INTERNATIONAL MONETARY FUND

IMF POLICY PAPER

December 2022

REVIEW OF THE ADEQUACY OF THE FUND'S PRECAUTIONARY BALANCES

IMF staff regularly produces papers proposing new IMF policies, exploring options for reform, or reviewing existing IMF policies and operations. The following documents have been released and are included in this package:

- A **Press Release** summarizing the views of the Executive Board as expressed during its December 12, 2022 consideration of the staff report.
- The **Staff Report**, prepared by IMF staff and completed on November 16, 2022, for the Executive Board's consideration on December 12, 2022.

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PRESS RELEASE

PR22/451

IMF Executive Board Discusses the Adequacy of the Fund's Precautionary Balances

FOR IMMEDIATE RELEASE

WASHINGTON, DC – **December 20, 2022** The Executive Board of the International Monetary Fund (IMF) concluded the *Review of the Adequacy of the Fund's Precautionary Balances*.[1]

The Fund's precautionary balances—which consist of general and special reserves, except for the portion attributed to gold sales profits—are a key element of the IMF's multilayered framework for managing financial risks. Precautionary balances provide a buffer to protect the Fund against potential losses resulting from credit, income, and other financial risks. For this reason, they help protect the value of reserve assets represented by member countries' positions in the Fund and underpin the exchange of assets through which the Fund provides financial assistance to countries with balance of payments needs.

This review of the adequacy of the Fund's precautionary balances took place on the standard two-year cycle, after the December 2021 interim review. In conducting the review, the Executive Board applied the rules-based framework agreed in 2010. The framework uses an indicative range for precautionary balances, linked to a forward-looking measure of total IMF credit, to guide decisions on adjusting the target for precautionary balances over time. The framework also allows for judgement in setting the target, considering a broad range of factors that affect the adequacy of precautionary balances.

The Board also discussed the role of surcharges, which are primarily a component of the Fund's risk management framework but also contribute to the accumulation of precautionary balances.

Executive Board Assessment[2]

Executive Directors welcomed the opportunity to review the adequacy of the Fund's precautionary balances on the standard two-year cycle, after an interim review in December 2021. They emphasized the importance of maintaining an adequate level of precautionary balances to mitigate financial risks, safeguard the strength of the Fund's balance sheet, and protect the value of members' reserve positions in the Fund. Directors underscored the importance of adequate precautionary balances for the Fund's ability to lend to its membership.

Directors agreed that the current rules-based framework adopted in 2010 for assessing the adequacy of precautionary balances remains broadly appropriate. They emphasized that judgment and Board discretion remain an important part of the framework. Against the background of the recently approved Enterprise Risk Management framework, Directors welcomed the discussion of enterprise risks in the staff report and encouraged staff to work with

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[1] This press release summarizes the views of the Executive Board as expressed during the December 12, 2022 Executive Board discussion based on the paper entitled "Review of the Adequacy of the Fund's Precautionary Balances."

[2] At the conclusion of the discussion, the Managing Director, as Chairman of the Board, summarizes the views of Executive Directors, and this summary is transmitted to the country's authorities. An explanation of any qualifiers used in summings up can be found here: http://www.IMF.org/external/np/sec/misc/qualifiers.htm.

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the Office of Risk Management to ensure that all relevant risks are adequately incorporated in the assessment of precautionary balances.

Directors noted that precautionary balances have risen further since the interim review and coverage ratios have strengthened. At the same time, credit and other financial risks have also increased. Credit outstanding is close to historical peaks, driven by lending to some of the Fund's largest borrowers, and is estimated to remain on a higher trajectory than projected at the time of the 2021 interim review. Credit risk is heightened by a projected peak in repurchases in FY2023-25, mainly from the largest borrower and emergency financing. Near-term income risks have moderated but remain subject to concentration risks, while investment risks are elevated amid heightened volatility in financial markets.

Directors agreed that despite the higher trajectory of credit outstanding than projected at the interim review, the medium-term target for precautionary balances is expected to remain within the indicative range of the forward-looking credit measure and above its mid- point in the most plausible desk-based demand scenario. Moreover, commitments under precautionary arrangements have declined and the burden-sharing capacity has increased significantly since the interim review. Against this backdrop, Directors broadly agreed to retain the current medium-term target of SDR 25 billion. Some Directors argued for a higher target.

Directors agreed that the evolution of precautionary balances in relation to the target will need to be closely monitored amid the weakening global economic and financial outlook and heightened uncertainty, with risks unusually large and to the downside. Most Directors supported maintaining the regular two-year review cycle but would welcome an interim review should lending developments diverge significantly from the paper's projections, or credit and other financial risks rise materially, including due to changes in Fund lending policies. A few Directors considered that currently elevated risks and uncertainties warranted an interim review in 2023.

Directors broadly supported maintaining the minimum floor for precautionary balances of SDR 15 billion for now. They emphasized that an adequate minimum level of reserves should be maintained to ensure sufficient income and protect against an unexpected rise or deterioration in credit risks. Directors underlined that under the framework, the minimum floor is expected to be changed only occasionally, as it is based on long-term credit and income considerations, and agreed to revisit the adequacy of the minimum floor at the next review. However, some Directors would have preferred raising the floor in the current review.

Directors noted that the pace of reserve accumulation is slightly faster than projected at the time of the interim review and that, overall, it remains adequate, with the precautionary balance target projected to reach the medium-term target in early FY2025 under the baseline scenario with existing Fund arrangements, and in late FY2024 if new lending under the desk survey scenario is factored in. Directors agreed that no additional steps are needed to reach the precautionary balance target. The pace of accumulation should continue to be monitored closely.

Directors welcomed the opportunity to discuss the role of surcharges and staff's illustrative analysis of the financial implications of potential surcharge relief. Against the backdrop of a weakening global economy and financing pressures, most Directors were open to exploring possible options for providing temporary surcharge relief, with a few of these Directors supporting a change in policy. A number of other Directors, however, did not see merit in exploring such options at this stage. These Directors noted that the average cost of borrowing

from the Fund remains significantly below market rates, while also stressing the critical role of surcharges in the Fund's risk management framework.

Directors agreed that staff should continue to monitor the need for a successor SCA account. A number of Directors stressed the merits of this account to protect the Fund against provisioning for impairment losses and encouraged staff to explore funding options for the account.

INTERNATIONAL MONETARY FUND

November 16, 2022

REVIEW OF THE ADEQUACY OF THE FUND'S PRECAUTIONARY BALANCES

EXECUTIVE SUMMARY

Precautionary balances are a key element of the Fund's multilayered framework to mitigate financial risks. They consist of the adjusted balances in the general and special reserves and address residual financial risks of the Fund, notably from non-concessional lending, after applying other elements of the multilayered credit risk management framework.

This paper reviews the adequacy of the Fund's precautionary balances on the standard two-year cycle, after an interim review in December 2021. It uses the transparent and rules-based framework employed since 2010 to guide the assessment. Under this framework, the Board sets a medium-term target for precautionary balances based on a comprehensive assessment of risks facing the Fund and an indicative range of 20-30 percent for the ratio of precautionary balances to a forward-looking credit measure, as well as a minimum floor. The framework also envisages a role for judgment in setting the target.

Precautionary balances have risen further since the interim review and coverage metrics have strengthened. Precautionary balances amounted to SDR 21.6 billion as of end-September 2022, up from SDR 19.3 billion at end-July 2021. They now cover 3.1 percent of lending capacity, 11.8 percent of lending commitments and 23.7 percent of credit outstanding.

However, credit and other financial risks have also increased. Credit outstanding from the General Resources Account (GRA) is close to historical peaks and is expected to remain on a higher trajectory than earlier estimated. Credit to some of the Fund's largest borrowers has been the main driver of the increase. Credit concentration risks continue to be heightened by a projected peak in repurchases in FY2023–25. The weakening global economic and financial environment is likely to make the mobilization of balance of payments financing more challenging for Fund borrowers going forward and perceived credit risks as reflected by sovereign credit ratings and spreads of the Fund's borrowers remain elevated. Near-term income risks remain moderate but are subject to concentration risks. Investment risks are elevated amid heightened volatility in the prices of risky assets.

Staff proposes to retain the current medium-term target of SDR 25 billion and the minimum floor of SDR 15 billion. Despite the higher trajectory of credit outstanding than projected at the time of the interim review, the current target is expected to

remain within the indicative range of the forward-looking credit measure and above its mid-point in the most plausible demand scenario. Moreover, commitments under precautionary arrangements have declined and the burden sharing capacity has increased significantly since the interim review. However, with the global economic and financial outlook now substantially weaker and risks unusually large and to the downside, the precautionary balances target will need to be closely monitored. Staff proposes to maintain the normal two-year adequacy review cycle but would proceed with an interim review if lending developments diverge significantly from the paper's projections or if credit and other financial risks rise materially, including due to changes to Fund lending policies.

The pace of reserve accumulation is expected to remain adequate. Staff projects precautionary balances to reach the medium-term target in early FY2025 under the baseline with existing arrangements and in late FY2024 if new lending under the desk survey scenario is factored in, somewhat faster than estimated previously. Against the backdrop of higher credit risk, staff judges that a slightly faster accumulation of precautionary balances in these scenarios than earlier envisaged is adequate and thus does not propose any additional steps to reach the precautionary balances target.

While primarily a risk management tool, surcharges have significantly contributed to the Fund's operational income and the accumulation of precautionary balances. Their incidence across the membership and contribution to the Fund's operational income and accumulation of precautionary balances in the coming years is sensitive to the future demand for GRA resources. The average cost of borrowing from the Fund, including surcharges, remains significantly lower than market rates and the discount has increased recently. However, against the backdrop of a weakening global economy since the last inconclusive discussion on surcharges at the time of the December 2021 interim review, this review provides further technical background on the impact of potential temporary relief and offers another opportunity for Directors to express views on the merit of exploring temporary relief options.

Approved By
Bernard Lauwers (FIN)

Prepared by the Finance Department.

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Glossary

BOP	Balance of Payments
EA	Endowment Subaccount
EFF	Extended Fund Facility
FI	Fixed-Income Subaccount
FCL	Flexible Credit Line
FTSE	Financial Times Stock Exchange
FY	Fiscal Year
GSFR	Global Financial Stability Report
GRA	General Resources Account
IAS	International Accounting Standards
IFIs	International Financial Institutions
IFRS	International Financial Reporting Standards
PBs	Precautionary Balances
PFA	Post Financing Assessment
PPM	Post Program Monitoring
PLL	Precautionary Liquidity Line
RFAs	Regional Financial Agreements
RFI	Rapid Financing Instrument
RSBIA	Retired Staff Benefits Investment Account
RTP	Reserve Tranche Positions
SBA	Stand-By Arrangement
SCA-1	First Special Contingent Account
SDR	Special Drawing Rights
SLL	Short Term Liquidity Line
SRF	Supplemental Reserve Facility
SRP	Staff Retirement Plan
TBRE	Time Based Repurchases Expectation Policy
UCT	Upper-Credit Tranche
WEO	World Economic Outlook

INTRODUCTION[1]

1. **Precautionary balances are a key element of the Fund's multilayered framework to mitigate financial risks and safeguard members' resources.** They consist of balances in the general and special reserves and provide a buffer against potential losses resulting from credit, income, and other financial risks. Precautionary balances stood at SDR 21.6 billion at end-September 2022 compared to SDR 19.3 billion at end-July 2021, the last observation reported at the time of the interim review in December 2021.

2. **This paper reviews the adequacy of the Fund's precautionary balances on the standard two-year cycle.** The paper uses the transparent and rules-based framework employed since 2010 to guide the assessment, while also allowing for judgment. At the 2021 interim review, the Executive Board reaffirmed the indicative medium-term target of SDR 25 billion and minimum floor of SDR 15 billion. Directors also approved the replacement of accounting pension revaluation losses and gains with a measure that better reflects long-term economic and financial risk in the computation of precautionary balances. This paper discusses developments in financial risks and other considerations since the interim review and revisits issues discussed at that time.

3. **The current review takes place against the backdrop of a weakening global economic and financial environment.** The October 2022 World Economic Outlook (WEO) projects global growth to decelerate from an estimated 6 percent in 2021 to 3.2 percent and 2.7 percent in 2022 and 2023, respectively. Inflation has soared to multi-decades highs, prompting monetary policy tightening just as pandemic-related support is waning. The October 2022 Global Financial Stability Report (GFSR) notes that global financial conditions have continued to tighten on net, in most regions since April. Risks to the outlook are on the downside, as Russia's ongoing war in Ukraine and tensions elsewhere have raised the possibility of significant geopolitical dislocation, food and energy price shocks may cause inflation to persist longer, and global tightening of financing conditions could trigger emerging market debt distress.

4. **This review complements other Executive Board reviews of topics closely related to the Fund's precautionary balances**:

- The five-yearly Review of the Investment Account and Trust Assets Investment Strategy was completed on January 12, 2022. At this review, the Board approved investment strategy refinements for both the Endowment Subaccount (EA) and the Fixed-Income Subaccount (FI) of the Investment Account (IA), as well as a long-term return objective for the FI of 50 basis points over the SDR interest rate.

[1] Prepared by a team led by Joel Chiedu Okwuokei comprising Qianying Chen, Tetsuya Konuki, Marco Cobanera, Shan He with contributions from Emer Fleming, Diviesh Nana, Amadou Ndiaye, Enosa Okosodo Odibo, Vidhya A. Rustaman, Jesse Yang, and Jessie Yang, under the guidance of Andreas Bauer and Carlo Sdralevich (all FIN).

- The annual Review of the Fund's Income Position for FY2022 and FY2023-24 was discussed by the Board on April 28, 2022.[2] Directors agreed to maintain the margin for the rate of charge for IMF lending at 100 basis points over the SDR interest rate for FY2023 and FY2024.
- The review of precautionary facilities (FCL/PLL/SLL) is scheduled to be completed in the Spring of 2023. It will assess whether the existing facilities, including access and qualification frameworks, remain fit for purpose, and propose reforms as needed.

5. This paper is organized as follows. The first section reviews financial risks the Fund faces, the role of precautionary balances, and the framework that guides the assessment of reserves adequacy. The paper then discusses developments in precautionary balances and credit, income, and other financial risks since the 2021 interim review. The final section assesses the adequacy of the current medium-term target and the minimum floor, discusses the projected pace of accumulation of precautionary balances under different demand scenarios, and updates the analysis of the role of surcharges in reserve accumulation.

PRECAUTIONARY BALANCES AND THE FRAMEWORK FOR ASSESSING RESERVE ADEQUACY

Precautionary balances address residual financial risks of the Fund, notably those arising from non-concessional lending, after applying other elements of the multilayered credit risk management framework. As in previous reviews, the assessment of the adequacy of precautionary balances uses the transparent and rules-based framework adopted in 2010, which also allows for judgment.

A. Financial Risks and the Role of Precautionary Balances

6. The Fund faces a range of financial risks in fulfilling its mandate (Box 1).[3] Credit risk is inherent in the Fund's unique role in the international financial architecture and is typically the predominant risk. The Fund also faces risks to its liquidity and adequacy of lending resources, risks to operational income and cash flows, market risks, and risks of financial loss in operations.[4]

[2] See *Review of the Fund's Income Position for FY 2022 and FY 2023-24*.

[3] Financial risks are a component of the large set of enterprise risks that the Fund faces. Other enterprise risks include reputational risk, strategic risk, business risk, environmental, social and governance risk, and operational risk.

[4] The Fund has no exposure to exchange rate risk on its holdings of member currencies as Fund credit and borrowings are all denominated in SDRs, and members are required to maintain the SDR value of the Fund's holdings of their currencies. The Fund does not incur interest rate risk on its credit as the rate of charge is linked by means of a fixed margin to the cost of financing (the SDR interest rate).

Box 1. Typology of Fund Financial Risks and Mitigation

- **Credit risk** refers to any borrowing member's failure to fulfill its financial obligations to the Fund.[1] This risk can fluctuate widely because the Fund under its mandate does not target a particular level of lending or lending growth. Credit risk is mitigated using a multilayered framework (see below).

- **Operational income and cashflow risks** arise when the Fund's operational income and cashflows are insufficient to cover operational expenses and to accumulate precautionary balances to the target level. While the broadening of non-lending income sources under the Fund's 2008 income model is helping mitigate this risk, currently the Fund remains dependent on lending income to cover the bulk of its activities. Risk is managed by containing operational expenses, following a prudent strategy for the Investment Account (IA), setting the margin for the basic rate of charge on Fund lending at an appropriate level, and accumulating precautionary balances.

- **Adequacy and liquidity of lending resources risk** is the risk that available financial resources are insufficient to cover members' financial needs and to repay the Fund's obligations as they fall due, including under Fund borrowing agreements. Mitigation is provided through regular liquidity reviews in the near-term and quota reviews and Fund borrowing over the medium-term. In addition, the Fund retains a prudential balance of quota and borrowed resources to help manage liquidity risks and provide a buffer to support the encashability of members' reserve tranche positions and claims under borrowing, respectively.[2] Liquidity is monitored daily through the Forward Commitment Capacity (FCC), which measures resources available to finance new commitments over the next 12 months.

- **Financial risks related to the Fund's investment activities** refer specifically to assets held in the IA, comprising the Endowment Subaccount (EA) and Fixed-Income Subaccount (FI).[3] Market risk is the predominant source of risk in the investment portfolio. Market risks are mitigated through high-level strategic risk parameters defined in the Board approved Investment Rules and Regulations (Rules), additional key risk controls (e.g., credit rating threshold by asset, issuer concentration limits), and diversification requirements.

- **Operational risks** refer to the risk of losses attributable to errors or omissions in the Fund's day-to-day administration. These risks are mitigated through strong internal controls.

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[1] This can be related to, but is distinct from risks to program performance under Fund arrangements that give rise to review delays and unmet program conditionality.
[2] The prudential balance is currently set at 20 percent of the quotas of members participating in the financing of IMF transactions (Financial Transaction Plan members), because borrowed resources are not currently activated.
[3] Amounts in the FI subaccount generally correspond to the Fund's reserves that are treated as precautionary balances. Article XII, section 6(f)(ii) provides that the amounts of currency transfers from the GRA to the IA shall not at the time of the decision to transfer exceed the total amount of the general and special reserves.

7. Precautionary balances are a key element of the Fund's multilayered framework for managing credit risk from non-concessional lending.[5]

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[5] The Fund's concessional lending operations are trust-based, so the associated credit and liquidity risks cannot impact the GRA's balance sheet. In addition, Article V, Section 2(b) requires that financial services provided to the trusts may not be on the account of the Fund, and such operations cannot impact GRA resources.

