



# IMF POLICY PAPER

## REVIEW OF THE INSTITUTIONAL VIEW ON THE LIBERALIZATION AND MANAGEMENT OF CAPITAL FLOWS

March 2022

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 March 21, 2022 consideration of the staff report.
- The **Staff Report**, prepared by IMF staff and completed on February 22, 2022 for the Executive Board's consideration on March 21, 2022.
- **Background Notes.**
  - Background Note 1—Capital Flows and Capital Flow Management Measures—Benefits and Costs
  - Background Note 2—Assessing Systemic Financial Stability Risks Due to FX Mismatches
  - Background Note 3— Principles for the Design of Measures to Address Systemic Risks from FX Mismatches
  - Background Note 4—Using the IPF Analytical Toolkit to Enhance Policy Assessments

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**International Monetary Fund**  
**Washington, D.C.**



## Executive Board Concludes the Review of the Institutional View on the Liberalization and Management of Capital flows

FOR IMMEDIATE RELEASE

**Washington, DC – [March 30, 2022]:** On March 21, 2022, the Executive Board of the International Monetary Fund (IMF) concluded the review of the Institutional View on the Liberalization and Management of Capital Flows (IV).

The IV was adopted in 2012 and provides the basis for consistent Fund advice on policies related to capital flows. The IV aims to help countries reap the benefits of capital flows while managing the associated risks in a way that preserves macroeconomic and financial stability and does not generate significant negative outward spillovers.

The review aims to bring the IV up to date with advances in theoretical and empirical research and policy experiences. Notably, it was informed by the work on the Integrated Policy Framework (IPF), the findings of the Independent Evaluation Office (IEO)'s 2020 evaluation on IMF Advice on Capital Flows, and IMF staff's experience with the implementation of the IV. The review preserves the core principles of the IV, i.e., the overall presumption that capital flows can bring substantial benefits for countries and that capital flow management measures (CFMs), while useful in certain circumstances, should not substitute for warranted macroeconomic adjustment.

The paper introduces two changes to the existing policies under the IV. First, based on the insights from the IPF, it recognizes that the use of CFMs that are also macroprudential measures (CFM/MPMs) on debt inflows in a preemptive manner (i.e., in the absence of a capital inflow surge) may be appropriate in the presence of stock vulnerabilities in certain circumstances, most notably where elevated currency mismatches make countries vulnerable to systemic financial risks in the event of capital flow reversals. Second, it establishes a special treatment for certain categories of CFMs, which because of their special nature, should not be subject to the appropriateness assessments applicable to other CFMs under the IV.

The IV's policy advice on managing capital inflow surges, disruptive outflows, and capital flow liberalization remains unchanged. However, the paper offers additional guidance to make assessments that play an important role in the implementation of capital flow policies, such as the assessment of macro-criticality, and the identification of capital inflow surges, imminent crises, and premature liberalization.

### Executive Board Assessment<sup>1</sup>

Executive Directors welcomed the opportunity to discuss the review of the Institutional View (IV) on the Liberalization and Management of Capital Flows. They noted that, at the time of its

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<sup>1</sup> 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 summing ups can be found here: <http://www.IMF.org/external/np/sec/misc/qualifiers.htm>.

adoption, it was envisaged that the IV would evolve in the light of research and lessons from its implementation. Directors highlighted the useful contributions from the work on the Integrated Policy Framework (IPF) and the Independent Evaluation Office's evaluation on IMF Advice on Capital Flows in informing the review.

Directors underlined that the core principles of the IV remain valid, namely the overall presumption that capital flows are desirable and can bring substantial benefits for countries. The IV should continue to aim to help countries reap those benefits while managing the risks to macroeconomic and financial stability of large and volatile capital flows. CFMs can be useful in certain circumstances, but should not substitute for warranted macroeconomic adjustments. It is also important to ensure that the Fund's policy framework on capital flows also guards against unintended effects or possible inappropriate use of CFMs. A number of Directors emphasized that strong macroeconomic frameworks and sound financial regulation and supervision, as well as structural reforms and market development to reduce underlying market imperfections, are the first line of defense to protect against excessive capital volatility. A number of Directors noted that policies in both source and recipient countries have a role in mitigating the multilateral risks associated with capital flows.

Directors supported the proposal on the use of measures that are both capital flow management measures and macroprudential policy measures (CFM/MPMs) on debt inflows in a preemptive manner (i.e., in the absence of a capital inflow surge) in some circumstances. They agreed that such measures may be warranted when systemic financial risks from stock vulnerabilities, notably currency mismatches, cannot be addressed effectively and efficiently with conventional policy instruments. Directors also generally concurred that, in narrow and exceptional circumstances, preemptive CFM/MPMs may also be warranted to address vulnerabilities from local currency-denominated external debt stocks. A few Directors emphasized that the appropriate conditions for use of preemptive CFM/MPMs should be sufficiently forward-looking to allow a timely and effective response to systemic risks.

Directors stressed that the appropriateness of preemptive CFM/MPMs should be subject to a comprehensive evaluation process and periodic reviews to ensure that they do not substitute for necessary macroeconomic adjustments, undermine market development, or maintain or exacerbate external imbalances. Their adoption may also complement needed macroeconomic policy adjustments. CFM/MPMs should be targeted, temporary, and transparent. A number of Directors highlighted the importance of the Fund's capacity development assistance to address capacity constraints and underlying vulnerabilities. A number of Directors also emphasized the importance of staff judgment and flexibility in evaluating CFM/MPMs and to be mindful of the limitations of the Fund's external sector assessment frameworks. Directors noted that if preemptive CFM/MPMs produce adverse spillovers that may significantly influence the effective operation of the international monetary system, in line with the Integrated Surveillance Decision, staff should examine whether alternative policy actions could achieve the same domestic policy objectives while minimizing the negative outward spillovers. They encouraged staff to transparently assess when CFM/MPMs are no longer appropriate and to discuss alternative policies. Directors stressed the need for staff guidance to ensure evenhanded and careful implementation of the evaluation process, as well as giving appropriate weight to the views of the authorities.

Directors broadly agreed with the proposal to accord a special treatment to certain categories of CFMs, including those introduced solely for national or international security reasons, adopted pursuant to certain internationally-agreed prudential frameworks (including reciprocity agreements), implemented in line with FATF standards to combat money laundering and the

financing of terrorism, and CFMs arising from certain international cooperation standards against the avoidance or evasion of taxes. They concurred that the IV is not the right framework to assess the appropriateness of such measures, while noting that they should still be categorized as CFMs if those measures qualify as such under the definition of CFMs in the IV, and discussed in surveillance if they are macro-critical or may generate significant spillovers, consistently with the Integrated Surveillance Decision. Many Directors cautioned that measures introduced for national or international security reasons should be used sparingly and avoid misuse.

Directors noted that the IV's advice for managing capital inflow surges, responding to disruptive outflows, and undertaking capital flow liberalization remains unchanged. They welcomed the additional guidance provided to conduct assessments of macro-criticality and identify capital flow surges, imminent crises, and premature liberalization, noting that such assessments play an important role in formulating policy advice under the IV. Some Directors sought further clarification of some aspects. Directors called for a careful balance of staff judgment and evenhandedness, as well as transparency, when implementing the IV and assessing CFMs. Directors also welcomed the clarifications provided on certain operational issues, such as the treatment of measures that are both CFMs and exchange restrictions or multiple currency practices.

Directors noted that certain topics, including the use of CFMs for social or political objectives, the distributional effects of capital flow liberalization, the use of outflow CFMs outside of (imminent) crisis circumstances, and in particular the effects of digitalization and climate change on capital flows, need further research and could not be addressed in this review. Directors encouraged staff to continue research on these topics and consider their policy implications in a timely manner in a future review of the IV.

Directors urged careful and balanced external communication to stakeholders on the changes to the IV while emphasizing that the fundamental principles of the framework are preserved.



February 22, 2022

## REVIEW OF THE INSTITUTIONAL VIEW ON THE LIBERALIZATION AND MANAGEMENT OF CAPITAL FLOWS

### EXECUTIVE SUMMARY

**Purpose.** The Institutional View (IV) on the Liberalization and Management of Capital Flows, adopted in 2012, provides the basis for consistent advice, and where relevant, assessments on policies related to capital flows. This paper reviews the IV, informed by advances in research, notably the work on an Integrated Policy Framework (IPF), the findings of the 2020 evaluation by the Independent Evaluation Office (IEO) on IMF Advice on Capital Flows, and staff's experience with the implementation of the IV.

**The core premises and objectives of the IV remain unchanged.** The IV rests on the premises that capital flows are desirable as they can bring substantial benefits for countries, and that capital flow management measures (CFMs) can be useful in certain circumstances but should not substitute for warranted macroeconomic adjustment. With those premises in mind, the IV aims to help countries reap the benefits of capital flows, while managing the associated risks in a way that preserves macroeconomic and financial stability and does not generate significant negative outward spillovers.

#### Proposed policy changes:

- **Preemptive CFM/MPMs on inflows.** Based on the insights of the IPF, CFM/MPMs (CFMs that are also macroprudential measures) on inflows may be useful to address financial stability risks in a preemptive manner (i.e., in the absence of a capital inflow surge). These risks could arise from the buildup of stock vulnerabilities, notably currency mismatches, which conventional policy instruments may not effectively address during a capital flow reversal. Accordingly, it is proposed that the IV recognizes that preemptive inflow CFM/MPMs may be appropriate in certain circumstances, in a manner that minimizes the risk of unintended effects or inappropriate use, including to gain an unfair competitiveness advantage.
- **Special treatment for certain measures.** Currently, once a measure is determined to be a macro-critical CFM, staff is required to assess its appropriateness in accordance with the criteria established in the IV. However, there are four categories of measures that, because of their nature, require a special treatment: measures introduced solely for national or international security reasons, certain measures adopted pursuant to internationally agreed prudential frameworks (including reciprocity agreements), AML/CFT measures implemented consistently with international standards, and measures arising from certain international

cooperation standards against the avoidance or evasion of taxes. The review proposes to not consider the appropriateness of these measures under the IV.

**The review does not propose changing other existing key elements of the IV but elaborates on several concepts that play an important role in its implementation.** The review maintains the IV's existing policy advice on capital flow liberalization, and the management of capital inflow surges and disruptive outflows. However, to support policy advice under the IV, the review offers additional guidance on some concepts, including:

- **Macro-criticality:** CFMs are to be discussed in Fund surveillance if macro-critical, i.e., if they significantly influence present or prospective domestic or balance of payments stability. The review proposes criteria for assessing macro-criticality in practice, focusing on the economy-wide significance of the sector, the capital flows targeted by the CFMs, and the expected impact of the CFMs.
- **Capital inflow surges:** Identifying capital inflow surges is an important step to determine policy advice under the IV. The review discusses quantitative methods to help identify inflow surges and indicators to finetune the assessment of whether inflows pose macroeconomic and/or financial stability challenges.
- **Imminent crises:** The review discusses the use of indicators and analytical tools to identify imminent crisis circumstances, under which CFMs on outflows may be useful as part of an overall policy package that tackles the underlying macroeconomic imbalances.
- **Premature liberalization:** Indications of premature liberalization can include a severe deterioration of macro-financial stability following the removal of CFMs. These may warrant the temporary reintroduction of certain CFMs until the conditions for safe liberalization are met as guided by the IV's integrated approach.

**The review also addresses other issues that have arisen in the implementation of the IV:**

- **CFMs that are also exchange restrictions or multiple currency practices (MCPs):** They are proposed to be assessed solely under the respective Article VIII policy, and not under the IV. However, MCPs that apply solely to capital transactions and are also CFMs are proposed to be assessed only under the IV.
- **Other operational issues:** Measures that are not activated or enforced, or with their parameters set at zero, are proposed to be classified as CFMs and assessed only when they are activated, enforced, or their parameters are tightened. Measures on FX purchases and other transactions between residents can be classified as CFMs if they are designed to limit capital flows. The review clarifies when a tax measure constitutes a CFM.

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## Glossary

AEs	Advanced Economies
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
BEPS	Base Erosion and Profit Shifting
BIS	Bank for International Settlements
CCyB	Countercyclical Capital Buffer
CFMs	Capital Flow Management Measures
CFM/MPMs	Capital Flow Management Measures and Macro-Prudential Measures
D-SIBs	Domestic Systemically Important Banks
EBA	External Balance Assessment
EMDEs	Emerging Market and Developing Economies
EMs	Emerging Markets
ESA	External Sector Assessment
ESRB	European Systemic Risk Board
FFA	Financial Flow Analytics
FDI	Foreign Direct Investment
FSB	Financial Stability Board
FX	Foreign Exchange or Foreign Currency
FXI	Foreign Exchange Intervention
GFC	Global Financial Crisis
G-SIFIs	Global Systemically Important Financial Institutions
IEO	Independent Evaluation Office
IMS	International Monetary System
IPF	Integrated Policy Framework
ISD	Integrated Surveillance Decision
IV	Institutional View on the Liberalization and Management of Capital Flows
LCR	Liquidity Coverage Ratio
MCPs	Multiple Currency Practices
ML/TF	Money Laundering/Terrorism Financing
MPMs	Macro-Prudential Measures
NSFR	Net Stable Funding Ratio
OECD	Organization for Economic Cooperation and Development
SSB	Standard Setting Bodies
UFR	Use of Fund Resources
UN	United Nations

## INTRODUCTION

**1. Capital flows can bring substantial benefits for countries but also carry risks.** They help smooth consumption and finance investment, diversify risks, and contribute to a more efficient allocation of resources. They can also foster economic growth by facilitating the transfer of technology and managerial skills, stimulating financial sector development, and generating incentives for better governance and stronger macroeconomic policy discipline. At the same time, large and volatile flows can pose macroeconomic and financial stability risks, which can be magnified by gaps in a country's financial and institutional infrastructure.<sup>1</sup>

**2. The adoption of the IV was an important milestone in developing a consistent framework to guide advice on the liberalization and management of capital flows.** The IV established a consistent framework for policy advice and, where relevant, assessments of members' capital account policies, without altering members' rights and obligations under the Articles of Agreement or other international agreements.<sup>2</sup> It provided guidelines for managing capital flows, by identifying circumstances when capital flow management measures (CFMs) may be useful. It also developed a roadmap for safe capital account liberalization without presuming full liberalization to be an appropriate goal for all countries at all times; and highlighted the importance of international cooperation on capital flow policies. Subsequent work elaborated the policy guidance under the IV and an interdepartmental team has been overseeing its consistent application in surveillance.<sup>3</sup>

**3. This paper reviews the IV, informed by advances in research (notably the work on the Integrated Policy Framework, IPF), the recommendations from the IEO evaluation, and lessons from experience.** At the time of its adoption, it was envisaged that the IV would evolve and be reviewed in the light of research and lessons from its implementation. A review of experience with the IV in 2016 found that it remained broadly appropriate, while pointing to emerging issues warranting further research, clarification, or elaboration (IMF, 2016). This review is informed by the insights from the staff's work on an Integrated Policy Framework (IPF) undertaken in recent years (IMF, 2020), the findings of the IEO evaluation on IMF Advice on Capital Flows (IEO, 2020), other relevant research, and staff's experience in the implementation of the IV.

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<sup>1</sup> For a discussion on the benefits and risks of capital flows and using CFMs, see Background Note 1.

<sup>2</sup> In accordance with Article VI, Section 3 of the Fund's Articles of Agreement, members are free to exercise such controls as are necessary to regulate international capital movements; the IV does not in any way alter these rights. However, in line with members' obligations under Article VIII Section 2(a) and 3, and Article VI, these controls cannot be used to restrict payments for current international transactions or unduly delay transfers of funds in settlement of commitments. The right of members to regulate capital movements is also qualified by their obligations under Article IV relating to the stability of the system of exchange rates, including their obligation to avoid manipulation of exchange rates or the international monetary system in order to prevent effective balance of payment adjustment or to gain unfair competitive advantage over other members. Furthermore, in the Use of Fund Resources (UFR) context, pursuant to Article VI, Section 1(a), the Fund can request a member to introduce capital controls to prevent the use of the Fund's general resources to meet a large or sustained outflow of capital. See IMF (2012b), Section IV.

