a number of large emerging markets (EMs), have accumulated excess reserves, which is costly domestically and globally, as it contributes to global imbalances. At the same time, many other countries lack adequate reserves to manage shocks.
 - Bilateral swap arrangements (BSAs) have alleviated stress in global markets during systemic crises. Notably, the unlimited swap lines between the U.S. Federal Reserve (Fed) and five major central banks played a critical role during the GFC and the Covid-19 pandemic in preventing the disruption of market funding in key currencies, thereby containing contagion. BSAs have been less proven as a tool for providing balance of payments (BoP) support, and many lack transparency.
 - Regional Financing Arrangements (RFAs), which pool member resources, offer an additional layer of liquidity support. Yet, they remain rarely used (except during the euro-area crisis), are unevenly distributed across regions and countries, have limited policy content, and leave gaps in providing timely assistance.
 - The IMF has continued to play a central role in the GFSN, given its global mandate to safeguard the stability of the International Monetary System (IMS). The Fund offers the widest form of international risk sharing thanks to its near-universal membership and has provided countries with policy advice, capacity development, and financing when needed. For many countries, the IMF remains the lender of last resort, although concerns about stigma and policy conditionality may have discouraged demand for its lending in some instances.
- Overall, the GFSN has remained heavily reliant on non-pooled resources, with uneven country access to different layers. As a result, some emerging market and developing economies (EMDEs)—particularly low-income countries (LICs)—have relied primarily on the IMF. Beyond the IMF, the GFSN has had a varying degree of effectiveness in incentivizing sound macroeconomic policies and addressing vulnerabilities to prevent crises. Coordination across the GFSN layers remains largely informal and ad hoc, which constrains its overall effectiveness.

Challenges posed by transformative forces

- In a context of frequent shocks and depleted policy buffers, the GFSN could come under strain, especially during systemic crises. Staff's illustrative simulations suggest that a sharp reversal in capital flows could generate demand for GFSN resources that would be roughly 50 percent higher than the peak annual usage during the GFC. This demand could increase further if the erosion of policy buffers limits the capacity of major economies to deploy stimulus on the scale seen in recent crises.
- Transformative forces could pose new challenges for the GFSN layers. Digitalization in finance accelerates the speed at which shocks can propagate and would thus require quicker deployment of resources during crises. Geoeconomic fragmentation could hinder access to certain GFSN layers, prompting countries into further reserve accumulation. Climate-related

shocks could accentuate the trade-offs between financial buffers and investments to build resilience.

- Illustrative simulations show that a systemic BoP shock affecting the countries most vulnerable to transformative forces could generate substantial demand for GFSN resources. Among country groups, EMs experience the largest aggregate shortfall in available GFSN resources under most of the scenarios given their elevated external vulnerabilities. Further, over half of LICs may lack sufficient coverage to meet their external financing needs, underscoring uneven access to GFSN layers.

Possible areas for strengthening the GFSN

- The risks ahead underline the need to explore options for addressing core GFSN weaknesses—uneven access, lack of predictability, limited crisis prevention, and poor coordination.
 - To enhance access, countries lacking sufficient reserves could be encouraged to rebuild them through sound macroeconomic policies. It might also be helpful to explore options to improve the utilization of BSAs and expand RFA country coverage.
 - To improve predictability, different GFSN layers could consider reforms to make access to their resources more reliable during crises. Precautionary instruments and other pre-qualified financing arrangements can play an important role, particularly in improving the speed at which financing can be accessed.
 - To enhance crisis prevention, countries, especially systemic economies, could be further incentivized to pursue strong policies and maintain adequate buffers, supporting crisis prevention and mitigating spillovers. To that end, the IMF could further strengthen its monitoring of risks and vulnerabilities. There is also scope for BSAs and RFAs to strengthen incentives for sound policies, including through closer links to IMF surveillance and programs.
 - To mitigate the multilayered structure, strategic coordination across the GFSN layers could be strengthened. The IMF is well-positioned to lead this effort. It could convene partners and help coordinate crisis prevention as well as crisis responses across the layers.

Progress in these areas would improve the effectiveness of the GFSN and strengthen its adequacy in the face of a shock-prone and uncertain global economy shaped by transformative forces, delivering important benefits for the stability of the IMS.

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Glossary

AE	Advanced Economy
AI	Artificial Intelligence
AMF	Arab Monetary Fund
ARA	Assessing Reserve Adequacy
BBAs	Bilateral Borrowing Arrangements
BIS	Bank for International Settlements
BoP	Balance of Payments
BRICS	Brazil, Russia, India, China, South Africa
BSAs	Bilateral Swap Arrangements
CMIM	Chiang Mai Initiative Multilateralization
CRA	Contingent Reserve Arrangement
EC	European Commission
ECB	European Central Bank
EFDS	Eurasian Fund for Stabilization and Development
EFN	External Financing Needs
EFSD	Eurasian Fund for Stabilization and Development
EFSF	European Financial Stability Facility
EFSM	European Financial Stabilization Mechanism
EM	Emerging Market
EMDEs	Emerging Market and Developing Economies
ESM	European Stability Mechanism
EU	European Union
Fed	Federal Reserve
FIMA	Foreign and International Monetary Authorities Repo Facility
FDI	Foreign Direct Investment
FLAR	Latin American Reserve Fund
FRED	Federal Reserve Economic Data
FX	Foreign Exchange
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GFSN	Global Financial Safety Net
GRA	General Resources Account
GVCs	Global Value Chains
ICRG	International Country Risk Guide
IIP	International Investment Position
IFS	International Financial Statistics
IMF	International Monetary Fund
IMS	International Monetary System
IPF	Integrated Policy Framework
LATAM	Latin America

LIC	Low-Income Country
MFA	Macro-Financial Assistance
NAB	New Arrangements to Borrow
PPP	Purchasing Power Parity
PRGT	Poverty Reduction and Growth Trust
RFA	Regional Financing Arrangement
RST	Resilience and Sustainability Trust
SDR	Special Drawing Right
SSGI	Sudden Stops with Growth Impact
TA	Technical Assistance
UN	United Nations
WEO	World Economic Outlook

INTRODUCTION

1. The GFSN is a multilayered set of institutions and mechanisms designed to protect countries against shocks and crises. It provides financing when crises hit, complementing countries' domestic policy responses in mitigating the impact of shocks. It can also incentivize sound macroeconomic policies to build resilience. Finally, by containing contagion and spillovers, it protects bystander countries and reduces the broader cost of crises. In doing all this, the GFSN helps to safeguard global economic stability and to strengthen international financial resilience.

2. Sound macroeconomic policies are essential to complement the GFSN for crisis prevention and effective crisis response. Credible policies that ensure fiscal and external sustainability, anchor price stability, and safeguard financial sector stability help build buffers, bolster market confidence, and facilitate access to financing—thereby reinforcing countries' resilience to shocks. When crises occur, sound policies play a central role in enabling macroeconomic adjustment and supporting a smoother recovery. At the same time, maintaining sustainable debt with borrowing space is critical for activating GFSN support. For countries with unsustainable debt, financing alone could delay—rather than resolve—the necessary adjustment. In such cases, timely and efficient debt restructuring with private sector involvement within a well-functioning sovereign debt architecture is necessary to restore sustainability, unlock GFSN support, and rebuild investor confidence. Without addressing unsustainable debt, countries risk remaining trapped in a cycle of low growth and high debt service, ultimately weakening the effectiveness of domestic reforms and of GFSN support.

3. GFSN's total resources expanded substantially following the GFC. The expansion was driven by reserve accumulation, mainly among advanced economies (AEs) and large EMs, with global international reserve holdings nearly doubling to US\$14 trillion from 2008 to 2024. Other GFSN layers quadrupled over the same period to reach approximately US\$4.5 trillion, led by the expansion of BSAs among AEs and the rapid growth in Chinese-sourced BSAs. A substantial increase in the IMF and RFA's lending capacity in response to shocks has also contributed to the GFSN's enlargement.

4. The global economic landscape has undergone—and continues to undergo—major changes. These are being driven by the rising economic influence of EMs, the reconfiguration of global trade and capital flows, including due to policy shifts, and rapid technological advancements. Growing cross-border liabilities and deeper financial system integration and innovation mean that shocks can propagate, and even amplify, faster across borders. Moreover, structural transformations—driven by digitalization, geoeconomic fragmentation, and climate transition—are reshaping the global economy and giving rise to new risks to macroeconomic and financial stability.

5. The GFSN must keep pace with these profound changes to protect countries and safeguard the IMS. Events such as the Covid-19 pandemic exposed gaps in the safety net—including uneven coverage and weak coordination among layers—and underscored the need for stronger, more agile mechanisms to address large-scale disruptions. In an environment marked by

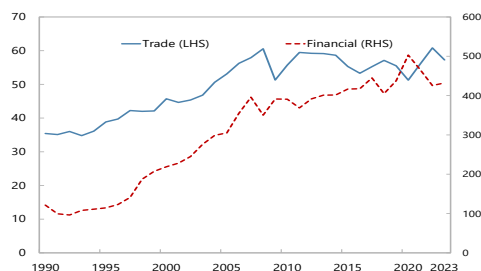
elevated uncertainty, rising trade tensions, and constrained domestic policy space, a robust and responsive GFSN is essential to help countries absorb external shocks and preserve stability.

6. Nearly a decade after the last stocktaking, this paper aims to review the GFSN and assess its adequacy in the face of emerging challenges. It responds to the call in the Fund’s medium-term direction articulated in the Managing Director’s Spring 2025 Global Policy Agenda and seeks to build consensus around a diagnosis of the GFSN and broad direction for future reforms to strengthen its resilience and the Fund’s role at its center. The paper will evaluate the strength of the GFSN layers and coordination mechanisms and assess their effectiveness in addressing shocks, including those driven by ongoing shifts in the global economy. The Board engagement on this paper could serve as a building block for future work on the IMS and the Fund’s role at the center of the GFSN.

EVOLVING WORLD ECONOMY

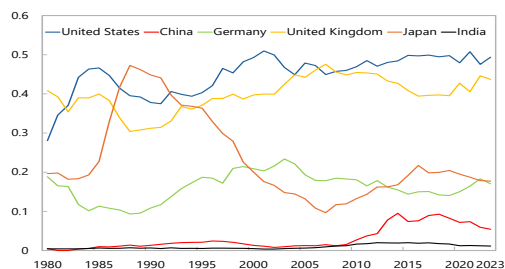
7. The world economy has become more closely integrated since the turn of the century. Global trade has expanded significantly, accompanied by the rise of global value chains (GVCs), which enabled firms to spread production across countries to lower costs and improve efficiency. In parallel, financial innovation has supported greater financial inclusion and deepened capital markets, while many countries liberalized their capital accounts. Consequently, economies have seen sharp increases in cross-border assets and liabilities, reflecting greater reliance on external financing and investment diversification. Together, trade and financial integration have created a tightly connected global economy—delivering efficiency gains and growth but also amplifying vulnerabilities through greater exposure to external shocks and contagion (see Figure 1 and Box 1).

8. EMDEs have become increasingly important to the world economy, gaining a larger share of global GDP, trade, and investment. EMDEs now account for 60 percent of global output in PPP terms, 40 percent of global trade, and a growing share of inward and outward FDI. China, in particular, has played a transformative role, emerging as the world’s second-largest economy and a central node in international trade and manufacturing. Other EMs have also gained prominence—for example, India as an engine of post-pandemic global growth and Brazil as a major destination for FDI. LICs experienced steady but modest growth, with some countries graduating to EM status but others seeing little or no increase in per capita income. Improved macroeconomic management, including more flexible exchange rates and higher reserve buffers, has strengthened EMDEs’ resilience, as seen during recent shocks.

Figure 1. An Evolving World Economy*Highly interconnected world economy....***Trade and Financial Openness (percent of world GDP)**

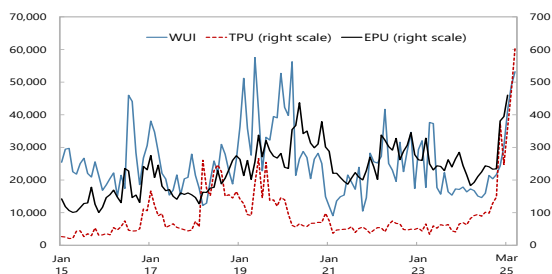
Sources: External Wealth of Nations; IMF, World Economic Outlook Database; IMF, Staff Calculations.

Notes: Trade openness is the sum of exports and imports; financial openness is the sum of external liabilities.

*However, AEs continue to dominate finance...***Banking Centrality (0 to 1 range)**

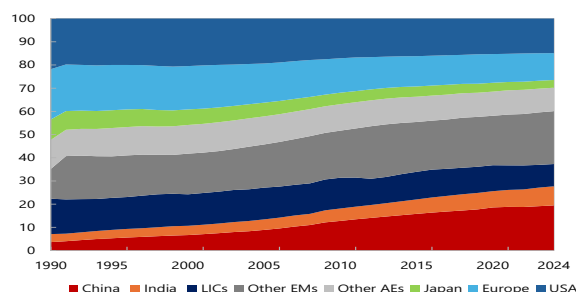
Sources: IMF staff calculations and BIS.

Notes: Eigenvector centrality ranges from 0 to 1 and measures how connected the country is, giving a higher weight to connections to more connected counterparties. Banking centrality is based on cross-border bank claims.

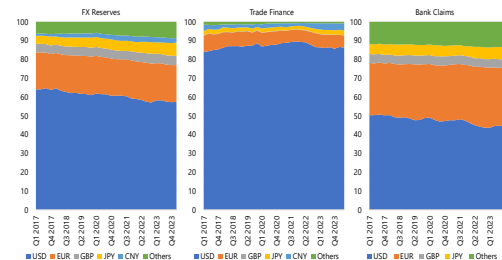
*Elevated uncertainty and...***Policy Uncertainty Index**

Sources: Ahir, Bloom, and Furceri 2022; Caldara and others 2020; Davis 2016; and IMF staff calculations.

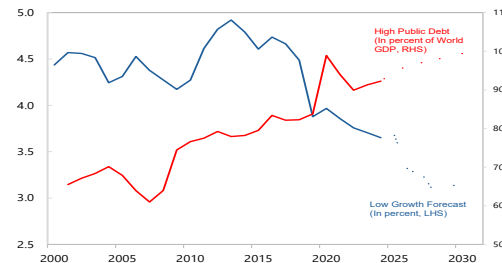
Notes: The uncertainty measures are news-based indices that quantify media attention to global news related to overall uncertainty (WUI), economic policy uncertainty (EPU), and trade policy uncertainty (TPU).

*...with an increased role of EMDEs.***Share in World PPP GDP (in percent)**

Source: IMF staff calculations.

*...and the U.S. Dollar remains the preeminent world currency***Currency Composition (percent of total)**

Source: IMF staff calculations.

*...eroded policy space are weighing on the outlook.***Growth and Debt Outlook**

Source: IMF staff calculations.

Box 1. Global Trade and Financial Networks

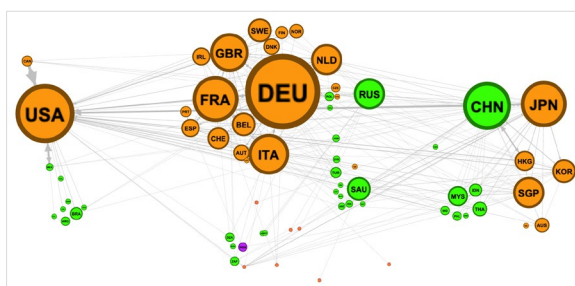
The global trade network has shifted dramatically over the past two decades, with China emerging as a central hub. In 2003, global trade revolved around three major economies: the US, the euro area, and Japan. By 2023, reflecting its rapid economic ascent and increased role in global trade, China had overtaken Japan. Other EMs—such as Brazil, India, Mexico, and Türkiye—have also gained more prominence. This shift has led to a more interconnected trading structure.