- Precautionary balances provide buffers to absorb losses, should these arise as a result of credit, income, and other financial risks.[6] This function is critical to protecting the value of members reserve assets and underpinning the exchange of international assets through which the Fund provides assistance to members with financing needs.[7]

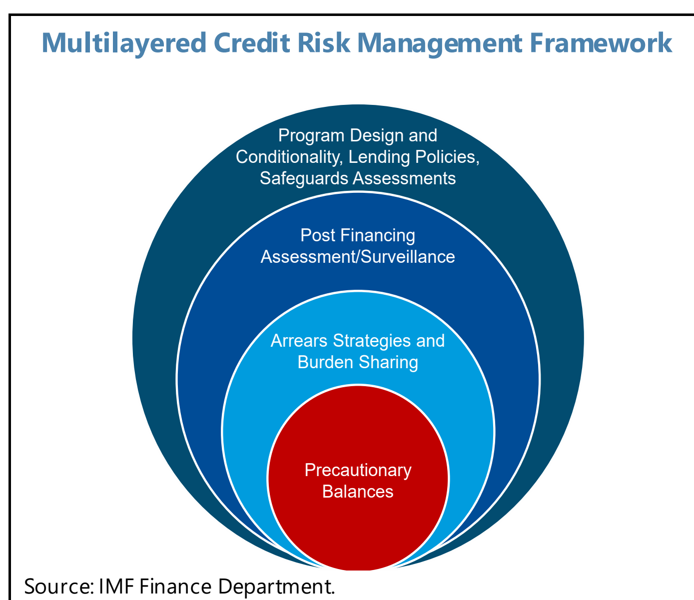
- Precautionary balances complement other key components of the multilayered risk management framework:

- *Program design and conditionality*, supported by a rigorous internal review process, are tailored to the borrowing country to help members resolve their balance of payments difficulties and address other vulnerabilities while supporting growth.

- *Lending policies*, which aim at helping members resolve their balance of payments difficulties, include elements designed to discourage long or excessive use of Fund resources (standard access criteria and limits, charges and surcharges, the exceptional access and early repurchase policies).

- *Safeguards assessments* aim to provide assurance that Fund resources are adequately monitored and controlled.

Multilayered Credit Risk Management Framework



Source: IMF Finance Department.

- *Post Financing assessments* allow the Fund to monitor and help strengthen policies affecting the repayment capacity of members with credit outstanding beyond the program period, as well as members with credit from outright purchases under emergency financing.[8]

- *The Fund's de facto preferred creditor* status supports its ability to lend when others may be unwilling or unable to do.

- *The cooperative arrears management strategy and the burden sharing mechanism* help address arrears when they arise and limit their impact on the Fund's income and balance sheet.

[6] For instance, the Fund drew on its precautionary balances during FY2007–08 and in FY2020 to cover net income losses.

[7] Although the Fund's gold holdings are another important factor of strength in the Fund's financial position, they are not included in the Fund's precautionary balances given the limitations and restrictions on their use.

[8] The Board renamed the policy in May 2021 from Post Program Monitoring (PPM) to Post Financing Assessment (PFA) (See Box 3 for details).

- *Precautionary balances* are available to absorb losses that may arise from any residual credit or other financial risks that could materialize after the application of the other risk management layers.

C. Precautionary Balances: Composition and Coverage

8. Precautionary balances currently comprise the general and special reserves:[9]

- *Special reserve* – established as a first line of defense to absorb administrative losses. It was funded initially by the proceeds from a gold investment program, and later with net income allocations. Under the Fund's Articles, no distributions (dividends) can be made from the special reserve.

- *General reserve* – established to absorb capital losses and meet administrative losses. It has been funded through net income allocations. Reserves accumulated in the general reserve may be distributed to members, in proportion to their quota, if the Board approves such decision by a 70 percent majority of the total voting power.

9. Prior to its full distribution in the context of Sudan's arrears clearance in 2021, precautionary balances also included balances in the First Special Contingent Account (SCA-1). This account held contributions by members accumulated through the burden sharing mechanism that were explicitly targeted to protect the Fund against potential credit losses resulting from an ultimate failure of members to settle overdue financial obligations to the GRA.[10] Distributions of SCA-1 balances have been used to facilitate the provision of debt relief for three protracted arrears cases (Liberia, Somalia, and Sudan). On May 10, 2021, the Board approved the distribution of the full remaining amount of resources in the SCA-1 of SDR 1,066 million in the context of Sudan's arrears clearance and debt relief.

10. Recent discussions on the future of the SCA-1, including during the 2021 interim precautionary balances review, yielded mixed views among Directors on the merits of a successor account. While there was broad recognition that the SCA-1 had served the Fund well over the past three decades in protecting the Fund against the need for provisioning for impairment losses, views differed on the merits of establishing a successor account, and Directors

[9] Precautionary balances do not include the portion of the special reserve attributed to the gold profits and invested in the endowment because, in setting up the endowment, the Board recognized that its sole purpose would be to generate income. On the asset side, the Fund's reserves treated as precautionary balances are either invested in the Fixed-Income subaccount or held in SDRs and currencies.

[10] The SCA-1 was funded during the period 1987–2006 mainly through the burden sharing mechanism by equal contributions from borrowing and creditor member countries via adjustments to the rates of charge and remuneration, respectively.

indicated a preference to prioritize Sudan's arrears clearance over any discussion of a successor account as the arrears clearance for Sudan was a more immediate need.[11]

11. Directors broadly agreed that staff should continue to monitor the need, and opportunities, for further SCA funding, and the viability of different funding options. Any such new funding would require the Executive Board to agree on a new framework for the operation of the account. While the burden sharing capacity has increased since the interim review (see further below), staff does not see a case for its use to provide SCA funding at this juncture, considering the additional burden this would impose on both debtors and creditors in the current challenging global financial environment. Other funding options for a successor account considered by staff raised potential issues related to members' willingness to provide funding and/or make contingent pledges, timing of domestic approval processes, and other operational matters.[12] More generally, staff considers the current pace of precautionary balances accumulation to be adequate (see assessment further below).

D. Framework for Assessing Precautionary Balances

12. The current rules-based framework for assessing precautionary balances was adopted in 2010.[13] Under this framework, the target for precautionary balances is to be broadly maintained within an indicative range linked to a forward-looking measure of credit outstanding. At the same time, the Board retains flexibility to determine where the target should be set based on a comprehensive assessment of the financial risks facing the Fund. While it is generally envisaged that the target will be maintained within the indicative range, there could be circumstances in which the Board would decide to set or maintain a target outside the range, as was the case in the 2016 and 2018 reviews, if warranted by a broader assessment of financial risks. In this context, the Board has repeatedly stressed the importance of judgment.

13. The assessment framework entails several elements (Figure 1):

- *An indicative range for the reserve coverage ratio*, set at 20 to 30 percent of a forward-looking measure of credit outstanding. This element draws on approaches in other International Financial Institutions (IFIs) adapted to the specific circumstances of the Fund (in particular the demand-driven nature of its lending portfolio);[14]

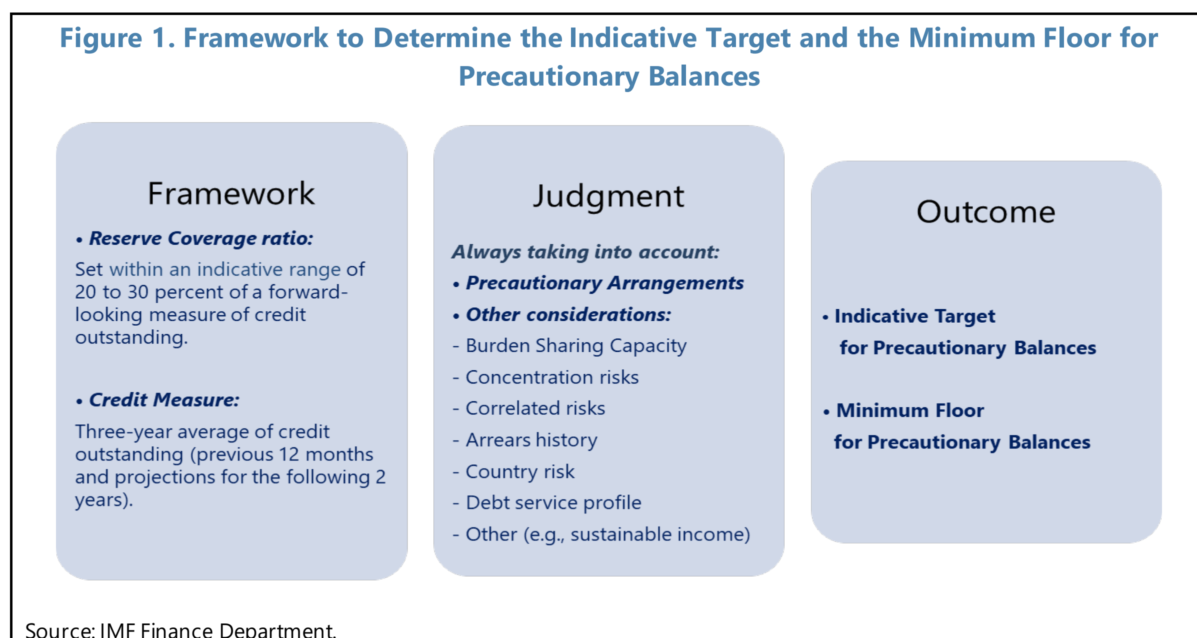
[11] Executive Directors held informal discussions on the role of the SCA-1 at the January 13 and March 15, 2021 meetings, in the context of discussing financing modalities for the Sudan's arrears clearance and debt relief.

[12] See *Interim Review of the Adequacy of the Fund's Precautionary Balances.*

[13] See *Public Information Notice: IMF Board discusses the Adequacy of the Fund's Precautionary Balances*, *Review of the Adequacy of the Fund's Precautionary Balances*.

[14] The framework also has elements in common with the methodologies used by rating agencies in assessing capital adequacy in supranational lending institutions (see Annex II in *Review of the Adequacy of the Fund's Precautionary Balances*. The quantification of potential losses from operational risks is not explicitly included in the current adequacy assessment framework. Adjustments to incorporate operational risks could be considered once proposed changes to the Fund's enterprise risk management framework have matured.

Figure 1. Framework to Determine the Indicative Target and the Minimum Floor for Precautionary Balances



Source: IMF Finance Department.

- *A specific forward-looking credit measure* to anchor the range—the three-year average of credit outstanding covering the past twelve months and projections for the next two years—which helps smooth year-to-year volatility of credit movements.[15] Commitments under precautionary arrangements are excluded from the credit measure used to derive the indicative range, but are considered by the Board in setting the target; and

- *A minimum floor to protect against an unexpected increase in credit risks, particularly after* periods of low credit, and ensure a sustainable income position.[16]

14. The Board has increased the target for precautionary balances three times since 2010 and the minimum floor once (text table). The Board agreed in 2010 to raise the indicative medium-term target by SDR 5 billion to SDR 15 billion, considering the sharp increases in commitments and actual and projected lending, the projected increases in individual exposures, and the limited capacity of the burden sharing mechanism. The target was further increased to SDR 20 billion in 2012, and reaffirmed in 2014, 2016, and 2018, even though the target exceeded the indicative range in the last two reviews. The target was set at SDR 25 billion in the 2020 review due to a sharp increase in the demand for Fund lending in the wake of the pandemic and reaffirmed in 2021. A minimum floor of SDR 10 billion for precautionary balances was agreed in 2010 and reaffirmed in the 2012 and 2014 reviews. The floor was increased to SDR

[15] The two-year projection is based on scheduled net disbursements under existing non-precautionary arrangements. The methodology does not require an explicit analysis of possible future arrangements or for delays in scheduled disbursements or early repurchases. Scenario analysis can be used to show how the indicative range would be affected by different projections, which in turn can inform Board judgment.

[16] While Fund credit is highly volatile and can increase rapidly, it takes a considerable time to rebuild precautionary balances. Thus, the floor provides a buffer in the face of an unexpected increase in credit risks. The floor is kept under review in light of changing conditions and longer-term trends in Fund lending.

15 billion in 2016 as this was seen as more consistent with maintaining a sustainable income position in the medium term and would also provide a larger buffer to protect against risks associated with any unexpected rise in credit. The SDR 15 billion floor was then reaffirmed in the subsequent reviews.

The Floor and Target Agreed at Each Review, 2010–21
(In billions of SDRs)

Review year	Floor	Increase? Yes/No	Target	Increase? Yes/No
Before 2010	-	-	10	-
2010	10	No	15	Yes
2012	10	No	20	Yes
2014	10	No	20	No
2016	15	Yes	20	No
2018	15	No	20	No
2020	15	No	25	Yes
2021	15	No	25	No

Source: IMF Finance Department.

15. The framework applies to precautionary balances as a whole. The Board has not adopted separate targets for the sub-components, i.e., balances in the special and general reserves and the SCA-1 prior to its full distribution in June 2021. The appropriate distribution of net income between the special and general reserves is considered by the Board each year as part of the annual review of the Fund's income position.

DEVELOPMENTS SINCE THE INTERIM REVIEW

Precautionary balances have increased further since the interim review and coverage metrics have strengthened. However, credit and other financial risks have also increased somewhat. Credit outstanding is close to historical peaks and is expected to remain on a higher trajectory than projected at the time of the 2021 interim review. Concentration of credit toward the largest borrower and outstanding emergency financing remain elevated. Credit concentration risks continue to be heightened by a projected peak in repurchases in FY2023–25. Near-term income risks have moderated and are mitigated by an increase in the capacity of the burden sharing mechanism but remain subject to concentration risks. Investment risks are elevated amid heightened volatility in the prices of risky assets.

A. Size and Coverage of Precautionary Balances

16. Precautionary balances have increased further since the 2021 interim review (Figures 2A and 2B). Balances reached SDR 21.6 billion at end-September 2022, up from SDR 19.3 billion at end-July 2021, reflecting mainly higher lending income and a positive one-off adjustment of SDR 205 million to reverse the impact of the cumulative IAS 19 pension gains and losses which were previously included in their measurement (Box 2). The general reserves are

estimated at SDR 13.2 billion and the special reserves at SDR 9.6 billion at end-September 2022 before adjusting the cumulative pension related (IAS 19) gains/losses of SDR 1.2 billion. [17]

Box 2. The New Approach for the Treatment of Pension-Related Revaluations in Precautionary Balances

Directors approved a new approach for pension-related revaluations at the Interim Precautionary Balances Review in December 2021.[1] The approach aims at better isolating the volatility in the level of precautionary balances stemming from pension-related (IAS 19) accounting gains or losses, driven mainly by the periodic remeasurement of the defined benefit obligation and the revaluation of plan assets.

Specifically, the new approach: (i) reflects the role of precautionary balances as a long-term buffer for economic and financial risks; (ii) recognizes that income volatility stemming from the pension-related gains and losses cannot be eliminated for financial reporting under International Financial Reporting Standards; (iii) replaces the accounting valuation of the net pension-related assets and liabilities with a more long-term economic measure applied prospectively commencing in FY2022, and takes a more prudent stance on any economic gains; and (iv) entails monitoring of the economic impact for potential material underfunded positions.

The adoption of the approach entailed a positive one-off adjustment of SDR 205 million to precautionary balances commencing May 1, 2021. The adjustment reversed the impact of the cumulative IAS 19 gains and losses previously included in the Fund's precautionary balances measurement under the accounting basis. Going forward, the annual IAS 19 (accounting) net periodic pension costs (in administrative expenses) and remeasurement gains and losses would be excluded under the new approach for calculating precautionary balances. Accordingly, the Fund's precautionary balances now comprise the special and general reserves, which reflect the accumulation of reserves under the accounting basis (excluding the portion attributable to gold sales profits) adjusted for the impact of the cumulative IAS 19 gains and losses.

1/ See Interim Review of the Adequacy of the Fund's Precautionary Balances.

17. Key precautionary balances coverage metrics have strengthened somewhat. At the time of the interim review, precautionary balances were 2.7 percent of lending capacity. This ratio has increased further to 3.1 percent as at end-September 2022 (Figure 2C). The coverage relative to commitments reached 11.8 percent, up from 10.5 percent. Precautionary balances are now equivalent to 23.7 percent of credit outstanding, compared to about 21.1 percent previously. The coverage relative to lending capacity is now exceeding pre-pandemic levels.

[17] Assumes equal allocation of income earned through end-September.

Figure 2. Precautionary Balances: Composition, Accumulation, and Coverage

A. Accumulation

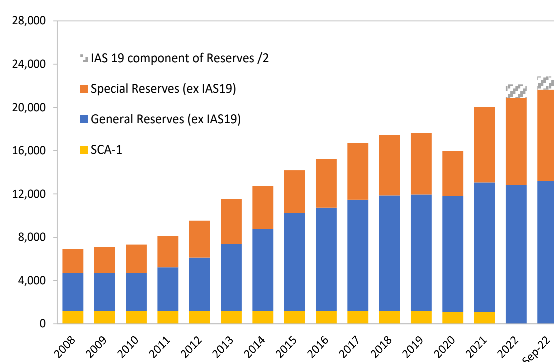
(In billions of SDR)

	FY2022 (YTD end-July)	FY2022	FY2023 (YTD end-Sept)
I. PB - beginning of period	20.0	20.0	20.9
II. IAS19 cumulative adjustment		0.2	
	20.0	20.2	20.9
III. Operational income	0.7	2.6	1.2
lending income incl. surcharges	0.7	2.6	1.2
non-lending income [1]	0.0	0.0	0.0
IV. Admin expenses	-0.3	-0.9	-0.4
V. Net operational income (III - IV)	0.3	1.7	0.7
VI. Distribution of SCA-1	-1.1	-1.1	
VII. PB - end of period	19.3	20.9	21.6

* Numbers may not add up due to rounding.

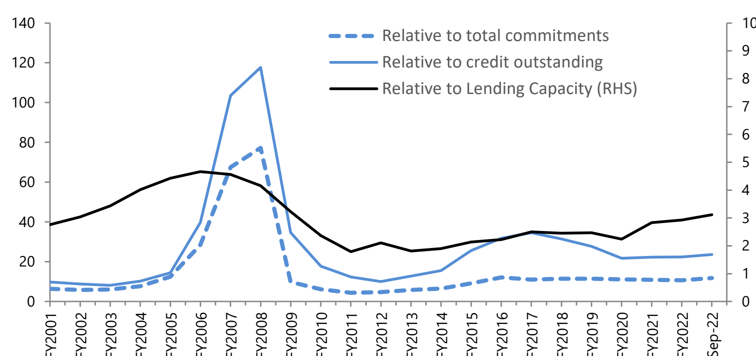
B. Composition: 2008–September 2022

(In millions of SDRs, end of financial year)



C. Coverage Ratios: 2001–2022

(In percent, end of financial year, unless otherwise specified)



Source: IMF Finance Department.

[1] Non-lending income in FY2022 was limited to implicit income from interest free resources as the FI incurred a loss during the year.

[2] Starting FY2022, precautionary balances exclude cumulative IAS 19 gains and losses from special and general reserves.

B. Credit Risk

18. Credit outstanding is close to historical peaks (Table 1, Figure 3). Fund credit outstanding rose to SDR 95.2 billion in March 2022, its highest level in the Fund's history, but has declined somewhat since then to SDR 91.1 billion as of end-September, about SDR 1.4 billion higher than the level at the time of the interim review. The small increase reflects disbursements from 13 existing Fund arrangements, predominantly Extended Arrangements, approved since 2018 and disbursements from four new arrangements approved since the interim review, as well as a new Rapid Financing Instrument (RFI) for Ukraine.[18] These exceeded repurchases from 20

[18] Ukraine canceled the Stand-by Arrangement in 2022 Q1 following Russia's invasion and made a purchase under the RFI, as well as a purchase under the new Food Shock Window in October 2022.

other Fund arrangements and Tanzania's RFI.[19] Lending to some of the Fund's largest borrowers—SDR 1.3 billion for Ecuador and SDR 0.9 billion for Pakistan—was the main driver of the increase. [20] Greece no longer has outstanding credit to the Fund after making an advance repayment of SDR 1.5 billion in April 2022. Disbursements under new Fund arrangements, besides Argentina, were relatively modest, at SDR 0.2 billion.