<sup>3</sup> See IMF (2013a); IMF (2015); and IMF (2017). IMF (2018) explains how the IV has been implemented in surveillance.

**4. The core principles of the IV remain valid.** There is broad consensus among the membership that the core principles underpinning the IV should be retained, namely that capital flows are desirable as they can bring substantial benefits for countries, and that CFMs can be useful in certain circumstances but should not substitute for warranted macroeconomic adjustment. Experience suggests that in most cases there will be a need (as well as room) to adjust macroeconomic and structural policies. Only rarely would CFMs or CFM/MPMs be the sole warranted policy response to the risks posed by capital inflows. The proposals in this review are consistent with those principles and the IV's aim of helping countries reap the benefits of capital flows while managing the associated risks in a way that protects macroeconomic and financial stability and does not produce significant negative outward spillovers.

**5. This paper proposes two changes to the existing policies under the IV:**

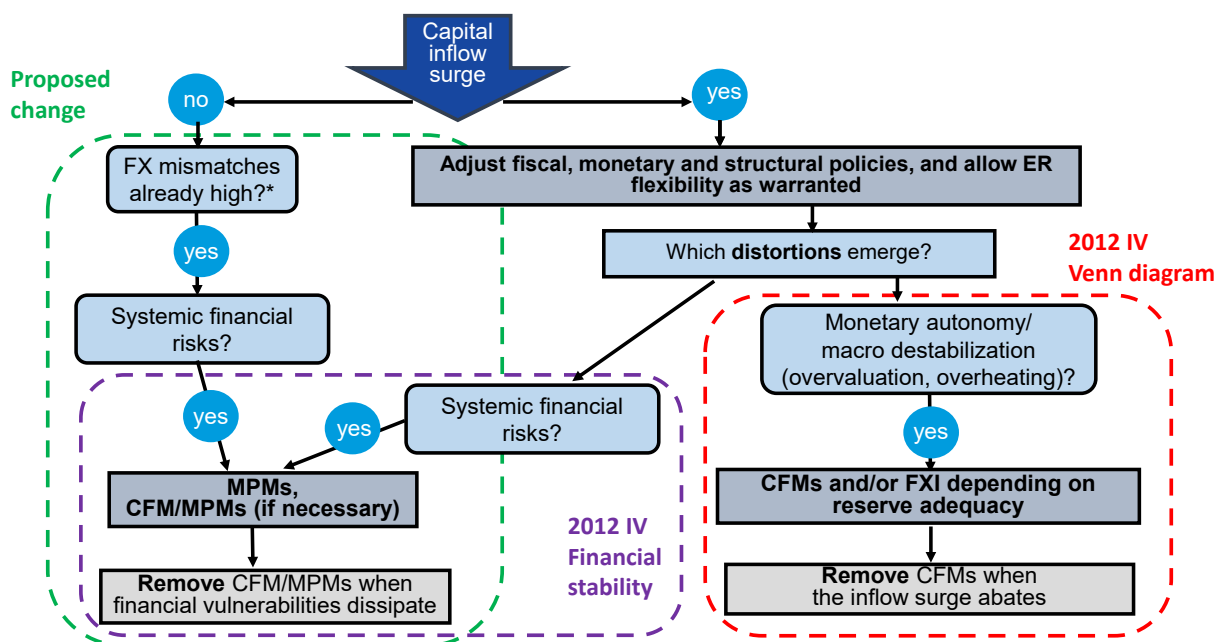
- **Allow for the use of preemptive CFM/MPMs on inflows in some circumstances.**<sup>4</sup> Based on the insights of the IPF, the review proposes that the use of inflow CFM/MPMs in a preemptive manner, i.e., in the absence of a capital inflow surge, could be appropriate under certain circumstances. Such CFM/MPMs may be imposed on FX debt inflows to address systemic financial risks stemming from FX mismatches; in narrower cases, they may be imposed on local-currency debt inflows. Figure 1 summarizes the IV's advice to manage capital inflows, incorporating the proposed revision.
- **Establish a special treatment for certain categories of measures.** Currently, once a measure is determined to be a macro-critical CFM, staff is required to assess its appropriateness in accordance with criteria established in the IV. However, there are some measures that, because of their nature, require a differential and special treatment. These include measures introduced solely for reasons of national or international security, certain measures adopted pursuant to internationally agreed prudential frameworks (including reciprocity agreements), AML/CFT measures implemented consistently with international standards, and measures arising from certain international cooperation standards against the avoidance or evasion of taxes.

**6. The review does not propose changing the other key elements of the IV but elaborates on several concepts that play an important role in its implementation.** The review maintains the IV's existing policy advice to manage the macroeconomic risks associated with overvaluation and overheating and financial stability risks during an inflow surge (Figures 1 and 2), the policy advice on managing disruptive outflows (Figure 2) and capital flow liberalization (paragraphs 52 and 53). To support policy advice under the IV, the review offers additional guidance on some concepts and operational issues, such as macro-criticality, capital inflow surges, imminent crises, and premature liberalization. Box 1 summarizes the IV's advice on the role of source countries and international cooperation.

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<sup>4</sup> CFM/MPMs refer to measures that are both capital flow management measures (CFMs) and macro-prudential measures (MPMs).

**Figure 1. Revised Institutional View—Key Elements of the Revised Policy on Managing Capital Inflows**



\*The exception to the requirement for FX mismatches to be high applies in narrow cases (that pertain to local-currency denominated debt inflows, with the full conditions listed in paragraph 16).

**Preemptive CFM/MPMs on debt inflows** (primarily in FX) may be useful in the presence of private sector debt stock vulnerabilities (primarily FX mismatches), which MPMs cannot sufficiently address. Those stock vulnerabilities may have accumulated during prior inflow surges or gradually over time without an inflow surge. Preemptive inflow CFM/MPMs should be targeted, transparent and, while potentially longer-lasting, temporary, being recalibrated or removed as the vulnerabilities that led to their adoption subside, or if an effective MPM (that is not designed to limit capital flows) becomes available.

In the context of **capital inflow surges**, **inflow CFM/MPMs** may be useful to address financial stability risks arising from the surge, and **CFMs on inflows** may be useful in the circumstances outlined in the Venn Diagram in Figure 2 (upper panel).

Source: IMF staff.

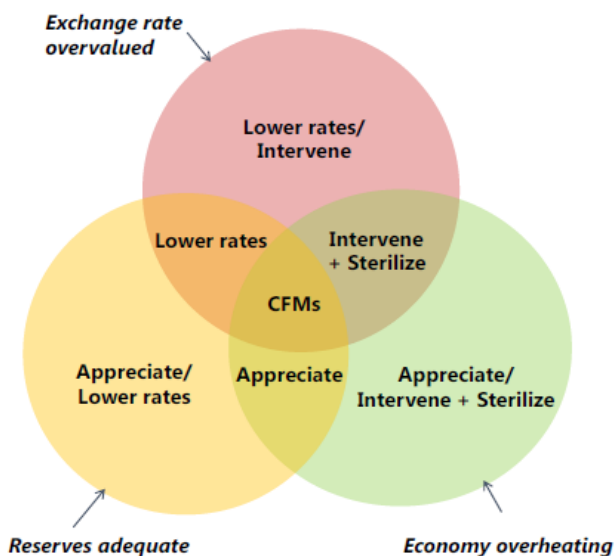
**7. Some other topics, while important, are not tackled in this review, because the analytical foundation to propose policy changes is insufficient at this time.** Establishing this foundation will require additional time and research. These topics include the use of CFMs for social or political objectives, the distributional effects of capital flow liberalization, the use of outflow CFMs outside of (imminent) crisis circumstances, and the effects of digitalization and climate change on capital flows.

**8. The paper is organized as follows.** Section II presents the case for preemptive CFM/MPMs on certain inflows and describes an assessment process for their appropriate use, building on the insights of the IPF. Section III proposes to modify the IV's treatment for certain categories of

measures. Section IV elaborates some concepts and policies that play an important role in the IV's implementation. Section V addresses other operational issues that have arisen in the application of the IV.

**Figure 2. Institutional View—Unchanged Elements Regarding Capital Flow Management**

**Managing Capital Inflow Surges:**



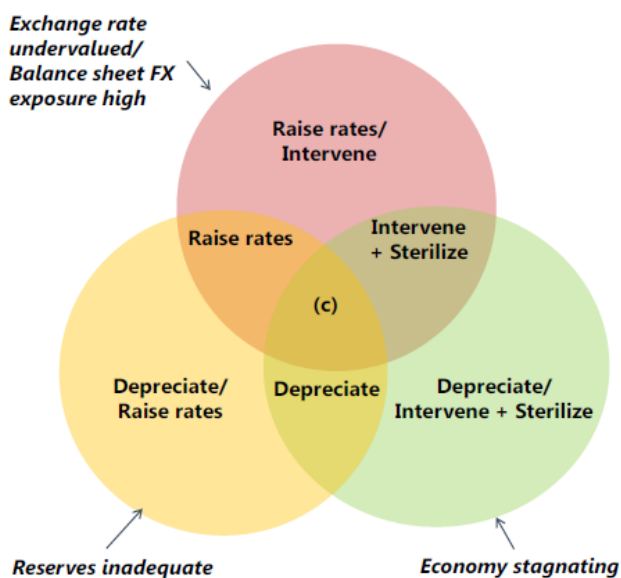
The diagram does not prescribe or take a view on the appropriate combination of the three policies—only on circumstances under which each might be appropriate.

Each circle represents cases where the relevant condition is met. For example, the top circle (“Exchange rate overvalued”) represents cases where the exchange rate is assessed to be overvalued. The intersection of all three circles reflects cases where the exchange rate is overvalued, reserves are judged to be adequate, and the economy is overheating.

**In such cases of limited policy flexibility**, as represented by the intersection of all three circles, CFMs can be useful to support, and not substitute for, the needed macroeconomic adjustment.

CFMs could also be useful to **safeguard systemic financial stability** under certain circumstances. At other times, CFMs can help gain time when taking the needed policy steps requires time, when the macroeconomic adjustments require time to take effect, or when there is heightened uncertainty about the underlying economic stance due to the surge.

**Managing Disruptive Outflows:**



The diagram does not prescribe or take a view on the appropriate combination of the three policies—only on circumstances under which each might be appropriate.

Each circle represents cases where the relevant condition is met. For example, the top circle (“Exchange rate undervalued”) represents cases where the exchange rate is assessed to be undervalued. The intersection of all three circles (the area marked “c”) reflects cases where the exchange rate is undervalued, reserves are judged to be inadequate, and the economy is stagnating. A country in (c) is likely to be in crisis or imminent crisis.

**In such cases of limited policy flexibility**, as represented by the intersection of all three circles, alternative options, including official financing (e.g., UFR) and, in crisis or imminent crisis, introducing temporary outflow CFMs and/or easing existing inflow CFMs can be useful to support, and not substitute for, the needed macroeconomic adjustment.

In crisis circumstances, **financial stability considerations** can also warrant CFMs to provide breathing space while fundamental policy adjustment is implemented.

Source: IMF (2012b) and IMF (2015).

### Box 1. Institutional View – The Role of Source Countries and International Cooperation

**Role of source countries.** The IV maintains the principle that source country policies have a role in mitigating the multilateral risks associated with capital flows. It recognizes that surges in cross-border flows may indicate a need for adjustment in both recipient and source countries; that countries should consider measures to address the macroeconomic and financial stability risks associated with cross-border activities of markets and institutions in their jurisdictions; and that cross-border policy coordination between source and recipient countries would help to mitigate undesired spillover effects of policies. Spillovers from source country policies and coordination of policies are addressed in the context of the Fund’s multilateral and bilateral surveillance with member countries, consistent with the Integrated Surveillance Decision (ISD).<sup>1</sup>

**International cooperation.** The IV does not (and legally could not) alter members’ rights and obligations under other international agreements. Conformity with obligations under international agreements are determined solely by the existing provisions of those agreements. Yet, by establishing a framework that is broadly agreed by the membership, the IV helps foster a global dialogue on the management of capital flows and promotes a more consistent approach on how to handle capital flows in international agreements and frameworks. For example, it encourages members to take into account macroeconomic and financial stability and the effective operation of the international monetary system (IMS) as key considerations in the use of CFMs within the scope of bilateral, regional, and multilateral agreements. The IV also calls for the Fund to strengthen collaboration with other organizations involved in the design of policies affecting capital flows, such as the Organization for Economic Cooperation and Development (OECD), the Bank for International Settlements (BIS), and the Financial Stability Board (FSB). Significant progress has been made in this area since the adoption of the IV, as reflected by the close engagement with these organizations and the Fund’s support for financial sector regulatory and supervisory reforms. Steps to collaborate further with the OECD, the FSB, and Standard Setting Bodies (SSBs) are contemplated as part of the Management Implementation Plan in response to the recommendations from the IEO evaluation on IMF advice on capital flows.<sup>2</sup> In addition, the Fund contributes to international efforts to reduce the volatility of cross-border flows, inter alia through its participation in FSB work on nonbank financial intermediation and crypto assets.

<sup>1</sup> For example, in the 2021 US Article IV Consultation, substantial consideration was given to the importance of careful communication of policy changes, so that adverse spillovers could be minimized. The October 2021 IMF WEO also emphasized the importance of clear and state-contingent forward guidance and communication from advanced economy central banks during the period of normalization to avoid taper-tantrum-like scenarios.

<sup>2</sup> See IMF (2021a).

## PROPOSED POLICY CHANGE: THE CASE FOR PREEMPTIVE CFM/MPMS ON INFLOWS

### A. Conceptual Case for Preemptive Inflow CFM/MPMs

9. **The IV recognizes that inflow surges can generate systemic financial risks; however, even in the absence of a surge, stock vulnerabilities can be a source of such risks.** FX mismatches can arise from an overall FX balance sheet mismatch across all remaining maturities, or

an FX maturity mismatch at shorter horizons, or both.<sup>5</sup> Mismatches may gradually build in the financial, household, or corporate sectors and pose risks even if there is no ongoing inflow surge. If they are large enough, they increase the probability that capital flow reversals and currency depreciations generate costly balance sheet effects and severe output collapses (Background Note 1). The impact of FX mismatches may be amplified by other frictions and vulnerabilities (e.g., leverage, and asset price bubbles). In some circumstances, systemic financial risks may also arise from the accumulation of external debt denominated in local currency.

**10. During a capital flow reversal, conventional policy instruments may not be effective in addressing the balance sheet effects related to FX mismatches.** First, while a currency depreciation due to a capital flow reversal may boost net exports,<sup>6</sup> it may also tighten external borrowing constraints by reducing the FX value of local-currency assets, collateral, and income relative to FX debt and liabilities. In such circumstances, monetary policy faces a difficult trade-off: raising the interest rate could result in excessively tight domestic monetary conditions, with procyclical effects on credit and economic activity; while lowering it could lead to further depreciation, tightening external borrowing constraints further. Second, the capacity of the government or the central bank to provide FX liquidity to the private sector to satisfy rollover needs on FX debt may be limited, owing to insufficient FX reserves or other sources of FX funding.

**11. These arguments indicate that CFM/MPMs on FX debt inflows may be useful in a preemptive manner, i.e., in the absence of an inflow surge, to prevent a further accumulation of already-elevated FX mismatches and the associated systemic financial risks.** If the adverse balance sheet effects of a currency depreciation can be mitigated preemptively through CFM/MPMs that reduce FX mismatches, the exchange rate can be allowed to adjust more flexibly after external shocks, hence reducing the cost of capital flow reversals and facilitating the needed external adjustment. Such arguments have been developed in the IPF workstream and the IEO report as rationales the preemptive use of inflow CFM/MPMs.