The global financial network remains largely anchored in AEs, though some EMs have gained ground. The US and the UK continue to serve as the world’s leading financial hubs, while Japan and Hong Kong SAR remain key centers in Asia. Over recent decades, rising financial interconnectedness has expanded access to international capital and investment opportunities, particularly for EMs. While the core structure of global financial networks has remained stable, the emergence of new financial hubs signals a gradual diversification of the global financial landscape.

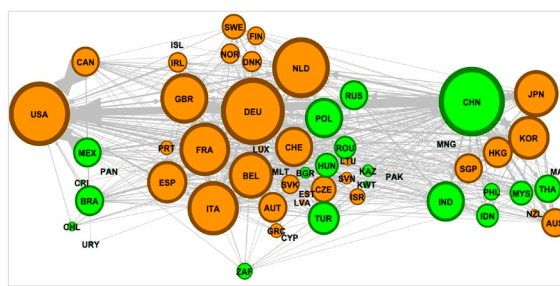
Global Trade Network, 2002–23

■ AEs
■ EMs

Trade Network, 2003

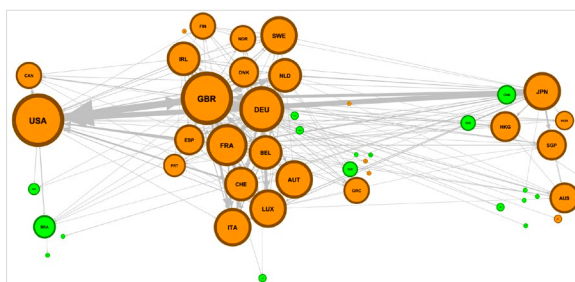


Trade Network, 2023

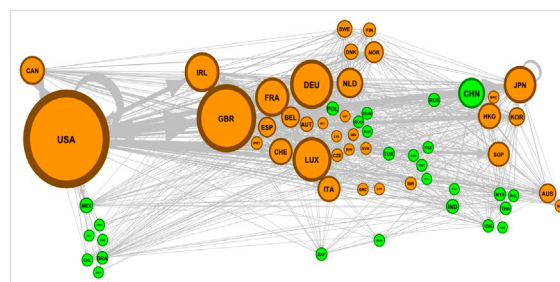


Global Financial Network, 2002–23

Financial Network, 2003



Financial Network, 2023



Sources: IMF staff calculations based on the Direction of Trade Statistics and BIS.

Notes: In the **trade network**, the thickness of the arrows is proportional to the trade flow between countries, measured by the sum of imports and exports in US\$. The size of each node is proportional to the country’s participation in the network, measured by the number of connections it has in the network. Connections smaller than US\$2 billion are not shown. In the **financial network**, the thickness of the arrows is proportional to the size of interbank claims, measured by the interbank lending between countries. The size of the node is proportional to the country’s participation in the network, measured by the number of connections in the network. Connections smaller than US\$3 billion are not shown. Nodes in **green represent EMs** and nodes in **orange represent AEs**.

9. AEs continue to dominate global finance, with the U.S. dollar remaining the primary international currency. The dollar accounts for the largest share of global reserves, trade invoicing, and financial transactions, giving the U.S.’s economic and financial policies outsized influence over the IMS. Monetary policy tightening by the Fed—such as during the so-called taper tantrum in

2013 and later in 2022—triggered capital outflows, currency depreciations, and higher borrowing costs in EMDEs. Conversely, the Fed’s actions to support U.S. dollar liquidity have been instrumental during systemic crises. Actions by the European Central Bank (ECB) and the Bank of Japan have also played important roles in shaping global liquidity and asset prices. The IMS has remained centered on the U.S. dollar despite significant changes in the global economy over recent decades, although emerging economic, technological, and geopolitical trends have the potential to reshape the system.

10. A shock-prone world, depleted policy buffers, and low growth combine to create a challenging outlook for many countries and the GFSN.

The global landscape—marked by heightened uncertainty, major shifts in trade and other policies, and ongoing conflicts—poses significant risks, while some countries are also grappling with rising domestic instability. Policymakers must navigate this landscape with depleted policy buffers and historically high debt levels, after deploying extensive policy support in response to successive shocks in recent years. Compounding these challenges, potential growth has slowed across most countries, held back by flagging productivity, sluggish investment, and demographic headwinds.

11. The low-growth, low-buffer environment could heighten the trade-offs between macroeconomic adjustment and financing when the next crisis hits.

Many LICs are already contending with high debt service burdens and declining aid flows, while AEs and some EMs face growing fiscal demands—from population aging to rising national security needs. For countries with elevated fiscal vulnerabilities, future shocks may leave little room for borrowing, increasing the need for timely, credible, and sustained policy adjustment that is calibrated to protect investment and preserve social cohesion. Structural reforms that unlock private sector-led growth will be essential to mitigating the adverse effects of adjustment.

12. Reduced policy space in major economies could limit their ability to respond to future crises, placing additional strain on the GFSN.

Fast and large-scale fiscal and monetary stimulus by systemic countries was critical in mitigating past crises and preventing broader disruptions. Should these countries be unable to deploy similarly effective responses in future, shocks could propagate more rapidly and intensify, increasing both the scale of the policy response and the amount of GFSN financing required to contain them. Furthermore, if major central banks were to delay or withhold the activation of swap lines, pressure would mount on other GFSN layers, necessitating greater resources and swifter action.

13. Transformative forces—digitalization, geoeconomic fragmentation, and the climate transition—are poised to reshape the world economy and bring new challenges for the GFSN.

Rapid digitalization and the adoption of AI in finance are transforming the sector and reshaping cross-border financial linkages. Geoeconomic fragmentation is rewiring trade and financial flows and could hamper policy coordination during crises. Climate-driven natural disasters pose a growing threat to economic and financial stability, especially in vulnerable and low-income countries. These forces are expected to increase demands placed on the GFSN—not only in relation to its size and coverage, but also in how predictably, rapidly, and affordably countries can access its resources.

GFSN LAYERS, FEATURES, AND PERFORMANCE

14. Each GFSN layer has its own unique design features, costs and benefits, and is suited for different types of shocks. While the layers can be complementary and sometimes act in coordination, they remain distinct entities and typically operate independently. This section examines the evolution and characteristics of each GFSN layer, assesses their coverage at the country level, and reviews GFSN performance, including in response to recent shocks.¹

A. International Reserves

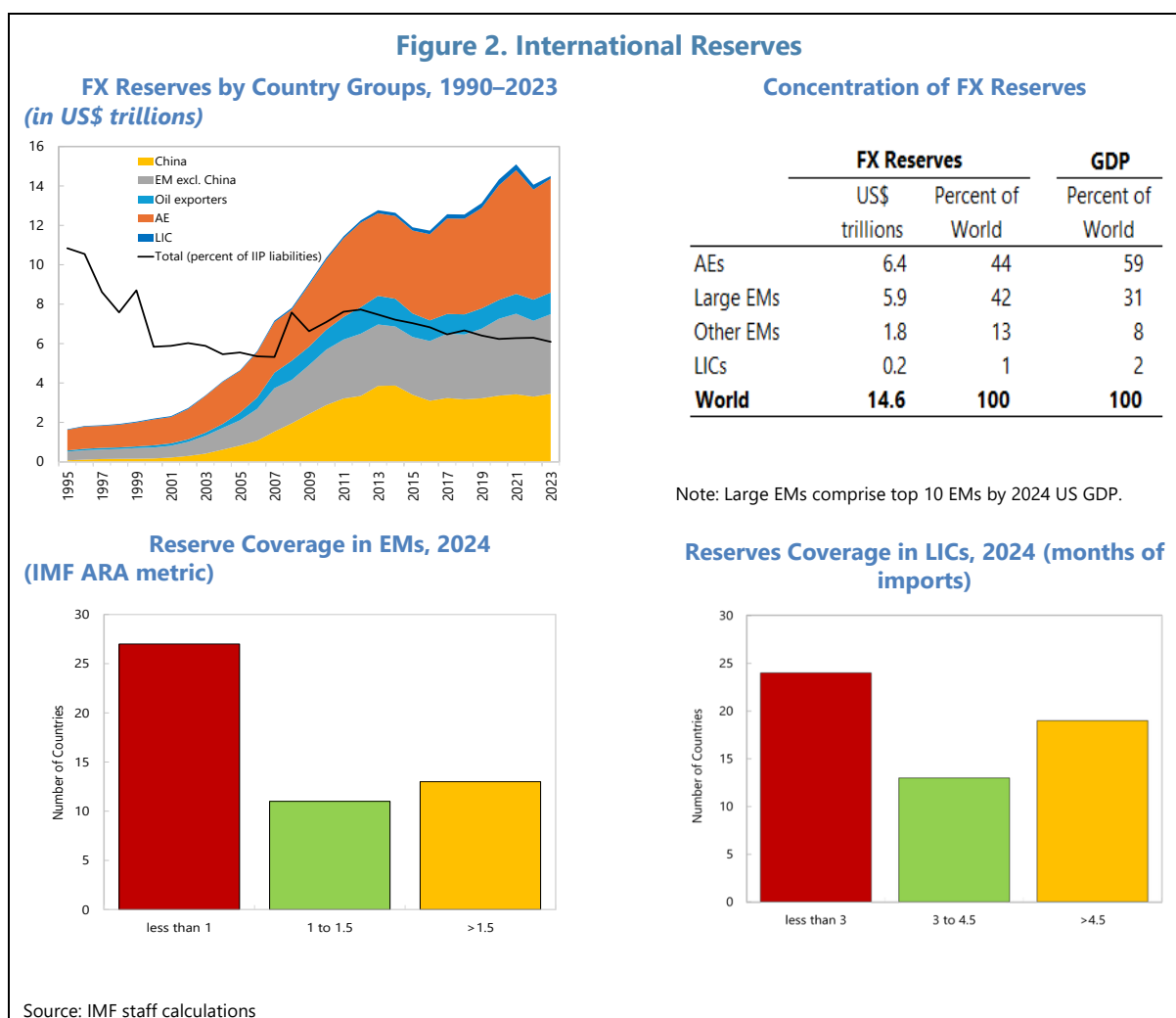
15. International reserves are the most reliable form of self-insurance, offering immediate and unconditional liquidity under the direct control of national authorities. They serve as the first line of defense and constitute the largest layer of the GFSN—amounting to roughly three times the combined lending capacity of all other layers.² With well-functioning international money markets, reserves can be rapidly deployed to meet BoP needs and provide foreign currency liquidity for other uses, including market funding and support to the financial sector. Reserves also play a critical signaling role, demonstrating a country's ability to meet short-term external obligations and improving market perception of the country's fundamentals, helping lower sovereign risk and improve access to financing. While reserves can be an effective safeguard against crises (Gourinchas and Obstfeld, 2012), the lack of sufficient or reliable coverage from other GFSN layers can incentivize excessive self-insurance.

16. Reserve accumulation has moderated over the past decade, after surging in the run-up to and the immediate aftermath of the GFC (Figure 2). Between 2005 and 2012, global reserves tripled, peaking at 7.7 percent of global external liabilities, with AEs and China each accounting for a third of the increase. Since then, reserve growth has slowed, with reserves now standing at around 6 percent of global external liabilities. Some studies suggest a structural break in reserve accumulation post-GFC, attributing the slowdown to the rise of sovereign wealth funds and greater reliance on macroprudential policies by central banks (Aizenman et al., 2014). Nonetheless, in U.S. dollar terms, the total stock of reserves has continued to increase.

¹ This paper focuses on the GFSN layers and does not analyze complementary policies and institutions that can help mitigate the impact of shocks and crises. For example, financial support provided by multilateral development banks can promote sustainable growth, economic governance, and public services, and thereby help enhance resilience to shocks. However, as their financing primarily supports long-term development projects rather than short-term balance-of-payments needs, it generally lacks the liquidity-backstop function central to the GFSN (IMF, 2016). Similarly, market-based insurance contracts (MBIs) are also excluded from the scope of this paper. MBIs, such as commodity price hedges, sovereign disaster insurance, catastrophe bonds, or pre-arranged collateralized liquidity can provide fast, rules-based payouts in response to specific triggers, including natural disasters, commodity price shocks, or market disruptions. While these instruments can effectively complement the GFSN by enhancing speed and predictability, they cannot substitute for official liquidity backstops, which remain essential in systemic crises.

² For unlimited swaps, lending capacity is estimated based on known past usage. See the next section.

17. Reserve coverage varies widely across countries and income groups. How much reserve a country holds is shaped by many factors. For example, economies with large financial sectors and open capital accounts, countries with fixed or tightly managed exchange rates, and those with aging populations tend to hold more reserves. The distribution of reserve holdings by country groups (Figure 2.b) shows that large EMs account for 42 percent of global reserves, considerably higher than their share in the world economy. As a result, reserve adequacy—measured using the IMF’s Assessing Reserve Adequacy (ARA) metric—tends to be higher for large EMs (Figure 2.c).³ In contrast, LICs hold just 1 percent of global reserves despite accounting for 2 percent of the world economy. About 40 percent of LICs (24 countries) have reserves covering less than 3 months of imports, leaving them vulnerable to external shocks and reliant on the other layers of the GFSN (Figure 2.d). While reserves continue to be held primarily in traditional reserve currencies, the share of gold has gradually increased in recent years (Box 2).



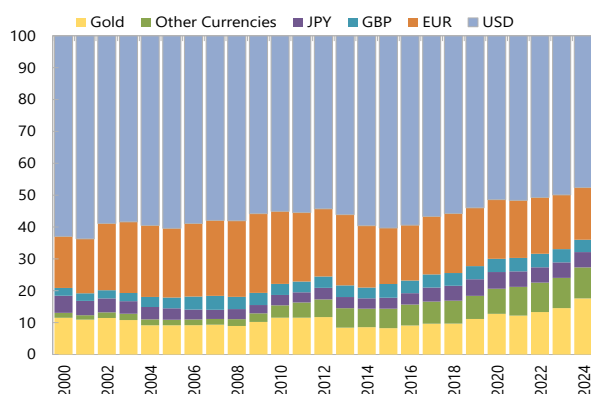
³ The EM ARA metric comprises four components reflecting potential drains on the balance of payments: export income, broad money, short-term debt, and other liabilities.

Box 2. Gold in Central Bank Reserves

Gold has become the second-largest component of central bank reserves after the U.S. dollar. Its share in global reserves has risen in recent years, surpassing the euro and reaching nearly 18 percent at end-2024, largely driven by the sharp rise in gold prices. There has also been a steady accumulation of physical holdings as central banks have stepped up their net gold purchases since 2022. On a gross basis, central banks accounted for just under a quarter of the total gold purchases during this period, more than double their 10 percent market share in 2010–21. Despite large purchases, net additions to official reserves have been modest, as some central banks appear to be holding the newly acquired gold outside their reserves.