Table 1. Credit Risk Indicators and Precautionary Balances Metrics: Current Versus Interim Review

(SDR billion, End-September 2021 and 2022, unless otherwise indicated)

Indicators	2021	2022	Change
Risks			
Total commitments	181.9	182.4	↑
Level of precautionary arrangements	81.1	62.9	↓
of which commitments under FCL and PLL arrangements	80.4	62.6	↓
Credit outstanding			
Actual	89.7	91.1	↑
Projected peak	92.8	98.7	↑
Largest individual exposure			
Actual	30.6	30.7	↑
Projected peak	30.6	34.2	↑
Credit concentration			
Top 5 (in percent of total)	67.8	68.8	↑
Top 1 (in percent of total)	34.1	33.7	↓
Share of largest regional exposure in total commitments (percent)	68.9	71.1	↑
Share of RFI in the credit portfolio (percent)	17.3	18.1	↑
Weighted sovereign credit rating of Fund credit exposures (S&P)	14.5	14.7	↑
Weighted Sovereign Spreads of Largest Five Borrowers (basis points)	1118	2434	↑
Share of Fund credit of members rated CCC to CC and SD (percent)	40.4	44.7	↑
Arrears	0	0	→
Buffers			
Precautionary balances 1/	19.3	21.6	↑
Precautionary balances (in percent of) 1/			
Credit outstanding	21.1	23.7	↑
Total commitments	10.5	11.8	↑
Lending capacity	2.7	3.1	↑
Burden sharing capacity (SDR millions)	15.2	657.0	↑
Others			
Lending capacity	709.4	692.3	↓

1/ As of end-July for 2021.

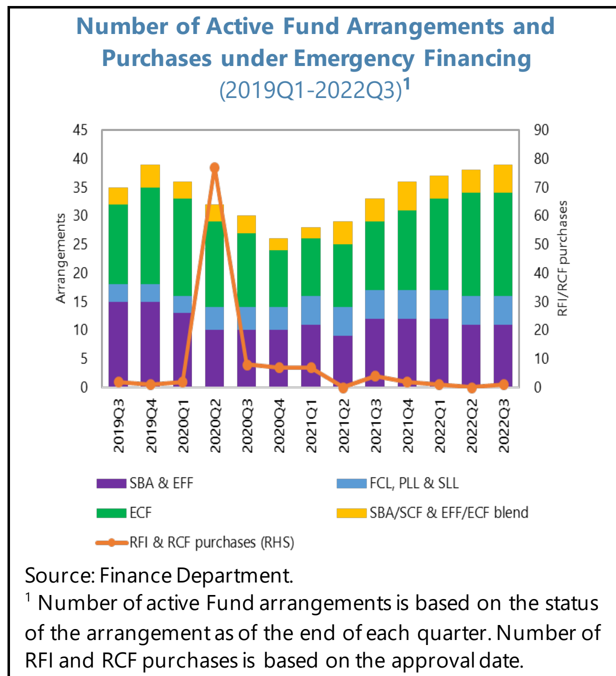
Source: Bloomberg, Standard & Poor's and IMF Finance Department.

[19] Overall, the number of active Fund arrangements under the GRA has declined from pre-pandemic levels. There were 11 active Stand-by and Extended arrangements in September 2021 vs 15 in December 2019.

[20] Between October 1, 2021 and September 30, 2022, total purchases by Argentina were SDR 10 billion, while repurchases were about SDR 9.9 billion. Credit to Ecuador reflected disbursements under the Extended Arrangement. Purchases by Pakistan totaled SDR 1.6 billion, while repurchases amounted to SDR 0.7 billion. For Ukraine, total purchases stood at SDR 1.5 billion, while repurchases were SDR 1.4 billion.

19. Credit outstanding is on a higher trajectory than projected at the time of the interim review. Based on current arrangements as of end-September, credit outstanding is projected to rise further to reach a peak of SDR 98.7 billion in March 2023, assuming no early repurchases.[21] Fund credit would remain at SDR 94.5 billion by the end of FY2023 assuming no new arrangements, higher than the current level of SDR 91.1 billion. Overall, the trajectory of credit outstanding is on average about SDR 23 billion higher over the period FY2023–25 than projected at the time of the interim review.

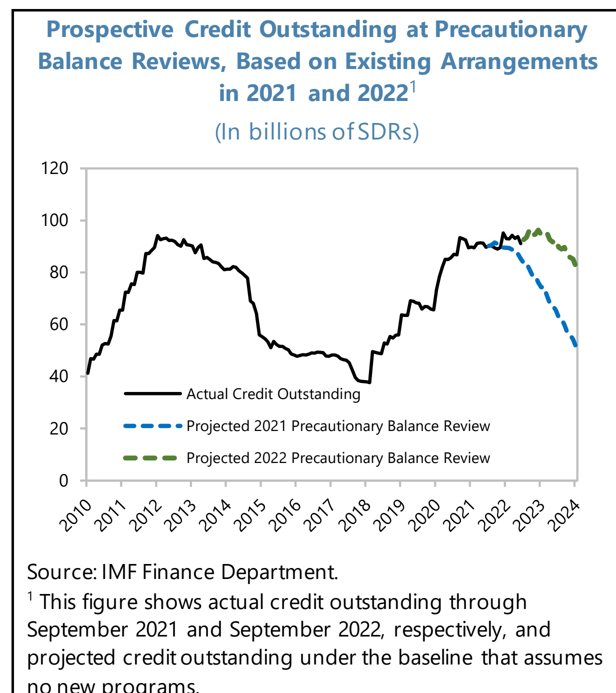
Number of Active Fund Arrangements and Purchases under Emergency Financing
(2019Q1-2022Q3)[1]



Source: Finance Department.
[1] Number of active Fund arrangements is based on the status of the arrangement as of the end of each quarter. Number of RFI and RCF purchases is based on the approval date.

20. Total commitments almost reached SDR 200 billion at end-March 2022, a new peak since the global financial crisis, but have come down more recently (Figure 3). Total commitments comprise credit outstanding, undrawn balances under existing arrangements, and commitments under precautionary arrangements, including the Flexible Credit Line (FCL) arrangements for Chile, Colombia, Mexico and Peru, and the Precautionary Liquidity Line (PLL) arrangement for Panama. Following the approval of Argentina's Extended Arrangement in March 2022, total commitments rose to SDR 199.2 billion. However, as of end-September, commitments had fallen to SDR 182.4 billion, about SDR 0.6 billion higher than at the time of the interim review, with balances under FCL and PLL arrangements amounting to SDR 62.6 billion. Lower commitments more recently reflect reduced access for FCL arrangements upon renewal.

Prospective Credit Outstanding at Precautionary Balance Reviews, Based on Existing Arrangements in 2021 and 2022[1]
(In billions of SDRs)

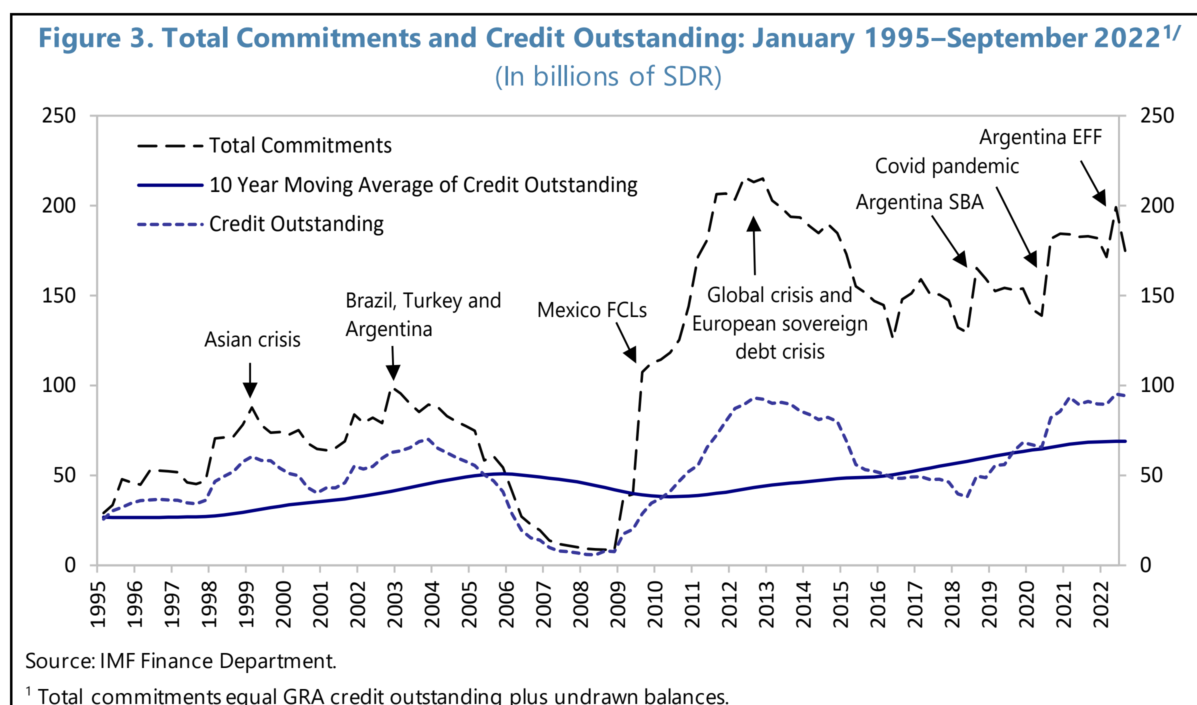


Source: IMF Finance Department.
[1] This figure shows actual credit outstanding through September 2021 and September 2022, respectively, and projected credit outstanding under the baseline that assumes no new programs.

[21] Throughout the paper—unless otherwise indicated—baseline projections for credit, income, precautionary balances, and other relevant variables are based on the assumption that purchases and repurchases under existing active non-precautionary arrangements will take place as scheduled.

Figure 3. Total Commitments and Credit Outstanding: January 1995–September 2022[1/]

(In billions of SDR)



Source: IMF Finance Department.

[1] Total commitments equal GRA credit outstanding plus undrawn balances.

21. Credit concentration toward the Fund's largest borrower has stabilized but is expected to remain elevated for an extended period. After increasing slightly to about 36 percent of total credit outstanding as of end-June 2022, credit to Argentina fell to about 34 percent at end-September. The share is broadly unchanged from the time of the interim review but far below its most recent peak of 48 percent at end-March 2020 (Figure 4, panel A).[22] Credit to Argentina is projected to peak at SDR 34.2 billion in March 2023, reflecting some frontloading of access under the recently approved 30-month Extended Arrangement to help rebuild reserves early in the program. Credit would stabilize at SDR 31.9 billion in September 2024, assuming full disbursement of the arrangement, and stay at that level through August 2026. Reflecting lending since the interim review, the concentration of Fund credit toward the five largest borrowers (currently, Argentina, Egypt, Ukraine, Pakistan, and Ecuador) increased to 69 percent as of end-September 2022, which remains somewhat below the historical average (Figure 4, panel B). In geographic terms, concentration on a commitment basis (Figure 4, panel D), remains tilted toward the Western hemisphere on account of sizable credit exposures to Argentina, and Ecuador, and significant commitments through FCL arrangements with Chile,

Credit Outstanding: Top Five Borrowers

(In billions of SDRs)

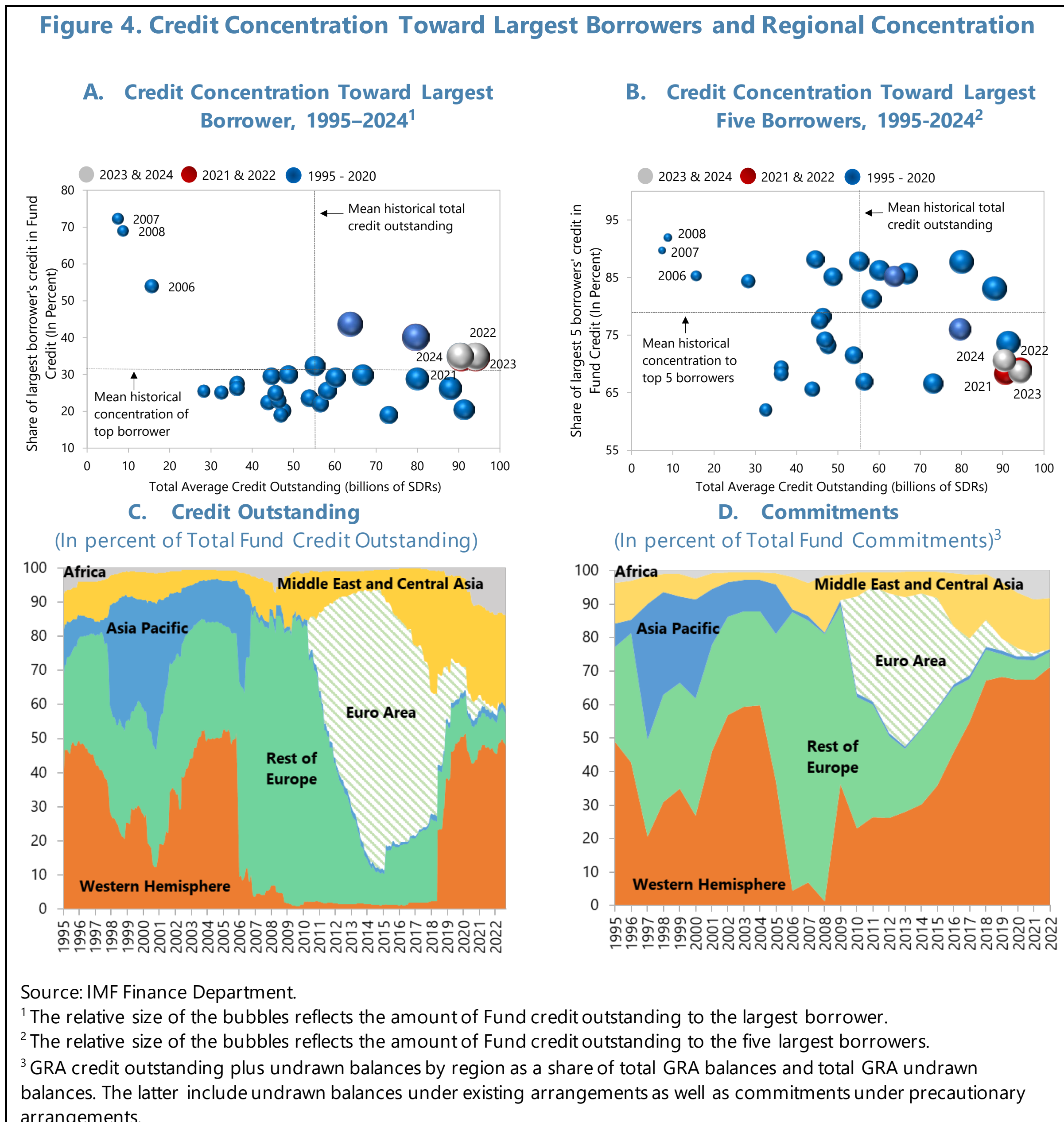
	As of end September 2021	As of end September 2022	Change
Argentina	30.6	30.7	0.1
Egypt	14.2	13.6	-0.6
Ukraine	6.7	6.8	0.1
Pakistan	5.0	5.9	0.9
Ecuador	4.3	5.6	1.3

Source: IMF Finance Department.

[22] See Argentina—Assessment of the Fund's Financial Exposures and Liquidity Position.

Mexico, Colombia, and Peru and the PLL to Panama. The Fund no longer has credit exposure to the euro area.

Figure 4. Credit Concentration Toward Largest Borrowers and Regional Concentration



Source: IMF Finance Department.

[1] The relative size of the bubbles reflects the amount of Fund credit outstanding to the largest borrower.

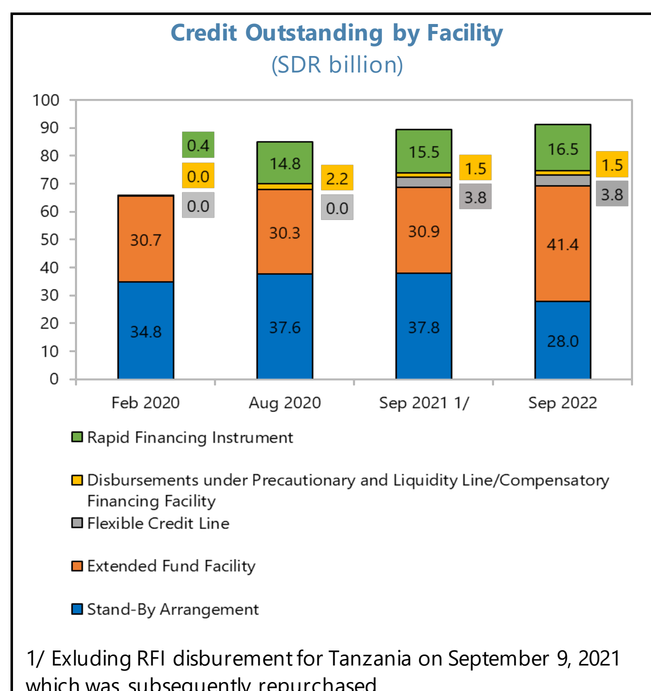
[2] The relative size of the bubbles reflects the amount of Fund credit outstanding to the five largest borrowers.

[3] GRA credit outstanding plus undrawn balances by region as a share of total GRA balances and total GRA undrawn balances. The latter include undrawn balances under existing arrangements as well as commitments under precautionary arrangements.

22. The credit portfolio composition has shifted towards Extended Arrangements.

- Since the interim review, credit outstanding under Extended Arrangements has increased by SDR 10.5 billion, while the amount under SBAs has fallen by SDR 9.9 billion. The shift in the Extended Arrangements share of the credit outstanding portfolio from 34.5 percent as of September 2021 to 45.4 percent primarily reflects lending to Argentina, as its Extended Arrangement disbursements broadly mirrored repurchases coming due from the previous Stand-by Arrangement, although the Extended Arrangement credit to Ecuador also increased.

- The share of the credit outstanding portfolio accounted for by emergency financing instruments has increased somewhat further. Exposure under these instruments rose by another SDR 1 billion to SDR 16.5 billion as of end-September 2022, about 18 percent of the Fund's outstanding lending portfolio, on account of an RFI disbursement to Ukraine. The share of disbursements under emergency assistance remains significantly higher than before the pandemic and is bound to rise further with the recent approval of a food shock window under the RFI.