**12. The accumulation of external debt in local currency can also pose financial vulnerabilities in the private sector, but a wider set of policy tools is typically available to address them.** Maturity mismatches and excessive leverage in local-currency debt positions increase rollover risks and the probability of fire-sales of domestic assets during capital flow reversals. In those cases, adequate MPMs would typically address these risks effectively. Even when MPMs cannot successfully mitigate the systemic risks, capital flow reversals in the absence of FX mismatches may not trigger the same amplification effects as those in the case of FX mismatches. First, the currency depreciation does not worsen the balance sheets of entities indebted in local currency. Second, the depreciation increases the expected FX return on local currency-denominated

<sup>5</sup> FX mismatch at any relevant remaining maturity is defined as the stock of FX liabilities which is not covered by liquid FX assets or FX hedges of the same maturity (either natural hedges, such as export revenue or remittances, or financial contracts in deep hedging markets). FX mismatches give rise to solvency risks that may arise from impact of currency depreciation on the entire balance sheet and/or liquidity risks from short-term liabilities.

<sup>6</sup> In countries whose exports are denominated in the dominant currency, most notably the US dollar, the increase in net exports tends to be muted in the short term.



assets, which may induce some foreign or local investors to expand or maintain their positions, thus preventing a downward spiral. Therefore, policymakers do not face the same trade-offs in the use of monetary policy as they may face in the presence of FX mismatches. Policymakers can also more easily provide liquidity support in local currency, while as described in the previous paragraph, their ability to provide such support in foreign currency may be more constrained. There may be some exceptional circumstances, however, where both MPMs are insufficient and ex-post policy instruments may be impeded in preventing a sharp tightening of financial conditions during a capital flow reversal; if so, preemptive CFM/MPMs may be warranted in the presence of financial vulnerabilities in the private sector from accumulated external debt stocks in local currency.

**13. The use of preemptive inflow CFM/MPMs can carry risks that should be mitigated.**

First, CFM/MPMs may be inferior to other measures available which are not CFMs. For example, CFM/MPMs could substitute for warranted macroeconomic policy adjustments or MPMs that would alleviate the systemic financial risks in question. They could also substitute for structural policies to develop financial markets which would reduce the frictions that may create a need for CFM/MPMs. Such structural policies are especially important to reduce the reliance on CFM/MPMs because these measures may have adverse side-effects, e.g., misallocation of resources and rent seeking (see Background Note 1). Second, CFM/MPMs may help maintain or exacerbate a stronger-than-warranted external position or gain an unfair competitive advantage. Since preemptive CFM/MPMs can be imposed outside of an inflow surge, the appreciation pressures that typically occur during a surge might be absent, and the currency may as a result become or stay undervalued. Furthermore, it may take time for preemptive CFM/MPMs to reduce existing stock vulnerabilities. Given this context, it is essential that they are used in a way that minimizes adverse side-effects.

## B. Proposed Policy Change

**14. Preemptive inflow CFM/MPMs may be appropriate in some circumstances.** Drawing on the above discussion regarding the conceptual case for preemptive CFM/MPMs and the risk of their side effects, the determination of their appropriateness involves the following three key considerations:

- Are systemic financial risks elevated?
- Is the preemptive CFM/MPM needed to address these risks?
- Would the preemptive CFM/MPM help maintain or exacerbate a stronger-than-warranted external position that is mostly caused by domestic policy gaps?

Paragraphs 15-22 discuss the above considerations and outline the criteria that can be used for making these judgments.



**Are Systemic Financial Risks Elevated?**

**15. Preemptive CFM/MPMs on FX debt inflows are appropriate only if systemic financial risks are elevated due to FX mismatches.**<sup>7</sup> Elevated FX mismatches at relevant remaining maturities expose the economy to systemic risks and are the key vulnerability that justifies the use of preemptive CFM/MPMs. To assess FX mismatches, overall and at the relevant remaining maturities, multiple indicators can be used, subject to data availability. Data should be analyzed to determine: (a) sectoral and economy-wide private sector FX debt and asset positions (external and domestic); and (b) whether the FX debt is hedged at the relevant maturities, either naturally (such as in the case of exporting firms) or via holdings of FX assets, or through financial contracts in deep hedging markets.<sup>8</sup> If FX mismatches are identified, systemic risks stemming from such FX mismatches should be evaluated, taking account of any amplifying and mitigating factors, such as FX leverage, asset price bubbles fueled by external FX borrowing, and FX buffers held by the central bank or government, including access to other FX liquidity sources (e.g., central bank swap lines). The risk assessment can draw on the IMF's macroprudential framework (IMF, 2013b and 2014a) to assess FX-related systemic risks as appropriate and use stress tests, where feasible. Such an assessment would be compatible with the calls in the 2021 Comprehensive Surveillance Review for strengthening systemic risk analysis in Article IV consultations to better anchor macroprudential policy advice (IMF 2021c, d).

**16. In narrow and exceptional circumstances, systemic financial risks may justify preemptive CFM/MPMs on local currency debt inflows.** Such risks could arise, for example, from high foreign investor participation in local-currency debt markets, which may amplify maturity mismatches, fuel asset price increases, or generate excessive leverage. Unlike in the case of FX mismatches, there would be a presumption that a wider set of macroeconomic policy tools would be available to manage an abrupt reversal in local currency debt inflows. Therefore, for local-currency debt vulnerabilities to generate costly capital flow reversals, such policies (and risk mitigants) would need to be substantially impeded or unavailable. In particular, the following conditions should be expected to be jointly satisfied in the event of a disruptive capital flow reversal: (i) local currency debt and FX markets are sufficiently shallow so that an outflow by some foreign investors would be unlikely to be offset by other investors; (ii) a large depreciation is costly due to FX mismatches or other reasons (e.g., if it de-anchors inflation expectations), and these costs outweigh the benefits of depreciation, such as from the improvement of net exports; (iii) domestic monetary policy is constrained and FX reserves are low; and (iv) other relevant ex-post policy instruments to address capital flow reversals, particularly local-currency lender-of-last-resort and liquidity facilities, are substantially impeded or unavailable.

<sup>7</sup> Background Note 2 illustrates how systemic financial risks may be assessed.

<sup>8</sup> In a deep hedging market, investors can execute their (large) transactions efficiently even after severe shocks, i.e., without causing significant price movements that could affect the cost of executing the transaction or significantly increasing their exposure to counterparty risk.

***Is the Preemptive CFM/MPM Needed to Address Systemic Risks?***

**17. The policy measure should be a CFM/MPM that can reduce the relevant systemic financial risks effectively.** It should be an MPM in addition to being a CFM (IMF, 2017 and Box 2). To meet this standard, in the case of systemic risks arising from FX mismatches, the measure should address systemic risks from unhedged FX debt, i.e., it should reduce existing FX mismatches, prevent capital inflows from causing a further increase in FX mismatches from already-elevated levels, or increase resilience to FX mismatches by requiring capital or liquidity for external borrowing in FX (Background Note 3). In the case of systemic risks from local-currency external debt stocks, the measure should lower local-currency stock vulnerabilities by reducing such inflows. In line with the current IV, the measure should target debt inflows in the specific sector that give rise to the risk as closely as possible. Moreover, it should be calibrated in a manner that addresses risks effectively while minimizing costs and side effects. For example, if the coverage or calibration of the measure goes beyond what is necessary to address the financial stability risk at hand, and this could be avoided by using a better-calibrated tool, the measure would not be appropriate.

**Box 2. Definition of CFMs, MPMs, and CFM/MPMs**

**The Fund's policy framework distinguishes between CFMs, MPMs, and CFM/MPMs.** CFMs are measures that are designed to limit capital flows, while MPMs are primarily prudential tools that are designed to limit systemic financial risks. Measures that are designed to limit such risks stemming from capital flows are classified as CFM/MPMs (IMF 2012b, 2013b, 2017). An interdepartmental group works with country teams to ensure consistent and evenhanded classification of measures, while also ensuring that the policy recommendations provided are adequately guided by the different frameworks.

**The classification of measures requires a careful assessment of their design, objectives, and the circumstances under which they are introduced.** It has been recognized that the delineation of CFMs from other policies and measures affecting capital flows can be challenging and would need to take into account the overall context and circumstances in which the measure was adopted. In practice, measures that affect international financial transactions and discriminate based on residency have been assessed as CFMs. In addition, non-discriminatory measures may also constitute CFMs if they are designed to limit capital flows based on the circumstances under which they were introduced.

**To determine whether a CFM is also an MPM, three conditions need to be fulfilled:** (i) its primary objective is to safeguard financial stability; (ii) a source of systemic financial risks can be identified; and (iii), the CFM can reasonably be expected to mitigate such risks. Currency-based measures may in many instances be only MPMs, but in some cases also CFMs if they are designed to limit capital flows (IMF, 2017).

**CFMs are not labeled as CFM/MPMs if their design or context suggest that their primary objective is not financial stability or that they are unlikely to limit systemic risks.** For instance, if the authorities' stated objective is explicitly not financial stability, the CFM would not be classified as an MPM even though it could mitigate systemic risks. Conversely, measures that are stated to be taken for financial stability purposes may not be classified as MPMs if their transmission does not suggest that they can be expected to mitigate systemic risks. For instance, if a measure has been imposed and its usage or design magnify rather than mitigate risk, this information would be an input into the assessment of the primary objective of the measure. CFMs that mainly operate through the exchange rate are given extra scrutiny and may not qualify as MPMs.

**18. Preemptive CFM/MPMs should not be used if MPMs alone would be sufficient to address the risks.** While MPMs are typically able to contribute substantially to managing risks from FX borrowing (e.g., IMF, 2014b, and IMF, 2017), they may be unavailable or insufficient to address the risks in question. Under these circumstances, using a pre-emptive CFM/MPM—either alone, or to reinforce MPMs—may be the least distortive way to address the risks effectively.

**19. The preemptive inflow CFM/MPM should not be used to substitute for warranted adjustments in macroeconomic policies.** If monetary policy, exchange rates, or fiscal policy are at inappropriate settings, and if correcting them would eliminate the systemic risks, these policies should be adjusted instead of using CFM/MPMs. In the case that immediate adjustment is unduly costly, or may take time to have effect, CFM/MPMs may be temporarily appropriate alongside a commitment to a plan to undertake the warranted policy adjustments that are recommended in the context of Article IV consultations. If macroeconomic policies are at inappropriate settings but correcting them would have only a small or partial effect on systemic risks, a temporary CFM/MPM may be an appropriate instrument to address the risks, alongside the correction of macroeconomic policies.

**20. The preemptive CFM/MPM should not substitute for market development or structural policies that could reduce the underlying frictions, nor undermine such policies.** The preemptive CFM/MPM should not undermine market development in a manner that exacerbates the underlying friction, e.g., if the preemptive CFM/MPM is being used to reduce FX mismatches, it should not prevent the development of markets which could provide funding in local currency. Structural policies can go a long way in addressing the frictions that call for the need to introduce preemptive CFM/MPMs and, unlike some CFM/MPMs, may not produce adverse side-effects. Since such policies can take time to be implemented and become effective, preemptive CFM/MPMs may be appropriate in the interim unless they undermine such efforts. If preemptive CFM/MPMs are used, it would be desirable to combine them with reforms to address the underlying frictions, which may include, for example, developing local currency bond markets, boosting the credibility of the macroeconomic policy framework, and developing sound financial supervision and regulation.<sup>9</sup>

***Would the Preemptive CFM/MPM Help Maintain or Exacerbate a Stronger-than-Warranted External Position that is Mostly Caused by Domestic Policy Gaps? <sup>10</sup> If so, is the Country Taking Sufficient Actions to Address its External Position?***

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<sup>9</sup> The appropriate reforms for the specific country may draw on the menu of options in Annex I.

<sup>10</sup> The external sector assessments (ESAs) categorize countries' external positions as either "broadly in line," "moderately weaker (stronger)," "weaker (stronger)," or "substantially weaker (stronger)" than the level implied by medium-term fundamentals and desirable policies. In this section, the term "stronger-than-warranted external position" corresponds to the external positions being categorized in the ESA as either "moderately stronger," "stronger," or "substantially stronger." The ESA builds on staff judgment, country-specific circumstances, and the estimates provided by the External Balance Assessment (EBA) and EBA-lite models. These models help identify and provide estimates of the contributions of some domestic and foreign policies to the external sector assessment. Country-specific knowledge and other analytical work may help identify other distortions that are not included in the models, but which may contribute to an external imbalance.

**21. The preemptive CFM/MPM should not help maintain or exacerbate a stronger-than-warranted external position.** Whether the preemptive CFM/MPM does so depends on the following factors:

- *The strength of the external position and the contribution of domestic policies.* If the country's external position is stronger than warranted relative to the level implied by medium-term fundamentals and desirable policies according to the External Sector Assessment (ESA), and the policy gaps underpinning external imbalances are mostly domestic rather than foreign, it raises the concern that the use of preemptive CFM/MPMs could add to the set of domestic policies generating the external imbalance.
- *The expected effect of the preemptive CFM/MPM on the external position.* Relative to the counterfactual of no CFM/MPM use, the inflow CFM/MPMs would be expected to depreciate the currency and strengthen the external position, unless a case can be made that its impact on the currency would not be economically significant.<sup>11</sup>
- *Policy actions to address a stronger-than-warranted external position.* If the country has a stronger-than-warranted external position caused by domestic policy gaps, an important element to consider is whether it is undertaking corrective policy actions to address them or is committed to undertake them. The absence of such actions or commitment would raise concerns that the use of the preemptive CFM/MPM could exacerbate the external imbalance.