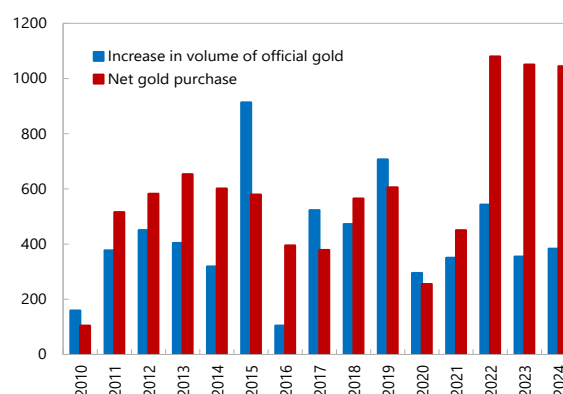
Central banks hold gold because of its unique properties, but its role as a core reserve asset faces several challenges. Gold serves as a reliable store of value, carries no credit or counterparty risk, and is widely regarded as a safe haven during periods of financial and geopolitical stress. However, its broader use in reserves can be constrained by liquidity considerations, restricted transactional utility, and volatility. In addition, large-scale holdings may pose challenges related to storage and security, and potential market impact during sales.

Composition of Global Reserves (percent)



Sources: COFER, Haver Analytics, and Staff Calculations

Central Bank Gold (tons)



Sources: World Gold Council, IMF Staff calculation.

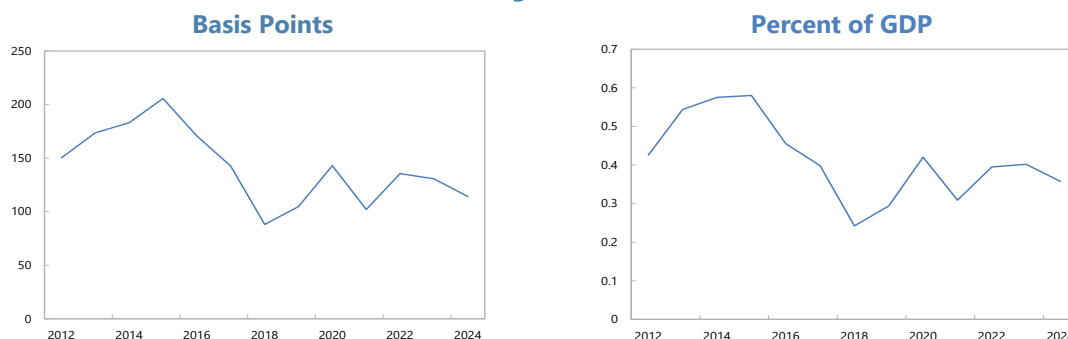
18. Holding reserves entails costs (Box 3). At an individual country level, the cost stems from the fact that reserve assets—which must be highly liquid and available on demand⁴ and are thus typically held in short-term government securities—yield low returns that often fall short of countries' borrowing costs or the returns from foregone investments. Moreover, when excessive, reserve accumulation is inefficient from a global perspective. It has exacerbated the global shortage of safe assets (Obstfeld, 2011) and contributed to global macroeconomic imbalances—particularly during periods of rapid reserves buildup.

⁴ IMF, 2014.

Box 3. Cost of Holding Reserves

Measuring the cost of holding reserves involves estimating its opportunity cost. It is typically calculated as the sum of: (i) the relative cost of funding shorter-dated assets with longer-term borrowing (i.e., the term premium); and (ii) the sovereign spread between the debt yields of reserve currency issuers and those of the country holding reserves. Although this measure has fallen over the past decade, partly due to declining term premia, the cost remains non-trivial. For EMs, the average cost is estimated at about 140 basis points, or roughly 0.4 percent of GDP annually, between 2012 and 2024.

Cost of Holding FX Reserves for EMs



Sources: IMF staff calculations based on Bloomberg, World Bank, U.S. Treasury Department, and IFS.

Notes: The cost of holding reserves for each country is estimated as the difference between the U.S. treasury yield at its average debt maturity and the average maturity of foreign-held Treasuries, plus a country-specific sovereign spread estimated by IMF staff. The aggregate EM index is weighted by the reserve holdings of each country.

An alternative measure of the cost of holding reserves is a shadow-liquidity premium. It is defined as the return differential between short-dated reserve assets and a diversified market composite, making explicit the forgone return from investing in highly liquid assets. Analysis, based on historical performance, shows that diversified mixes of ultra-short supranational bonds, agency paper, and modest equity allocations could deliver 50–150 basis points higher returns than a portfolio of Treasury bills at comparable levels of daily volatility.

LICs, which rely heavily on reserves given their limited access to swaps and RFAs, face an even higher cost, potentially discouraging reserve accumulation where it is needed the most. For LICs with market access, the cost of holding reserves is estimated to be 400–600 basis points higher than for EMs. This is primarily due to LICs' elevated sovereign risk—and consequently higher funding costs. These same risks help explain LICs' limited access to swaps and RFAs—swaps require central banks to accept counterparty credit risk, while RFAs depend on pooled credit risk delivering sufficient improvements in collective creditworthiness to fund affordable lending arrangements. Hence, stronger policy frameworks that deliver improved macroeconomic fundamentals can help lower the cost of holding reserves and potentially unlock alternatives to self-insurance. Further, by absorbing a significant share of safe securities, demand from large reserve holders can cause a shortage of safe assets and compress yields, thus increasing the cost borne by smaller holders, such as LICs.¹

1/ Theoretical and empirical work on the "safe-asset shortage," including Caballero, Farhi, and Gourinchas (2017), shows that excess demand for such assets can lower equilibrium returns and shift the burden of self-insurance toward countries with limited market access.

19. Beyond their cost, the utility of reserves as a liquidity buffer may be limited by market perceptions of their large-scale use. Some EMs may hesitate to draw down their reserves significantly during times of stress, fearing it could signal distress and weaken investor confidence. For example, during the GFC, most EMs refrained from deploying more than a quarter of their reserves (Aizenman and Sun, 2012). Only 6 out of 87 EMs reduced their reserves by more than 20 percent during the Covid-19 pandemic in 2020.

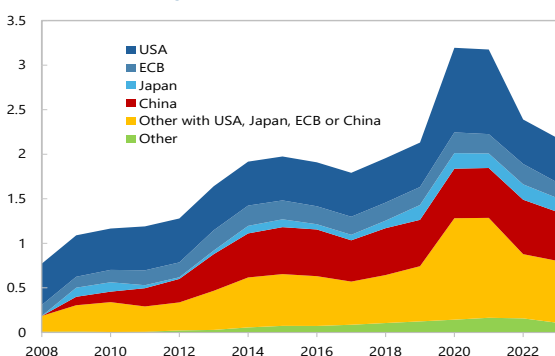
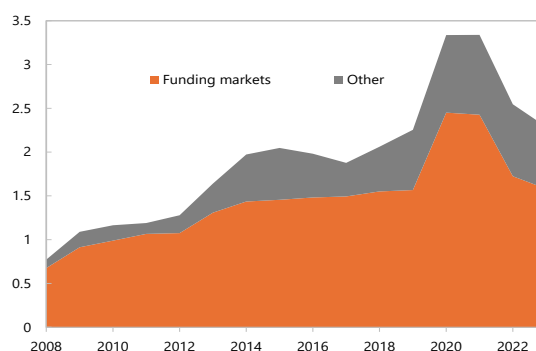
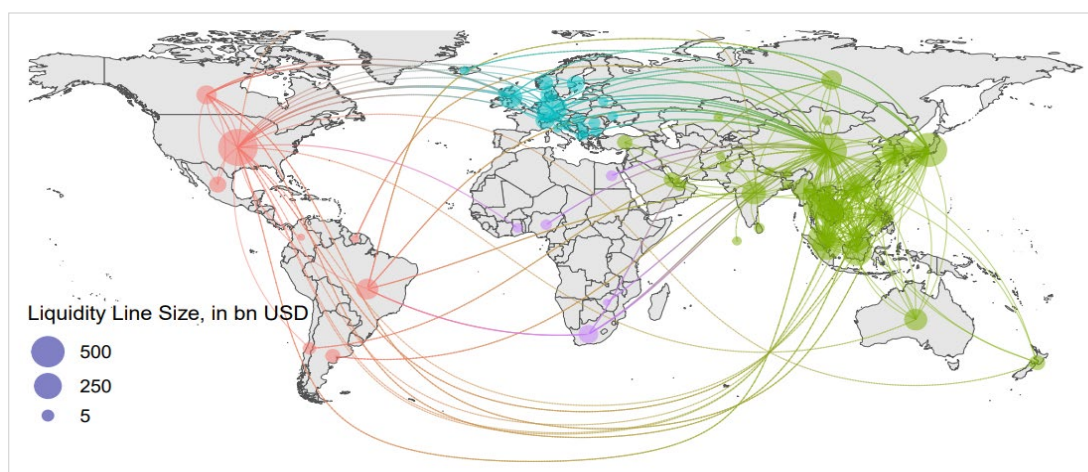
B. Bilateral Swap Arrangements

20. BSAs are contingent agreements between central banks to exchange currencies, primarily during times of market stress. The network of BSAs expanded significantly after the GFC, although access remains limited to a relatively narrow group of countries (Figure 3). BSAs generally fall into two categories. The first includes arrangements among systemic AEs, designed to ease pressures in funding markets and prevent contagion that could spill over to a BSA-providing country. The second category comprises arrangements established for other purposes, such as to directly finance BoP needs or to facilitate bilateral trade and investment.

21. BSAs aimed at easing funding market pressures in AEs have become a critical component of the GFSN in containing systemic crises. Their primary goal is to ensure that major currency funding markets continue to operate during crises; consequently, they are not designed to provide BoP support and are generally unavailable to smaller AEs and most EMDEs. The largest network of BSAs (by size) is maintained by the Fed. During the GFC, the Fed established swap lines with five major AE central banks: the ECB, the Bank of England, the Bank of Japan, the Swiss National Bank, and the Bank of Canada, to alleviate global dollar funding shortages. As the crisis intensified, the Fed extended temporary BSAs to central banks of other AEs and large EMs. When the Covid-19 pandemic struck, the Fed reactivated its extended swap line network.⁵ While temporary BSAs were allowed to expire as market conditions normalized, the Fed maintains unlimited standing swap lines with the five original central banks.

22. Other countries, including China and India, have expanded their BSA networks in recent years. The People's Bank of China (PBoC) has established swap lines with over 40 countries (McDowell, 2019). These arrangements differ fundamentally from BSAs offered by the Fed and the ECB in that they are not primarily aimed at stabilizing currency funding markets but have instead become a crucial source of financing for countries facing BoP gaps and liquidity shortages. Increasingly, these swaps are also used to facilitate trade and investment with China, including settlements in renminbi, as part of China's broader strategy to internationalize its currency. Similarly, the Reserve Bank of India has also developed a network of swap lines with several countries in the South Asian Association for Regional Cooperation to further enhance regional financial stability.

⁵ This temporarily expanded access to the central banks of Australia, Brazil, Denmark, Mexico, Korea, New Zealand, Norway, Singapore, and Sweden.

Figure 3. Global Swap Lines**Size of BSAs by Issuer, 2007–23 (in US\$ trillions)****Size of BSAs by Type, 2007–23 (in US\$ trillions)****Network of BSAs, 2023**

Source: IMF staff calculations.

Notes: Includes permanent, unlimited swap lines (major AE central banks) and limited-amount swap lines. The size of unlimited swaps is proxied by known past usage or, if undrawn, by the average of past maximum drawings of the remaining central bank members in the network. In Figure b, the categorization of BSAs' types is based on the lender and borrower country's income group and systemicity. Swap lines from AEs to AEs; from AEs to systemic EMs; and from systemic EMs to AEs are classified as funding markets BSAs; swap lines from AEs to non-systemic EMs and from EMs to non-systemic AEs are classified as BSAs for other purposes.

23. BSAs vary significantly in terms of predictability, terms, and transparency. BSAs ultimately rely on the consent of the respective central banks and therefore remain subject to domestic considerations. That said, those between reserve currency-issuing AEs have generally offered predictable access and clear terms, featuring limited restrictions on usage and duration, and relatively low costs.⁶ Once established, these arrangements not only provide rapid liquidity support when drawn, but they have also been shown to support market functioning and bolster confidence (Perks and others, 2021, and Bahaj and Reis, 2022). In contrast, other swap arrangements are significantly less transparent and may come with more restrictive terms. For example, many are

⁶ In the case of the Fed's swap lines, for example, the central bank borrowing dollars from the Fed pays interest on the borrowed funds at a fixed spread to a short-term, 'risk-free' reference rate. The current cost is the OIS rate plus 25 basis points.

time-limited and subject to predetermined access limits. Furthermore, the lack of standardized terms and limited disclosure regarding activation conditions and usage hampers the accurate assessment of countries' reserve and external positions and may hinder their effectiveness, including in deterring market pressures (IMF, 2025b).

24. In addition to BSAs, the Fed and the ECB maintain standing repurchase facilities for other central banks.⁷ These facilities allow other central banks to temporarily exchange their U.S. Treasuries—or, in the case of ECB, euro-denominated debt issued by euro-area governments—for U.S. dollars or euros, respectively. A wide range of central banks and monetary authorities hold a FIMA account and are eligible to apply for the Fed's FIMA repo facility. However, its usage has remained limited and infrequent, peaking at US\$60 billion in March 2023. Like BSAs, these repos aim to alleviate pressures in global dollar and euro funding markets and thereby contain potential spillovers into financial markets in the U.S. and the euro area. However, unlike BSAs, these facilities do not expand the supply of reserves and cannot be considered as an additional GFSN layer; rather they support the functioning of another layer—countries' own reserves—by ensuring existing assets can be liquidated in a stressed scenario. Such collateral-based liquidity facilities enable central banks to keep high-quality assets and access rapid foreign currency funding instead of selling them outright, thus easing the trade-off between liquidity and return. However, countries, particularly LICs, may face operational, legal, and eligibility hurdles.

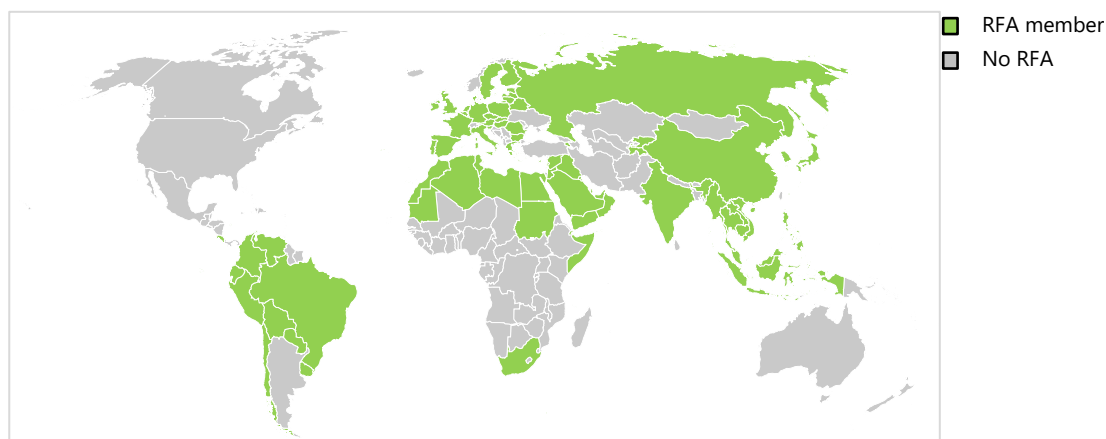
C. Regional Financing Arrangements

25. RFAs pool financial resources among countries, typically within the same region, to provide crisis financing.⁸ The network of RFAs has expanded significantly over the past few decades, becoming an essential element of regional financial stability (Figure 4). However, most RFA resources remain concentrated in Europe and Asia, leaving other regions with limited or no coverage.⁹ RFAs differ widely by mandate and scope, with some RFAs going beyond providing financing to include surveillance and technical assistance at the regional level (Annex I). While RFAs like the Chiang Mai Initiative Multilateralization (CMIM) and the European Stability Mechanism (ESM) primarily focus on providing financial support during crises, others, like the Arab Monetary Fund (AMF) and the Eurasian Fund for Stabilization and Development (EFSD), also extend development financing to promote long-term regional cooperation and integration (Figure 5).