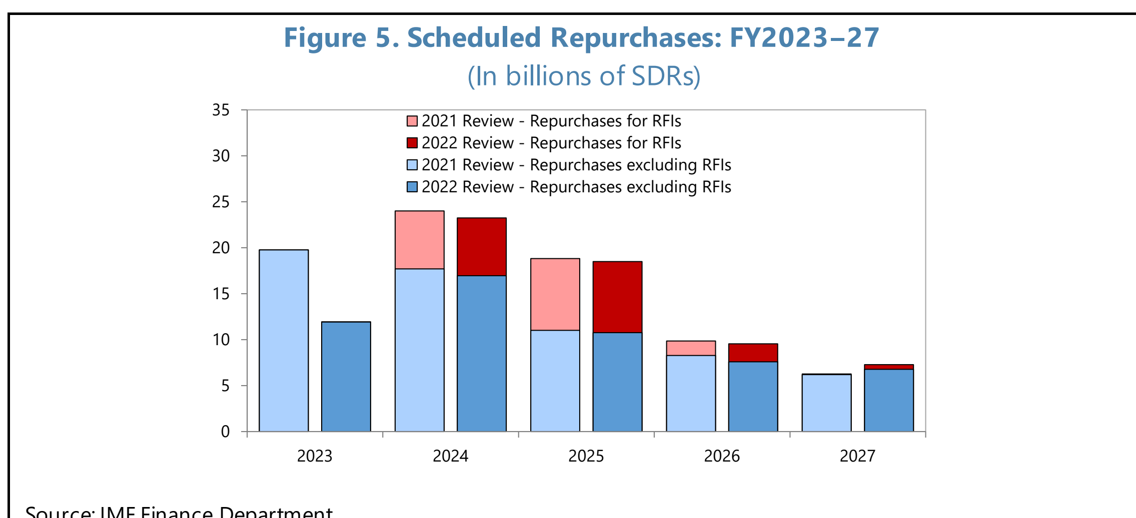


1/ Exluding RFI disburement for Tanzania on September 9, 2021 which was subsequently repurchased.

- Despite the shift toward higher Extended Arrangements credit, the weighted average maturity of the credit outstanding portfolio remains relatively short at 2.9 years as of September 2022, reflecting in part the significant share of RFIs.

23. Credit concentration risks continue to be heightened by a peak in repurchases coming due in the coming years (Figure 5). As of end-September 2022, total scheduled repurchases in FY2023-25 amount to an average of SDR 18 billion per year and SDR 54 billion in total. This reflects large repurchases coming due for Argentina in FY2023-24, while the bulk of RFI repurchases (SDR 14 billion) is due in FY2024-25. Argentina's scheduled repurchases for FY2023–24 are substantive in terms of the country's economic size, as proxied by quota, peaking at 322 percent of quota in FY2024. However, timely implementation of the Fund-supported program would unlock new purchases and help keep credit outstanding broadly unchanged.

Figure 5. Scheduled Repurchases: FY2023–27
(In billions of SDRs)



Source: IMF Finance Department.

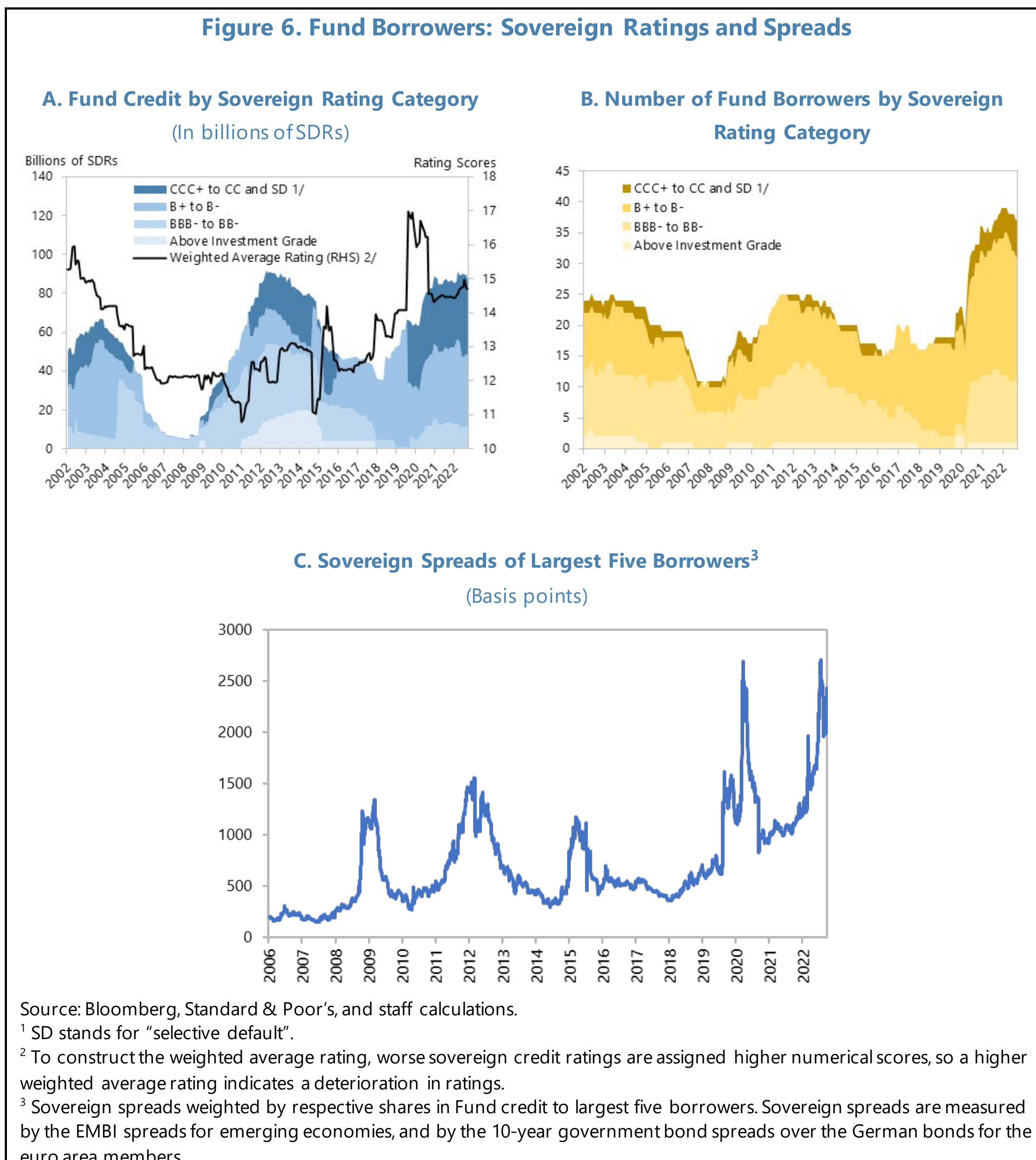
24. Perceived credit risks as reflected by sovereign credit ratings and spreads of the Fund's borrowers remain elevated, increasing modestly from levels observed in the previous review.

- In line with Board guidance, staff does not apply internal credit ratings for the purpose of assessing the adequacy of precautionary balances. Information on sovereign credit ratings and market-based indicators reflect perceptions of risks facing the private sector and cannot be translated directly to assess credit risk faced by the Fund, given its unique role and mandate. However, they are provided to facilitate the exercise of judgment by the Board under the approved assessment framework on the level of risks embodied in the current loan portfolio when determining the precautionary balances target.

- Updated staff analysis suggests that the average sovereign credit rating of the Fund's borrowers, weighted by outstanding Fund credit in each rating category, has deteriorated from levels observed in the previous review (Figure 6A).[23] The end-September 2022 share of Fund lending to member countries most vulnerable to non-repayment (i.e. rated CCC+ to CC and SD) is equivalent to 45 percent of total Fund credit, up from around 40 percent at the time of the interim review. The share of Fund borrowers whose credit ratings are less than BB- rose from 65 percent to 70 percent as of end-September 2022 (Figure 6B).

- Finally, the weighted average of the sovereign spreads of the Fund's largest five borrowers peaked in July 2022, reflecting substantial widening in the spreads for Argentina, Pakistan, and Ukraine (Figure 6C). Sovereign spreads remained elevated as of end-September 2022 and above the levels at the interim review.

[23] Figure 6 shows the weighted average rating of Fund credit by sovereign rating category based on Standard & Poor's ratings.



Source: Bloomberg, Standard & Poor's, and staff calculations.
[1] SD stands for "selective default".
[2] To construct the weighted average rating, worse sovereign credit ratings are assigned higher numerical scores, so a higher weighted average rating indicates a deterioration in ratings.
[3] Sovereign spreads weighted by respective shares in Fund credit to largest five borrowers. Sovereign spreads are measured by the EMBI spreads for emerging economies, and by the 10-year government bond spreads over the German bonds for the euro area members.

C. Income Risks

25. The operating income margin is projected to be slightly stronger than at the time of the interim review but remains subject to concentration risks.

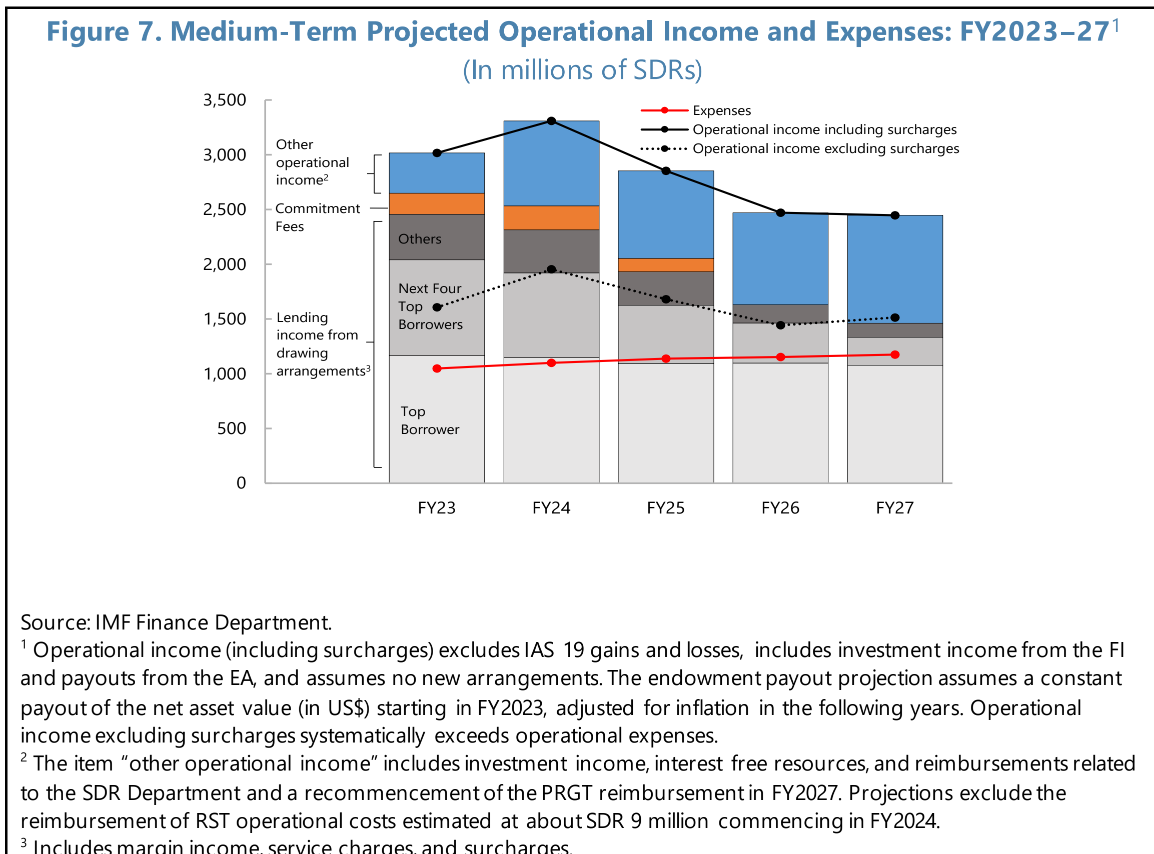
- Even assuming no new arrangements, staff projections suggest that total operational income, excluding the impact of any pension-related (IAS 19) gains or losses, would exceed total expenditures by about SDR 1.7 billion annually on average in the five-year period through FY2027 (Figure 7).

- Projected lending income for current arrangements is higher over the medium-term compared with the interim review and reflects an increase in average credit outstanding. Investment income is also projected to rise over the medium term reflecting a combination of (i) the larger-than-anticipated build-up of reserves invested because of higher lending income and (ii) an upward shift in the projected path of the medium-term SDR interest rate since the last review.

- Medium-term expenses are expected to be higher than in the last review, reflecting mainly a combination of an uptick in the U.S. inflation rate and the projected appreciation of the U.S. dollar against the SDR.

- Of the average lending income projected through FY2024, surcharges account for slightly more than half of the total, while margin income contributes to around a third. About 57 percent of surcharge income is accounted for by the Fund's largest borrower and another almost 37 percent by the next four largest borrowers. Besides concentration, risks to income continue to include: (i) cancellations and changes in the timing of purchases under existing arrangements; (ii) uncertainties around the global interest rate environment and the U.S. dollar/SDR exchange rate path; and (iii) the potential need for impairment recognition under IFRS 9. No provisions for impairment have been recognized to date.

Figure 7. Medium-Term Projected Operational Income and Expenses: FY2023–27[1]
(In millions of SDRs)



Source: IMF Finance Department.

[1] Operational income (including surcharges) excludes IAS 19 gains and losses, includes investment income from the FI and payouts from the EA, and assumes no new arrangements. The endowment payout projection assumes a constant payout of the net asset value (in US$) starting in FY2023, adjusted for inflation in the following years. Operational income excluding surcharges systematically exceeds operational expenses.

[2] The item "other operational income" includes investment income, interest free resources, and reimbursements related to the SDR Department and a recommencement of the PRGT reimbursement in FY2027. Projections exclude the reimbursement of RST operational costs estimated at about SDR 9 million commencing in FY2024.

[3] Includes margin income, service charges, and surcharges.

D. Financial Risks Related to Investments

26. Financial risks related to the investment assets of FI and EA remain elevated. These two Subaccounts of the IA have distinct investment objectives and pursue different strategies accordingly. The FI comprises the bulk of the Fund's PBs and is invested to support its dual objective of income generation and balance sheet protection. The EA's purpose is to provide meaningful income contribution to cover the Fund's administrative expenditures while preserving the long-term real value of the Subaccount's resources. Since the last review, all investment portfolios have recorded negative annual returns, with both equities and fixed-income assets experiencing losses, reflecting persistent inflation pressures and rising bond yields.[24] In this context, the Board's Review of the Investment Account in January 2022 approved several investment strategy refinements in response to heightened inflation uncertainty and the risks of increasing bond yields. The review was brought forward by one year in light of the increasingly challenging outlook for investment returns and to align the five-year review cycles for the IA and Trust Investment Assets.[25] The Board reviewed all investment policies and evaluated possible approaches to ensure that the specific strategies for each portfolio maintain an appropriate balance of risk and income generating potential going forward. Highlights for each IA subaccount follow below:

- **FI investments.** In January, the Board approved some incremental refinements to the FI strategy designed to improve the outlook for the return margin going forward without materially changing the FI's risk profile. They included, among others: (i) marginally increasing the maximum share of credit related assets ("Group 2"); (ii) lowering the minimum eligible credit rating threshold to BBB- for corporate bonds and BBB+ for all other assets; and (iii) modifying the investment objective to include an average margin above the SDR interest rate of 50 basis points over time. With the recent rise in bond yields, the FI recorded a negative performance in FY2022 as short-duration fixed income assets recorded their worst performance in decades. This negative performance has continued into FY2023. However, with its two-tranche structure, the FI strategy remains relatively resilient as it outperformed comparable benchmarks such as the SDR 1-3 year government bond index. The prospect for achieving the modified investment objective remains reasonable, especially once bond yields stabilize at higher levels.

- **EA investments.** The EA investment strategy has benefitted from exceptional market conditions in the past and for several years performed better than expected despite its relatively conservative asset allocation. However, recently the long-term return of the EA has fallen behind its 3 percent real return target in US dollar terms, driven mainly by the sharp increase in US inflation and rapid increases in bond yields. In January, the Board approved refinements to the EA strategy, aimed at improving prospective long-term returns, while

[24] In FY2022, the reported losses for EA and FI were 4.44 percent and 1.16 percent, respectively.

[25] The Trust Investment Assets comprise the investment assets of the Poverty Reduction and Growth Trust, Poverty Reduction and Growth Operations for the Heavily Indebted Poor Countries Trust, Catastrophe Containment and Relief Trust and Resilience and Sustainability Trust.

maintaining a balanced portfolio to improve resilience to different growth and inflation scenarios. The new asset allocation is more diversified; it reduced the share of low-yielding fixed-income assets and increased the allocation to real assets including Real Estate Investment Trusts (REITs) and infrastructure equities. While the total allocation to equities increases to 55 percent, the diversified and more balanced asset allocation across fixed-income, equities, and real assets is expected to display improved returns and better downside risk protection characteristics. Recent market movements have increased the expected long-term returns for the new asset allocation, albeit still below the 3 percent real return target in US dollars. The EA has not yet made a payout and under the current Board-approved framework the possibility of an initial EA payout will be evaluated in April 2023.

ASSESSMENT OF THE ADEQUACY OF PRECAUTIONARY BALANCES

Despite a higher-than-projected forward-looking credit measure, the current PB target is expected to remain within the indicative range and above its mid-point in the most plausible demand scenario, assuming no new changes to the lending toolkit. While credit risks have increased since the interim review, commitments under precautionary arrangements have declined and the burden sharing capacity has improved. Against this backdrop, staff proposes to retain the current target for precautionary balances at SDR 25 billion and the SDR 15 billion floor. The current pace of reserve accumulation, which is somewhat faster than anticipated during the interim review for the baseline and desk survey scenarios, also seems broadly adequate. This said, the adequacy of the precautionary balances target will need to be closely monitored amid the weakening global economic and financial outlook, with risks unusually large and to the downside. Staff proposes to maintain the regular two-year adequacy review cycle but would proceed with an interim review if lending developments diverge significantly from the paper's projections or if credit and other financial risks rise materially, including due to changes to Fund lending policies.

A. Indicative Precautionary Balances Target

27. Staff reassessed the adequacy of the precautionary balance target under four different scenarios and relied on the forward-looking measure of average credit outstanding over three years as a starting point.[26] The scenarios are: (i) baseline with current arrangements; (ii) desk survey scenario; (iii) WEO model-based scenario; and (iv) adverse scenario.

28. Under the baseline scenario, which is based solely on existing arrangements, the current target for precautionary balances of SDR 25 billion would fall within the forward-looking indicative range. The indicative range is somewhat higher compared to the interim review, where the target exceeded the range. The forward-looking measure of credit outstanding

[26] This measure calculates the average of credit outstanding over the past 12 months and projections over the next 24 months.

would peak at about SDR 86 billion in FY2023,[27] some SDR 23 billion higher than projected at the time of the interim review (Table 2, column 1). Expansion of Fund lending has brought back the current target to within the calculated indicative range of about SDR 17 to 26 billion in FY2023, with the mid-point at about SDR 22 billion (Table 2, columns 2–4, text figure).