### ***Putting it all Together and Arriving at an Overall Assessment***

**22. The appropriateness of the preemptive CFM/MPM depends on the assessment of systemic financial risks, whether it is needed to address these risks, and the external position.**

Identifying elevated systemic financial risks and determining that the preemptive CFM/MPM is a needed policy instrument to address these risks are necessary conditions for appropriateness. A third consideration stems from the assessment of the external position and how it may be impacted by the preemptive CFM/MPM. The assessment of the external position would render the preemptive CFM/MPM inappropriate in the following circumstances:

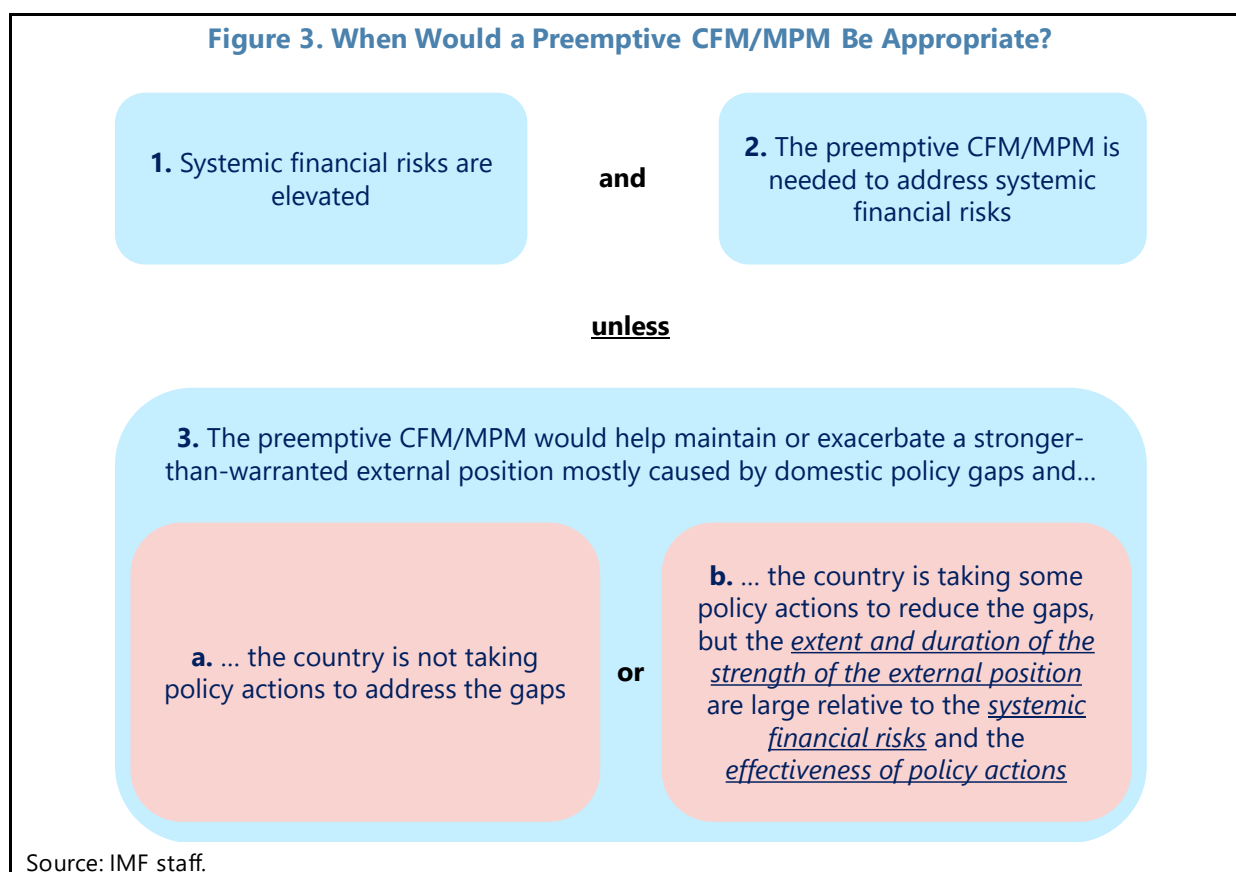
- If the preemptive CFM/MPM would help maintain or exacerbate a stronger-than-warranted external position mostly caused by domestic policy gaps, *and* the country is not taking policy actions to address these gaps, the measure would be inappropriate, as it would distort the country's external position further.
- If the preemptive CFM/MPM would help maintain or exacerbate a stronger-than-warranted external position mostly caused by domestic policy gaps, *but* the country is undertaking policy

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<sup>11</sup> Only macro-critical CFM/MPMs are assessed in bilateral surveillance (See section IV.A). However, macro-criticality does not necessarily imply a significant effect on the exchange rate, as the measure could have a significant effect on other macroeconomic variables even if it does not have a significant effect on the exchange rate. The impact on the currency may depend on the ease of substitution of the assets targeted by the measure. The availability of alternative assets could depend on the existing capital flow management regime (e.g., existing CFMs and the effectiveness of their enforcement) and on the level of the country's financial development. If a measure has a significant effect on the exchange rate, it is likely to be macro-critical.

actions to address these gaps or is committed to undertake them, assessing the appropriateness involves a trade-off between its benefits in reducing systemic financial stability risks and its costs in maintaining or exacerbating a stronger than warranted external position. In that case, the preemptive CFM/MPM would be inappropriate if the extent and duration of the strength of the external position are large relative to the systemic financial risks and relative to the expected effectiveness of the policy actions.

The criteria outlined in paragraphs 15-22 are summarized in Figure 3.



**23. Countries with fixed exchange rate regimes may face tighter policy constraints that may strengthen the case for preemptive CFM/MPMs.** During capital flow reversals, such countries would face tighter constraints in the use of monetary policy and/or in allowing for nominal exchange rate flexibility to achieve external adjustment than those with more flexible exchange rate regimes. In addition, their ability to provide local currency liquidity support may also be limited. These constraints may strengthen the case for preemptive CFM/MPMs, while bearing in mind that these measures should not substitute for warranted macroeconomic and structural adjustments or help maintain unsustainable currency pegs.

**24. Policy advice on preemptive CFM/MPMs should take spillovers into account.** The spillovers could arise from the effects of the preemptive CFM/MPM on the exchange rate and the

external position or international financial flows, e.g., contagion effects in international financial markets by affecting expectations of market participants and capital flows to other countries.<sup>12</sup> The effects of the CFM/MPM on the external position are analyzed via the approach outlined in paragraph 21, and hence, to the extent that it contributes to maintain or exacerbate a stronger-than-warranted external position, they enter the determination of whether the preemptive CFM/MPM is regarded as appropriate under the IV. If the use of the CFM/MPM is assessed as appropriate, the treatment of spillovers should follow the guidance set by the ISD, which mandates staff to discuss outward spillovers from members' policies if they significantly influence the effective operation of the IMS.<sup>13,14</sup> In such case, staff should examine whether alternative policy actions could achieve domestic objectives while minimizing negative spillovers. However, consistent with the ISD, if the policies promote the member's own domestic and balance of payments stability, the authorities would not be obliged to act on staff recommendations. Staff may also discuss with the authorities any outward spillovers that have important implications for other members but not for global stability.<sup>15</sup>

**25. The preemptive CFM/MPM should be reviewed periodically to assess whether its use continues to be appropriate.** Periodic evaluations in Article IV consultations, as appropriate, should ensure that the conditions that were satisfied at the time of the introduction of the CFM/MPM continue to hold. The evaluations should follow up on new information regarding economic and policy developments since the introduction of the measure: e.g., whether MPMs have become available to address the risk; whether the measure has become a substitute for warranted macroeconomic adjustment; whether there has been progress on reforms to diminish the need for the CFM/MPM; whether the measure has caused the exchange rate to depreciate significantly; whether the external position has become stronger than warranted following the introduction of the measure; and whether the authorities have taken measures to address the domestic policy gaps underpinning the strength of the external position. These evaluations should ensure that the CFM/MPM continues to be the appropriate policy tool, is designed appropriately, and is as targeted and temporary as possible. If any of the conditions required for the measure to be appropriate are no longer met, the CFM/MPM should be removed—immediately if it is feasible without jeopardizing macroeconomic or financial stability; or in a phased manner, with the appropriate speed of phasing depending on the feasible time path for the needed macroeconomic, financial, and structural policy adjustments.

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<sup>12</sup> There should be no presumption that a preemptive CFM/MPM would have negative spillovers: similarly to other MPMs, a preemptive CFM/MPM may have positive spillovers by supporting domestic and global financial stability.

<sup>13</sup> Outward spillovers are deemed to "significantly influence" the effective operation of the IMS, if by themselves, or in combination with spillovers from other members' policies, or through their regional impact, they enter the macro-financial policy considerations of members representing a significant portion of the global economy.

<sup>14</sup> Using CFM/MPMs to influence exchange rates in order to gain unfair competitive advantage would also be inconsistent with countries' exchange policies obligations under Article IV.

<sup>15</sup> See IMF (2013a), paragraph 7.

## PROPOSED POLICY CHANGE: SPECIAL TREATMENT FOR CERTAIN CATEGORIES OF MEASURES

**26. This section discusses proposals to modify the treatment of certain categories of measures under the IV.** Based on their nature, some measures require, as a matter of policy, to be accorded special treatments. These categories of measures are: (i) measures introduced solely for national or international security reasons; (ii) certain measures introduced pursuant to internationally agreed prudential standards; (iii) measures consistent with international AML/CFT standards; and (iv) measures arising from certain international cooperation standards against the avoidance or evasion of taxes. The review proposes to continue classifying these measures as CFMs when the criteria for such classification is met, discuss them in surveillance when macro-critical, but not assess their appropriateness under the IV.

### A. Measures Adopted for Reasons of National or International Security

**27. The use of measures for national-security-related reasons and other considerations has increased in recent years.** Several advanced economies and some emerging and developing economies have introduced or expanded FDI-screening mechanisms on grounds of national security and other considerations since the adoption of the IV, and the recent COVID-19 crisis has provided further impetus for these policies. These measures have increasingly been used in the context of rising geopolitical and trade tensions, and the growing role of technology in the economic and national security arenas. The recent measures fall broadly into two categories: (i) those motivated by national security concerns (military/geopolitical), and (ii) those motivated by considerations related to national interest, public order, or public health. These measures can have significant effects (e.g., technological and economic fragmentation), posing policy challenges and thus requiring a clarification of the IV with respect to such measures. Measures falling under the category (i) are proposed to be treated as described below in this section.

**28. It has been historically recognized that the Fund is not an appropriate forum to discuss the political or military considerations underlying the imposition of security measures.** In establishing a special procedure for the approval of exchange restrictions introduced for reasons of national or international security in 1952,<sup>16</sup> the Executive Board acknowledged that it is not possible to draw a precise line between cases involving only considerations of this nature and cases involving, in whole or in part, economic motivations and effects for which the Fund does provide the appropriate forum for discussion. It was also noted at the time that national or international security considerations do not relieve members from their obligations under the Articles, including their

<sup>16</sup> Decision No. 144-(52/51). Under Article VIII, Section 2(a), Fund members are prohibited, except if approved by the Fund, from introducing any restriction on the making of payments and transfers for current international transactions. Measures introduced by members solely for national or international security reasons, including pursuant to United Nations Security Council Resolutions, such as freezing financial assets, may give rise to exchange restrictions on the making of payments and transfers for current international transactions.



obligation not to impose exchange restrictions without the Fund's approval. To balance these considerations, the Fund established a streamlined approval procedure subject to a member's representation that the measure is introduced solely for the preservation of national or international security and its notification to the Board.<sup>17</sup>

**29. Staff proposes that while the macroeconomic implications of security-based measures that are CFMs will be discussed, their appropriateness under the IV will not be assessed.** Like other CFMs, CFMs introduced solely for reasons of national or international security will be discussed in Article IV consultations as part of bilateral surveillance if assessed as "macro-critical" (see Section IV.A)<sup>18,19</sup> or as part of multilateral surveillance if they generate significant outward spillovers.<sup>20</sup> Hence, as is the case for security-based exchange restrictions that are not subject to standard approval criteria (paragraph 28), the appropriateness of such CFMs would not be assessed under the criteria set forth in the IV nor would staff advise on their removal or recommend alternative policies. However, the expectation would be that such measures be directly targeted at the relevant security risk and be used judiciously.<sup>21</sup> Further, similarly to the streamlined procedure for the approval of exchange restrictions introduced solely for reasons of national or international security, the determination of whether the measure is motivated solely by such considerations would be made based on the representation of the member to the Fund and the Fund, as a matter of policy, will not challenge such representation.<sup>22</sup> Where security-based CFMs are discussed in Article IV staff reports, the discussion will cover the economic significance and (potential) macro-economic impact of such measures.

**30. The proposed approach is evenhanded.** There may be situations where the same measure is identified by one member as adopted solely for national or international security reasons (and

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<sup>17</sup> While Decision 144 allows the Fund to challenge a member's representation of national or international security grounds, the Fund has never done so. However, there have been a few cases where such measures were discussed by the Executive Board at the request of another member as provided for in Rule H-2 and 3 of the Fund's Rules and regulations. Exchange restrictions other than those introduced solely for national or international security reasons can be approved if they are maintained for balance of payments reasons, are temporary, and do not discriminate among Fund members. (Decision No. 1034-(60/27), adopted June 1, 1960).

<sup>18</sup> Paragraph 6 of the Integrated Surveillance Decision, Decision No. 15023-(12/72).

<sup>19</sup> The Fund discusses the economic implications of policies adopted for security reasons in Article IV consultations where warranted.

<sup>20</sup> Paragraph 9 of the Integrated Surveillance Decision, Decision No. 15023-(12/72).

<sup>21</sup> A 1951 paper notes that a fundamental determination required by the Fund with regard to measures introduced for reasons of national or international security purposes would be whether those measures are, "in fact, genuine security measures, whose extent is not excessive and do not cause unnecessary damage to other members". This provision, however, is not included in Decision 144.

<sup>22</sup> This approach differs from that under Decision No. 144 which provided for the possibility for the Fund to challenge a member's representation that exchange restrictions are maintained solely for reasons of national or international security. The difference in approaches is justified by the limited jurisdiction of the Fund over capital account restrictions compared to its jurisdiction under Article VIII, Section 2(a) on payments and transfers for current international transactions. If an Executive Director disagrees with the member's representation that CFMs are introduced solely for reasons of national or international security, such views will remain on record and can also be included in the Summing Up and/or Chairman's Statement for the Board discussion of the relevant country report.



thus not assessed under the IV) and as a non-security measure by another member (e.g., those falling under (ii) in paragraph 27), and thus subject to the assessment under the IV. Staff will rely on members' representation on the objective of the measure, irrespective of the reasons included in the relevant national legislation, thereby providing an evenhanded treatment to all CFMs that are introduced with a similar representation.

## B. Measures Based on Internationally Agreed Prudential Standards

**31. This review proposes that certain CFM/MPMs implemented in line with internationally agreed prudential standards, including mutually agreed reciprocity arrangements, will not be assessed for their appropriateness under the IV.** These revisions to the IV aim to mitigate the risk that measures that are implemented in accordance with the Basel Framework<sup>23</sup> and international agreements on the reciprocation of certain prudential measures may be assessed as inconsistent with the Fund's framework for capital flow management.

**32. Specifically, tensions between the reforms to the Basel Framework and the IV may arise in the following cases:**

- **The reciprocity of the countercyclical capital buffer (CCyB),** a key macroprudential policy mechanism introduced into the Basel framework following the Global Financial Crisis (GFC), could be considered a residency-based outflow CFM under the existing IV.<sup>24</sup> This framework also allows home authorities to require that the banks they supervise maintain higher CCyB levels if they judge the host authorities' buffer to be insufficient.<sup>25</sup>
- **One of the criteria for assessing domestic systemically important banks (D-SIBs) is their complexity, including the additional complexities from cross-border activity.** This means that D-SIB surcharges, as well as charges set on banks identified by the Financial Stability Board (FSB) as global systemically important (G-SIBs), have a cross-jurisdictional element in their calibration. They could therefore be considered CFMs by virtue of their design.
- **The liquidity coverage ratio (LCR) and net stable funding ratio (NSFR) guidance provides leeway to use residency-based discrimination in limited circumstances.** A residency-based discrimination can occur, for instance, when the country in question has a history of volatile deposit funding from nonresidents that justifies a higher run-off rate for such deposits. Such measures may be considered CFMs.

**33. Mutually agreed reciprocity arrangements that build on the Basel standards could also be assessed as outflow CFMs.** For instance, European legislation establishes regional mechanisms operated by the European Systemic Risk Board (ESRB) to expand reciprocity to all exposure-based measures (i.e., beyond the CCyB, and including all exposure-based tools) among EU member

<sup>23</sup> The Basel III reforms have been integrated into the consolidated Basel Framework.

<sup>24</sup> As discussed above, in practice, measures that affect international financial transactions and discriminate based on residency have been assessed as CFMs.

<sup>25</sup> See Jurisdictional Reciprocity in Basel Committee on Banking Supervision, 2010, section 5.

countries. Such reciprocity arrangements are more common in regions or between countries with a high degree of financial integration, where they can reduce cross-border arbitrage of MPMs by levelling the regulatory treatment of local and cross-border lending (IMF, 2013b paragraphs 95/96, and IMF, 2014a).

**34. In line with the Fund's calls for international cooperation in this field, staff would refrain from assessing the appropriateness of such measures under the IV.** The Fund has supported post-GFC regulatory reform (see IMF, 2017) and called for further international and regional cooperation to expand reciprocity of MPMs beyond the CCyB (see IMF, 2013b, paragraphs 95/96). Hence, those measures that are implemented in accordance with the Basel prudential standards outlined in paragraph 32 are proposed not to be assessed for appropriateness under the IV. Similarly, staff would not assess the appropriateness under the IV of multilateral, regional, or bilateral agreements among countries to reciprocate macroprudential measures as outlined in paragraph 33, whereby a country implements a macroprudential measure that is the same, or substantially the same, as the measure in effect in another country to address a financial stability risk related to specific exposures in the other country.<sup>26</sup>

**35. The scope for inappropriate use of such internationally agreed prudential measures would be limited in practice.** First, in substance, the measure would have to be in line with the above-mentioned mutually agreed-upon international prudential standards. Second, in the application to country cases, the interdepartmental group will work with country teams to assess whether any measure would fall outside of the above-referenced agreements, thereby further protecting against inappropriate use. This process could draw on expertise and capacity available at the Fund, as well as the norms set out in the Fund's macroprudential policy framework.