⁷ The [Fed's Foreign and International Monetary Authorities \(FIMA\) Repo Facility](#) and the [ECB's Eurosystem Repo Facility](#).

⁸ RFAs include the Arab Monetary Fund (AMF), the BRICS Contingent Reserve Arrangement (CRA), the Chiang Mai Initiative Multilateralization (CMIM), the Eurasian Fund for Stabilization and Development (EFSD), the European Stability Mechanism (ESM), EU Balance of Payments Assistance Facility, European Financial Stabilization Mechanism (EFSM), and the Latin American Reserve Fund (FLAR).

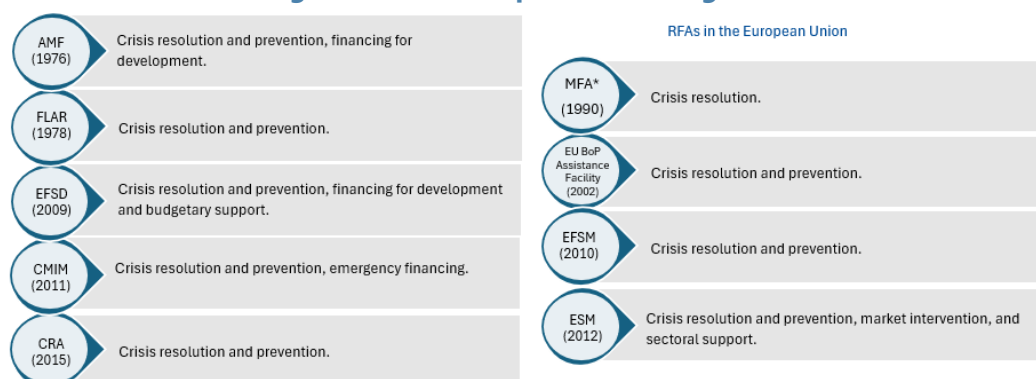
⁹ In February 2025, African Union leaders [endorsed](#) the establishment of the African Financing Stability Mechanism to bolster the region's capacity to respond to external shocks.

Figure 4. Coverage of RFAs

Source: Individual RFA reports.

26. RFAs are highly heterogeneous, with substantial variations in size, resource availability, and effectiveness (IMF, 2017a, 2017b). As of June 2025, RFAs collectively had a lending capacity of about US\$1.3 trillion (Table 1). Despite this sizeable capacity, their use has generally remained limited, with the ESM and its predecessor, the European Financial Stability Facility (EFSF), as notable exceptions, having disbursed significant funds during the euro-area crisis. In contrast, other large RFAs, such as the CMIM and the BRICS Contingent Reserve Arrangement (BRICS CRA), remain largely untested, and their ability to sustain support during prolonged crises remains uncertain. Furthermore, RFA resources may be less reliable when responding to systemic or regionally concentrated shocks that impact a significant portion of their membership.

27. Despite these challenges, RFAs can offer a cost-effective complement to individual country reserve accumulation. By pooling resources, RFAs allow their members to reduce the cost of protecting themselves against uncorrelated shocks. Lending rates are generally lower than those available on the market, although they are often not explicitly specified. For instance, the ESM leverages the collective creditworthiness of the euro area, allowing member states to borrow at significantly lower rates than they could on their own. In 2014, countries like Spain and Cyprus paid lending rates between 60 and 110 basis points on ESM loans, far below market rates. However, the spread varies across RFAs, and shorter maturities, lengthy processes, and policy conditionality often deter usage (Gabel, 2018).

Figure 5. RFAs: Scope of Financing Toolkit

Sources: IMF staff assessments based on individual RFA reports, RFA and European Commission websites.

Notes: Figures in parentheses refer to respective RFA's date of establishment. MFA* is designed for partner countries geographically, economically and politically close to the EU.

Table 1. RFAs: Selected Lending Indicators
(in US\$ billions)

RFA 1/	Lending Capacity	Credit Outstanding	Peak Yearly Disbursement
AMF	4.1	2.2	0.9
FLAR	10.1	0.3	1.8
EFSD	10.0	1.9	1.2
CMIM 2/	240.0	-	-
European Union 3/			
EU BoP Assistance Facility	58.6	0.0	10.4
EFSM	70.3	43.6	36.2
ESM 3/	785.1	288.5	215.5
BRICS CRA 2/	84.5	-	-

Sources: Individual RFA reports, RFA and European Commission websites, and IMF staff calculations.

1/ RFAs are listed in chronological order based on their date of establishment. Lending capacity data refers to July 3, 2025 for ESM and EFSF; end-June 2025 for FLAR, EU BoP Assistance Facility, and EFSM; end-May 2025 for EFSD; and end-March 2025 for AMF. Credit outstanding data refers to July 3, 2025 for ESM and EFSF; June 2025 for AMF and EU BoP; end-May 2025 for EFSD; and end-2024 for FLAR. FX rates used to convert the amounts to US\$ correspond to the same reference date as the underlying data.

2/ For CMIM and BRICS CRA, which are based on swap arrangements, the stated figures for lending capacity represent committed resources, with actual capacity constituting only a portion of that amount.

3/ ESM includes its inactive predecessor, the European Financial Stability Facility (EFSF). The EU BoP Assistance Facility and EFSM are administered by the European Commission (EC), while the ESM has a separate governing body.

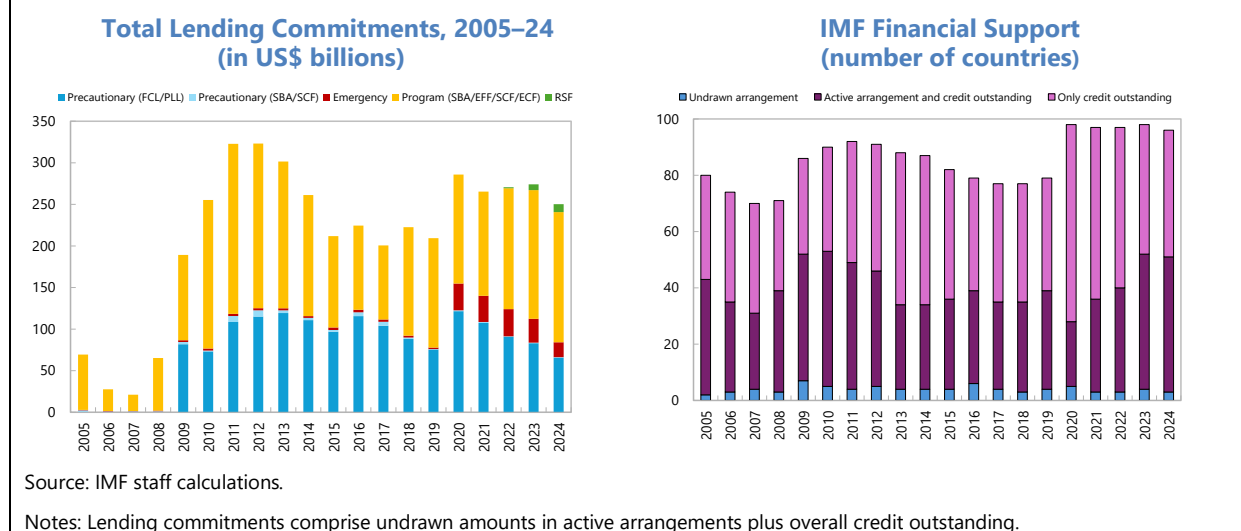
D. International Monetary Fund

28. The IMF's unique capacity for global risk-sharing and crisis prevention places it at the center of the GFSN. Its near-universal membership, inclusive governance, and mandate for macroeconomic surveillance set it apart from other GFSN layers that primarily reflect national or regional interests and offer limited risk pooling. Through regular assessments of its 191 member economies, the IMF works to prevent crises by identifying emerging vulnerabilities and providing policy advice. The IMF provides financial support to countries undertaking macroeconomic adjustment to shocks, backed by policy conditionality and designed to catalyze additional financing. It also helps build resilience through capacity development that strengthens institutions and policy frameworks. These features enable the IMF to deliver a global public good that other GFSN layers cannot provide on their own. Conversely, the IMF's crisis support function is enhanced by the effective functioning of the other layers of the GFSN.

29. Amid growing global financing needs, a key priority for the IMF has been to ensure the adequacy and strength of its resources. The IMF relies on members' quotas as its permanent and reliable source of financing and undertakes periodic reviews of quotas to ensure their adequacy. When needed, quotas are supplemented by temporary borrowing from member countries, through the New Arrangements to Borrow (NAB) and Bilateral Borrowing Arrangements (BBAs). The 16th General Review of Quotas was completed in 2023 and, once implemented, will result in a 50 percent equiproportional increase in quotas and an equivalent rollback on the NAB and phasing out of BBAs. This will restore quotas as the primary source of IMF funding while maintaining the IMF's lending capacity at about US\$1 trillion.

30. The IMF has consistently adapted its lending toolkit to better meet the evolving needs of its members. In the wake of the GFC, it introduced the Flexible Credit Line and Precautionary and Liquidity Line, and in 2020 launched the Short-term Liquidity Line to provide rapid liquidity to countries with strong fundamentals facing external shocks. By functioning as liquidity insurance, IMF precautionary facilities have enhanced the preventive capacity of the GFSN and reduced the likelihood of costly bailouts. In response to successive shocks in recent years, the IMF scaled up its lending significantly (Figure 6), approving over US\$435 billion to 97 countries since the pandemic (with commitments standing at over US\$250 billion at end-2024), and tripling lending to poor countries under the Poverty Reduction and Growth Trust (PRGT). In 2024, the IMF increased the overall annual and cumulative access limits to its general resources by 38 percent, reduced their borrowing costs, and approved reforms to preserve interest-free loans for the poorest countries. Additionally, to help countries reduce prospective BoP risks by enhancing resilience to climate change and pandemics, the IMF created the Resilience and Sustainability Trust (RST) in 2022.

Figure 6. IMF Lending



31. However, some countries hesitate to seek IMF support in a timely manner, partly due to the stigma and policy conditionality associated with Fund programs. Some fear that turning to the IMF could signal economic distress, potentially weakening investor confidence and triggering capital outflows—risking a self-fulfilling crisis. Others worry about the domestic political costs of reforms, especially when these are politically sensitive and socially costly. For some large EMs, there may be additional reluctance to seek IMF financing, as doing so could be seen as inconsistent with their efforts to project economic self-reliance and regional influence. As a result, countries may delay requesting IMF financial support or turn to other layers of the GFSN, even when these alternatives are more costly or offer weaker incentives for sound policy adjustment (di Mauro and Zettelmeyer, 2017). Timely engagement and realistic and sustained adjustment are key drivers of program success.¹⁰ This could in turn help mitigate stigma over time.

32. The IMF has occasionally enacted SDR allocations to boost the supply of global reserves. SDR allocations make the SDR, an international reserve asset created by the IMF, unconditionally available to countries, boosting their reserves. A total of SDR 660.7 billion (equivalent to about US\$943 billion) has been allocated to date, with the last two allocations implemented during the GFC in 2009 and the Covid-19 pandemic in 2021, boosting the supply of global reserves and providing liquidity to help countries cope with these crises. SDR allocations are made in proportion to countries' quota shares at the IMF, which meant that EMDEs received about one-third of the 2021 allocation, providing a meaningful boost to their reserves.¹¹ Further, some countries have channeled their SDRs to the PRGT and RST, helping the Fund support vulnerable low and middle-income countries.

¹⁰ See the forthcoming Review of Program Design and Conditionality: Initial Considerations.

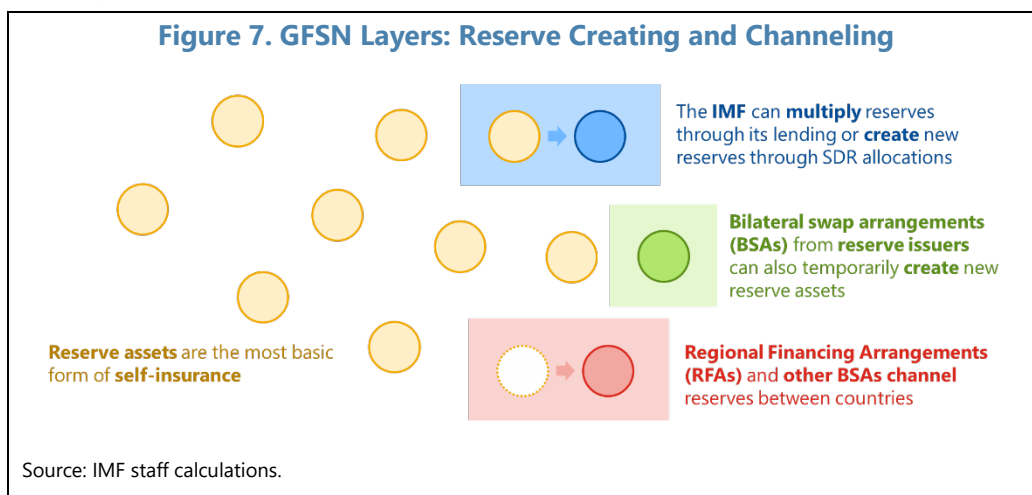
¹¹ Most countries (115 out of 142 surveyed), including a large majority of EMs (61 out of 72), reported using the SDR allocation to increase reserve levels (IMF, 2023). LICs reported wider variety in usage, with a majority (33 out of 53) at least partly using their allocation for fiscal support, including for pandemic-related spending.

E. Features of GFSN Layers and Coverage

33. Each layer of the GFSN has distinct strengths and weaknesses that determine how and when they are used. For example, reserves are highly predictable and immediately accessible but costly to hold. BSAs (other than those between reserve currency-issuing AEs) are less predictable and can be relatively costly. RFAs remain rarely used, and there are questions as to how quickly their resources can be deployed. IMF lending is universally available and provides strong policy content but may give rise to concerns about stigma. Given this mix of strengths, the layers can complement each other in responding to crises when coordinated effectively.

34. Quick and unconditional access to some GFSN layers— such as reserves or certain swap lines—can be of crucial value in times of crisis but can also weaken incentives for stronger policies. Quick and predictable access can help reassure markets at the onset of shocks and limit the risk of a generalized loss of confidence. However, unconditional access could also weaken countries' incentives to address macroeconomic imbalances. Conversely, tools with strong conditionality and qualification criteria—such as IMF arrangements—help promote policy discipline but may be less accessible or carry stigma. As a result, countries could delay seeking support, potentially worsening crises and increasing their cost domestically and globally. Ensuring predictable and rapid access to liquidity, while preserving strong incentives for sound policies, gives rise to an inherent tension in the design of GFSN layers.¹²

35. A key distinction among the GFSN layers lies in how they affect the supply of global reserves when extending financing. When activated, BSAs provided by reserve currency issuers, such as the Fed, temporarily create new reserves for recipient central banks, thereby boosting the global supply of reserve liquidity (Figure 7). Similarly, the IMF expands global reserves when it lends to member countries or implements an SDR allocation. In contrast, BSAs between non-reserve issuing countries and RFAs channel existing reserves between countries and among members without creating new reserves.



¹² Bilateral loans, including those provided as central bank deposits, to a country experiencing a BoP crisis could also give rise to moral hazard if they are extended without sufficiently strong incentives to resolve underlying macroeconomic imbalances.