Table 2. Forward Looking Credit Measure and Calculated Range for Precautionary Balances: FY2020–2024[1/]

(In billions of SDRs)

	Average Credit Outstanding [2/]	Forward-looking Credit Measure [2/]		Coverage: Lower Bound 20%		Coverage: Upper Bound 30%		Mid-point of bounds		Precautionary Balances Target [3/]
		(1)		(2)		(3)		(4)		(5)
Aug. 2020	72.1	82.2		16.4		24.6		20.5		20
Sept. 2021	90.4	88.3		17.7		26.5		22.1		25
1. Baseline with current arrangements										
FY2023	94.1	86.4	[63.2]	17.3	[12.6]	25.9	[19.0]	21.6	[15.8]	
FY2024	90.4	75.1								
2. Desk survey										
FY2023	95.1	90.2	[95.1]	18.0	[19.0]	27.1	[28.5]	22.6	[23.8]	
FY2024	94.2	81.6		16.3		24.5		20.4		
3. WEO model-based scenario										
FY2023	94.9	101.4	[140.7]	20.3	[28.1]	30.4	[42.2]	25.4	[35.2]	
FY2024	102.7	106.8		21.4		32.0		26.7		
4. Adverse scenario										
FY2023	99.3	177.8	[238.6]	35.6	[47.7]	53.3	[71.6]	44.4	[59.6]	
FY2024	196.5	237.1		47.4		71.1		59.3		

Source: IMF Finance Department.

[1] Figures in brackets represent projections at the time of the last review (see Interim Review of the Adequacy of the Fund's Precautionary Balances. Figures for August 2020 and September 2021 are calculations from the last regular review and the interim review, respectively.

[2] Three-year average of past 12 months average and projections two years forward.

[3] Before review completion.

29. The target would remain within the indicative range in this fiscal year when new demand for Fund programs is factored in, except in an adverse scenario. Staff considered additional demand for non-precautionary Fund programs under three scenarios:[28]

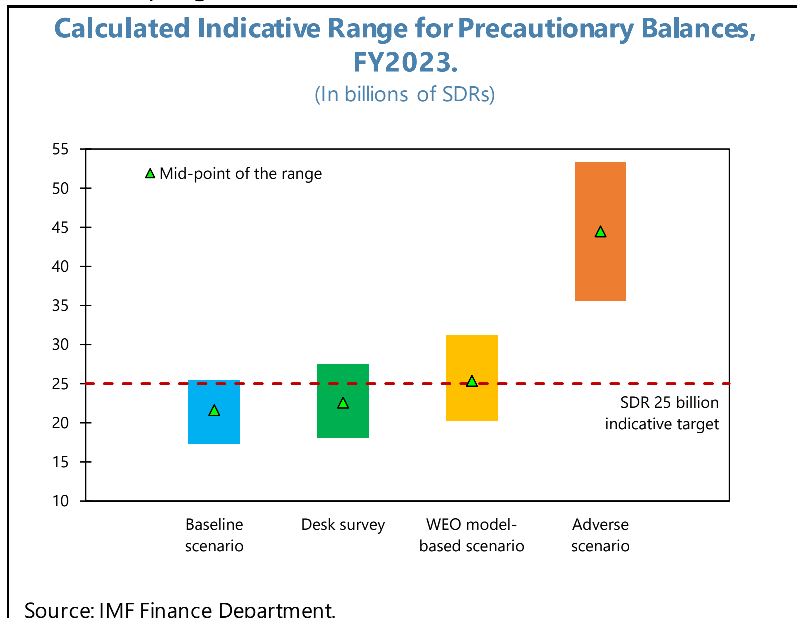
- The ***desk survey* of expected demand for Fund lending** reflects desk assessments of the likelihood of a program request as of end-September 2022, based on knowledge of member countries' economic outlook, financing needs, and political landscape. It builds on the results of the Fall 2022 Vulnerability Exercise (VE) and reflects detailed discussions with country

[27] This scenario assumes no new Fund arrangements in addition to those approved as of end-September 2022; purchases and repurchases made as scheduled; and no drawings under existing precautionary arrangements.

[28] The data cut-off used for all the scenarios is end-September 2022 and therefore does not include Ukraine's RFI purchase under the Food Shock Window, which was approved on October 7, 2022.

teams. Under this scenario, the demand in FY2023–24 comprises 10 countries that are expected to enter a new Fund-supported program and one RFI request, for a total demand of about SDR 14 billion. The indicative range would increase to between SDR 18 billion and 27 billion, slightly lower than at the interim review, with the current target for precautionary balances above the mid-point of the indicative range.

- Under model-based estimates consistent with the ***October 2022 World Economic Outlook (WEO) baseline***, new demand for Fund programs could reach SDR 63 billion over FY2023–24 and could raise the indicative range to between about SDR 20 billion and SDR 30 billion in FY2023 (see Annex I for details). The projected lower demand for Fund programs under the model-based WEO baseline and the adverse scenarios compared to the interim review is due in part to the strong rebound in global growth last year. It also likely reflects the impact of the unprecedented financial support provided by the Fund including through emergency financing and the 2021 general SDR allocation, as well as a favorable outlook for net commodity exporters. The forward-looking credit measure in FY2023 would thus be SDR 39 billion lower than projected at the time of the last review. The current indicative target of SDR 25 billion would remain within the indicative range in FY2023, and just at its mid-point.



Calculated Indicative Range for Precautionary Balances, FY2023.
(In billions of SDRs)

Source: IMF Finance Department.

- In an ***adverse scenario***, new demand for Fund programs could reach nearly SDR 184 billion (see Annex I for details). The scenario considers near-term demand for Fund resources under much more challenging global economic and financial conditions compared to the model-based WEO baseline, although it does not cover extreme tail risks such as those relevant to assess the adequacy of Fund resources over the medium-term in the context of the 16th General Review of Quotas. In addition, all FCL and PLL arrangements are assumed to be fully drawn, for a total of about SDR 63 billion in disbursements. In this scenario, the forward-looking credit measure in FY2023 would remain nearly SDR 61 billion lower than projected at the last review. However, the indicative range would rise to between about SDR 36 billion and SDR 53 billion in FY2023, significantly above the SDR 25 billion target, but would still be lower than projected at the interim review.

- The Fund's **lending capacity** is somewhat lower at about SDR 692 billion as of end-September 2022, compared to the previous review.[29] As discussed previously, lending capacity is not formally part of the framework for setting the indicative PB target. However, the Executive Board has in past reviews discussed a precautionary balances target to lending capacity ratio of 6 percent.[30] This ratio would yield an indicative target of about SDR 42 billion, 66 percent higher than the current target and slightly above the mid-point of the indicative range under the adverse scenario in Table 2. While the current level of lending capacity is secured at least through end-2023, the ongoing 16th General Quota Review, expected to be concluded by end-2023, is reassessing the adequacy of Fund resources as well as the mix between quotas and borrowed resources through the next decade.

30. Other relevant risks and risk-related measures appear to have worsened somewhat, on balance, since the last review:

- ***Global outlook:*** As reflected in the October 2022 WEO, the global growth outlook is significantly weaker than projected a year ago. More than one third of the global economy is expected to contract this year or next, while the world's three largest economies—China, the euro area and the United States — will continue to stall. The sharp increase in food and energy prices is also putting pressure on government budgets, while fiscal policy trade-offs are increasingly difficult (see October 2022 Fiscal Monitor). In addition, risks to the outlook are unusually large and to the downside. In this environment, the mobilization of balance of payments financing is likely to become more challenging for Fund borrowers.

- ***Credit and concentration risks:*** As observed at the time of the interim review, sizable total credit is combined with a heavy concentration of the loan portfolio toward the largest borrower. Credit risks remain compounded by a peak of scheduled repurchases in FY2023–25, as well as significant economic and financial challenges facing Argentina and Ukraine.[31] Regional concentration has increased only slightly since the last review, with the largest credit exposure in the Western hemisphere. While regional credit concentration primarily reflects the nature and scope of shocks, it is a relevant indicator for monitoring the Fund's credit risks, as it captures the underlying synchronization of the economies of borrowers

[29] The Fund's lending capacity consists of the Fund's total usable resources, before any lending, less relevant prudential balances. As of end-September 2022, it comprises SDR 308.7 billion from quotas; SDR 276.1 billion from the New Arrangements to Borrow (NAB) which runs through end-2025; and SDR 107.5 billion from the Bilateral Borrowing Agreements (BBAs), which runs through end-2023 unless extended for a fourth and final year.

[30] At the 2002 Review, before the current framework for the adequacy for precautionary balances was adopted, staff had argued that the assessment of the adequacy of the Fund's precautionary balances should be geared primarily to the Fund's credit capacity because of the Fund's ability to lend to individual members in large absolute amounts, cumulatively up to its credit capacity. At that time, staff had proposed to aim for a ratio of precautionary balances to credit capacity of 6 percent The Board, however, urged staff to develop a more comprehensive analytical framework to take into account credit capacity, credit concentration, and credit outstanding. The current assessment framework for precautionary balances was adopted subsequently in 2010.

[31] Please see Argentina: Second Review Under the Extended Arrangement Under the Extended Fund Facility and Ukraine: Request for Purchase Under the Rapid Financing Instrument.

should there be further shocks, as well as differences in the capacity of regional financing institutions to share the financing burden with the Fund (Box 4).

- ***Level and concentration of precautionary arrangements:*** Commitments under the Fund's FCL and PLL arrangements have decreased since the last review but remain elevated at about SDR 63 billion as of end-September 2022.[32] All four FCL arrangements and the only PLL arrangement are concentrated in the Western hemisphere. While the likelihood of further drawings under these arrangements appears relatively low at this juncture, consistent with historical experience, the high-level of output co-movement between members with FCL and PLL arrangements and members with current Fund-supported programs suggests that the risk of a correlated drawdowns is material (Box 4).[33]

- ***Share of RFIs in the loan portfolio*:** The share of the credit portfolio accounted for by emergency financing instruments not subject to ex- post/upper credit tranche (UCT) conditionality has risen to about 18 percent since the last review. Moreover, repurchases are bunched in FY2024–25, and associated risks remain high.

- ***Strength of the other credit risk management layers*:** The other layers of the credit risk management framework remain robust overall despite some temporary policy changes in response to the COVID-19 pandemic and the more recent spike in food prices, consistent with the Fund's mandate to support the membership in times of crisis (Box 3). These changes, which focused on lending policy, program design, and conditionality have tended to increase overall credit risks temporarily. However, these changes were accompanied by mitigating measures, including strengthening of program risk management practices, as reflected in improvements in program design, strengthened *ex ante* risk discussions in program documents, contingency planning to address downside risks, enhancements to debt sustainability tools, and further integration of surveillance and Capacity Development in program design. Other important risk mitigating factors include: (i) debt relief/restructuring initiatives, for example, the Debt Service Suspension Initiative and the G20 common framework; (ii) tracking governance measures and audits for pandemic-related spending;[34] and (iii) the ongoing transition to UCT-quality Fund-supported programs after emergency financing.[35]

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[32] Under the framework, these commitments are not included in the calculation of the forward-looking credit measure, but are taken into account judgmentally when setting the precautionary balances target.

[33] Historically, the incidence of drawings of precautionary arrangements has been low (see Annex V in *Review of the Adequacy of the Fund's Precautionary Balances* for a detailed discussion). One PLL arrangement was partially drawn in 2011, one PLL was fully drawn and one FCL arrangement was partially drawn in 2020. The total drawn amount of all precautionary arrangements in the past 20 years accounts for about 1% of the total approved amount.

[34] See Implementation of Governance Measures in Pandemic-Related Spending, May 2022.

[35] About a quarter of the members that accessed the Fund's Rapid Financing Instrument transitioned to Upper-Credit-Tranche-programs as of December 2021, see Arab Republic of Egypt—Ex-Post Evaluation of Exceptional Access Under the 2020 Stand-By Arrangement and Review Of Temporary Modifications To The Fund's Access Limits In Response To The Covid-19 Pandemic

(continued)

Box 3. Main Changes in the Fund's GRA Lending Policies during the COVID-19 Crisis

Increasing access and disbursement limits to GRA resources. Temporary increases in access limits for the RFI regular window and the Large Natural Disaster (LND) window will remain in effect through June 2023.[1]

Streamlining lending procedures. The Board approved temporarily streamlined procedures for emergency financing requests and requests for changes in access under existing arrangements in April 2020 to ensure timely disbursements.[2]

Streamlining modalities for PPM. Increased access to Fund resources, together with the high demand for Fund resources during the pandemic has led to outstanding credit exceeding the post-program monitoring (PPM) threshold for some countries without Fund-supported program due to emergency financing. The Board approved streamlined modalities for PPM, allowing it to be conducted at the time of the Article IV consultations through end-2022, to alleviate the resource constraint the Fund was facing. At the same time, the threshold for PPM was maintained, safeguarding the Fund's outstanding credit. The PPM was renamed "Post Financing Assessment (PFA)", to reflect the coverage of members with credit outstanding from emergency financing**.**

Introduction of the Short-term Liquidity Line. The SLL was established by the IMF in Spring 2020 as part of its COVID-19 response, amid heightened global uncertainty and growing demand for liquidity at the onset of the pandemic. This liquidity backstop complements the IMF's lending toolkit and other elements of the global financial safety net. It aims to minimize the risk of shocks evolving into deeper crises and spilling over to other countries. The SLL has been used by one member so far.

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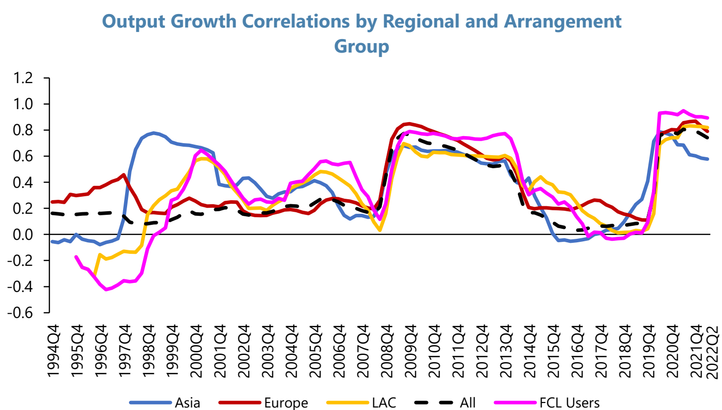
[1] About a quarter of the members that accessed the Fund's Rapid Financing Instrument transitioned to Upper-Credit-Tranche-programs as of December 2021, see Arab Republic of Egypt—Ex-Post Evaluation of Exceptional Access Under the 2020 Stand-By Arrangement and Review Of Temporary Modifications To The Fund's Access Limits In Response To The Covid-19 Pandemic.

[2] Access to the regular RFI window was first temporarily increased in April 2020 and subsequently extended in September 2020, March 2021 and December 2021. For the RFI's LND window, the temporary access limit increase was introduced in June 2021 and extended in December 2021. See IMF Executive Board Approves Temporary Extension of Cumulative Access Limits in the Fund's Emergency Financing Instruments.

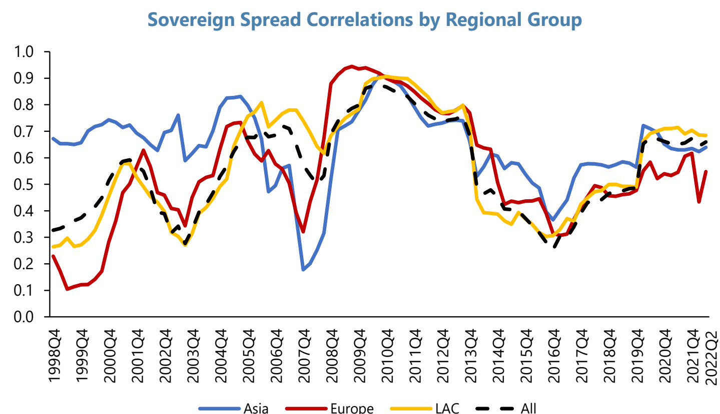
Box 4. Credit Concentration Risk – A Regional Perspective

Regional concentration of Fund credit reflects the nature and scope of shocks, common vulnerabilities or interconnectedness among borrowers, and regional burden sharing capacities. Empirical evidence shows a high degree of output correlation within regions, including between members with precautionary arrangements and members with current UCT-quality Fund-supported programs, and among users of precautionary arrangements. Overall, these relationships suggest a material risk of correlated calls and drawdowns of Fund arrangements, and thus provide a rationale for monitoring regional concentration as part of the assessment of credit risk.

The regional concentration of Fund credit reflects the nature and scope of shocks, common vulnerabilities or interconnectedness among borrowers. Business cycle synchronization within regions has increased in the past decade.[1] In particular, empirical evidence suggests that correlations of output growth among economies in the Asia, Europe, and Latin America regions spiked following financial shocks, especially those emanating from a large financial center or a major economy, such as the Asian Financial Crisis, the Dot-com boom-bust, and the Global Financial Crisis.[2] Updated analysis further finds that the correlations of real output growth within these regions also spiked at the onset of the COVID-19 Pandemic (see Annex III for the details of the methodology). Correlations have risen further in Latin America after the COVID shock, in contrast to Europe and Asia. A similar correlation is also observed for sovereign spreads, which matters for access to external financing. Overall, these results suggest that Fund borrowers in a region could be impacted in a similar way by economic and financial shocks.[3]

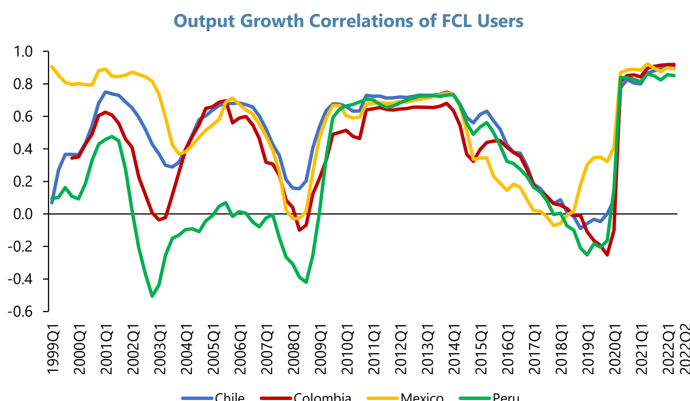


The level of the Fund's credit exposure in a region could also reflect the burden sharing capacity of other creditors. For instance, Fund financing may account for a larger share of the financing gap in areas where Regional Financial Agreements (RFAs) or other multilateral creditors play a lesser role.



Box 4. Credit Concentration Risk – A Regional Perspective (Concluded)

Cyclical correlations are high between Fund members with precautionary arrangements and members with current UCT-quality Fund-supported programs, and among users of precautionary arrangements in the same region. The average output growth correlations between FCL users and those with current UCT-quality Fund-supported programs in Latin America jumped in 2020 and have continued to rise afterwards. The same holds for correlations among FCL users.[4] These empirical relationships suggest a material risk of correlated calls and drawdowns of Fund arrangements and thus provide a rationale for monitoring regional concentration as part of the assessment of credit risk.



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1/ The factors driving synchronization could be different across regions (Duval et al., (2014), and Kim and Kim (2022)).

2/ Different regions could be impacted by shocks differently, due to various linkages to the economy where shocks originate. For example, a renewal of stress in the U.S. banking sector would likely have a larger impact on Europe and Asia, whereas financial sector stress in the euro area would be expected to have a greater effect on other countries in Europe as well as those in Latin America. See *IMF, World Economic Outlook: Transitions and Tensions, 2013 Chapter 3*.