## C. AML/CFT Measures

**36. Anti-money laundering and combating the financing of terrorism (AML/CFT) measures can impact cross-border capital flows and constitute CFMs under the IV.** The international standards (i.e., FATF standards<sup>27</sup>) call for AML/CFT measures to be implemented globally to prevent and combat money laundering and related underlying crimes,<sup>28</sup> terrorist financing and proliferation financing,<sup>29</sup> and are thus principally designed to manage the risk of illicit flows. In an increasingly

<sup>26</sup> Exempting the reciprocity measures from the appropriateness assessment under the IV has the effect of reinforcing the message that the IMF supports enhanced coordination between lender and borrower countries to support the stability of the IMS.

<sup>27</sup> The Financial Action Task Force (FATF) 2012 "International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation: the FATF Recommendations" constitute the internationally recognized AML/CFT standard. The Executive Board endorsed the FATF 2012 Recommendations in 2014, in the context of the review of the Fund's AML/CFT strategy (IMF Executive Board Reviews the Fund's Strategy for Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT), Press Release No. 14/167, April 11, 2014).

<sup>28</sup> The so-called "predicate offenses" include corruption, fraud, drug trafficking and tax crimes, amongst others.

<sup>29</sup> These crimes can generate reputational risks, destabilize inflows and outflows, trigger banking crises, ineffective revenue collection, weaken broader governance, and cause loss of correspondent banking relationships. Therefore, it

interconnected world, illicit capital flows transiting across borders can also trigger negative spillovers in both transit and recipient countries and affect the integrity and stability of the international financial system.<sup>30</sup> At the same time, AML/CFT measures that affect cross-border capital movement, such as countermeasures and enhanced due diligence for business relationships and transactions with customers from higher risk countries are implemented based on residency or nationality, i.e., residency and nationality are among the risk factors that can trigger enhanced due diligence. Therefore, many AML/CFT measures that limit capital flows would be considered discriminatory under the IV. Furthermore, AML/CFT measures are generally required on an ongoing (rather than temporary) basis, while CFMs are generally justified by temporary capital flow episodes. Considering these fundamental differences, the criteria applied to assess the appropriateness of CFMs under the IV are not suitable for the assessment of the suitability of AML/CFT measures.

**37. International standards require that AML/CFT measures be applied on a risk-sensitive basis to all types of transactions, including capital transactions.** When the level of money laundering/terrorism financing (ML/TF) is moderate or high, the implementation of AML/CFT measures can result in additional controls and increased transaction processing time and cost, or in restrictions on some types of transactions, such as those with customers residing in countries that have been identified by the FATF as having strategic AML/CFT deficiencies. The implementation of AML/CFT measures is required globally under the AML/CFT standard to mitigate ML/TF risks and protect the integrity of financial systems and does not depend on the countries' need to manage capital flow movements or undertake macroeconomic adjustments.

**38. Staff proposes that the appropriateness of measures that are considered CFMs and are implemented in accordance with FATF standards should not be assessed under the IV.** The Fund recognizes the value and need for an effective AML/CFT regime implemented commensurately with the ML/TF risks that countries and financial institutions (amongst other reporting entities) face. Such regime relies on a robust legal framework in line with the AML/CFT standard, strong institutions (including but not limited to supervisory and law enforcement agencies) with adequate powers and procedures to operate and cooperate, and measures that ensure appropriate transparency over the beneficial ownership of legal entities and arrangements. Measures that are considered CFMs but are implemented in accordance with the FATF standards mentioned in paragraph 36 will not be assessed for their appropriateness under the IV.

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is recognized that these crimes threaten the stability of a country's financial sector and its external stability more generally. See IMF (2019).

<sup>30</sup> The forthcoming "Illicit and Tax-Avoiding Financial Flows" (ITAFF) policy paper and the review of the Fund's AML/CFT strategy will provide further analysis of the macroeconomic and social impact of illegal and tax-avoiding flows and emphasize further the features of an effective mitigation regime.

## D. Measures Arising from International Cooperation Standards Against the Avoidance or Evasion of Taxes

**39. Measures that levy discriminatory taxes consistent with certain international cooperation standards against the avoidance or evasion of taxes will not be assessed for their appropriateness under the IV.** Following the GFC, efforts have been made to increase international collaboration to tackle tax avoidance by the international standard setters in this area (i.e., OECD and United Nations). An example of this is the G20/OECD led Base Erosion and Profit Shifting (BEPS) initiative which seeks to close gaps in international taxation for companies that allegedly avoid taxation or reduce their tax burden in their home country. In this context, countries have introduced, or are proposing to introduce, discriminatory tax measures that are targeted at flows to countries objectively determined to be non-cooperative jurisdictions for tax purposes and which could be considered residency based CFMs under the IV. Considering such measures inappropriate under a Fund policy such as the IV would be inconsistent with the Fund's longstanding participation in and contribution to international efforts to combating tax avoidance, including through its technical assistance program and participation in multilateral forums such as the Inclusive Framework on BEPS and the UN Committee of Experts in Tax Matters. Hence, measures based on and implemented in accordance with certain international cooperation standards (i.e., existing minimum standards of the Inclusive Framework on BEPS, and established tax transparency standards on exchange of information<sup>31</sup>) that constitute CFMs and are designed to prevent the avoidance or evasion of taxes, including measures to enhance tax compliance, are proposed not to be assessed under the IV for their appropriateness.<sup>32</sup>

## ELABORATION OF IMPORTANT CONCEPTS AND POLICIES

**40. This section discusses concepts that have an important bearing on the implementation of the IV and can benefit from elaboration.** These include macro-criticality, capital inflow surges, imminent crisis situations, and premature liberalization. The objective is to provide guidance and facilitate the implementation of the IV. No policy changes are proposed to the IV's framework in these areas. For a discussion on how the IPF analytical toolkit can help enhance policy assessments under the current policy, see Background Note 4.

<sup>31</sup> This would cover international cooperation standards relating to: BEPS Action 5 – Harmful Tax Practices; BEPS Action 6 – Prevention of Tax Treaty Abuse; BEPS Action 13 – Country-by-Country Reporting; BEPS Action 14 – Mutual Agreement Procedure; Automatic Exchange of Information (AEOI); and Exchange of Information on Request (EOIR).

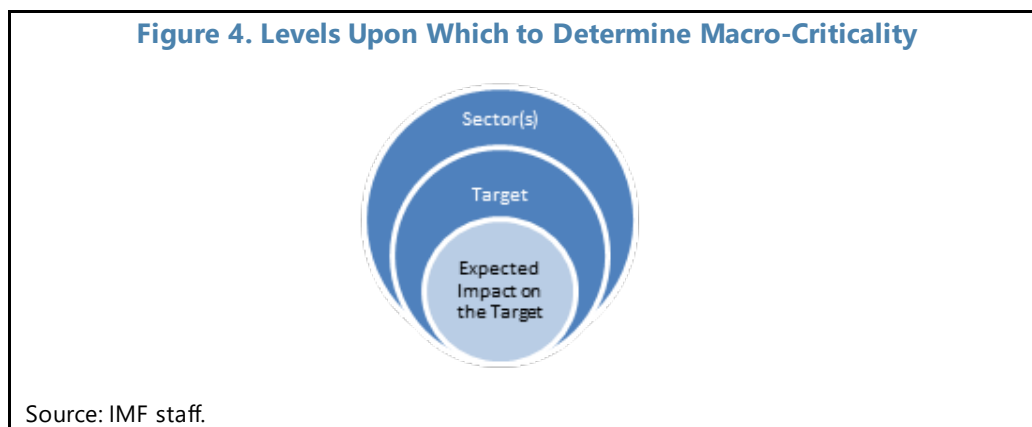
<sup>32</sup> Whether a relevant tax measure based on international cooperation standards is consistent with those standards would be determined by regard to its legal design and substance, rather than solely by the way in which the measure is implemented (e.g., unilaterally, bilaterally, or multilaterally). However, a tax measure that is implemented in a manner that is consistent with bilateral or multilateral obligations under a tax related instrument is more likely to be consistent with international cooperation standards when compared with a bespoke unilateral tax measure.

## A. Macro-Criticality

**41. Policy measures are discussed in Fund bilateral surveillance when they are macro-critical.**<sup>33</sup> A measure may be a CFM, but if it is not macro-critical, it does not need to be discussed in Fund bilateral surveillance.<sup>34</sup> Determining whether a CFM is macro-critical involves assessing whether it limits capital flows such that it significantly influences the member's present or prospective domestic or balance of payments stability. A CFM's impact on capital flows may be macro-critical by significantly affecting stability through a variety of channels (e.g., through an impact on international reserves, exchange rates, financial system stability, fiscal sustainability, or economic efficiency and growth).

**42. Assessing macro-criticality requires considering country-specific circumstances, including macroeconomic and financial challenges.** There is no universal indicator or numerical threshold that would set a boundary for considering a measure as macro-critical. The assessment of the (potential) effects can only be made on a case-by-case basis, with due consideration of the design of the measure, the types of flows it affects, the context, specific country circumstances, and the channels through which it can affect domestic or balance of payments stability. Staff judgment will play an important role in the assessment.

**43. There are different levels upon which macro-criticality could be analyzed.** As illustrated in Figure 4, a CFM would apply to (a) certain sector(s) of the economy, specific flows (the target) within the sector(s) and would have an (expected) impact on the target. To determine the (potential) effects of a CFM on domestic or balance of payments stability, the macro-criticality assessment involves analyzing the economy-wide significance of the sector subject to the CFM, the flows targeted by the CFM, and the expected impact of the CFM on the targeted flows. Lack of macro-criticality at a higher level, e.g., the sector, obviates the need for further assessment, e.g., the target.



<sup>33</sup> See IMF (2012a) and IMF (2021b).

<sup>34</sup> However, if the measure in question is not macro-critical but generates outward spillovers that significantly influence the effective operation of the IMS, it must be discussed as part of the Fund's multilateral surveillance as per the provisions of the ISD.

**44. In general, to consider a CFM macro-critical, the expected impact on the targeted flows must be macro-critical.** A CFM on a macro-critical sector or macro-critical flows is not necessarily macro-critical. If the measure is expected to have only a small impact on a macro-critical target, it would not be considered macro-critical. However, a few important qualifications apply:

- **Both the current and prospective expected impact of a CFM needs to be assessed.** A CFM may have a small effect on current capital flows but may be expected to have a significant impact on future prospective flows, making it macro-critical.
- **The nature of certain measures may make their expected impact difficult to assess ex ante.** A measure may inherently involve such a high degree of discretion in how it is applied that a wide range of impacts are possible. In these cases, macro-criticality assessments should focus on the macro-criticality of the target itself.
- **When CFMs are introduced as a package, it is appropriate to assess the macro-criticality of the package.** Proximity in time, objectives, and geographical regions affected should guide judgment on whether a set of measures constitutes a package. In this case, the macro-criticality assessment should focus on the full package of measures rather than on each component of the package individually.
- **A macro-critical CFM remains macro-critical even if subsequent changes to it are small and on their own would not be macro-critical.** If an underlying measure is macro-critical, changes to the measure should be discussed even if the marginal change is not itself macro-critical.

**Table 1. Illustrative Examples of Macro-Criticality Determinations**

Measure	Macro-criticality			
	Sector	Target	Impact	Overall
If the sector is not macro-critical, neither will be the impact on the target.				
A high surrender requirement on private sector exports in a country where public sector exports account for the bulk of total exports.	Private sector exports are not macro-critical. They account for a small share of total exports, GDP, and the current account balance.	No need for further assessment as the sector and the targeted flows are not macro-critical.		Not macro-critical.

<b>Table 1. Illustrative Examples of Macro-Criticality Determinations (Continued)</b>				
<b>If the target is not macro-critical, neither will be the impact on the target.</b>				
A non-negligible tax on inflows into a marginal segment of the housing market.	The housing sector is macro-critical.	The targeted segment is a small share of the country's real estate sector and the targeted flows represent a small share of capital flows.	The scope of the measure is too limited to significantly affect macroeconomic and financial stability.	Not macro-critical.
A sizable tax on inflows to all residential real estate, or to the country's major urban centers.	The housing sector is macro-critical.	The measure targets a significant share of the real estate sector.	The broad scope of the measure can potentially meaningfully affect macroeconomic or financial stability, even if the targeted flows do not represent a significant share of total capital flows.	Macro-critical.
<b>A measure expected to have a significant impact on the target and/or other macroeconomic variables will be macro-critical.</b>				
Repatriation and/or surrender requirement to the central bank on all exports.	Reserves and the export sector are macro-critical.	Export receipts are large enough to be macro-critical.	Capital flows and central bank reserves could be significantly affected.	Macro-critical.
Repatriation and/or surrender requirement to the central bank on a small share of exports.	Reserves and the export sector are macro-critical.	The targeted export segment is too small relative to GDP, and the relevant export proceeds subject to surrender are too small relative to reserves. Therefore, the target is not macro-critical.	No need for further assessment as the target is not macro-critical.	Not macro-critical.

<b>Table 1. Illustrative Examples of Macro-Criticality Determinations (Concluded)</b>				
A small change in an existing macro-critical measure merits discussion in surveillance.				
A small change to already identified macro-critical taxes on banks' external assets.	The banking system is macro-critical.	Banks' external assets are large relative to macroeconomic variables such as GDP, reserves, or fiscal revenue, and therefore macro-critical.	Although the change is too small to affect domestic or external stability, the overall tax on banks' external assets was found to be macro-critical.	Macro-critical.
A small change to an already identified macro-critical limit on nonresidents' holdings of domestic bonds.	The domestic bond market is macro-critical.	Current or prospective inflows into the domestic bond market are macro-critical, as they can affect credit, interest rates, and the exchange rate.	While the marginal effect from the change is small, the overall limit on nonresident holdings of domestic bonds was found to be macro-critical.	Macro-critical.
If the impact on the target cannot be determined <i>ex ante</i> , the assessment should focus on the target.				
An FDI screening measure in the mining; electric energy; gas and petroleum industries.	Mining; electric energy; gas and petroleum industries are macro-critical sectors.	FDI inflows into these sectors are macro-critical for investment and competitiveness.	The impact of the target depends on the implementation of the screening mechanism. However, since the target is macro-critical, the impact is presumably macro-critical.	Macro-critical.
Source: IMF staff.				