36. Assessing GFSN coverage at the country level highlights its layered structure. Figure 8 shows estimates of individual countries' access to GFSN layers. A small group of countries can be considered to enjoy quasi-unlimited access either by virtue of being a reserve currency issuer or having access to standing, unlimited swap lines. This list, shown in Figure 8a, comprises the issuers of reserve currencies: the United States, China, the United Kingdom, Japan and the euro area.¹³ The ability to issue reserve currencies gives these countries significantly greater policy space, including enhanced capacity to pursue countercyclical fiscal stimulus and to expand central bank balance sheets. However, it can also contribute to policy complacency, reducing the urgency to correct imbalances or address underlying structural challenges. Canada and Switzerland are added to this list of countries with superior GFSN access thanks to their access to standing, unlimited Fed swap lines.¹⁴

37. For countries without reserve currency status or access to unlimited BSAs, GFSN coverage is highly uneven. Figure 8b measures these countries' reserves, BSA access, RFA access, and IMF borrowing capacity relative to their external liabilities. These estimates assume that countries would be prepared to draw down only a part of their reserves.¹⁵ The portion of reserves assumed available for use is shown above the horizontal axis, while the portion assumed unavailable appears below the horizontal axis. Regarding the other GFSN layers, RFA and BSA access is based on each arrangement's access limits, and IMF access is illustrated in the 200–600 percent-of-quota range (normal annual and cumulative access to GRA and PRGT resources).¹⁶ The resulting picture of individual access levels shows considerable disparity in size and composition across countries and country groups. As a share of external liabilities, median GFSN access across all countries is 17 percent, but half of the sample has access at either below 10 percent or above 30 percent. Notably, the median access within country groups under this metric is highest for LICs and lowest for AEs, but this largely reflects LICs' significantly lower levels of external liabilities.

¹³ Together, these currencies accounted for 93 percent of global foreign exchange reserves in 2024.

¹⁴ Concerns have emerged regarding the durability of these lines amid increasing political scrutiny. See McCauley, 2025 ("Avoiding Kindleberger's trap: A dollar coalition of the willing").

¹⁵ For the purpose of this exercise, it is assumed that countries are willing to use up to 50 percent of their reserves provided that reserves do not fall below 50 percent of the ARA metric (where available) or 1.5 months of imports.

¹⁶ Access to IMF resources above these limits is possible under the Exceptional Access Policy.

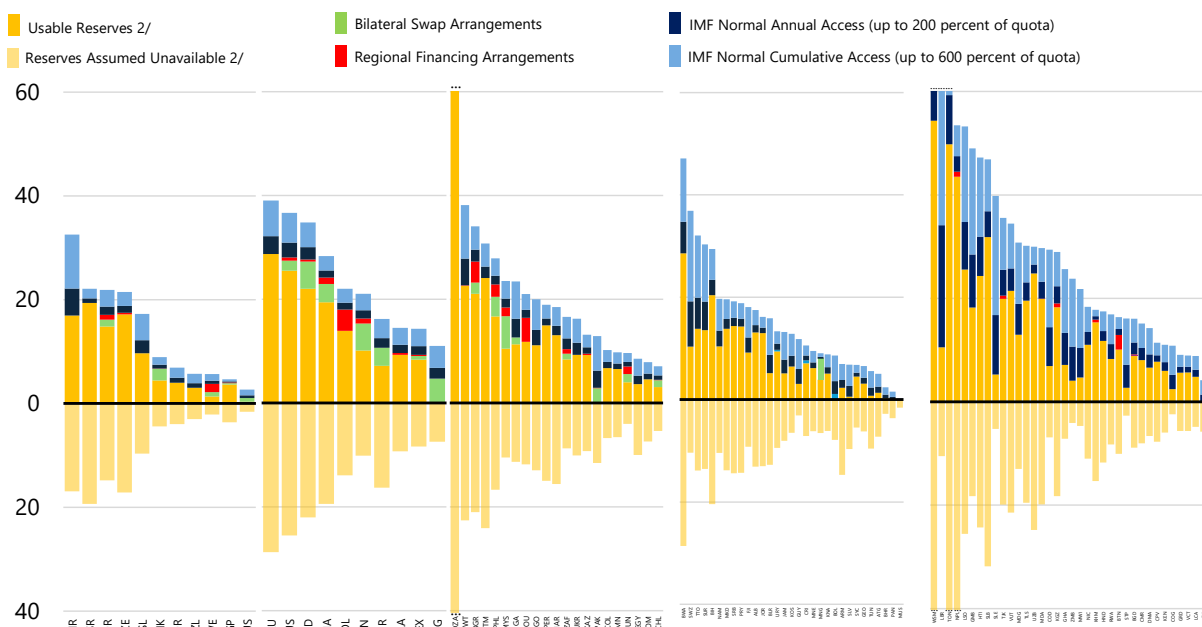
Figure 8. Access to GFSN Layers

a. Countries with Quasi-Unlimited Access to the GFSN layers 1/

Reserve issuers



b. Access to GFSN Layers (percent of IIP liabilities)



Sources: IMF BOP/IIP database, RFA and BSA information, IMF ARA database, IMF staff calculations.

1/ There is no single definition of a reserve currency. We refer here to the five currencies in the SDR basket (see IMF, 2022), whose issuers are the five largest exporters and which account for the majority of international financial transactions. But a wider set of nontraditional reserve currencies could also constitute reserve assets and share some similar characteristics.

2/ Countries are assumed to be able/willing to use up to 50 percent of their reserves as long as reserves remain above 50 percent of the ARA metric (if available) or 1½ months of imports. ARA metric figures are based on the baseline ARA EM metric and do not incorporate specific adjustments made in country staff reports.

38. Self-insurance and potential recourse to IMF lending remain the main forms of GFSN protection for the vast majority of EMDEs, especially LICs. Regarding the composition of countries' coverage, sources of available liquidity are relatively more diversified for AEs and large EMs, which in many cases can access both RFAs and BSAs as well as their own sizeable reserves. By contrast, LICs are typically more reliant on IMF financing because of insufficient reserves and limited coverage by BSAs and RFAs. For these countries, the IMF covers a median of 7 percent of their external liabilities compared to a median of 3 percent across the remaining income groups.

F. Performance Through Recent Crises

39. The global economy has faced a series of significant shocks in recent years. The Covid-19 pandemic was the first, causing widespread disruption to the global economy and financial system, including historically elevated uncertainty and market volatility, a sudden reversal of capital flows from EMDEs, and a sharp contraction in global output. Resulting supply chain disruptions, surging energy and food prices following Russia's invasion of Ukraine, and strong post-pandemic demand fueled by supportive policies led to a surge of inflation, prompting a globally synchronized cycle of monetary policy tightening in 2022–23.

40. Unprecedented policy responses helped cushion the economic and financial impact of the pandemic, softening the demands on the GFSN. Central banks cut interest rates and deployed a range of unconventional policy measures, including large-scale lending and asset purchases. For example, the Fed's asset purchases reached 21 percent of U.S. GDP, while the ECB acquired assets equivalent to 17 percent of euro-area GDP. At the same time, governments enacted significant fiscal stimulus, with the resulting borrowing pushing global public debt close to 100 percent of GDP by 2021. These interventions injected substantial liquidity into the global financial system, easing funding pressures and reducing the need for many countries to tap the GFSN in the early stages of the shock.

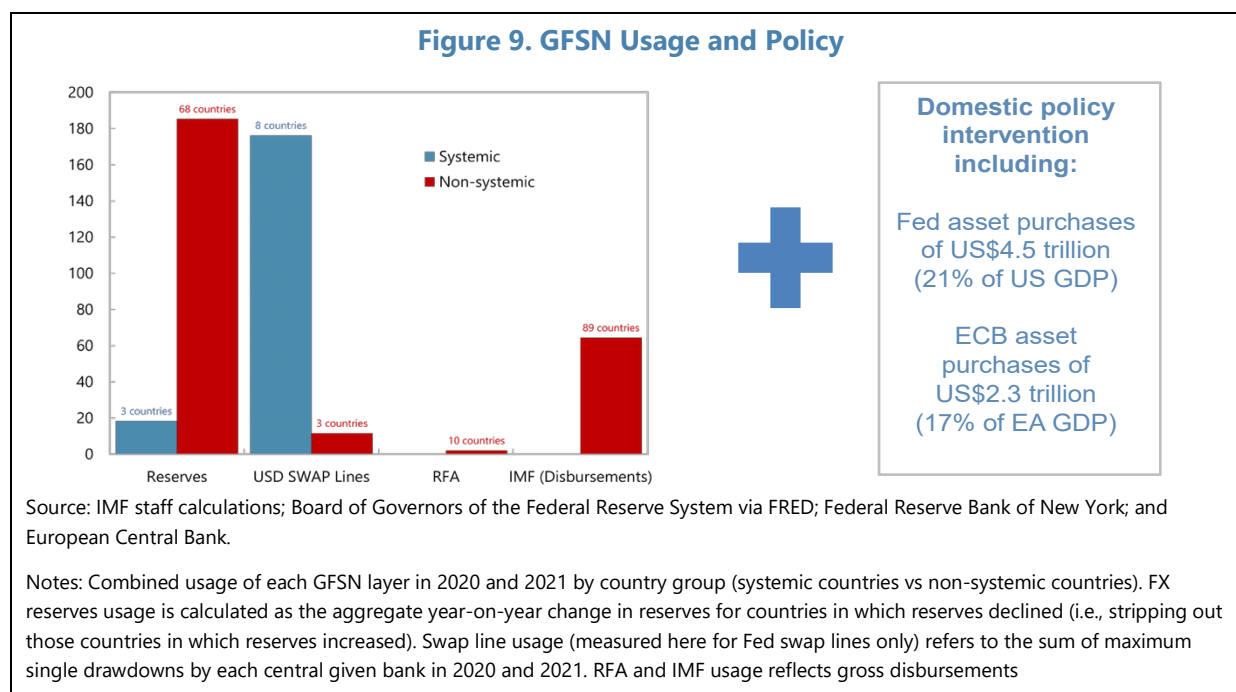
41. As the crisis evolved, the GFSN played a crucial role, providing liquidity to countries in need and helping mitigate spillovers. In total, countries drew hundreds of billions of dollars from the different layers of the GFSN (Figure 9). But the pattern of usage varied significantly across countries and over time, reflecting both uneven access to layers and the evolving nature of the shocks.

- **BSAs:** In the early stages of the pandemic, amid heightened uncertainty and financial market volatility, countries faced urgent liquidity needs. The small number of countries with access to swaps from the Fed drew large amounts, with usage peaking at over US\$400 billion in spring 2020. These swaps helped cover short-term market funding needs and signaled a globally coordinated policy response, with a stronger positive impact than typically associated with other BSAs (Perks et al., 2021). Use of other swap lines—such as those of the ECB and large EMs like China and India—also increased.¹⁷ BSA usage was relatively short-lived, reflecting the success of early policy measures in calming markets, even as the broader economic shock persisted. For example, the outstanding balance of Fed BSAs declined by half by summer 2020 and was almost entirely unwound by October of that year.
- **International Reserves:** Some countries relied on their reserve buffers to cushion the shock, but the scale of drawdowns in 2020–21 was relatively limited despite sizeable buffers (Iancu, 2021). Some did not see the need to draw down their reserves, possibly due to a combination of substantial policy support in major economies—with positive spillovers to the rest of the world—and the expanded availability of other GFSN layers. Others may have also been hesitant, given the risk that large drawdowns exacerbate market volatility. This dynamic shifted, however,

¹⁷ Usage of the ECB's central bank liquidity lines peaked in September 2021 at around EUR3.5 billion.

after inflation surged and major central banks initiated rapid monetary tightening through rate hikes and balance sheet reductions. In 2022, global reserves experienced their largest year-on-year decline in over two decades, driven by capital outflows from many EMs. The decline reflected broad-based reserve reductions among the largest holders, as many intervened to defend their currencies amid dollar appreciation.¹⁸

- **RFAs:** Despite their expansion in prior years, RFAs saw limited usage during the pandemic. In 2020, the AMF and the EFSD approved small loans, and the FLAR followed suit in 2021. Additional limited lending from the AMF occurred between 2021 and 2023, but overall, these amounts were small compared to the usage of other GFSN layers.
- **IMF Lending:** The Fund provided early financial support with an effective and agile response¹⁹ as demand for its financing reached a record level over the course of the pandemic and subsequent shocks. Initially, emergency financing played a dominant role. Over time, most new lending came from program arrangements, which entail policy conditionality to address BoP problems and take longer to deploy. More extensive vulnerabilities in low-income countries translated into an unprecedented increase in demand for concessional financing from the Poverty Reduction and Growth Trust (PRGT). In total, from 2020 to 2023, 83 countries availed themselves of emergency lending from the IMF, and 96 countries entered program arrangements, of which 35 featured concessional lending. Financing commitments, including under precautionary arrangements, totaled about US\$386 billion in 2020–24, with total disbursements reaching US\$160 billion.

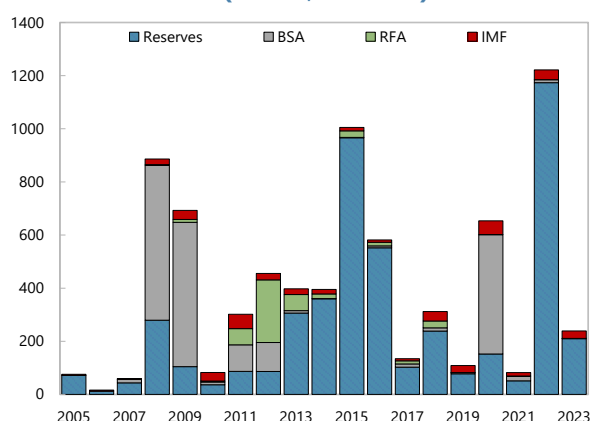


¹⁸ Some countries also used Integrated Policy Framework (IPF) tools to help manage volatile capital flows and disorderly exchange rate movements. See Rhee (2024).

¹⁹ IMF's IEO (2023).

42. Similar patterns of GFSN usage were observed in previous crises (Figure 10). The Fed’s swap lines were widely utilized in the early stages of the GFC, with usage peaking at over US\$500 billion. Countries also drew down their reserves, but the amounts were considerably smaller than in 2015–16 when EMs came under pressure against a backdrop of higher U.S. interest rates and falling commodity prices. With AEs relatively less affected in the latter episode, dollar swap lines were not deployed, and EMs—most notably China—relied on their own reserves. IMF lending increased markedly in response to the GFC and in subsequent years, while the RFA usage primarily came around the height of the more regionally-concentrated euro-area crisis in 2011–12. Coordination across the layers has been largely ad hoc, varying from crisis to crisis, with no structured mechanism to align their actions. While improvised arrangements have often delivered results, the absence of a well-defined coordination framework could hamper timely and coherent responses by the GFSN as a whole.

Figure 10. Drawdown of the GFSN by Layer, 2005–23
(in US\$ billions)



Sources: IMF staff calculations;

Board of Governors of the Federal Reserve System via FRED; IFS; and RFAs.

Notes: **IMF Lending** reflects gross disbursements converted to US dollars at the prevailing exchange rate at the time of transaction. **US Fed Swap Lines** usage is calculated as the maximum weekly drawdown in a given year. The usage of **swap lines in other currencies** is excluded given data limitations. **RFA usage** reflects gross disbursements converted to US dollars at the end-of-year rate, given data limitations. **FX reserves** usage is calculated as the aggregate year-on-year change in reserves for countries in which reserves declined (i.e., stripping out those countries in which reserves increased); valuation effects on FX reserves are not included.