3/ See *IMF, World Economic Outlook: Transitions and Tensions, 2013, Chapter 3*.

4/ Panama, the only PLL user, is excluded from the sample due to data unavailability.

31. The capacity of the burden sharing mechanism has increased since the interim review, providing for somewhat higher mitigation of credit risks. With the recent increase in the SDR interest rate to 2.007 percent at end-September 2022 (compared to 0.050 percent at end-September 2021), the Fund's burden sharing capacity has increased, to about SDR 657 million, compared to SDR 15 million at the time of the interim review (Annex II). The current burden sharing capacity can cover about 17 percent of the Fund's projected charges falling due in FY2023.

32. Overall, staff judges that the current indicative medium-term target for precautionary balances of SDR 25 billion remains adequate for the time being and thus proposes to maintain it.

- *The current medium-term target for precautionary balances would remain well within the indicative target range under the most plausible forward looking demand projections, assuming no new changes to the lending toolkit.* While there has been an increase in credit outstanding and the desk survey suggests the expectation of some additional increase in the near-term, a major spike in the demand for Fund programs is not anticipated at this point. Even with a significant additional surge in Fund lending, such as provided in the staff's WEO model-based scenario, the precautionary balances target would remain within the indicative target range. At the same time, the level of Fund commitments under FCL and PLL arrangements has decreased by about SDR 17.8 billion since September 2021, as all four renewed FCL

arrangements have reduced access levels. There have also been no arrears cases and borrowers from the Fund remain committed to meeting their Fund obligations.

- *Indicators of credit risk and other qualitative considerations suggest elevated financial risks albeit without substantially changing the overall assessment compared to the interim review.* Moreover, the higher burden sharing capacity provides for some additional risk mitigation relative to the interim review.

33. The adequacy of the precautionary balances target will need to be closely monitored amid the weakening global economic and financial outlook and heightened uncertainty. Staff proposes to maintain the regular two-year adequacy review cycle but would proceed with an interim review if lending developments diverge significantly from the paper's projections or if credit and other financial risks rise materially, including due to changes to Fund lending policies.

B. Minimum Floor

34. The minimum floor has remained unchanged at SDR 15 billion since 2016. Under the framework, the floor is expected to be changed only occasionally, as it is based on long-term considerations. The floor was included for two main reasons: (i) precautionary balances represent an important source of Fund income, so a certain minimum level of precautionary balances is important for a sustainable income position under the new income model; and (ii) Fund credit can be highly volatile and increase sharply unexpectedly, while it usually takes time to build precautionary balances. Thus, the Fund needs to maintain an adequate minimum level of reserves to protect against an unexpected rise or deterioration in credit risks. Both income and credit risk considerations need to be considered when assessing the adequacy of the minimum floor.

35. Staff proposes retaining the floor at SDR 15 billion at this time. At the interim review, Directors agreed that the floor could be revisited after the Review of the IA, which was concluded in January 2022. The review suggested that while the outlook for long-term investment returns has weakened, it has not deteriorated substantially, and strategy refinements have been approved to support prospective returns. Income considerations are thus not a major concern at this stage. On the other hand, while credit risks have increased, credit outstanding has not significantly diverged from its long-term trends (Figure 3). Given that a major sustained increase in lending is not anticipated at this point, it seems appropriate to retain the minimum floor at the current level for now. The adequacy of the floor could be reconsidered at the next review.

C. Pace of Accumulation

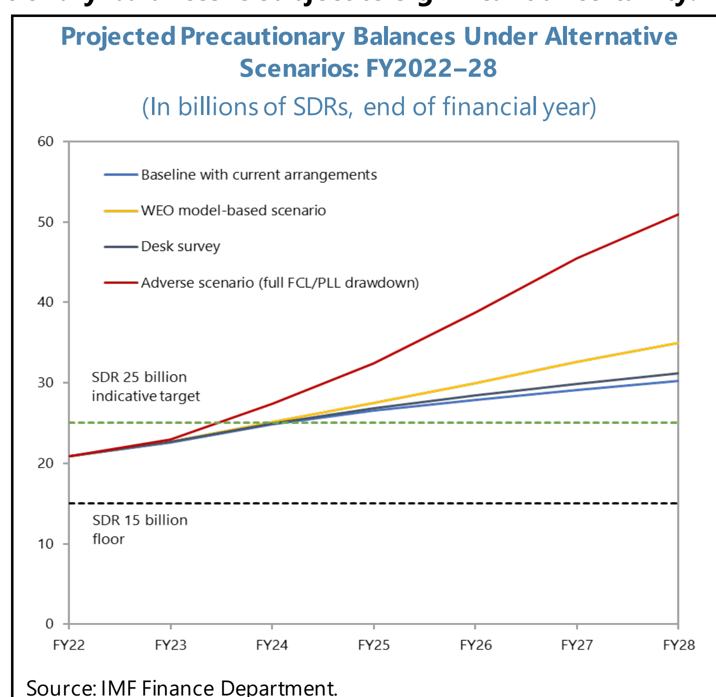
36. The SDR 25 billion target for precautionary balances is expected to be reached somewhat earlier than projected at the time of the 2021 interim review under both the baseline and the desk survey scenarios. Baseline projections with current arrangements as of end-September 2022 indicate that precautionary balances would reach the target in early FY2025 and peak at around SDR 30 billion in FY2028. In contrast, at the interim review, the target was not

expected to be reached within the projection period under this scenario. Under the desk survey scenario, precautionary balances would reach the target in late FY2024 compared to early FY2025 in the interim review and is projected to peak at SDR 31 billion. New lending beyond the desk survey would result in a faster accumulation of precautionary balances, but at a slightly slower pace than projected at the time of the interim review. Under the model-based scenario consistent with the October 2022 WEO baseline, the target of SDR 25 billion would be exceeded over the course of FY2024. In an adverse scenario, which also assumes full drawdown of existing FCL and PLL arrangements, the pace of accumulation would be much faster.[36]

37. The projected path of precautionary balances is subject to significant uncertainty. Projections are sensitive to assumptions about potential new programs, and timely completion of program reviews. Weaker program performance that affects scheduled purchases and charges could slow the accumulation of precautionary balances. Further uncertainty arises from the elevated credit risks noted above and their potential impact on income. Additionally, the projections assume no transfers between FI and EA. Under the Rules and Regulations for the Investment Account, the Board may authorize transfers between the accounts. Such transfers would have an impact on income as well as on the path of precautionary balance accumulation.[37]

Projected Precautionary Balances Under Alternative Scenarios: FY2022–28

(In billions of SDRs, end of financial year)



Source: IMF Finance Department.

38. Staff believes that no additional steps are needed at this point to alter the pace of accumulation. The target of SDR 25 billion would be reached over the medium-term under all the scenarios considered. A slightly faster accumulation of PBs than projected at the time of the interim review under the desk scenario, which staff considers the most plausible scenario, seems broadly adequate amid the weakening global economic and financial outlook and heightened uncertainties. The pace of accumulation should continue to be monitored closely.

[36] All projections of precautionary balances take into account the five-year suspension of the PRGT reimbursement of expenses for the FY2022–26 approved by the Board in July 2021; a 6 percent budget augmentation starting in FY2023 and phased-in in three equal increments before commencing full augmentation in FY2025; and unchanged levels of charges, surcharges and fees. Starting in FY2022, based on the new approach for calculating precautionary balances, the impact of the IAS 19 gains and losses calculated under the accounting basis are excluded (see Box 2, Figure 2).

[37] The volatility of FI investment returns could also have an impact on PB accumulation, but staff estimates that it would be marginal compared to other factors affecting PB accumulation.

D. Analysis of Surcharges

39. Surcharges are an integral part of the Fund's multilayered risk management framework, enabling the Fund to effectively play its role of global lender of last resort.[38] While primarily a risk management tool, surcharges have also significantly contributed to the Fund's lending and operational income, and thus to the accumulation of precautionary balances. Broadly following the Fund's lending cycle, surcharge income peaked in FY2015 at about SDR 1.5 billion and fell to SDR 371 million in FY2018, before rising again to SDR 1.2 billion in FY2022. Over the same period, the share of surcharge income in total lending income fell from 53 percent in FY2015 to 32 percent in FY2018 and then rose again to 47 percent in FY2022. In FY2022, 52 borrowing members were subject to basic charges, of which 17 were also subject to surcharges. This compares with 29 borrowing members subject to basic charges (and 10 surcharge paying members) in FY2015, and 27 borrowing members (of which nine surcharge paying members) in FY2018, respectively (Table 3).[39] As illustrated in the 2021 Interim Review, surcharge income has accounted for a large part of Fund's operational income. The share of surcharge income to operational income increased to 51 percent in FY2022 from 45 percent in FY2021, while the share of the top five surcharge payers remained above 90 percent of total surcharge income.

Table 3. Basic Information on Level and Time-Based Surcharges
(As of the end of the fiscal year—April 30, in SDR millions)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of member countries											
with GRA credit outstanding	37	34	32	29	25	27	27	29	38	53	52
subject to level-based surcharges	15	16	14	10	10	8	9	9	10	16	17
subject to time-based surcharges	-	6	7	5	3	3	4	3	5	5	7
Total Fund credit outstanding at year-end (SDR millions)	94,182	90,182	81,238	55,228	47,798	48,300	37,884	63,694	73,575	89,788	93,031
o/w subject to level-based surcharges	87,602	84,657	74,467	48,523	40,876	38,321	32,558	56,657	62,248	71,121	74,789
o/w subject to time-based surcharges	-	23,156	48,298	39,678	26,086	22,537	21,807	15,671	18,947	27,831	62,297
Amount of Surcharge Income Collected (SDR millions, by year)	907	1,241	1,398	1,463	787	583	371	419	752	931	1,234
from level-based surcharges	907	1,151	1,126	991	554	424	284	374	709	863	925
from time-based surcharges	-	89	272	473	233	159	87	45	43	68	309

Source: IMF Finance Department.

40. The average cost of borrowing from the Fund, including surcharges, remains considerably lower than market rates and the discount has increased in recent months. While market rates for countries with large BOP needs spike at times of global market distress, the effective cost of borrowing from the Fund for such countries has remained relatively low and stable (Figure 8, top panel).[40] Specifically, the unweighted average effective cost of borrowing from the Fund for the top five surcharge-paying members has remained considerably lower compared to the unweighted average market rate for these members, which has surged since

[38] See *Interim Review of the Adequacy of the Fund's Precautionary Balances*.

[39] All borrowers from the GRA with outstanding balances are subject to basic charges, which are composed of the SDR rate plus a margin, currently set at 100 bps and reviewed regularly based on a number of factors including the need to cover the Fund's intermediation costs. See *Review of the Fund's Income Position for FY2022 and FY2023-24*.

[40] To the extent that members lost market access for new issuances while pricing in secondary market remained available, the median adjusted yield may be an underestimate of market borrowing cost.

the war in Ukraine began (Figure 8, bottom left-side panel). Furthermore, the unweighted average effective cost of borrowing from the Fund for the members subject to time-based surcharges is also lower than the unweighted average market rate for these members (Figure 8, bottom right-side panel). For both measures, the gap has been rising recently, reflecting the rise in market risk premia.

41. Surcharge income is likely to increase, and more countries are likely to pay surcharges in the near-term. The projected amount of surcharge income, its incidence across the membership, and its contribution to the Fund's operational income are sensitive to future demand for GRA resources, as shown in the analysis presented in the Interim Review in December 2021. Based on the scenarios discussed above, the main findings are as follows (Table 4):

- *Under the baseline (with existing arrangements)*, the number of surcharge-paying members would increase from the current level of 18 to 21 in FY2024 and then steadily decline to 14 by FY2028. As a result, total surcharge income would decline from about SDR 1.4 billion in FY2023 to about SDR 0.8 billion in FY2028. Its share in operational income and the share of lending income in operational income would also decline steadily from about 47 percent in FY2023 to around 34 percent by FY2028 and from around 88 percent in FY2023 to around 54 percent by FY2028, respectively. The contribution of the five largest surcharge payers to total surcharge income would edge up to about 98 percent by FY2028, and the share of time-based surcharges in total surcharge income would rise to about 33 percent by FY2028.

- *Under the desk survey scenario*, the number of surcharge-paying members would increase to 22 during FY2024–25 before declining to 18 during FY2027–28. Total surcharge income would peak at about SDR 1.4 billion during FY2023–24. Its share in operational income would decline from about 47 percent in FY2023 to around 34 percent by FY2028, while the share of lending income in operational income would decline steadily from around 88 percent in FY2023 to around 56 percent by FY2028. The share of the five largest surcharge payers would hover in the range of about 91–96 percent, and the share of time-based surcharges in total surcharges would increase gradually from about 28 percent in FY2023 to 33 percent in FY2028.

- *Under the model-based WEO scenario*, the number of surcharge-paying members would increase to 30 in FY2025 from 19 in FY2023, and total surcharge income would increase by about 11 percent to reach around SDR 1.6 billion by FY2027 from about SDR 1.4 billion in FY2023. Its share in operational income would gradually decline from about 47 percent in FY2023 to about 40 percent by FY2028, while the share of lending income in operational income would also decline, albeit at a slower pace than in the desk survey scenario, from around 88 percent in FY2023 to 68 percent in FY2028. Contributions of the largest five surcharge payers to total surcharge income would decline to the range of 85–87 percent during FY2025–27 from around 94 percent in FY2023, as the pool of surcharge paying members is projected to expand. The share of time-based surcharges in total surcharge income would decline from about 29 percent in FY2024 to about 20 percent by FY2027, before returning to about 28 percent by FY2028.

- *Under the adverse scenario*, the number of surcharge-paying members and the amount of surcharge income would increase even more sharply. In this scenario, surcharge-paying members would increase to 49 by FY2025-26 from 23 in FY2023, and total surcharge income would more than double from FY2023 level to around SDR 3.8 billion by FY2027.

42. In the context of the 2021 interim review, the Executive Board discussed the possibility of some degree of surcharge relief during the pandemic but views did not fully converge. Some Directors were open to exploring temporary surcharge relief to help borrowing members free up resources to address health and economic challenges. However, a number of Directors did not see a need to review the policies on surcharges or change their design at that stage, given the overall low total cost of borrowing from the Fund and noting the critical role of surcharge income in ensuring an adequate build-up of risk buffers.

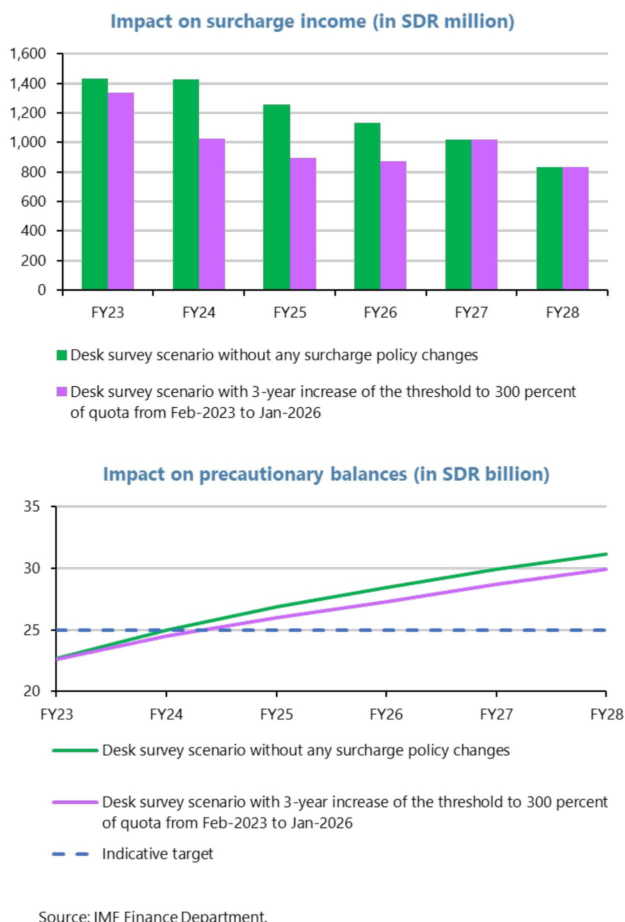
43. Against the backdrop of a weakening global economy and rising interest rates, this review provides further technical background on the impact of potential temporary relief. Amid multiple shocks and limited policy space, many emerging market and developing economies are confronted with difficult policy trade-offs and larger and more prolonged financing needs. As a result, the recourse to Fund credit and the incidence of surcharges could increase, as illustrated in the projections under different demand scenarios presented earlier. In this environment, renewed consideration could be given to the merits of providing some form of relief on surcharges. Such relief could in principle be provided via lower surcharge rates and/or higher surcharge thresholds. The 2021 interim review already included illustrative projections of the financial implications of a hypothetical two-year suspension of surcharges.[41] To further inform the discussion of Directors, staff has prepared an additional scenario that illustrates the implications of a hypothetical temporary increase in the threshold of level-based surcharges (Box 5). Additional scenarios and detail could be provided to the Board in a follow-up paper if there is broad support to further explore possible relief options.[42]

[41] The two-year suspension of surcharges was projected, under the desk survey scenario, to lead to a negative impact of SDR 3 billion on cumulative net operational income and reserve accumulation and to a two-year delay in reaching the targeted level of SDR 25 billion of precautionary balances.

[42] Changes to the surcharge policy require a 70 percent majority of voting power in the Executive Board.

Box 5. Illustrative Example of Temporary Surcharge Relief via a Higher Level-Based Threshold

The current structure of surcharges has been in place since 2009 and was last updated in 2016. A level-based marginal surcharge of 200 bps applies to GRA credit outstanding in excess of 187.5 percent of quota. In addition, a time-based marginal surcharge of 100 bps applies when this threshold is exceeded for more than 36 months (SBA) or 51 months (EFF).



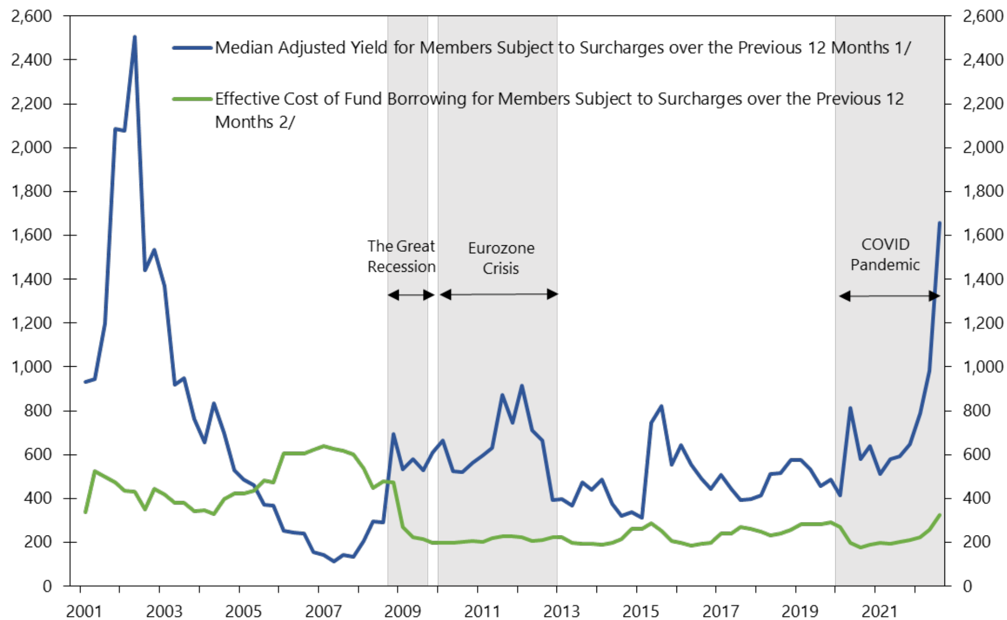
Source: IMF Finance Department.