## B. Assessing Capital Inflow Surges

**45. Identifying capital inflow surges is an important step to determine policy advice under the IV.** Conceptually, a capital inflow surge is an episode of exceptionally high capital inflows. A surge can overwhelm the capacity of the economy and/or its financial system to absorb the inflows without endangering macroeconomic or financial stability, including by constraining the space for policies to adjust. Inflow surges may lead to the build-up of macroeconomic imbalances and/or financial vulnerabilities and increase risks of subsequent capital flow reversals or even crises. To pose such risks, surges do not necessarily need to be large from an economy-wide perspective, if they are sizeable in a particular sector with systemic linkages. Given the potential disruptive effects, the IV



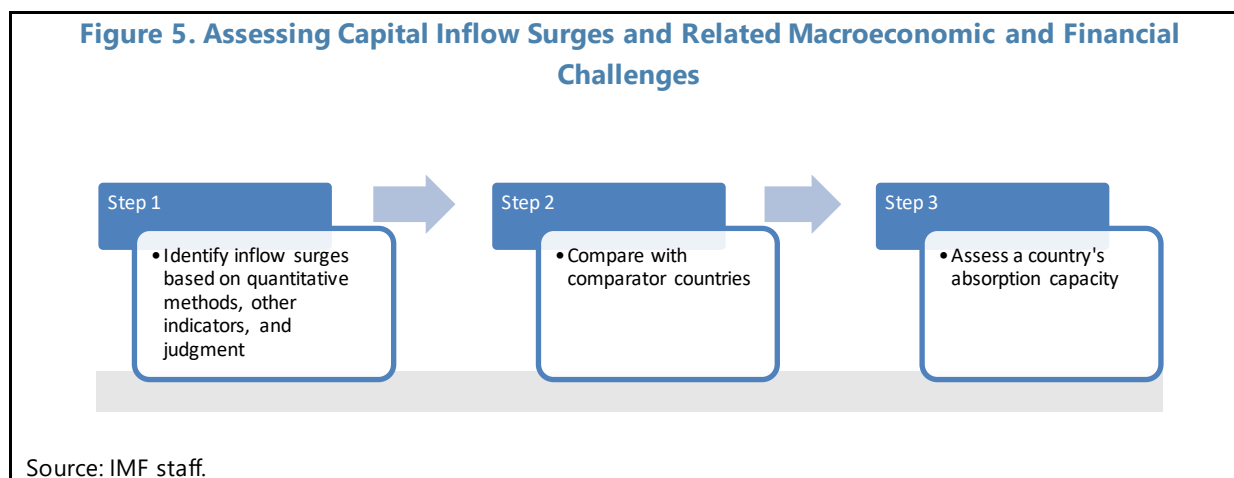
recognizes that in the context of inflow surges and under certain circumstances, inflow CFMs or CFM/MPMs may be useful to mitigate these risks.

**46. This review provides additional guidance to identify inflow surges and the challenges they can give rise to, without changing existing policy and practice.** The objective of this section is to: (i) identify a variety of quantitative methods to help with the identification of inflow surges; and (ii) discuss a set of indicators to help assess whether the inflow surges pose macroeconomic and/or financial stability challenges. These quantitative metrics are not intended to replace staff's judgment in assessing whether a surge is taking place and giving rise to associated challenges, nor to constitute an exhaustive list of possible metrics, but rather to provide more tools to assist staff in identifying an inflow surge.

**47. The literature typically relies on trend or threshold analysis to identify surges.** These quantitative methods identify surges as flows exceeding their historical patterns, looking at past distributions or deviations from a long-term trend or a recent period. Five approaches have been used to identify surges (Table 2) which can be applied to both net and gross capital flows as well as to surges into certain sectors or asset classes (e.g., portfolio debt and equity flows).

<b>Table 2. Quantitative Approaches to Identify Capital Inflow Surges</b>		
<b>Methodology</b>	<b>Description</b>	<b>Source</b>
Threshold analysis	Flows within top 30 <sup>th</sup> percentile of country's own distribution and sample distribution	Reinhart and Reinhart (2008), Ghosh et al. (2014)
Trend analysis	HP filter: Deviation from long-term trend by one historical standard deviation Hamilton filter: An asymmetric ordinary least squares (OLS) regression filter	IMF (2007, 2010, 2011), Cardarelli et al. (2010) Hamilton (2017)
	Rolling window: Annual increase in inflows by more than one standard deviation above the five-year rolling average	Forbes and Warnock (2012, 2021)
Cluster analysis	Partitioning inflows into k-clusters with the nearest mean (minimizing within-cluster sum of squared differences)	Ghosh et al. (2014)
Source: IMF staff.		

**48. A stepwise procedure can be used to assess whether an inflow surge is taking place and is giving rise to macroeconomic and/or financial stability challenges** (Figure 5):



**Step 1: Use a set of quantitative methods to obtain a signal on whether the economy (or sector) in question is experiencing a surge in the volume of capital inflows.** A useful way to compare results is through a heatmap that portrays how many of those methods identify a surge (Panel A in Figure 6). When two or more methods signal a surge, it can be interpreted as a possible threshold for when a surge is taking place. Given that the balance of payments data are only available with a lag, this approach may need to be complemented with high-frequency capital flows data, as well as sectoral information (e.g., nonresidents' share in real estate purchases). The heatmap is also useful to reveal how prone to surges a particular country is.

**Step 2: As a complement to step 1, it may be useful to consider whether inflow surges are taking place in comparator economies,** which may affect the likelihood of a surge in the country. The method described in Step 1 can be used for appropriately selected comparators. The results can be summarized in a heatmap (Panel B in Figure 6). If the data suggest that comparator countries are experiencing inflow surges, the country would be more likely to be facing a surge.

**Step 3: Analyze a range of macro-financial variables to assess a country's absorption capacity and whether macroeconomic or financial stability challenges are arising.** This analysis can be guided by a heatmap (Panel C in Figure 6) that summarizes information from macroeconomic variables (e.g., real GDP growth, current account, inflation developments, and external position), financial market indicators (e.g., credit-to-GDP gap, interest rates, house prices, exchange rate, debt spreads, and uncovered interest parity premia), and structural indicators (e.g., governance and regulatory practices as well as financial development). In case of sectoral surges, a narrower set of variables can be considered. An inflow surge is more likely to pose challenges for a country's absorption capacity when some of these variables are exceeding their historical trends or levels.

**Figure 6. Indicators to Guide the Assessment of Capital Inflow Surges**

Panel A: Heatmap of capital flows by different types of flows

Country A		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
<b>Gross Inflows Surges</b>															
Total Inflows		0	0	0	1	1	3	5	5	5	4	0	0	0	0
Nonofficial Inflows		0	0	0	1	1	4	5	5	5	3	1	1	0	0
Portfolio Inflows		0	0	0	0	0	0	2	2	2	2	1	0	0	0
Portfolio Debt Inflows		0	0	0	0	0	0	2	2	2	2	0	0	0	0
Portfolio Equity Inflows		2	2	2	1	1	1	2	4	5	3	4	1	0	0
Other Inflows		0	0	0	0	4	5	5	4	3	2	1	1	0	0
Other Inflows to Banks		0	0	0	0	0	5	5	4	4	0	0	0	0	0
<b>Net Inflows Surges</b>															
Total Inflows		0	0	0	1	1	1	5	5	5	5	1	1	0	0
Nonofficial Inflows		0	0	0	0	0	1	5	5	5	5	1	0	0	0
Portfolio Inflows		0	0	0	0	0	0	2	3	3	2	1	0	0	0
Portfolio Debt Inflows		0	0	0	0	0	1	2	2	2	2	0	0	0	0
Portfolio Equity Inflows		2	1	1	0	1	1	1	4	5	3	4	1	0	0
Other Inflows		0	0	0	0	3	5	5	3	1	1	1	2	0	0
Other inflows to Banks		0	0	0	0	0	4	4	3	0	0	0	0	0	0

Panel B: Comparisons to peers

Net Total Inflows							Gross Total Inflows						
Time	Country A	Country B	Country C	Country D	Country E	Country F	Time	Country A	Country B	Country C	Country D	Country E	Country F
Q1	0	3	1	0	4	1	Q1	0	1	1	2	2	2
Q2	0	3	3	0	4	2	Q2	0	3	1	2	4	2
Q3	0	2	0	0	3	4	Q3	0	3	0	1	4	4
Q4	0	2	0	0	3	5	Q4	0	3	0	2	4	4
Q5	0	1	0	0	2	4	Q5	0	3	0	1	5	4
Q6	1	0	0	0	2	4	Q6	1	2	0	1	3	4
Q7	1	0	2	0	3	3	Q7	1	3	4	2	4	3
Q8	1	0	4	3	2	3	Q8	3	3	4	4	3	4
Q9	5	1	4	5	2	3	Q9	5	4	4	5	2	4
Q10	5	1	5	4	2	3	Q10	5	4	5	5	3	3
Q11	5	0	5	5	2	2	Q11	5	3	5	5	2	2
Q12	5	0	5	4	3	2	Q12	4	3	5	5	3	2
Q13	1	0	5	2	3	2	Q13	0	3	4	3	2	2
Q14	1	0	3	0	2	2	Q14	0	2	2	3	0	3
Q15	0	0	0	0	2	1	Q15	0	0	0	0	0	2

Panel C: Heatmap of macro and financial conditions

Country A	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Domestic</b>												
<i>Macro</i>												
Real GDP growth												
CPI inflation												
Current account/GDP												
NIIP/GDP												
<i>Financial</i>												
Nominal USD exchange rate												
REER												
Credit-to-GDP ratio												
3-month treasury bill rate/Money market rate												
Share price index												
Real house price index												
<i>Structural</i>												
Crisis	0	0	0	0	0	0	0	0	0	0	0	0
Capital account openness	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Institutional quality	54.4	54.4	54.4	54.4	54.4	54.4	54.4	54.4	56.0	56.0	56.0	56.0
Overall financial development	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Financial institutions	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Financial markets	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5
<b>Global</b>												
VIX												
US 3-month Treasury												
Commodity price												

Source: IMF staff.

## C. Identifying Imminent Crisis Circumstances

**49. The current policy on managing capital outflows remains appropriate and consistent with the literature.** CFMs on outflows, in particular on nonresidents, often entail greater costs than those on inflows, including through for example more adverse effects on investor confidence. Hence, the IV's proposition that outflow CFMs should be used only in crises or imminent crisis situations remains appropriate.<sup>35</sup> To facilitate the implementation of the IV, this section elaborates when imminent crisis circumstances may arise.

**50. Crises are by nature difficult to predict, making the identification of imminent crises difficult.** As set out in Figure 2 (lower panel), the IV considers a country where FX reserves are inadequate, the exchange rate is undervalued or balance sheet FX exposure is high, and the economy is stagnating, as likely to be in crisis or imminent crisis. In the literature, balance of payment crises have been found to involve, or start as, banking, sovereign, or real economy crises or as asset price bubbles. They often follow a prolonged economic boom which may in part have been fueled by capital inflows (Kaminsky and Reinhart, 1999; Taylor, 2014; Sufi and Taylor, 2021). A host of features have been associated with balance of payments crises, such as excessive currency depreciation (often following a period of overvaluation), depletion of FX reserves, large declines in aggregate demand, rapid reversal of current account deficits, and sharp increases in interest rates and spreads. While many of these developments are evident in a crisis, some of these features are likely to already materialized prior to a crisis, indicating imminent crisis circumstances.

**51. High-frequency data and other qualitative information can help identify imminent crisis circumstances.** The objective is to identify circumstances that are likely to swiftly develop to a full-blown crisis in the absence of policy interventions, including outflow CFMs. To identify such an imminent crisis which may justify the use of outflow CFMs, findings from models and analytical tools that can provide information regarding the reversal of capital inflows and bursting of asset bubbles can be used together with high-frequency indicators on crisis-like dynamics and qualitative information regarding disruptions in goods and financial markets. These high frequency and qualitative indicators include sharp exchange rate depreciation, a rapid decrease of reserves, sharply tightening financial conditions, swiftly declining economic activity, and abrupt changes in FX market participation or the rollover of external debt. The interpretation of the results from these models and data would require some element of judgment.

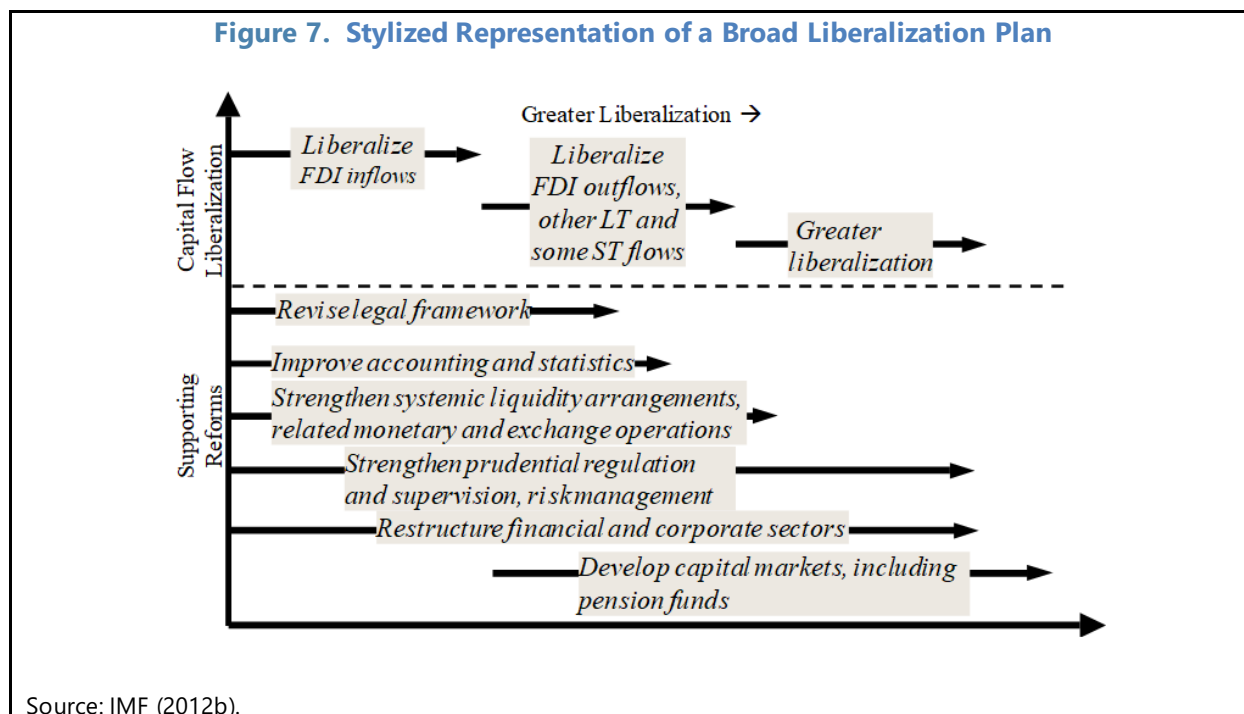
## D. Premature Liberalization

**52. The IV guidance on capital flow liberalization remains appropriate.** It emphasizes that liberalization is more beneficial and less risky if countries have reached certain levels or thresholds of financial and institutional development. Therefore, liberalization needs to be well planned, timed, and sequenced to ensure that its benefits outweigh the costs and to reduce the risks of potentially costly backtracking that may undermine the credibility of the liberalization plan. The IV also

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<sup>35</sup> There is not a compelling case in the literature to propose using outflow CFMs in a preemptive manner.

emphasizes that there is no presumption that full liberalization is an appropriate goal for all countries at all times (Figure 7).



**53. The current policy also states that if liberalization is assessed to have been premature, CFMs can be reimposed until conditions for safe liberalization are in place.** This reflects that a temporary reimposition of CFMs may be in line with moving toward greater liberalization, even though it is generally more desirable if such backtracking can be avoided. To aid implementation, this section elaborates on how to identify cases of premature liberalization and how these differ from the management of capital flows more generally.

**54. Identifying instances of premature liberalization requires an assessment of whether the removal of CFMs has outpaced the capacity of the economy or financial system to safely handle the resulting flows.** As this capacity depends on several features, the identification of premature liberalization needs to take into account a wide range of macro-financial indicators. Such an analysis should explore whether large changes have taken place in capital inflows or outflows following liberalization, and whether as a result, a severe deterioration in indicators of macro-financial stability has emerged. It should look at the period shortly after the CFMs were removed, as well as, if needed, at subsequent periods when the newly open financial account (or specific segments of it) has become exposed to sizable flows or changes in the global financial cycle for the first time. This can be challenging, in part because some of the costs of greater financial account openness may take time to become apparent.