THE GFSN IN AN EVOLVING GLOBAL ECONOMY

43. This section presents a forward-looking assessment of the GFSN, focusing on the potential impact of transformative forces. It examines how well the GFSN and its layers are prepared to respond to BoP shocks, including when these shocks are concentrated among countries that are most vulnerable to transformative forces—namely, digitalization in finance, geoeconomic fragmentation, and climate transition. The analysis begins with a qualitative assessment of how these forces could reshape the features and functioning of the GFSN layers. It then develops a scenario-based quantitative analysis to estimate the potential demand for GFSN resources in response to such shocks and compares this demand to available GFSN resources to identify coverage gaps.

A. Qualitative Implications

44. Transformative forces are poised to reshape the IMS and, by extension, the GFSN.

While there is significant uncertainty around how these forces will evolve, they are likely to increase the risk of systemic shocks—and the speed, scale, and complexity with which such shocks propagate—potentially posing challenges to the GFSN’s ability to respond effectively.

- **Digitalization in finance is rapidly transforming the financial sector and altering cross-border financial flows.** AI-integrated financial systems and new payment technologies could increase the intensity of financial shocks and accelerate their transmission (IMF, 2024). Meanwhile, the rise of digital currencies introduces contagion channels and novel risks²⁰,—for example, pseudo-dollarization could amplify countries’ exposure to financial crises. At the same time, nonbanks—now holding nearly half of global financial assets—play an increasingly central role in cross-border intermediation. These developments could amplify capital flow volatility, reduce the effectiveness of capital controls, and heighten countries’ exposure to sudden outflows.
- **Geeoeconomic fragmentation is rewiring trade and financial linkages and could hamper coordination during crises.** Tariffs, industrial policies, sanctions, and national security measures could deepen divides in trade and FDI, possibly giving way to a more bloc-based world economy. Increased fragmentation could also heighten countries’ vulnerability to capital outflows from politically distant countries (IMF 2023). Financial systems may also fragment, with competing currency blocs and digital payment ecosystems complicating cross-border transactions and regulatory oversight. These trends could slow the propagation of shocks through fewer trade and financial links, but they would also limit the positive spillovers of policy responses, weaken international risk sharing, and reduce the IMS’s capacity to absorb shocks. Over time, sustained fragmentation could also erode trust in global institutions and hinder global coordination (Aiyar et al, 2023).
- **The increasing frequency and severity of natural disasters threaten macroeconomic and financial stability.** Such shocks can shake investor confidence, triggering sudden capital flow reversals and currency pressures. They can also disrupt economic activity and strain public finances through emergency spending and reconstruction, pushing up deficits and debt levels and thus raising sovereign risk (Gardes-Landolfini, 2024).²¹ Over time, repeated shocks and the substantial investment required for recovery and adaptation can erode policy buffers and increase the likelihood of countries turning to the GFSN for support.

45. These developments could place new demands on the GFSN layers and elevate the importance of specific features (Table 2). As digitalization accelerates the speed at which capital moves and crises propagate, layers that can provide rapid liquidity—such as reserves and BSAs—will

²⁰ For instance, residents in some EMs have used digital money to bypass macroprudential measures to move large amounts of capital during crises (IMF, 2024).

²¹ See also “Climate Change: Physical Risk and Equity Prices”. In *Global Financial Stability Report, April 2020*. USA: International Monetary Fund: <https://doi.org/10.5089/9781513529196.082.ch005>

become increasingly critical. Beyond broader implications on the IMS, adoption of alternative reserve assets could affect the reliability and stability of reserves.²² At the same time, digitalization brings opportunities too: the same financial technologies that amplify contagion can also enable faster and more targeted crisis responses, enhancing the GFSN's ability to absorb shocks and protect economies. Goeconomic fragmentation could narrow the scope for coordinated crisis response, especially if geopolitical alignment considerations begin to outweigh shared economic stability interests. For example, the availability of swap lines could become increasingly dependent on strategic alignment between countries rather than economic factors ([Koosakul and Miksjuk, 2024](#)). Meanwhile, natural disasters could exacerbate an already difficult trade-off for vulnerable economies: whether to hold reserves as self-insurance against future shocks or to invest those same resources in building long-term resilience.

Table 2. Qualitative Implications of Transformative Forces for GFSN Layers				
	Reserves	BSAs	RFAs	IMF
Digitalization and use of AI in finance	Well suited for fast-moving shocks. Potential for adoption of alternative reserve assets as technology advances	Well suited for fast-moving shocks and may face pressure to expand	May face pressure to boost capacity, including responding faster to crises	Growing role for macro-financial surveillance and policy advice; potentially greater demand for precautionary/rapid financing
Goeconomic Fragmentation	Greater incentive to accumulate reserves if other layers are viewed as less reliable, potential for greater diversification of asset/currency mix	May face pressure to reflect political rather than economic considerations; reliability may become more uncertain	Potential for greater demand to organize support at the level of regional or political blocs	Risk that multilateral consensus is harder to achieve, possibly inhibiting access to financing and prospects for reform, notwithstanding the Fund's demonstrated ability to operate effectively under a complex environment
Climate Shocks	Accentuated trade-off between the cost of self-insurance through reserves and investment to build resilience	Limited coverage of the most climate-vulnerable countries and not suited to meeting protracted BoP needs	Uncertainty regarding mandate and resources; reduced capacity to pool resources if shocks are regional in nature	Higher demand for financial support to meet BoP needs over the longer term

B. Illustrative Estimates of GFSN Demand

46. This section employs a stylized scenario analysis to illustrate the potential demand on the GFSN layers. We produce four scenarios: a central, *historical* scenario, and three scenarios that

²² There is a debate over whether digital assets—and which specific classes—could be considered as reserve assets. The prevailing view is that stablecoins and other cryptocurrencies, which are privately issued and are not backed by the sovereign, do not currently meet the essential criteria of liquidity, stability, and regulatory clarity required for such a role. See BIS (2025), IMF (2024), and Copeland (2019) for further discussion.

consider the impact of transformative forces: *digitalization in finance*, *geoeconomic fragmentation*, and *climate shocks*. Each scenario features a systemic BoP shock applied to a distinct group of countries that are deemed both most vulnerable under the scenario in question and systemically important in global trade and financial networks. For example, the *historical* scenario applies to countries that have historically experienced the highest risk of capital flow reversals, while countries for the *digitalization in finance* scenario are selected based on their exposure to risks from digitalization in finance (e.g., use of AI in finance) which are assumed to be greater for economies with relatively more developed financial sectors (Table 3 describes indicators used to measure countries' vulnerability). Each scenario follows a three-stage methodology:²³

- Stage 1. For 190 countries representing nearly 100 percent of global GDP, we construct a country-specific composite index that combines a country's vulnerability under each scenario with its systemic importance in global trade and financial networks measured by the country's centrality score in the trade and financial networks. Countries above the 65th percentile of the composite index are selected.
- Stage 2. For each selected country, its external financing needs (EFNs) are shocked by assuming reduced debt rollover rates and FDI and deposit outflows, drawn from the 90th percentile of their country-specific historical distribution. Choosing the tail of the distribution reflects a conservative approach to ensure that the GFSN is prepared to respond to a severe crisis. For example, during the Covid-19 pandemic, nearly 60 percent of the countries that saw a decline in net FDI flows experienced drops in their FDI as large or larger than the 90th percentile of its historical distribution.
- Stage 3. A network model estimates spillover effects, through trade and financial links, by assuming that the selected countries default on their external obligations. This generates second-round EFNs among their trade and financial partner countries. In response, affected countries are assumed to take policy measures to reduce their EFNs, namely, tightening fiscal and monetary policies and drawing down reserves. If reserves fall below pre-defined thresholds set based on the relationship between the country risk premia and the level of reserves, these countries are also assumed to default, triggering further rounds of stress. The computation is iterated until there are no further defaults. The cumulative EFNs across all rounds are added to arrive at the estimated total demand for GFSN resources.

47. The methodology is built on the premise that the greatest demand on the GFSN under any given scenario arises when countries that are both most vulnerable to it and systemically important within the network experience an EFN shock. While Stage 2 features an EFN shock in each scenario, the set of countries to which the shock is applied varies across the scenarios. Moreover, because the EFN shock applied to each country is calibrated on the historical distribution of its external flows, the size and the nature of the shock vary significantly across the scenarios. This variation—in the set of countries in Stage 2, the magnitude of the EFN shock, and the distinct set of countries affected by spillovers through trade and financial linkages in Stage 3—gives rise to differing estimates of GFSN demand across scenarios. While this approach stops short of modeling

²³ See Annex II for further details.

“new” shocks that could arise from transformative forces, it ensures methodological consistency across the scenarios, enabling comparability while avoiding biases that could result from modeling each scenario separately.

Table 3. Country Selection in Stage 1

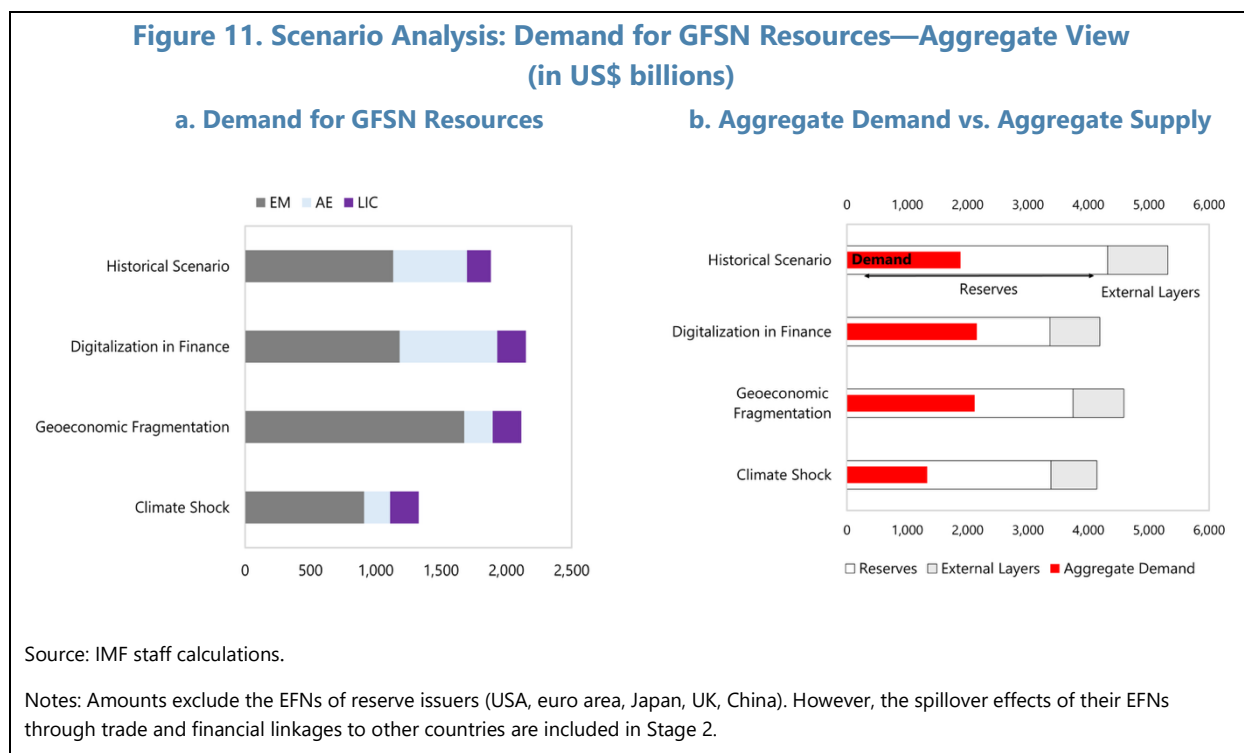
Scenarios	Indicators used to measure countries' vulnerability
Historical Scenario	Estimated risk of sharp reversals of capital flows based on historical data
Digitalization in Finance	Financial Development Index, used as a proxy to rank countries' exposure to risks arising from digitalization in finance
Goeconomic Fragmentation	- Capital flows at risk from politically distant creditors - Vulnerability to tensions between major blocs - Conflict metric from the International Country Risk Guide (ICRG)
Climate Shocks	- Vulnerability to climate change (IMF-adapted Notre-Dame Gain index score) - Preparedness to strengthen resilience

C. Adequacy of GFSN Resources

48. The historical scenario points to substantial demand for GFSN resources, reflecting the vulnerabilities of countries traditionally exposed to capital flow reversals. Similarly high demand emerges in scenarios illustrating the impact of transformative forces (**Figure 11a**).

- EMs have the highest estimated demand across all scenarios. This reflects their significant external liabilities, elevated vulnerability under all four scenarios, including the transformative forces, and high exposure to spillovers from other economies. EM demand peaks under the *geoeconomic fragmentation* scenario, as many risk finding themselves exposed to a breakdown in economic and financial linkages between competing blocs.
- AEs exhibit more moderate demand for GFSN resources. This is largely because reserve-issuing countries—all of which are AEs except for China—are assumed to absorb the full impact of the shock they face thanks to their quasi-unlimited access to reserves and therefore are not presented in the demand figures. This is a critical assumption—if reserve issuing-countries' policy space were to become constrained, limiting their ability to deploy large-scale policy easing in response to a crisis, demand for GFSN resources would rise significantly. Conversely, positive spillovers from strong policy response in AEs could reduce the demand for GFSN resources. Among the four scenarios, demand from AEs peaks under the *digitalization in finance* scenario, where their highly developed and interconnected financial systems make them more exposed to cross-border financial spillovers than EMs and LICs. LICs' low nominal demand across all scenarios reflects the small size of their economies and more limited trade and financial integration.