Staff ran an illustrative scenario with a hypothetical temporary increase in the threshold for level-based surcharges from 187.5 to 300 percent of quota, for a period of three years. Under the desk survey scenario, out of 22 members subject to surcharges during FY2024–25, eight members would avoid paying surcharges, while the other 14 members would see their surcharges reduced. Compared to the scenario of temporary surcharge suspension presented in the 2021 interim review, a temporary increase in the threshold of level-based surcharges would result in a more balanced distribution of surcharge relief between larger and smaller borrowers. The relief provided would result in a negative impact of SDR 1.1 billion on cumulative net operational income and reserves accumulation (upper panel of text chart), as well as on the precautionary balances level. As a result, precautionary balances would be projected to reach the target level of SDR 25 billion in the course of FY2025, about one year later than currently projected (lower panel of text chart) under the unchanged policy desk survey scenario.

Figure 8. Market Rates and Cost of Fund Borrowing

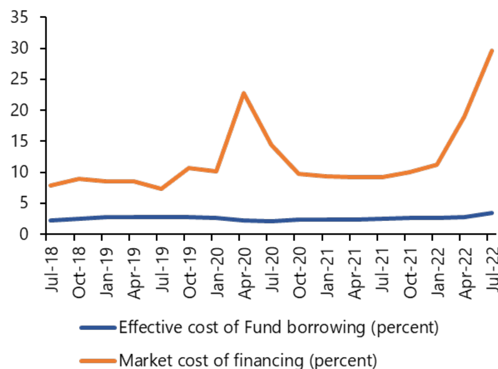
Market Rates and Cost of Fund Borrowing for Surcharge-paying Members Since 2001

(In basis points)



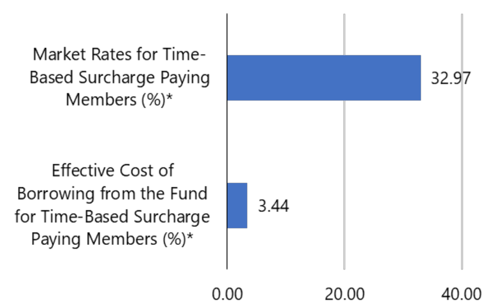
Cost of Fund Borrowing and Market Borrowing

(Unweighted average of top five surcharge-paying members in FY2022, in percent)



Cost of Fund Borrowing and Market Borrowing for Time-based Surcharge Paying Members in FY2022

(in percent)



*As of July 31, 2022, unweighted average of time-based surcharge paying members in FY2022.

Sources: Bloomberg and IMF Finance Department.

1/ For simplicity, the sample includes yields for members whose credit outstanding exceeded 300 percent of quota in the previous 12 months (the higher level-based surcharge threshold before the 2009 reform) until 2015. From 2016 the threshold is updated to 187.5 percent of quota in the previous 12 months. Adjusted yields for emerging market countries are calculated using country specific EMBIG yields net of the rate of charge, subject to data availability. The adjusted yields for Greece, Ireland and Portugal are calculated using sovereign five-year euro bond yields. The sample size is limited by data availability in periods of low number of high access arrangements.

2/ The unweighted average of effective cost of Fund borrowing for members in the sample.

Table 4. Medium-term Projections on Surcharges Income and Precautionary Balances Under Various Scenarios

Baseline with current arrangements

	FY23	FY24	FY25	FY26	FY27	FY28
Number of member countries with GRA credit outstanding	51	51	51	44	30	26
subject to level-based surcharges	18	21	20	16	14	14
subject to time-based surcharges	8	11	15	11	11	13
Total Fund credit outstanding at year-end (SDR millions)	94,472	82,255	65,856	56,334	49,039	40,264
o/w subject to level-based surcharges during the year	75,508	69,704	61,552	53,520	45,861	38,691
o/w subject to time-based surcharges during the year	61,130	61,081	58,293	50,364	43,967	37,714
Amount of surcharges income collected (SDR millions, by year)	1,411	1,356	1,173	1,029	934	778
from level-based surcharges	1,012	961	812	695	628	520
from time-based surcharges	399	394	360	334	307	259
Share in total surcharge income (percent)						
Level-based	71.7	70.9	69.3	67.6	67.2	66.8
Time-based	28.3	29.1	30.7	32.4	32.8	33.2
Share of top 5 surcharge-paying members in total surcharges income (perc	93.7	92.6	94.6	94.8	96.5	98.1
Precautionary Balances (SDR billions, end of year)	22.6	24.8	26.5	27.9	29.1	30.2
Share of surcharge income in operational income (percent)	46.9	41.0	41.1	41.6	38.2	34.2
Share of lending income in operational income (percent)	88.0	76.5	71.9	66.0	59.9	53.9

Desk survey

	FY23	FY24	FY25	FY26	FY27	FY28
Number of member countries with GRA credit outstanding	52	52	52	45	32	30
subject to level-based surcharges	18	22	22	19	18	18
subject to time-based surcharges	8	11	15	12	13	17
Total Fund credit outstanding at year-end (SDR millions)	96,809	87,254	73,516	66,045	58,945	49,058
o/w subject to level-based surcharges during the year	77,010	73,639	68,423	61,272	55,494	46,291
o/w subject to time-based surcharges during the year	62,600	63,544	61,780	54,072	49,722	45,314
Amount of surcharges income collected (SDR millions, by year)	1,434	1,425	1,257	1,130	1,017	829
from level-based surcharges	1,027	1,009	873	773	694	557
from time-based surcharges	406	416	384	357	322	272
Share in total surcharge income (percent)						
Level-based	71.7	70.8	69.5	68.4	68.3	67.2
Time-based	28.3	29.2	30.5	31.6	31.7	32.8
Share of top 5 surcharge-paying members in total surcharges income (perc	93.6	91.7	91.2	90.8	90.5	95.8
Precautionary Balances (SDR billions, end of year)	22.7	25.0	26.9	28.4	29.9	31.1
Share of surcharge income in operational income (percent)	46.9	41.5	41.5	42.1	38.4	34.0
Share of lending income in operational income (percent)	88.1	77.3	73.3	68.3	62.4	56.2

WEO model-based scenario

	FY23	FY24	FY25	FY26	FY27	FY28
Number of member countries with GRA credit outstanding	55	58	58	53	40	38
subject to level-based surcharges	19	25	30	29	26	26
subject to time-based surcharges	8	11	15	13	14	21
Total Fund credit outstanding at year-end (SDR millions)	98,752	105,811	108,773	117,164	108,947	89,066
o/w subject to level-based surcharges during the year	78,401	76,469	104,122	114,679	103,506	84,148
o/w subject to time-based surcharges during the year	62,197	63,680	62,400	57,055	49,431	71,974
Amount of surcharges income collected (SDR millions, by year)	1,422	1,422	1,363	1,523	1,584	1,422
from level-based surcharges	1,020	1,009	978	1,170	1,269	1,026
from time-based surcharges	402	412	385	352	315	396
Share in total surcharge income (percent)						
Level-based	71.7	71.0	71.8	76.9	80.1	72.1
Time-based	28.3	29.0	28.2	23.1	19.9	27.9
Share of top 5 surcharge-paying members in total surcharges income (perc	93.6	91.6	85.0	84.8	87.1	90.7
Precautionary Balances (SDR billions, end of year)	22.7	25.2	27.5	29.9	32.6	35.0
Share of surcharge income in operational income (percent)	46.6	39.5	39.2	42.3	41.8	39.7
Share of lending income in operational income (percent)	88.1	78.3	76.5	75.6	72.4	67.9

Adverse Scenario

	FY23	FY24	FY25	FY26	FY27	FY28
Number of member countries with GRA credit outstanding	67	72	72	67	58	57
subject to level-based surcharges	23	39	49	49	48	45
subject to time-based surcharges	8	12	16	17	27	32
Total Fund credit outstanding at year-end (SDR millions)	140,265	220,241	260,471	292,581	247,932	175,865
o/w subject to level-based surcharges during the year	109,882	193,703	257,384	290,355	244,241	172,574
o/w subject to time-based surcharges during the year	62,238	64,399	62,860	84,027	172,144	130,500
Amount of surcharges income collected (SDR millions, by year)	1,456	2,272	2,628	3,424	3,758	2,922
from level-based surcharges	1,054	1,860	2,242	3,060	3,101	2,122
from time-based surcharges	402	413	386	364	657	800
Share in total surcharge income (percent)						
Level-based	72.4	81.8	85.3	89.4	82.5	72.6
Time-based	27.6	18.2	14.7	10.6	17.5	27.4
Share of top 5 surcharge-paying members in total surcharges income (perc	91.4	78.3	62.8	53.5	52.2	58.8
Precautionary Balances (SDR billions, end of year)	22.9	27.4	32.5	38.8	45.5	50.9
Share of surcharge income in operational income (percent)	43.7	40.9	42.4	46.0	47.6	44.1
Share of lending income in operational income (percent)	89.0	85.5	85.5	86.1	83.4	77.1

Box 6. Enterprise Risk Implications of Staff Proposal

The proposals of this paper seek to mitigate financial, business, and reputational risks for the Fund. The expected accumulation of precautionary balances provides reassurance about the strength of the Fund's balance sheet and its ability to support members in line with its role in the global financial safety net.

Financial risks. The proposal of maintaining the medium-term target and floor for precautionary balances at their current levels and keeping the current pace of precautionary balances accumulation unchanged is expected to preserve adequate financial buffers.[1] This is a crucial mitigation against remaining financial risks (see Box 1), especially credit risks arising from large credit exposures and concentration, as well as a weakening debt and growth outlook for many current and potential borrowers.[2]

Business and reputational risks. The current medium-term target and floor for precautionary balances and the pace of accumulation of precautionary balances provide added comfort to Fund creditors about the quality of their claims at a time when the Fund is stepping up its engagement with members affected by the pandemic and spillovers from the war in Ukraine, thus mitigating reputational and business risks, in particular relating to the member engagement risk.[3]

Residual risks. Even with broadly adequate levels of precautionary balances target, floor, and pace of accumulation, residual risks in the above-mentioned categories remain. In particular, amid heightened global uncertainty and economic and financial challenges facing the Fund's borrowers, lending demand and credit outstanding could rise significantly more than projected in the paper and precautionary balances could fall below the indicative target range, leaving the Fund with relatively smaller financial buffers to absorb ultimate credit losses. Close monitoring of risks and regular reviews of precautionary balances will remain key measures to mitigate these risks. This paper provides for an interim review before the regular 2-year cycle if lending developments diverge significantly from projections or if credit and other financial risks rise.

1/ A decision to change the precautionary balances target, floor, or pace of accumulation would have an indirect impact on the Fund's operational income, for example through policy decisions such as changes in the rate of charge, surcharges, or budgetary adjustments. Such decisions would be covered in separate Board papers.

2/ Adjustments to the adequacy assessment framework to explicitly incorporate operational risks could be considered once proposed changes to the Fund's enterprise risk management framework have matured.

3/ Risk that staff inadequately engage with members, including that the products and services offered by the IMF do not meet the needs of members.

ISSUES FOR DISCUSSION

45. Directors may wish to comment on the following issues:

- Do Directors agree with staff's assessment of the credit risks facing the Fund?
- Do Directors agree that the indicative medium-term target for precautionary balances should be retained at SDR 25 billion while being monitored closely?
- Do Directors agree to maintain the normal two-year review cycle but to proceed with an interim review if lending developments diverge significantly from projections or if credit and other financial risks rise materially?
- Do Directors agree that the minimum floor for precautionary balances should be kept

unchanged at SDR 15 billion?

- Do Directors agree that it would not appear necessary at this point to take additional steps to accelerate the pace of precautionary balance accumulation?
- Do Directors see merit in exploring possible options for providing temporary surcharge relief?

Annex I. Demand for New Programs

This annex explains the methodology used to estimate the potential demand for new Fund credit under various scenarios and updates the analysis from the 2021 interim review with the October 2022 WEO data. The updated analysis shows that under the baseline global outlook, new programs would add around SDR 21 billion to credit outstanding at its peak. As a result, precautionary balances could surpass the current indicative target in FY2024 and could reach SDR 35 billion over the medium-term, slightly lower than the projected path at the interim review.

1. **The analysis uses a panel logit regression to identify countries that are likely to tap IMF resources under the General Resources Account (GRA).** Drawing from the literature, the model relates the probability of entering a new Fund arrangement to global and country–specific determinants. The sample covers 96 advanced, emerging and frontier market economies over the period 1992–2020, and 153 GRA arrangements. Estimated results suggest that the probability of a country requesting Fund support increases with higher external financing needs, higher financial market volatility, tighter global financial conditions, and lower GDP growth, among other factors (Table A1). A threshold for the probability of entering a program is then determined by minimizing the weighted average of missed new programs (Type I error) and false alarms (Type II error) for the in–sample forecasts. Under the assumption of equal weights for Type I and Type II errors (i.e., a 1:1 ratio), the threshold is 2.9 percent.[1] Using this threshold, the model correctly identifies 95 percent of new programs over the period 1992–2020.

2. **Estimated results are then used to predict the probability of sample countries entering an IMF program in FY2023 and FY2024.** The analysis uses the October 2022 WEO baseline data for each sample country for the next two years, and the 2022 year-to-date average VIX level of 25.8 to reflect the global economic outlook and financial market conditions. A country is assumed to enter into a new IMF program if its predicted probability exceeds the 2.9 percent threshold in a given year. Under this approach, 28 countries are predicted to enter a new Fund-supported program, of which 17 are assumed to come forward in FY2023–24, based on staff analysis.[2]

3. **The potential call on Fund resources would be high reflecting the challenging global economic and financial outlook, but lower than estimated at the interim review.** Access is calculated using the average size of Fund programs (excluding precautionary arrangements as they are not part of the forward-looking credit measure for the indicative target

[1] Type I error represents the ratio of actual new programs that the model failed to predict to total new program observations, while Type II error refers to the ratio of predicted programs that did not occur to total non-program observations. Higher thresholds of 9.7 and 17.9 percent are identified when Type I and Type II errors are minimized in the ratios of 2:1 and 3:1, respectively, as such an approach penalizes false alarms more and flags fewer countries requesting Fund's program.

[2] Staff assessed members' probability to request Fund financial support, taking into account whether potential borrowers had already active precautionary and non-precautionary arrangements with the Fund, whether they had access to markets or other financing sources (e.g., through regional facilities), and whether they were eligible to obtain Fund credit under current policies.

range) in the past decade of about 5 percent of GDP, and in each identified case adjusting for outstanding Fund credit, projected disbursements and repurchases consistent with applicable exceptional access limits. On this basis, aggregate new demand for IMF financing under 17 arrangements could reach about SDR 63 billion over FY2023–24 compared to the projected 28 new arrangements totaling SDR 148 billion over FY2022–23 at the previous review. The lower than previously projected demand partly reflects the strong global recovery last year.

4. Under the WEO model-based scenario, the outstanding stock of Fund credit is projected to increase relative to the stock with only existing arrangements by about SDR 21 billion at the peak in FY2027. A combination of 5 Stand–By Arrangements (SBAs) and 12 arrangements under the Extended Fund Facilities (EFFs) is projected, with even phasing over three years for SBAs and four years for EFF arrangement. The average outstanding stock of Fund credit would rise from about SDR 90.5 billion in FY2022 to a peak of SDR 114.8 billion in FY2027 (Figure A1), including existing arrangements and prospective arrangements under this WEO-based scenario. This compares with a peak of SDR 94.1 billion if only existing arrangements are taken into account and a peak of SDR 167 billion at the interim review.

5. New demand for Fund programs could lift precautionary balances above the indicative target by FY2024. Here, precautionary balances would peak at SDR 35 billion over the medium-term, higher than projections based only on existing arrangements.

6. Additional demand for Fund resources over the WEO-based scenario could materialize in an adverse scenario.[3] Staff considered, as in the previous review, an adverse scenario where the projected growth for 2022–23 for a country is assumed to fall by ½ standard deviation of its historical values relative to the October 2022 WEO baseline. The growth shock is combined with a high financial market shock (VIX level of 40). In addition, it is assumed that (i) average access per arrangement is significantly higher than under the WEO scenario, about 7 percent of GDP (excluding precautionary arrangements) given that access levels have historically been higher during crisis episodes and (ii) all current FCL and PLL arrangements are drawn. Under this scenario, demand for Fund program is estimated at SDR 184 billion. As a result, the outstanding stock of Fund credit is projected to increase by about SDR 164.1 billion above the peak under the WEO model-based scenario. Precautionary balances would increase to SDR 50.9 billion over the medium-term.

[3] This scenario is reflective of significantly more challenging global economic and financial conditions.

Figure A1.1. Projected Precautionary Balances and Credit Path under Alternative Scenarios
(in SDR billions)

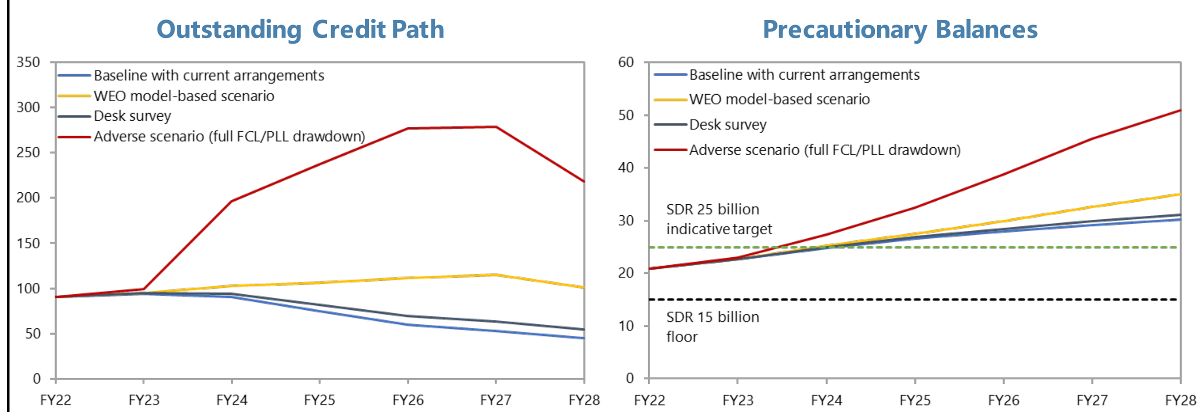


Table A1.1. Model Output

Logit Estimation Results

Dependent variable: Start of a GRA Arrangement (dummy)

Independent Variables	dy/dx	Robust SE	P-value
Past program (dummy)	0.397***	0.064	0.000
Reserve accumulation	-0.0411	0.029	0.154
External Financing Needs	0.755**	0.316	0.017
GDP growth	-0.0828***	0.025	0.001
GDP per capita	-1.114***	0.193	0.000
GDP	0.0616	0.115	0.593
Credit gap	0.0227**	0.009	0.014
Exchange rate variation	0.0259	0.113	0.819
Government stability	-0.295***	0.075	0.000
3M US int. rate variation	0.108	0.127	0.395
Import coverage	-0.132***	0.047	0.005
VIX	0.0668***	0.026	0.010
Oil price	-0.00836	0.006	0.175
Access to RFA (dummy)	0.324	0.310	0.296
Pseudo R2	0.443		
Observations	2,201		
Countries	96		
GRA Arrangements	153		
Likelihood ratio (p-value)	0.000		

Notes: the table reports the coefficients of the panel logit estimation using random effects. A constant is estimated but not reported.
***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Annex II. Burden Sharing Capacity

This annex discusses the role of the Fund's burden sharing mechanism as well as the factors that determine its capacity. Since the interim review in 2021, the current burden sharing capacity has strengthened and provides a buffer relative to scheduled charges falling due under the Fund's exposures.