**55. Premature liberalization reflects the removal of CFMs in circumstances in which conditions for safe liberalization—as identified in the integrated approach—are not met.**<sup>36</sup> The integrated approach in the IV sets out certain conditions or thresholds which should generally allow for safe liberalization of different types of flows. Premature liberalization occurs when those conditions are not met – even if they appeared to be at the time of liberalization – and country's capacity to handle the liberalized flows is seriously challenged. Examples include:

- Liberalization of short-term flows without having the necessary prudential, supervisory, and monitoring frameworks to manage the risks from these flows.
- A relaxation of outflow CFMs in response to a temporary increase in inflows, without instituting the necessary supporting reforms. The resulting increase in outflows could be sustained or could accelerate even as the inflows subside and create unstable macroeconomic conditions that the economy has insufficient resilience to withstand.

**56. Premature liberalization does not include cases where capital flow episodes or systemic stock vulnerabilities temporarily overwhelm countries with generally adequate capacity to manage their openness.** The IV recognizes that countries that have appropriately sequenced the liberalization and generally have adequate capacity to manage their level of openness can nevertheless experience an exceptionally large shock which results in inflow surges or disruptive outflows or may accumulate stock vulnerabilities (e.g., FX mismatches as discussed in Section II). Such developments may pose policy constraints and create a useful temporary role for CFMs and/or CFM/MPMs until the flow episode and systemic vulnerabilities respectively, subside.<sup>37</sup> In the case of premature liberalization, the lack of capacity is likely to be more sustained at the current level of development, increasing the likelihood of costly, recurring episodes of inflow surges, disruptive outflows, and/or persistent stock vulnerabilities. The IV therefore considers the re-imposition of CFMs on some types of capital flows to be appropriate until sufficient progress has been made with respect to the macroeconomic, financial, and structural policies that the integrated approach to liberalization recommends. The re-imposition of CFMs may be implemented alongside the liberalization of other types of flows if the conditions for such liberalization are met.<sup>38</sup> Figure 8 provides an overview of some of the conditions that are indicators of premature liberalization at different stages of liberalization and hence may call for the temporary re-imposition of some CFMs. The relative importance of these factors would depend on the degree of capital account openness as set out in a stylized manner in Figure 7.

<sup>36</sup> See IMF (2013a), Annex 3.

<sup>37</sup> Premature liberalization may also increase the risk of the building up of stock vulnerabilities necessitating the use of preemptive CFM/MPMs.

<sup>38</sup> For example, where short-term debt inflows have been liberalized before long-term debt inflows, and where the necessary supervisory and macroprudential frameworks have not been fully developed, a temporary reimposition of CFMs on short-term flows combined with an easing of some CFMs on longer-term debt inflows may be appropriate under the IV.

Figure 8. Potential Indicators of Premature Liberalization

<p><b>Unstable macroeconomic and financial conditions due to liberalization</b></p> <ul style="list-style-type: none"> <li>➤ Credibility of the exchange rate arrangement in doubt</li> <li>➤ Weak macroeconomic policy frameworks</li> <li>➤ Asset bubbles</li> <li>➤ Inadequate FX reserves</li> <li>➤ Inadequate FX flexibility</li> <li>➤ Credit boom</li> </ul>	<p><b>Inability of financial sector to handle inflows or capital flow volatility</b></p> <ul style="list-style-type: none"> <li>➤ Shallow financial markets and generally low financial development</li> <li>➤ Lack of reliable hedging markets</li> <li>➤ Weak governance and risk management in financial institutions</li> <li>➤ Lack of resilience of financial institutions' balance sheets</li> </ul>
<p><b>Weak governance and disclosure</b></p> <ul style="list-style-type: none"> <li>➤ Weak adherence to international accounting standards</li> <li>➤ Low levels of shareholder protection</li> <li>➤ Inadequate governance standards</li> </ul>	<p><b>Weak financial sector regulatory standards and ineffective supervision</b></p> <ul style="list-style-type: none"> <li>➤ Inadequate micro-, securities-, and/or macroprudential regulations and policies</li> <li>➤ Weak cooperation across regulators</li> <li>➤ Inadequate deposit insurance</li> <li>➤ Weak crisis management and resolution</li> </ul>

Source: IMF staff.

**57. In cases where the analysis of these conditions signals potential premature liberalization, a subsequent assessment should consider the needed policy actions.** The assessment should identify necessary improvements in the policy framework and financial and institutional development to safely manage the degree of financial account openness and remove the reimposed CFMs over time. The policy advice would then be based on this assessment.

**58. Progress in implementing policy actions to address the weaknesses that led to the reimposition of CFMs would be expected for the CFMs to remain appropriate.** If a country has already reimposed CFMs, the analysis of the actions taken following the reimposition would guide the assessment of appropriateness of such reimposition. Lack of policy action to address weaknesses would suggest that the re-imposition of CFMs may have been designed to manage capital flows rather than to support a safe liberalization strategy.

## OTHER ISSUES

### A. Measures that Are Also Exchange Restrictions or Multiple Currency Practices

**59. The Fund's Articles of Agreement prohibit members from restricting current international payments and transfers and introducing discriminatory and multiple currency practices without Fund approval.** Under Article VIII, Section 2(a), Fund members may not, except when approved by the Fund, impose restrictions on the making of payments and transfers for



current international transactions.<sup>39</sup> Article VIII, Section 3, further prohibits Fund members from introducing multiple currency practices (MCPs), except when approved by the Fund. The Fund's policy on exchange restrictions allows the Fund to temporarily approve exchange restrictions maintained for balance of payments reasons,<sup>40</sup> while the MCP policy allows for the temporary approval of MCPs maintained for both balance of payments and non-balance of payments reasons.<sup>41</sup> The IV does not modify members' obligations or the Fund's policies under Article VIII, Sections 2(a) and 3.

**60. The Fund's Articles of Agreement define payments for "current" transactions to include certain transactions that, from an economic perspective, are capital transactions.** As a result, there are some measures affecting capital transactions that are subject to the Fund's jurisdiction under Article VIII, which in turn can also be considered as CFMs on outflows under the IV.<sup>42</sup>

**61. Classification of a measure as both an Article VIII measure and a CFM may lead to an overlap between the application of the Article VIII framework and the IV.** As the criteria for approval of exchange restrictions and MCPs are different from the IV criteria to assess the appropriateness of CFMs, an assessment of a measure under two sets of policies could lead to inconsistent advice. For example, a measure could be approved under the policy on exchange restrictions or MCPs and be maintained without any breach of the country's obligations to the Fund, while at the same time it could be considered not appropriate and thus advised to be removed under the IV.<sup>43</sup>

**62. CFMs that are also MCPs and applicable solely to capital transactions are not subject to Fund approval under Article VIII but are subject to the IV.** This is because the Executive Board repeatedly decided not to assert jurisdiction under Article VIII over the MCPs relating solely to capital transactions.<sup>44</sup> Therefore, in cases where such MCPs are also CFMs and they are considered macro-critical, they are assessed only under the Fund's IV, and the issue of the overlap between the Article VIII framework and the IV does not arise.

**63. Staff proposes that measures that are both CFMs and also exchange restrictions and/or MCPs because they relate to transactions that are capital in nature but considered as current under the Fund's Articles are assessed solely under Article VIII.** Approval of those

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<sup>39</sup> "Current transactions" are defined in Article XXX(d) of the Fund's Articles of Agreement.

<sup>40</sup> Decision No. 1034-(60/27).

<sup>41</sup> Decision No. 6790-(81/43) (as amended).

<sup>42</sup> See IMF (2012b), footnote 85.

<sup>43</sup> While Article VIII sets obligations for members, assessments under the IV constitute only recommendations.

<sup>44</sup> The result of this policy is that MCPs that relate solely to capital account transactions are not subject to Fund approval. Furthermore, the Decision No. 8648-(87/104), July 17, 1987 explicitly states that the phrase "multiple currency practices" in decisions of the Fund relating to the use of the Fund's resources does not, except as otherwise provided, include multiple currency practices applying solely to capital transactions. However, under the IV, those measures can be considered CFMs.



measures would be granted on the basis of the approval criteria under the relevant Article VIII policy. At the same time, given that the Board has decided not to assert jurisdiction over MCPs that apply solely to capital transactions, such measures, if they are also considered to be CFMs, will be assessed only under the Fund's IV as per standing practice.<sup>45</sup> This approach eliminates potential inconsistencies that may undermine the coherence of the Fund's policy advice on matters of its jurisdiction and under the IV.

## B. Other Operational Issues

**64. There could be CFMs that are part of a country's policy framework or regulations but are not activated or enforced.** Such measures typically are: (i) safeguard/contingency measures whose introduction is conditional on the materialization of exceptional circumstances (e.g., in crisis situations); (ii) measures that could be CFMs but have current quantitative parameters set at zero; and (iii) CFMs that are not enforced, for example due to low enforcement capacity. Staff proposes the following treatment of these measures when they are macro-critical:

- Safeguard/contingency measures:<sup>46</sup> While safeguard/contingency frameworks themselves do not constitute CFMs, newly introduced or revised frameworks will be reviewed, and advice will be provided on their use consistent with the IV. When, based on the framework, measures are activated, they will be assessed under the IV.
- Measures that could be CFMs but have current quantitative parameters set at zero will not be classified as CFMs. They will be assessed under the IV, and classified as CFMs if appropriate, if/when their quantitative parameters are tightened.
- Unenforced CFMs: Such measures will be assessed when they are tightened or enforced.

**65. Measures on FX purchases and transactions between residents.** The IV is primarily concerned with transactions between residents and nonresidents, i.e., balance of payments flows. However, in some cases, countries may restrict certain transactions among residents, for example by limiting deposit withdrawals and/or restricting FX purchases. When such measures between residents are put in place to arrest depreciation pressures in the context of capital outflows or a sudden stop, these measures would be deemed to have been designed to limit capital outflows, and as such will be considered CFMs and assessed under the IV.

**66. Staff propose to align the assessment of tax measures under the IV with internationally established legal principles of taxation.** Staff propose that measures that discriminate based on tax residency as defined in tax law frameworks should not be automatically assessed as CFMs because of their presumed discriminatory design. Internationally accepted norms

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<sup>45</sup> This notwithstanding, they would continue to also be identified as MCPs in staff reports.

<sup>46</sup> Some members or international agreements refer to contingency measures as "safeguard" measures.

on taxation, including those enshrined under tax treaties,<sup>47</sup> permit treating tax residents and non-residents differently. Such measures are considered non-discriminatory because they seek to achieve an equivalent treatment between persons in “like circumstances,” thereby seeking to create a level-playing field.<sup>48</sup> An example would be withholding taxes that commonly apply differently to residents and non-residents to appropriately reflect their objective and factual differences.<sup>49</sup> Considering this specificity of tax measures, the design feature to achieve “like circumstances” does not give rise to an automatic assumption of “discrimination.” Differential treatment based solely on tax residency conforming to international standards (for instance, based on the number of days physically present in a jurisdiction such as 183 days or more) will not be automatically considered residency-based CFMs; rather they will be assessed as to whether they are designed to limit capital flows.<sup>50</sup> This approach to the assessment of tax measures would be applied to both income and transactional tax measures.

## ISSUES FOR DISCUSSION

### 67. Issues for discussion:

- Do Directors endorse the proposed change to the Institutional View to consider preemptive inflow CFM/MPMs subject to the considerations discussed in Section II?
- Do Directors agree with the proposals in Section III on the special treatment of measures introduced solely for national or international security reasons, certain measures adopted pursuant to internationally agreed frameworks on financial stability, AML/CFT measures implemented consistently with international standards, and measures arising from certain international cooperation agreements against the avoidance or evasion of taxes?

<sup>47</sup> See the OECD and UN Model Tax Conventions. For example, Article 24 prohibits discrimination based on nationality but does not apply where a different tax treatment results from factors other than nationality, such as tax residence.

<sup>48</sup> Tax residency is commonly defined under the domestic tax law of a country or state and determines a person’s liability to tax in that country or state by reason of their domicile, physical presence, or any other criterion of a similar nature.

<sup>49</sup> Withholding tax regimes commonly treat non-residents differently compared to tax residents, both formally (means of collection) and substantially (level of taxation) in order to ensure the effective collection of taxes (e.g., withholding tax is the internationally accepted means of collection against non-residents; whereas tax residents typically have substantial connections to the taxing jurisdiction often making withholding unnecessary); and reflect key differences in the tax base between tax residents and non-residents (e.g., applicable tax rates often differ, with higher effective tax rates appropriate for non-residents because residents are taxed on worldwide income and non-residents are taxed only on income sourced within the taxing jurisdiction, with non-residents also often lacking access to the same deductions and credits available to tax residents).

<sup>50</sup> This approach is also consistent with the OECD Codes, which state that “apparently discriminatory taxes levied in accordance with widely accepted principles of international tax law are not considered as equivalent to a restriction under the Codes.”

## Annex. Examples of Structural and Market Development Reforms to Reduce Risks from FX Mismatches

Policy area	Objective	Desired effect on systemic risk from FX mismatches
Public debt management	Undertake reforms to support domestic government bond market development	Development of a local currency bond market can help establish a sovereign yield curve and catalyze private borrowing in local currency
Monetary framework	<p>Strengthen the credibility of the monetary policy framework to help anchor inflation expectations</p> <p>Implement a monetary operations framework that leads to lower short-term interest rate volatility</p> <p>FX market development (spot and derivative) and regulatory reform</p> <p>Enable Lender of Last Resort/Emergency Liquidity Assistance framework to allow targeted liquidity provision in FX</p>	<p>A credible framework can lower long-term interest rate differentials and make FX borrowing less attractive</p> <p>Less volatile short-term interest rates allow the yield curve to develop; contribute to the development of domestic bond market and key hedging markets (such as forwards market)</p> <p>Increased FX market depth will make the market more resilient and facilitate the growth of hedging markets</p> <p>The possibility of targeted FX liquidity provision (e.g., via FX swaps) helps the containment of an emerging FX liquidity crisis</p>
Macroprudential framework	Strengthen the macroprudential policy framework to ensure that macroprudential tools can be deployed effectively to limit systemic risks, including from capital flows and FX mismatches	<p>Developing targeted tools to reduce risk from local banks lending in FX, if not available</p> <p>Developing broad-based macroprudential tools to lean against credit growth and the build-up of unhedged FX loans</p>
Microprudential supervision	<p>Strengthen the supervisory framework with a focus on risk-based supervision</p> <p>Strengthen cross-border coordination through supervisory colleges or Memoranda of Understanding (MoUs)</p>	<p>To ensure FX risks are properly accounted for by financial institutions</p> <p>May also help discourage excessively risky lending prescribed by parent banks and to prevent sudden withdrawal of parent funding from host countries in a crisis</p>

Policy area	Objective	Desired effect on systemic risk from FX mismatches
Crisis preparedness  Source: IMF staff.	Implement an effective bank resolution framework which limits banks' expectations for public support Effective coordination between authorities and appropriate public communication in crisis	May help contain a currency/banking crisis from turning into a sovereign debt crisis Increases resilience by raising the likelihood of effective crisis containment