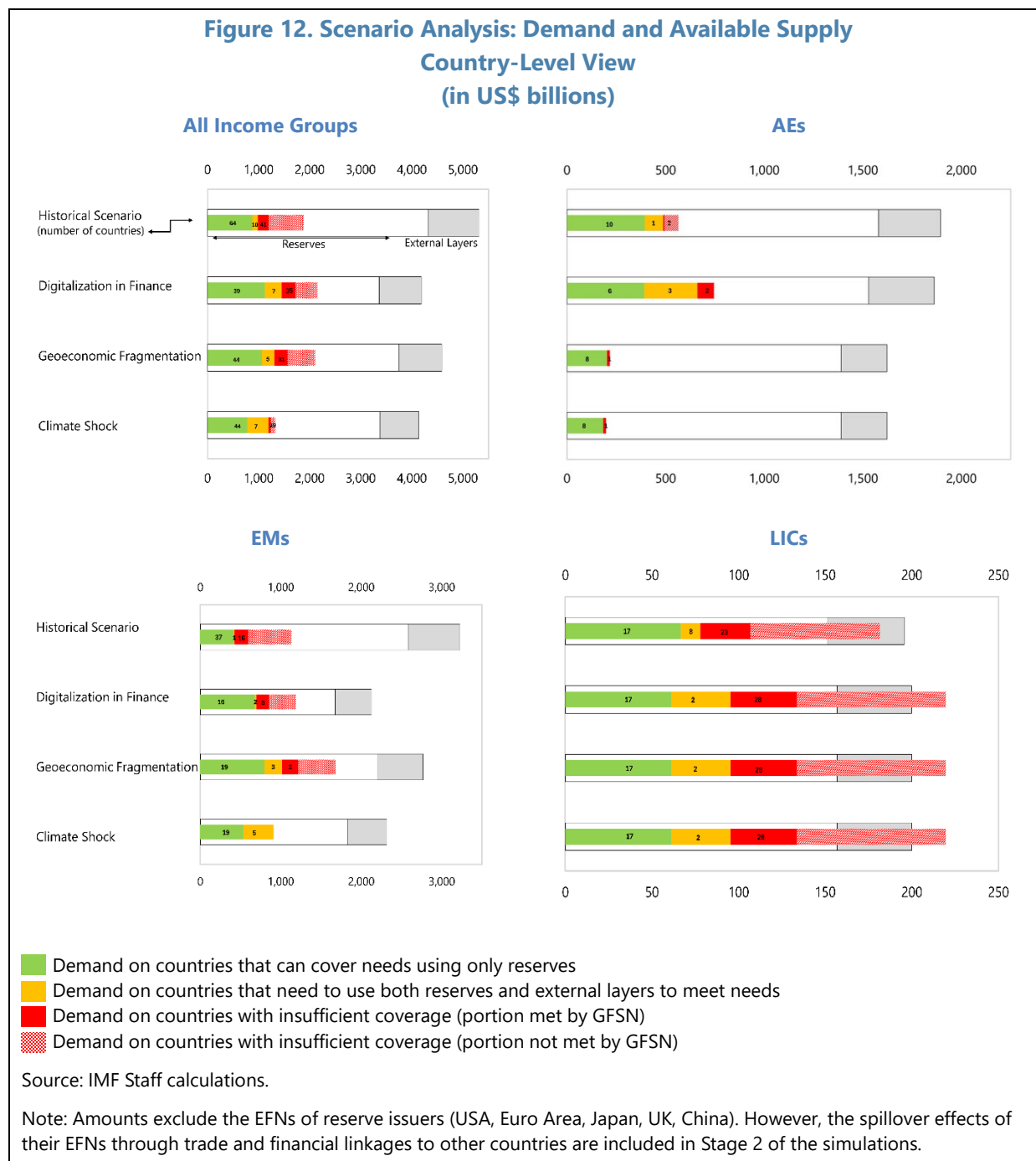
49. In aggregate, GFSN resources exceed total demand under the historical scenario as well as scenarios illustrating the impact of transformative forces. We compare aggregate demand for GFSN resources to their available supply under each scenario (Figure 11b). The latter comprises available reserves (defined as 80 percent of affected countries’ reserves) and countries’ access to external GFSN resources, where IMF resources are capped at 200 percent of quota.²⁴ Across all scenarios, aggregate GFSN resources exceed total demand, with the narrowest margin observed under the digitalization in finance scenario. However, given the non-fungibility of those resources, the adequacy of the GFSN should be assessed on a country-by-country basis, by comparing each affected country’s demand with the resources specifically available to it.



50. At the country level, the scenarios point to shortfalls of GFSN coverage, concentrated among EMs and LICs. The country-by-country analysis helps illustrate the share of demand met by the country’s reserves, the share met by external layers available to it, and the portion that remains unmet (Figure 12). Results show that all four scenarios result in sizeable unmet demand. Among country groups, EMs account for most of the unmet demand—with the historical scenario generating the largest unmet demand—a reflection of EMs’ significant external vulnerabilities and, for some, uneven access to GFSN layers. In contrast, unmet demand is relatively limited among AEs across all scenarios, with the *digitalization* scenario giving rise to the largest unmet demand. Limited GFSN coverage leaves LICs exposed across all four scenarios. Many have sizeable unmet demand to the extent that, even in aggregate, GFSN resources available to them would not be adequate to

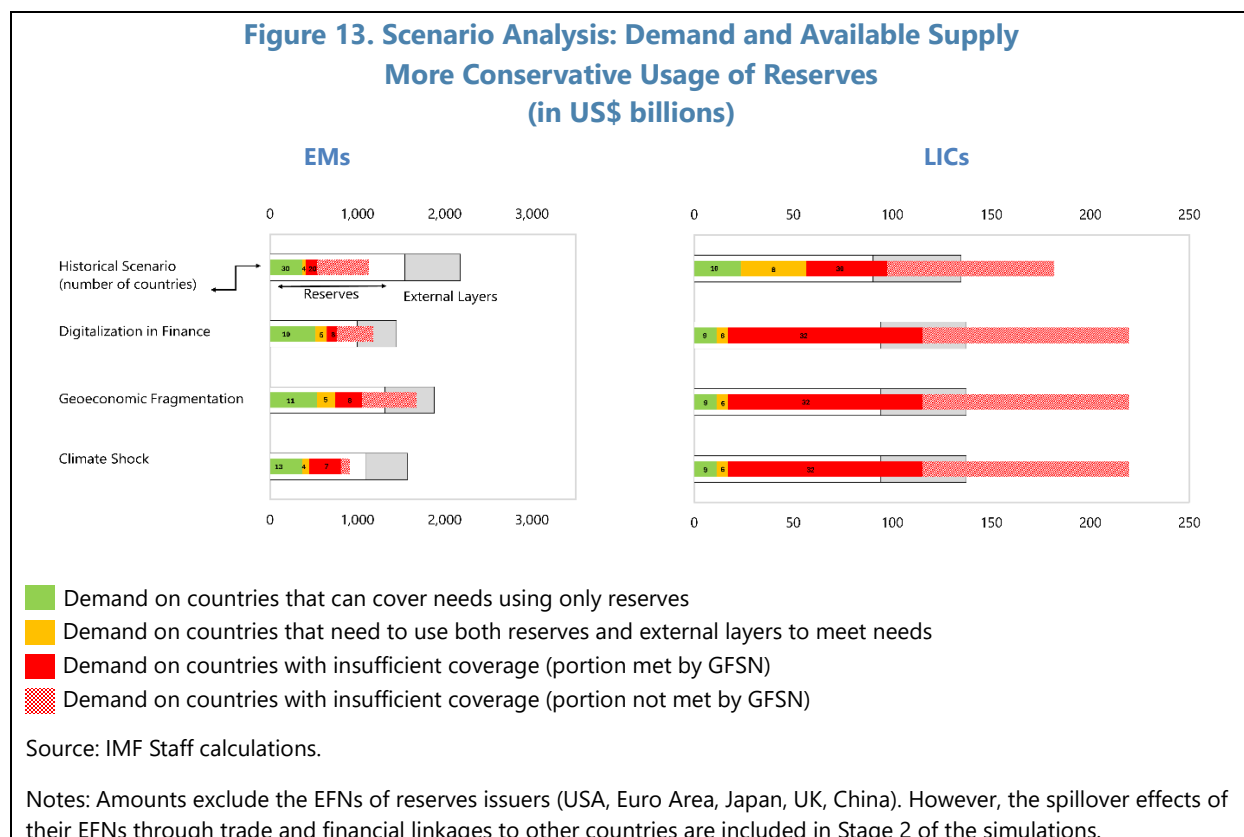
²⁴ For limited-amount BSAs, the contractual amount limit is considered, while for unlimited swaps, the amount is estimated based on known past usage. For RFAs, their lending capacity is used.

meet total demand. This suggests that, for LICs, GFSN coverage is not only uneven but also insufficient.



51. A more conservative assumption on reserves availability would significantly widen financing gaps for EMs and LICs across all scenarios (Figure 13). As discussed earlier, countries might be reluctant to draw down the bulk of their reserves even when facing a crisis. If they are assumed to be able or willing to use only 50 percent of their reserves—instead of the 80 percent assumed in the previous paragraph and Figure 12—unmet demand for GFSN resources would rise

sharply. It would also accentuate EMs' and LICs' dependence on the external layers of the GFSN with more countries needing the external layers to meet their demand. Lower use of reserves would also place an additional burden on policy tightening to reduce EFNs, with attendant costs for growth and investment.



52. The scenario analysis illustrates challenges arising from countries' uneven access to GFSN resources. Simulations suggest that most AEs and many EMs hold reserves or have access to the external layers of the GFSN that are broadly sufficient to meet their EFNs under the scenarios based on the transformative forces. However, for a group of EMs—some large economies—and most LICs, available GFSN resources would not be sufficient to meet the demand arising from a systemic shock under the historical scenario or under scenarios with transformative forces. Moreover, while the gaps appear modest relative to the overall size of the GFSN, they are substantial when compared to the resources available to individual economies. To close these gaps, vulnerable countries need to build reserves and restore policy space by pursuing sound macroeconomic policies. The findings underscore the need to strengthen the policy content of the GFSN to incentivize greater resilience building and crisis prevention, especially for large economies whose strong buffers and policies could help prevent the crisis from spreading and alleviate the pressure on the other layers of the GFSN.

CONCLUSIONS AND POLICY IMPLICATIONS²⁵

53. The GFSN has played a critical role in mitigating global shocks, with its effectiveness varying across crises and countries. It has generally performed well in helping countries adjust to and cushion the impact of idiosyncratic shocks. However, the GFSN did not have to bear the full brunt of systemic crises, as both the GFC and Covid-19 pandemic featured unprecedented policy responses—rapid and large in scale—by major economies. These actions helped stabilize financial markets and prevented broader contagion, generating significant positive spillovers that effectively reduced the burden on the GFSN.

54. Addressing weaknesses in the following four areas would strengthen the GFSN’s ability to deliver predictable, timely, and effective support.

- *Uneven access.* The small number of reserve currency-issuing countries and those with permanent unlimited swap lines enjoy quasi-unlimited protection. For all others, access to GFSN layers remains highly uneven; reserves are concentrated among a handful of countries, and only a limited number are covered by RFAs. As a result, most EMDEs, especially LICs, are heavily reliant on self-insurance and IMF support.
- *Limited predictability.* Beyond reserves, few layers of the GFSN provide truly automatic or pre-qualified access. This lack of reliable predictability—or in some cases, the perception of it—could lead countries to accumulate excess reserves as a precaution, which carries a quasi-fiscal cost and could contribute to global imbalances.
- *Insufficient crisis prevention.* Outside the IMF, which helps countries reduce vulnerabilities and strengthen resilience through lending, surveillance, and capacity development, few GFSN layers contain strong incentives for sound macroeconomic policies or offer mechanisms for early warning and crisis prevention—raising the risk of moral hazard.
- *Multilayered structure.* Coordination across the GFSN layers remains largely informal and ad hoc. This undermines the system’s overall coherence and could hamper its effectiveness in responding to systemic crises.

55. Looking ahead, the challenging global landscape—characterized by elevated uncertainty, policy shifts, low growth, and reduced policy space—could place greater pressure on the GFSN. With significantly eroded buffers, the capacity of major AEs to mount the kind of large-scale policy responses seen in past crises may be reduced, increasing reliance on the GFSN. For many countries, a low-growth, high-debt outlook could complicate the trade-offs between macroeconomic adjustment and financing when the next crisis hits. At the same time, transformative forces are likely to amplify the GFSN’s core weaknesses. A world shaped by digitized finance, intensified geoeconomic fragmentation, and more frequent natural disasters will require not only larger safety nets for vulnerable countries, but also GFSN layers that are more agile, better coordinated, and with more predictable access to financing.

²⁵ See Annex III for a summary comparison between this paper and the 2011 and 2016 stocktaking papers.

56. A stronger GFSN is essential for safeguarding global financial stability and supporting vulnerable economies. Advancing reforms to address its core weaknesses will require a broad coalition, including the IMF, central banks, including the major providers of BSAs, and RFAs. There is scope to strengthen the GFSN across four broad dimensions, some elements of which will be further explored in the context of the forthcoming Review of program Design and Conditionality and the Comprehensive Surveillance Review.

Enhancing Access to GFSN Layers

- *Rebuild reserves, where inadequate, through sound macroeconomic policies by countries, especially in LICs and vulnerable EMs.*
- *Explore options to strengthen the effectiveness of BSAs, including through greater public disclosure of terms, activation criteria, and, as appropriate, usage.*
- *Explore options for expanding the coverage and capacity of RFAs, especially in underserved regions.*

Expected Impact: More balanced access to GFSN resources would strengthen the resilience of vulnerable economies and, more broadly, reduce the incentives for costly and, in some cases, excessive self-insurance. Greater transparency would reduce uncertainty around access to GFSN layers and support confidence.

Risks/obstacles: Support for reforms to BSAs, including to expand access, may be limited, as these are governed by national central banks that are bound by their respective mandates and may be reluctant to take on greater risk. Expanding RFA coverage would require funding and political support, which may be difficult to secure.

Improving Predictability and Speed

- *Explore potential benefits of crisis management protocols across layers to accelerate and harmonize responses to systemic shocks.*
- *Explore options to enhance the predictability of access to different GFSN layers during crises, including pre-qualified and contingent instruments.*
- *Continue strengthening the effectiveness of the IMF's precautionary toolkit with a view to supporting countries with sound policies.*

Expected Impact: Improved predictability and faster access would reduce incentives for excessive reserve accumulation, lower crisis-related costs, and bolster market confidence—especially in the context of faster-propagating financial shocks.

Risks/obstacles: More automatic access may weaken incentives for stronger policies—both to prevent crises and to facilitate adjustment once a crisis hits—unless access is conditioned on sound ex-ante policies and robust safeguards.

Strengthening Crisis Prevention

- *Further strengthen monitoring of risks and vulnerabilities by the IMF—through enhanced surveillance, deeper analysis of spillovers and macrofinancial linkages, efforts to close data gaps, and improved understanding of how transformative forces affect the IMS.*
- *Explore options for BSAs and RFAs to strengthen incentives for sound policies, leveraging IMF assessments to better align policy advice and lending.*

Expected Impact: Better monitoring of risks and a more robust policy content in lending would incentivize countries to reduce vulnerabilities and strengthen crisis prevention.

Risks/obstacles: Stronger ex-ante conditions may discourage countries from seeking support from the external layers of the GFSN or lead them to prioritize less efficient self-insurance mechanisms.

Enhancing Coordination Across GFSN Layers

- *Strengthen coordination across GFSN layers, with scope for the IMF to play a greater role in convening stakeholders and coordinating crisis prevention and response.*
- *Explore options to deepen IMF-RFA collaboration, including through co-financing mechanisms without compromising institutional autonomy.²⁶*

Expected Impact: Better coordination would enhance the efficiency and effectiveness of GFSN interventions, especially during systemic events.

Risks/obstacles: Legal and political constraints may limit the extent of formal, structured coordination, while informal and case-by-case mechanisms remain feasible approaches.

ISSUES FOR DISCUSSION

Directors may wish to consider the following issues:

- Do Directors agree with the diagnosis presented in the paper? Namely that:
 - The GFSN has performed reasonably well during recent crises, helping cushion their impact and prevent broader economic disruptions.
 - Depleted policy buffers and the challenging global landscape could place greater strains on the GFSN in future crises.
 - Uneven country access and the multilayered nature of the GFSN make an efficient crisis response more difficult.
- Which areas do Directors see as critical for strengthening the GFSN in general?

²⁶ The IMF has been collaborating with RFAs, including through the annual high-level IMF-RFA dialogue and joint annual research seminars (Annex I, Table 2). These engagements provide a strong foundation for further deepening this collaboration.

- Regarding the Fund's role, do Directors support further strengthening Fund monitoring of risks and vulnerabilities; exploring options to enhance the effectiveness of precautionary facilities; and efforts to strengthen coordination with RFAs and BSAs?

Annex I. Regional Financing Arrangements: Main Features

1. This annex summarizes the main characteristics of the nine RFAs covered in the paper, listed in the chronological order of their establishment, reflecting the latest developments and earlier compilations (IMF 2017a, Cheng et al., 2018).