Role of the Burden Sharing Mechanism

1. **The burden sharing mechanism was established in 1986 to compensate the Fund for any unpaid charges by members in arrears ("deferred charges"), and in so doing, to offset the impact of unpaid charges on Fund income.** Under burden sharing, the Fund's creditor and debtor members contribute temporary financing in equal amounts to cover the amount of unpaid charges. This is achieved through increases in the rate of charge paid by debtor members and reductions in the rate of remuneration to creditor members.[1]

2. **The burden sharing mechanism has proven important in protecting the Fund's income position and in enabling the Fund to recognize no impairment for its credit outstanding under International Financial Reporting Standards (IFRS).** Specifically, even though a member may not be meeting its obligation to pay charges, the collection of an equivalent amount from other members through the burden sharing mechanism enables the Fund to demonstrate that, on a net present value basis, there is no impairment of outstanding credit under IFRS.

3. **Should the loss of income from deferred charges exceed the capacity of the mechanism, the carrying value of the asset in arrears on the Fund's balance sheet may need to be reduced.** The deferred charges in excess of the burden sharing capacity would reduce the Fund's annual lending income and reduce the pace of accumulation of precautionary balances accordingly. Moreover, future cash flows due from members in arrears would not be expected to be collected in full, which could undermine the Fund's ability to demonstrate that the carrying value of credit outstanding has not been impaired, giving rise to the possibility of an impairment loss.[2] Recognition of an impairment loss arising from deferred charges would need to consider a variety of factors, including the unique nature of the Fund's financing mechanism, but could have a further negative impact on the Fund's net income and precautionary balances.[3]

Capacity of the Burden Sharing Mechanism

[1] These adjustments are currently set to match charges in arrears.

[2] Under IFRS, the amount of the loss is measured as the difference between an asset's carrying amount and the present value of estimated future cash flows.

[3] Recognition of an impairment loss is not equivalent to writing off the outstanding claims against the member in arrears, since it does not relieve the member of its obligations to the Fund. The impairment loss may be reversed in future years as the arrears are cleared.

4. The total capacity of the burden sharing mechanism to cover unpaid charges is the sum of the maximum feasible reduction in remuneration expenses and the maximum feasible increase in income from charges:

Article V, Section 9 (a) of the Fund's Articles of Agreement states that the rate of remuneration shall be no less than four-fifths (80 percent) of the SDR interest rate, limiting the maximum reduction in remuneration expenses to: *0.2 * SDR Interest Rate * Remunerated Reserve Tranche Positions.* The Board has set the current floor for remuneration at 85 percent of the SDR interest rate, which may be changed with a 70 percent majority of the total voting power.[4]

The maximum capacity of a symmetrical burden sharing mechanism is simply twice the above amount, because debtors and creditors contribute equally.[5] However, the contributing debtor base declines in the event of arrears, which may in practice limit the maximum feasible adjustment to the rate of charge without overburdening these members.

5. The burden sharing capacity depends on the following factors:[6]

Quota payments: quota increases typically result in higher reserve tranche positions (RTP), as members acquire additional liquid claims on the IMF as part of their quota payments.[7] As reserve tranche positions increase, the remunerated portion also increases, thus allowing for a larger maximum reduction in remunerated expenses and higher burden sharing capacity.

Outstanding credit and borrowing by the Fund: Reserve tranche positions also move in tandem with changes in outstanding credit financed from quota resources. Remunerated reserve tranche positions have increased to about SDR 109 billion at the end of September 2022, compared to about SDR 101 billion a year ago and about SDR 9 billion in June 2008. However, no burden sharing adjustment is made to the interest paid to creditors on borrowed resources (New Arrangements to Borrow and bilateral loan or note purchase agreements). Therefore, outstanding credit financed by borrowed resources would not affect the Fund's burden sharing capacity.

SDR interest rate: as the burden sharing adjustment to the rates of remuneration is set as a proportion of the SDR interest rate, a higher SDR interest rate increases the total burden sharing capacity. The surge of SDR interest rate from its floor of 0.050 percent as of end-September

[4] See Decision No. 12189-(00/45), April 28, 2000, as amended.

[5] Under the terms of the burden sharing Decision No. 11945-(99/49), adopted on April 30, 1999, the operation of the mechanism would need to be reviewed if the adjustment in the rate of remuneration falls below the agreed floor of 85 percent of the SDR interest rate. Absent any Executive Board decisions at such a review, debtor members would be required to cover any remaining amounts of unpaid charges through further (uncapped) adjustments to the rate of charge, and burden sharing would become asymmetric.

[6] Burden sharing capacity can also be affected by other Fund operations and transactions involving changes in the GRA currency holdings, such as transfer of currencies to the Investment Account and sales of SDRs to members in exchange for currencies.

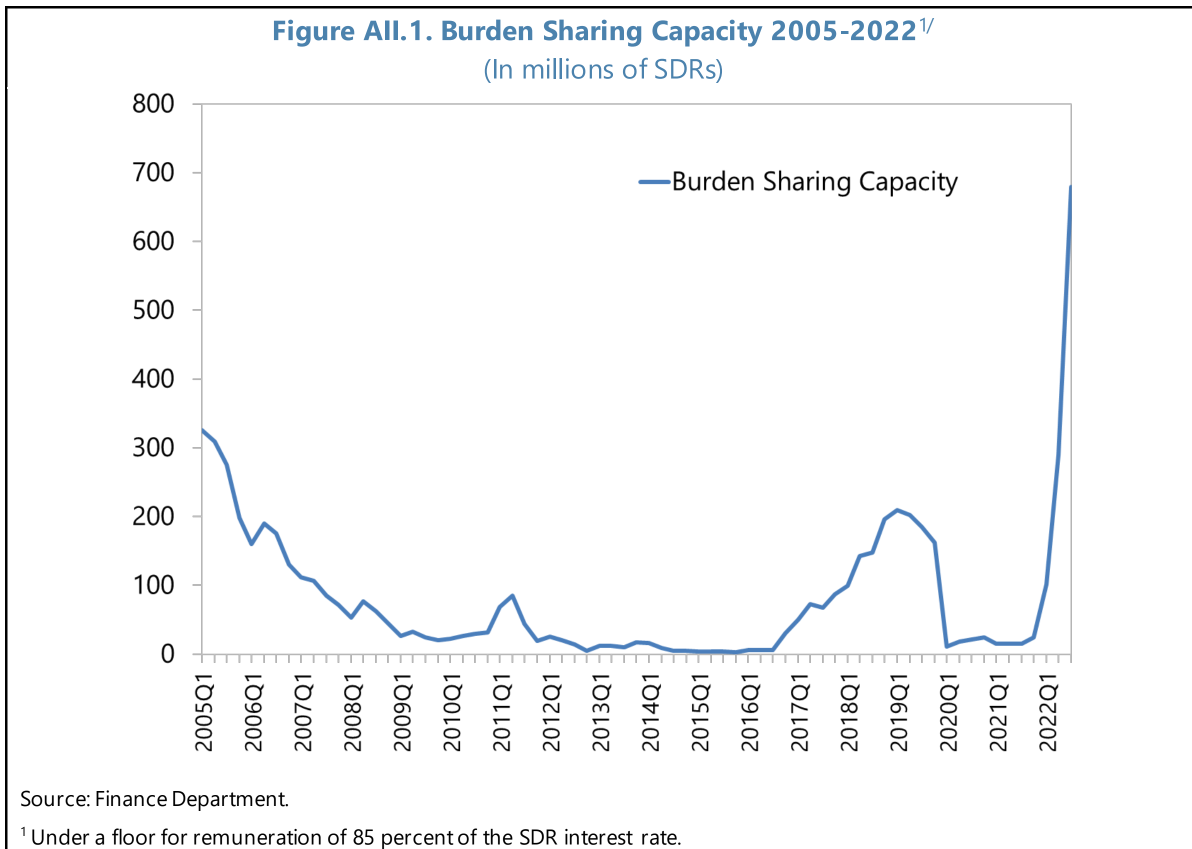
[7] Quota increases paid in currencies do not affect members' aggregate RTP positions.

2021 to 2.007 percent as of end-September 2022, triggered the rise of total burden sharing capacity.

6. The burden sharing capacity has increased rapidly since the interim of precautionary balance review primarily owing to the rise in the SDR rate and remunerated reserve tranche positions. As of end-September 2022, the annual burden sharing capacity (based on the current floor for remuneration at 85 percent of the SDR interest rate) was about SDR 657 million, compared to SDR 23 million at the time of the last biannual review in 2020, SDR 15 million in September 2021, and SDR 77 million in June 2008.

Figure AII.1. Burden Sharing Capacity 2005-2022[1/]

(In millions of SDRs)

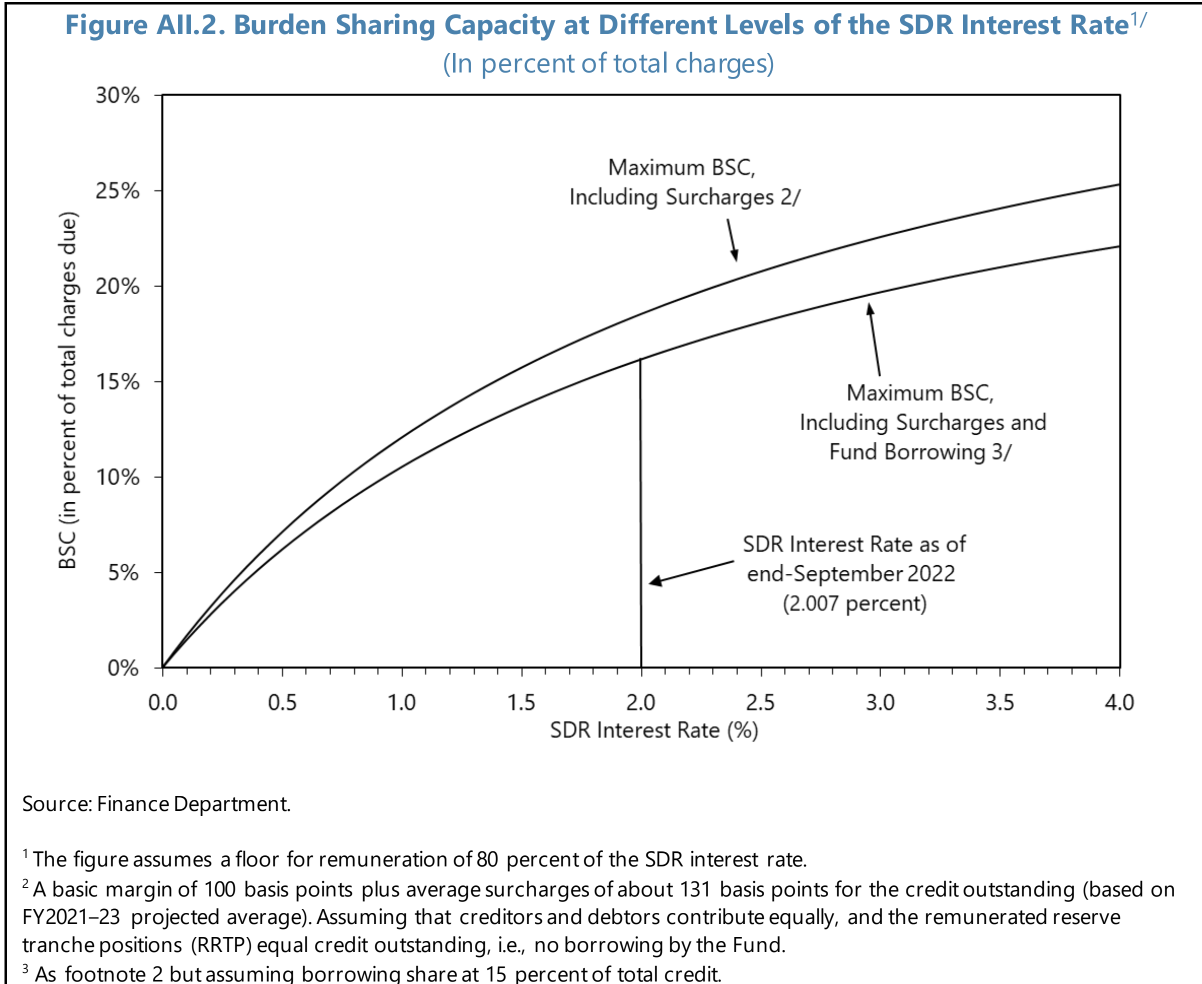


Source: Finance Department.

[1] Under a floor for remuneration of 85 percent of the SDR interest rate.

Figure AII.2. Burden Sharing Capacity at Different Levels of the SDR Interest Rate[1/]

(In percent of total charges)



Source: Finance Department.

[1] The figure assumes a floor for remuneration of 80 percent of the SDR interest rate.

[2] A basic margin of 100 basis points plus average surcharges of about 131 basis points for the credit outstanding (based on FY2021–23 projected average). Assuming that creditors and debtors contribute equally, and the remunerated reserve tranche positions (RRTP) equal credit outstanding, i.e., no borrowing by the Fund.

[3] As footnote 2 but assuming borrowing share at 15 percent of total credit.

Annex III. Credit Concentration Risk – A Regional Perspective

This annex discusses the methodology, data sources and sample coverage used in the analysis of regional credit concentration. The analysis uses the approach applied in Chapter 3 of the 2013 Fall WEO. Main findings are discussed in Box 4 of this paper.

Methodology. Comovement measures are based on quarterly real GDP growth rates from the October 2022 WEO database from 1990Q1 to 2022Q2 and quarter-end period sovereign spreads from J.P. Morgan Markets from 1993Q4 to 2022Q2. The approach of comovement calculation used in the exercise is the simple average of the country pairwise correlations in a region or in the full sample, defined as follows:

$$P_t = \frac{1}{N}\sum P_{xy,t}$$

$$P_{xy,t} = \frac{\sigma_{xy,t}}{\sigma_{x,t}\sigma_{y,t}} = \frac{\sum(x_t - \bar{x}_t)(y_t - \bar{y}_t)}{\sqrt{\sum(x_t - \bar{x}_t)^2 \sum(y_t - \bar{y}_t)^2}} \; (if\ x \neq y)$$

Where the variables are defined as follows:

P_t is the simple average of the country pairwise correlations at time t;
N is the number of unique country pairs;
P_{xy} is the correlation coefficient of country x and country y ($if\ x \neq y$);
x_t is the value of country x at time t in the backward 5-year rolling period;
$\bar{x}_t$ is the mean of the values of country x in the backward 5-year rolling period;
y_t is the value of country y at time t in the backward 5-year rolling period;
$\bar{y}_t$ is the mean of the values of country x in the backward 5-year rolling period.

Data source. The primary data sources for the analysis are IMF's World Economic Outlook (WEO) and J.P. Morgan Markets. The variables and data sources are listed in Table 1.

Table III.1. Data Sources

Variable	Source
Gross domestic product, constant prices, seasonally adjusted, year-over-year percent change	IMF, World Economic Outlook Database
EMBI Sovereign Strip Spreads (bps)	J.P. Morgan Markets, Data Query

Sample coverage. The country sample and regional groups used in the output growth and sovereign spreads correlation exercises are listed in Table 2 and 3, respectively. The sample includes all countries in the WEO database that have data available, including countries with

credit outstanding from Fund GRA arrangements, and excludes countries eligible for the PRGT. For the analysis of the Western hemisphere region, current FCL/PLL users are Chile, Colombia, Mexico, Peru and Panama. Members with current UCT-quality Fund-supported programs arrangements are Argentina, Costa Rica, Ecuador, and Suriname. Due to data unavailability, Panama, and Suriname are excluded from the sample.

Table III.2. Country Sample and Regional Groups, WEO Database

Asia	Ecuador	Iceland	Switzerland
China	Mexico	Ireland	Turkey
Hong Kong SAR	Peru	Italy	Ukraine
India	Venezuela	Latvia	United Kingdom
Indonesia	**Europe**	Lithuania	**Other regions**
Japan	Austria	Luxembourg	Australia
Korea	Belarus	Malta	Canada
Malaysia	Belgium	Netherlands	Israel
Philippines	Croatia	Norway	Jordan
Singapore	Cyprus	Poland	Kazakhstan
Thailand	Czech Republic	Portugal	New Zealand
Vietnam	Denmark	Romania	Nigeria
Latin America and the Caribbean	Estonia	Russia	Saudi Arabia
Argentina	Finland	Serbia	South Africa
Brazil	France	Slovak Republic	United States
Chile	Germany	Slovenia	
Colombia	Greece	Spain	
Costa Rica	Hungary	Sweden	

Table III.3. Country Sample and Regional Groups, J.P. Morgan Markets

Asia	Costa Rica	Hungary	Iraq
China	Dominican Republic	Latvia	Jordan
Indonesia	Ecuador	Lithuania	Kazakhstan
Korea	El Salvador	Poland	Kenya
Malaysia	Guatemala	Romania	Kuwait
Mongolia	Jamaica	Russia Federation	Lebanon
Papua New Guinea	Mexico	Serbia	Morocco
Philippines	Panama	Slovak Republic	Mozambique
Sri Lanka	Paraguay	Turkey	Namibia
Thailand	Peru	Ukraine	Nigeria
Vietnam	Suriname	**Other regions**	Oman
Latin America and the Caribbean	Trinidad and Tobago	Algeria	Pakistan
Argentina	Uruguay	Angola	Qatar
Barbados	Venezuela	Armenia	Saudi Arabia
Belize	**Europe**	Azerbaijan	Senegal
Bolivia	Belarus	Bahrain	South Africa
Brazil	Bulgaria	Egypt	Tunisia
Chile	Croatia	Gabon	United Arab Emirates
Colombia	Greece	Georgia	

References

Duval, Romain A., and others, 2014, "Trade Integration and Business Cycle Synchronization: A Reappraisal with Focus on Asia," IMF Working Papers, WP/14/52 (Washington: International Monetary Fund)

International Monetary Fund, 2003, "Dancing Together? Common Shocks, and the Role of Financial and Trade Linkages," in *World Economic Outlook*, October.

Kim, Ji Young, and Kim, Sunghyun, 2020, "Trade Integration and Business Cycle Synchronization in Latin American Countries," *Journal of Economic Integration*, Vol.35, No. 4, December, pp. 559-575 (Seoul: Center for Economic Integration).