Table 1. Basic Information on RFAs

RFA, Date Established	Mandate	Members	Resources
Arab Monetary Fund (AMF), 1976	Address BoP issues and support monetary cooperation.	Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.	US\$3.7 bn of subscribed capital, with paid-in capital of US\$3.6 bn. (end-June 2025).
Latin American Reserve Fund (FLAR), 1978 (Andean Reserve Fund); opened to all LATAM countries in 1989	Address temporary and structural BoP imbalances.	Bolivia, Colombia, Costa Rica, Ecuador, Paraguay, Peru, Uruguay, and Venezuela; Chile (associate member).	US\$4.5 bn of subscribed capital, with paid-in capital of US\$3.4 bn. (end-June 2024).
Eurasian Fund for Stabilization and Development (EFSF), 2009	Address budget/BoP issues and support long-run development.	Armenia, Belarus, Kazakhstan, Kyrgyz Republic, Russian Federation, and Tajikistan.	US\$8.5 bn of subscribed capital, with paid-in capital of \$3.1 bn. (end-May 2025).
Chiang Mai Initiative Multilateralization (CMIM), 2010	Address liquidity issues.	China, Hong Kong SAR, Japan, and Korea; Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.	US\$240 bn of commitments, based on a multilateral currency swap arrangement. No paid-in capital.
European Stability Mechanism (ESM), 2012, replacing the European Financial Stability Facility (EFSF) created in 2010	Stability support to euro area member states experiencing, or at risk of severe financial distress.	Euro area member countries (Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.)	US\$835.3 billion (€708.5 billion) of subscribed capital, with paid-in capital of US\$94.5 billion (€81.0 billion) as of July 2025.
BRICS Contingent Reserve Arrangement (CRA), 2014	Address liquidity issues.	Brazil, China, India, Russia, and South Africa.	US\$100 bn of commitments, based on a currency swap arrangement. No paid-in capital contribution.

Table 1. Basic Information on RFAs (concluded)

Arrangements administered by the European Commission^{1/}		
Mechanism, Date Established	Mandate	Resources
Balance of Payments Assistance Facility, 2002	BoP support to EU-members outside the euro area.	No specific committed resources. Financed by EU borrowing, which is backed by the EU budget's headroom. 2/
European Financial Stability Mechanism (EFSM), 2010	BoP support to all EU-member states.	No specific committed resources. Financed by EU borrowing, which is backed by the EU budget's headroom. 2/

Sources: Individual RFA reports, RFA and European Commission websites, and IMF staff calculations.

Notes: 1/ The EU also has the Macro-Financial Assistance (MFA) for BoP support to non-EU members outside the euro area. MFA loans and grants are funded by the EU budget, and for exceptional cases, by the EU headroom 2/.2/ The EU BoP, EFSM, and MFA are arrangements administered by the European Commission (EC). The headroom is the difference between the maximum resources that the EC can call from member states in a given year and the EU's actual budgeted expenditure in the same year.

Table 2. Examples of IMF-RFA Collaboration

	Type of interaction	Objectives
Collective engagement with all RFAs	Joint IMF-RFA High-Level Dialogue	Annual event since 2016, to foster exchanges among principals on the outlook and policy challenges, and promote information sharing
	Joint RFA Research Seminar with IMF participation	Annual event since 2016, to foster analysis and discussion of common topics of interest and promote knowledge sharing
IMF engagement with individual RFAs	Annual high-level events	Regular IMF participation in RFA annual conferences
	Joint conferences and workshops	Regular events organized jointly by IMF and an RFA on common topics of interest
	Regular and ad-hoc exchanges	Exchanges between IMF country teams and individual RFAs on regional and individual country outlooks and macroeconomic policies, discussion of IMF policy changes
	Co-financing	Joint lending to expand the financing envelope and benefit from complementarities between the IMF and the RFA
	Enhancement of GFSN operational readiness	Joint test runs, staff exchanges and in-depth discussions of refinements to RFA frameworks
	Capacity development	Regular participation of RFA staff in training courses held online, at IMF headquarters and at regional TA centers

Source: IMF staff compilations.

Annex II. Simulation Methodology

1. The potential medium-term (MT) demand on the GFSN is estimated through indicative tail-risk scenarios that shock the external financing needs (EFNs) of selected countries. The approach used to estimate the impact of the identified trends on the GFSN is based on stylized simulations. While relevant indicators are used to identify countries most affected by the transformative forces, shock magnitudes are not derived from specific macroeconomic assumptions. Instead, capital flow shocks are drawn from the 90th percentile of past distributions to estimate the potential impact of these trends if they were to generate extreme shocks.

2. Four distinct scenarios are calibrated by the selection of countries vulnerable to three transformative forces (digitalization in finance; geoeconomic; and climate shock) in addition to a historical scenario where countries are selected based on their historical vulnerability to capital outflows irrespective of their vulnerability to a particular transformative force.

3. The analysis comprises **3 stages**: (i) countries are selected for each scenario whereby a vulnerability indicator or an index for a given force is combined with a country's centrality score to choose the vulnerable economies to that particular transformative force; (ii) EFNs of the selected countries are shocked by assuming debt rollover rates, and FDI and deposit outflows from their historical distribution; and (iii) a network model is used to estimate the spillover effects resulting from the EFN shock by assuming that the selected countries default on their external obligations, triggering a new series of defaults of the selected countries' trade and financial partners.

4. **Stage 1. Selection of Countries:** two elements are combined: (i) a country's network-centrality score (same score used in all scenarios); and (ii) its vulnerability indicator specific to the scenario in question. Countries falling in the top 65 percentile rank of the combined score are selected for a given scenario¹. Details of the different indicators used to compute the combined score for each scenario are provided below:

- *Network-Centrality score*: the geometric average of the network score (between 0-1), denoting a weighted count of trade and financial linkages by size and direction of country i where:

$$\text{Network Centrality}_i = \sum_{L=\{X,M,P,FDI,B\}} N_{\{i,L\}}^{\alpha} L_i^{1-\alpha}$$

and where L represents a vector of nominal flows of exports (X), imports (M), portfolio (P), FDI, and interbank lending (B); α is a centrality parameter, set equal to 0.5 (for equal weight between the count of linkages and their flows in the geometric average); and N is the number of trade and financial partners of country i for each flow in vector L .

¹ For the climate shock scenario, we select the region experiencing the largest EFNs under the shock. This approach reflects the more concentrated geographical nature of climate shocks relative to those under other transformative forces.

- *Financial Development Index* developed by the IMF is used to proxy the exposure to new risks arising from **digitalization in finance**,² assumed to be greater for economies with relatively more developed financial sectors. Among other factors, the index reflects the depth of financial systems, increases in which can lead to economic and financial instability by encouraging greater risk-taking and high leverage, especially if financial innovations are poorly regulated and supervised, (IMF 2015).
- *Geoeconomic Fragmentation Vulnerability Indicator* is used as a measure of exposure to **geoeconomic fragmentation** and takes the simple average of 3 percentile ranks of countries based on their:
 - Reliance on FDI and portfolio from politically distant creditors where political distance is proxied using voting data in the United Nations (UN). Following Bailey et al (2017),³ “ideal points” based on UN voting patterns are generated for each country using a dynamic ordinal spatial model. The political distance between two countries is denoted by the nominal difference between their “ideal points.” Countries are then ranked based on their weighted political distance to their FDI and portfolio creditors (by size of flows).
 - Vulnerability to trade tensions based on the potential negative growth impact countries could suffer from heightened fragmentation of trade networks.
- A conflict metric that uses the International Country Risk Guide (ICRG). The metric is a simple average of the “civil war and coup d’état threat” of the Internal Conflict Dimension and the “Cross-Border Conflict” of the “External Conflict Dimension” in the ICRG database.⁴
- *Climate Change Vulnerability Indicator* uses the IMF-adapted Notre-Dame Gain Index score, reflecting a country’s relative vulnerability to climate change in combination with its readiness to improve resilience.⁵
- *Sudden Stops Vulnerability Indicator* is used to assess countries’ historical vulnerability to capital outflows for the historical scenario.⁶ The indicator is based on the empirical relationship between sharp reversals in capital flows and significant economic downturns, referred to as Sudden Stops with Growth Impact (SSGIs).⁷

² IMF Financial Development Index Database: <https://legacydata.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b>.

³ The sample of countries most vulnerable to heightened trade tensions is selected using a general equilibrium trade model, to complement the other indicators of vulnerabilities.

⁴ The International Country Risk Guide (ICRG) by the PRS Group. <https://www.prsgroup.com/explore-our-products/icrg/>.

⁵ IMF and University of Notre Dame, Notre Dame Global Adaptation Initiative: <https://climatedata.imf.org/pages/adaptation#ad3>

⁶ Derived from the latest available VE model assessments.

⁷ The empirical model is estimated using predictor variables (ranging from financial sector risk indicators to debt levels) for 53 EMs, covering 183 sudden stop events between 1990 and 2017 of which 61 are classified as SSGIs. An event qualifies as an SSGI when net private capital inflows decrease by at least 2 percentage points of GDP compared

(continued)

5. **Stage 2.** Shock EFNs of the countries selected in Stage 1:

- Calculate MT gross EFNs based on World Economic Outlook (WEO) 5-year ahead forecasts.
- Calculate MT EFNs (subtracting FDI, deposits and short-term and medium-term borrowing.).
- Shock EFNs: instead of subtracting the baseline FDI and deposits, subtract FDI and deposits based on their historical distribution for each country, assuming:
 - 90th percentile of lower FDI and deposits, and 10 percent debt rollover.
 - Portfolio flows drop to zero.
- Subtract a fiscal consolidation impact equal to 0.7 percent of GDP from the shocked EFNs.
- Aggregate the shocked net EFNs of the selected countries.

6. **Stage 3.** Network Model:⁸

We assume that the selected countries from Stage 1 default on their external obligations. Spillovers to the defaulting countries' EFNs emerge from direct trade and financial exposures and are amplified through changes in risk premia and asset price co-movements, triggering cascading effects. To mitigate contagion, the countries affected are assumed to implement fiscal consolidation, exchange rate adjustments and tap into their reserves.

7. Formally, each country (node in the network) i is endowed with foreign exchange reserves at $t=0$ in an amount of $R_{i,0}$ dollars. BoP dynamics and hence the level of reserves at any moment in time are given by its trade and net foreign asset and liability positions against all its counterparts. The change in reserves of country i at time t ($\Delta R_{i,t}$) is described by the following expression:

$$\Delta R_{i,t} = \sum_{j \neq i}^n TB_{ij} (e_{j,t-1}) + \sum_{j \neq i}^n a_{ij} r_{j,t} e_{j,t} - \sum_{j \neq i}^n a_{i,j} r_{j,t} e_{i,t} + EF_{it}$$

Trade revenues + Return on net foreign assets - Return on net foreign liabilities + Reserve usage

8. The process moves forward whereby some of the trade and financial counterparties of the defaulting countries also default, producing a spillover financing gap; this is determined by a threshold of ARA that is consistent with empirical estimates.⁹ This process cascades further to all the countries affected in the network and repeats until there are no more defaults. In the process, none of the GFSN layers are assumed to be available to cover the external financing gaps except the countries' own reserves. Fiscal consolidation (equal to 1 percent of GDP as lower imports) and

to both the previous year and the two years prior; the country receives substantial financial support from the IMF; and the country's growth rate drops into the lowest 10th percentile relative to its own five-year average growth rate.

⁸ This model builds from IMF (2017c).

⁹ Affected countries are assumed to default if meeting their increased EFNs would take their reserves below 80 percent of their ARA metric. This is consistent with empirical estimates of the relationship between country risk premia and the ARA metric, IMF (2016).

exchange rate depreciation are assumed as policy responses.¹⁰ Finally, higher interest payments are added to the counterparties of defaulting countries based on a higher risk premium. Financing gaps net of the policy response and the higher risk premium from each default stage are added to the reserve usage to calculate the spill-over demand on the GFSN.

9. Available GFSN supply and Gaps: Results from the 2nd and 3rd stage are added to estimate the total potential demand on the GFSN from selected countries and the additional countries affected in the network. Available GFSN supply for each country affected is also computed. In the baseline comparison, available reserves are defined as 80 percent of the affected country's reserves; IMF resources are capped at 200 percent of quota; for limited-amount BSAs, the contractual limit is considered while for unlimited swaps, the amount is estimated based on known past usage (see the notes for figure 3); and for RFAs, their lending capacity is used. To simulate a more conservative use of reserves, their availability is assumed to be limited to preserve 50 percent of current reserves, 50 percent of ARA metric (where available), and 1.5 months of imports. The available supply is then compared to the demand calculated for each country affected to assess where there are gaps.

¹⁰ In response to an initial shock, a non-failed country in the top 25th percentile of direct exposure begins by depreciating its currency by 10%. Likewise, a country in the next 25th percentile is assumed to depreciate its currency by 5%. If needed, a country that needs external financing is allowed to depreciate another 5% in the subsequent period. -0.2 percent of GDP is the elasticity assumed for the drop in the CA deficit in response to the unit change in REER.

Annex III. Brief Summary of GFSN Stocktaking Papers

	Assessment	Recommendations
2011	- Global liquidity support by reserve-issuing central banks was effective, but uneven due to domestic mandates. (Fed swaps are selective, with uncertain availability, and may be limited in systemic crises.) - Extraordinary central bank support cannot be taken for granted and may be most suited to address interbank funding pressures. - Fund precautionary financing helped restore market access more rapidly, but Fund resources were still tapped with a lag and not fully utilized to ring-fence countries with strong fundamentals. - RFAs, bilateral support, and private sector involvement played an important role, but were focused on crisis resolution, not on crisis prevention.	Evenhanded and predictable liquidity provision to strong performers to stem contagion, including by enhancing flexibility in Fund toolkit. Minimize potential systemic risks through strengthening financial regulation, policies, and economic fundamentals. - Stronger surveillance of systemic risks. - Greater coordination on policy spillovers, latent systemic risks, and crisis response policies.
2016	- The GFSN serves well reserve-issuing AEs but has serious shortcomings for other borrowers and may not prevent global spillovers and contagion. - Borrowers' domestic policies and the nature of shocks may further restrict the set of available GFSN elements. - The GFSN fails to provide adequate policy incentives, especially in reserve-issuing AEs, resulting in a need for a larger GFSN. - Most countries need to use several elements of the GFSN to cover needs, raising coordination issues. - The unreliability of the GFSN leads countries to accumulate reserves, increasing the cost of the GFSN and leading to negative externalities. - The GFSN's shortcomings trace back to its fragmentation. - Expanding or improving the GFSN has not been fully successful.	Recommendations centered on Fund reforms: - Provide predictable and reliable financial support for crisis prevention and resolution, and more even coverage. - Use global reserve pooling to reduce reserve accumulation and improve cost. - Revisit the lending toolkit (immediate liquidity support, coverage for full shock duration, prequalification, state-dependency, support tailored to specific shocks). - Provide incentive for sound policies. - Limit coordination problems across layers. Strengthen cooperation through monitoring or policy signaling.
2025	- The GFSN held up reasonably well during systemic shocks, helped by unprecedented policy measures to cushion their impact. - GFSN layers are not substitutable among countries, access remains uneven, and global coordination is largely ad hoc. - Few layers offer reliable access, prompting countries to accumulate excess reserves—incurring quasi-fiscal costs and contributing to global imbalances. Most EMDEs rely heavily on self-insurance and IMF support. - Outside the IMF, few GFSN layers provide strong incentives for sound macroeconomic policies and crisis prevention. - A more challenging global environment and transformative forces could increase pressure on the GFSN.	- Enhance access to GFSN layers, especially for EMDEs, through rebuilding reserves and exploring options to strengthen the effectiveness of BSAs and RFAs. - Improve predictability and speed, by exploring triggers, crisis management, pre-qualified and contingent instruments, and strengthening the IMF precautionary toolkit. - Strengthen crisis prevention, through monitoring of risks, stronger BSA and RSA incentives for sound policies, and early warning systems. - Enhance coordination across GFSN layers, with the IMF playing a convening role, and further deepen IMF-RFA collaboration.

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