## References

- Cardarelli, Roberto, Elekdag, Selim and Kose, Ayhan, 2010, Capital inflows: Macroeconomic implications and policy responses, *Economic Systems*, 34(4): 333-356.
- Forbes, Kristin, and Francis Warnock, 2012, "Capital Flow Waves: Surges, Stops, Flight and Retrenchment." *Journal of International Economics* 88(2): 235-251.
- Forbes, Kristin J. and Warnock, Francis E., 2021, "Capital flow waves—or ripples? Extreme capital flow movements since the crisis," *Journal of International Money and Finance*, Elsevier, vol. 116(C).
- Ghosh, Atish R., Qureshi, Mahvash S., Kim, Jun Il and Zalduendo, Juan, 2014, "Surges," *Journal of International Economics*, Elsevier, vol. 92(2): 266-285.
- Hamilton, James D., 2018, "Why You Should Never Use the Hodrick-Prescott Filter," *The Review of Economics and Statistics*, vol 100(5): 831-843
- Independent Evaluation Office, 2020, *IMF Advice on Capital Flows*, (Washington, DC), August.
- International Monetary Fund, 2007, *World Economic Outlook*, October 2007 —Chapter 3. Managing Large Capital Inflows, <https://www.imf.org/en/Publications/WEO/Issues/2016/12/31/World-Economic-Outlook-October-2007-Globalization-and-Inequality-20354>
- \_\_\_\_\_, 2010, *Regional Economic Outlook: Asia and Pacific*, April 2010, <https://www.imf.org/en/Publications/REO/APAC/Issues/2017/01/07/Regional-Economic-Outlook-Asia-and-Pacific1>
- \_\_\_\_\_, 2011, *Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework* (Washington, DC: International Monetary Fund), February, <https://www.imf.org/external/np/pp/eng/2011/021411a.pdf>
- \_\_\_\_\_, 2012a, *Decision on Bilateral and Multilateral Surveillance*, (Washington, DC: International Monetary Fund), July, <https://www.imf.org/external/np/pp/eng/2012/071712.pdf>
- \_\_\_\_\_, 2012b, *The Liberalization and Management of Capital Flows: An Institutional View* (Washington, DC: International Monetary Fund), November, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/The-Liberalization-and-Management-of-Capital-Flows-An-Institutional-View-PP4720>
- \_\_\_\_\_, 2013a, *Guidance Note for the Liberalization and Management of Capital Flows*, (Washington, DC: International Monetary Fund), April, <https://www.imf.org/external/np/pp/eng/2013/042513.pdf>

- \_\_\_\_\_, 2013b, *Key Aspects of Macroprudential Policy*, (Washington, DC: International Monetary Fund), June, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Key-Aspects-of-Macroprudential-Policy-PP4803>
- \_\_\_\_\_, 2014a, *Staff Guidance Note on Macroprudential Policy*, (Washington, DC: International Monetary Fund), November, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Staff-Guidance-Note-on-Macroprudential-Policy-PP4925>
- \_\_\_\_\_, 2014b, *Staff Guidance Note on Macroprudential Policy—Considerations for Low Income Countries*, (Washington, DC: International Monetary Fund), December, <https://www.imf.org/external/np/pp/eng/2014/110614b.pdf>
- \_\_\_\_\_, 2015, *Managing Capital Outflows—Further Operational Considerations*, (Washington, DC: International Monetary Fund), December, <https://www.imf.org/external/np/pp/eng/2015/120315.pdf>
- \_\_\_\_\_, 2016, *Capital Flows—Review of Experience with the Institutional View* (Washington, DC: International Monetary Fund), December, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/01/13/PP5081-Capital-Flows-Review-of-Experience-with-the-Institutional-View>
- \_\_\_\_\_, 2017, *Increasing Resilience to Large Volatile Capital Flows: The Role of Macroprudential Policies* (Washington, DC: International Monetary Fund), September, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/07/05/pp060217-increasing-resilience-to-large-and-volatile-capital-flows>
- \_\_\_\_\_, 2018, *The IMF's Institutional View on Capital Flows in Practice* (Washington, DC: International Monetary Fund), <https://www.imf.org/external/np/g20/pdf/2018/073018.pdf>
- \_\_\_\_\_, 2019, *Review of the Fund's Strategy on Anti-Money Laundering and Combating the Financing of Terrorism*, (Washington, DC: International Monetary Fund), February, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/02/04/pp101718-2018-review-of-the-funds-aml-strategy>
- \_\_\_\_\_, 2020, *Toward an Integrated Policy Framework* (Washington, DC: International Monetary Fund), October, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2020/10/08/Toward-an-Integrated-Policy-Framework-49813>
- \_\_\_\_\_, 2021a, *Implementation Plan in Response to The Board-Endorsed Recommendations from the IEO Evaluation on IMF Advice on Capital Flows* (Washington, DC: International Monetary Fund), May, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/08/10/Implementation-Plan-in-Response-to-The-Board-463632>

- \_\_\_\_\_, 2021b, *2021 Comprehensive Surveillance Review — Overview Paper*, (Washington, DC: International Monetary Fund), May, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/05/18/2021-Comprehensive-Surveillance-Review-Overview-Paper-460270>
- \_\_\_\_\_, 2021c, *2021 Comprehensive Surveillance Review— Modalities for Modernizing Surveillance*, (Washington, DC: International Monetary Fund), May, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/05/18/2021-Comprehensive-Surveillance-Review-Modalities-for-Modernizing-Surveillance-460273>
- \_\_\_\_\_, 2021d, *2021 Comprehensive Surveillance Review— Background Paper on Systemic Risk and Macropprudential Policy Advice in Article IV Consultations*, (Washington, DC: International Monetary Fund), May, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2021/05/18/2021-Comprehensive-Surveillance-Review-Background-Paper-on-Systemic-Risk-and-460306>
- Kaminsky G. L. and C. M. Reinhart, 1999, *The Twin Crises: The Causes of Banking and Balance-of-Payments Problems*, *American Economic Review* 89 (3), 473-500.
- OECD, 2019, *Model Tax Convention on Income and on Capital 2017* (Paris: OECD).
- OECD, 2019, *OECD Codes of Liberalisation: User's Guide* (Paris: OECD).
- Reinhart, Carmen and Reinhart, V., 2008, *Capital flow bonanzas: an encompassing view of the past and present*. NBER Working Paper 14321. NBER, Cambridge.
- Sufi, A. and A. Taylor, 2021, *Financial crises: A survey*, National Bureau of Economic Research, Working Paper 29155.
- Taylor, John, 2014, *The Role of Policy in the Great Recession and the Weak Recovery*, *American Economic Review*. May 2014, Vol. 104, No. 5: Pages 61-66.
- United Nations, 2017, *Model Double Taxation Convention between Developed and Developing Countries* (New York: UN).





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## BACKGROUND NOTE 1: CAPITAL FLOWS AND CAPITAL FLOW MANAGEMENT MEASURES—BENEFITS AND COSTS

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## INTRODUCTION

**1. The Fund’s Institutional View (IV) recognizes the benefits of and risks associated with capital flows.** It emphasizes the principle that financial liberalization has many benefits, while risks from capital flow volatility can be managed by macroeconomic and financial sector policies supported by strong institutions, and through temporary use of CFMs and CFM/MPMs under certain circumstances. The use of CFMs or CFM/MPMs should not substitute for warranted macroeconomic adjustments.

**2. Since the IV was adopted, a growing literature has provided additional insights into the benefits and risks from capital flows.** This literature confirms the many benefits of various types of capital flows to both source and recipient countries and provides additional insights into the channels through which these materialize. The literature has also helped better articulate the risks associated with capital flows and shed light on the optimal policy mix to manage these risks.

**3. This note summarizes the insights from the recent literature and the experiences of staff since the adoption of the IV that have informed this review.** It focuses on three areas: (i) the recent evidence on the benefits of capital flows; (ii) theoretical and empirical advances, including work by staff towards an Integrated Policy Framework (IPF), that support the case for using inflow CFMs and CFM/MPMs to manage the risks from capital flows in certain circumstances; and (iii) considerations that are not necessarily incorporated in the theoretical literature, but are documented in recent empirical studies or based on experience, and that caution against the use of inflow CFMs and CFM/MPMs, constrain their use, or inform their design. The use of outflow CFMs is not covered in this note.

### Box 1. Key Messages

#### **Capital flows offer many benefits for open economies:**

- A range of direct and indirect benefits stem not only from FDI inflows but also from other types of flows. However, country characteristics—particularly domestic institutional and financial development—determine the extent to which a country reaps these benefits.

#### **Inflow CFMs and CFM/MPMs can help manage the risks from excessively large or volatile capital flows:**

- Capital flows can be excessively large, thereby overwhelming a country's capacity to safely manage them, and volatile, posing risks of costly reversals. These risks are heightened in the presence of domestic and international frictions.
- A key role in managing capital flows should be played by macroeconomic policies, as well as by sound financial supervision and regulation and strong institutions. In certain circumstances, CFMs can be useful. They should not, however, substitute for warranted macroeconomic adjustment.
- Inflow CFMs during surges can enhance monetary autonomy and avoid costly macroeconomic adjustments due to overvaluation, particularly in countries with existing real or financial frictions.
- CFM/MPMs can help manage the financial stability risks from increases in credit, leverage, reliance on volatile funding structures, FX mismatches, and asset prices during inflow surges.
- When stock vulnerabilities, primarily foreign currency (FX) mismatches, have grown large, they can increase the likelihood and severity of crises, justifying a preemptive approach to managing risks.

#### **Several considerations caution against CFMs and CFM/MPMs and argue for a limited use—only under the well-defined circumstances described in this review:**

- Frequent use of CFMs and CFM/MPMs can generate compliance costs, policy uncertainty, and governance problems. CFMs and CFM/MPMs can also burden smaller firms disproportionately, may hinder the development of domestic markets, and can reduce the impetus for reforms.
- CFMs used for macroeconomic management may need to have broad coverage, potentially increasing their costs. CFM/MPMs may be more narrowly targeted, but may need to stay in place for longer, potentially also increasing costs.
- Use of inflow CFMs or CFM/MPMs to manipulate the country's terms of trade can have adverse beggar-thy-neighbor spillovers and can reduce global welfare.

#### **Even when the circumstances described in this review are met, enforcement considerations and structural characteristics can inform the use or design of CFMs and CFM/MPMs:**

- Use of CFMs and CFM/MPMs, or their design, may be constrained by the lack of an enabling legal framework or the administrative infrastructure to enforce and flexibly adjust them, or by international obligations.
- Accumulated resident-held foreign asset positions may increase resilience to adverse foreign appetite shocks and mitigate the need to use inflow CFMs during surges.
- Domestic financial market development—beyond FX market depth—may be important for determining the need to use CFMs and CFM/MPMs.

## BENEFITS OF CAPITAL FLOWS: RECENT EVIDENCE

**4. Capital flows offer many direct benefits for source and recipient economies.** Recent empirical literature, building on methodological advances and new data, has documented these benefits more clearly.<sup>1</sup> Capital flows allow for a more efficient global allocation of resources, by letting capital move from where it is less productive to where it is more productive, benefitting both source and recipient countries ([Reinhardt and others, 2013](#); [Desai and others, 2009](#)). Capital flows can lower financing costs, incentivize technology upgrades, improve the allocation of resources across firms, and improve efficiency in production, thereby boosting aggregate productivity ([Bau and Matray, 2020](#); [Varela, 2017](#); [Larrain and Stumpner, 2017](#); [Li and Su, 2020](#)). Foreign direct investment, in addition, boosts efficiency in production through technology transfer, and greater innovation and competition, while contributing to greater resilience of enterprises during crises ([Alfaro and Chen, 2012](#); [Alfaro and Chen, 2018](#); [Guadalupe and others, 2012](#); [Gorodnichenko and others, 2010](#)). Capital flows also permit greater risk-sharing between countries, allowing countries to smooth consumption through international borrowing and lending ([Rangvid and others, 2016](#); [Islamaj and Kose \(2016\)](#); [Kalemli-Ozcan and others, 2013](#); [Evans and Hnatkovska, 2014](#); [Maggiore, 2017](#)).

**5. These benefits of capital flows stem not only from FDI flows to non-financial sectors, but also from portfolio and debt flows, as well as foreign bank presence (CGFS, 2021).** Stock market liberalization and greater portfolio inflows have been found to contribute to higher real wage growth in the manufacturing sector, as well as greater investment and GDP growth ([Chari and others, 2012](#); [Ferreira and Laux, 2009](#); [Colombo and others, 2018](#)). Banks with access to foreign borrowing, particularly larger and more capitalized banks, can take advantage of easier credit conditions abroad to increase local credit supply, which benefits high-productivity firms ([Baskaya and others, 2017](#); [Cingano and Hassan, 2020](#)). The presence of foreign bank subsidiaries can alleviate financial constraints and facilitate economic growth and exports ([Bruno and Hauswald, 2014](#); [Claessens and van Horen, 2021](#)). It can also provide a source of FX liquidity and help stabilize credit provision during crises ([Correa and others, 2020](#); [IMF 2015](#); [Buch and Goldberg, 2020](#)).

**6. Capital flows also have indirect or collateral benefits.** Capital flows can help increase the depth and liquidity of securities markets, and promote the overall development of domestic capital markets. Greater foreign institutional ownership leads to significant increases in innovation, more informationally-efficient stock prices in emerging markets, and improvements in stock liquidity ([Aghion and others, 2013](#); [Bena and others, 2017](#); [Bae and others, 2012](#); [He and others, 2013](#); [Ng and others, 2016](#); [Liu and others, 2020](#)). Financial liberalization can also enhance corporate governance in response to foreign competition and demands from international investors ([Aggarwal and others, 2011](#); [Ferreira and others, 2010](#); [Leuz and others, 2008](#)). The presence of foreign bank subsidiaries in a country can improve the quality of its financial services by exposing

<sup>1</sup> Recent literature on capital flows has made use of novel firm-level datasets, improved measures of capital controls, as well as identification strategies to control for endogeneity, e.g., propensity score methods or natural experiments.

domestic banks to greater competition, while banks' foreign expansion can provide diversification and reduce individual and systemic risks to home countries ([Faia and others, 2019](#)).

**7. Country characteristics determine the extent to which a country benefits from capital flows.** Countries with stronger institutions and domestic policy frameworks are able to attract a greater share of safer capital flows (FDI, equity flows, and local currency and longer-term debt), experience a lower volatility in these flows around periods of political uncertainty, and reap greater growth benefits overall ([Wei and Zhou, 2018](#); [Julio and Yook, 2016](#); [Igan and others, 2020](#); [Ju and Wei, 2010](#); [Engel and Park, 2018](#); [Hale and others, 2020](#); [Montiel, 2020](#)). Countries with weaker institutions are typically less diversified internationally, reducing risk-sharing benefits ([Mukherjee, 2015](#)). Countries with less developed financial markets and tighter credit constraints experience greater volatility in private investment and consumption responses to exogenous uncertainty shocks ([Carriere-Swallow and Cespedes, 2013](#)).

## THE CASE FOR CFMS AND CFM/MPMS TO MANAGE RISKS FROM CAPITAL FLOWS

**8. Capital flows also pose risks, which are amplified by domestic and international frictions and can generate a useful role for CFMs or CFM/MPMs.** The risks include heightened macroeconomic volatility and vulnerability to crises, as a financially open economy would be more exposed to external shocks, and to shifts in foreign investor sentiment. A recent literature has highlighted the increasing role of a global financial cycle in asset prices and/or capital flows that is driven by monetary policy in a center country ([Rey, 2013](#); [Banerjee and others, 2015](#)).<sup>2</sup> This can contribute to macroeconomic volatility, particularly in economies with weak monetary policy credibility ([Carrière-Swallow and others, 2021](#); [Jotikasthira and others, 2012](#)). The literature finds that fixed exchange rate regimes are more sensitive to center country conditions and experience greater negative real effects of contractionary global credit supply shocks than flexible exchange rate regimes ([Aizenman and others, 2016](#); [Klein and Shambaugh, 2015](#); [Obstfeld and others, 2019](#); [Zeev, 2019](#)). In the presence of frictions in domestic and international financial markets (including weaknesses in domestic financial regulation and supervision), capital flows can also fuel the buildup of systemic vulnerabilities, in the form of excessive leverage and asset price inflation, FX mismatches in the stock of debt, as well as liquidity risks when flows are short-term, increasing the risks of costly reversals ([Gelos and others, 2019](#); [Morais and others, 2018](#); [Mian and others, 2017](#); [Benigno and others, 2016](#); [Du and others, 2020](#)).<sup>3</sup>

<sup>2</sup> On the other hand, [Forbes and Warnock \(2020\)](#) find that extreme capital flow episodes have not become more frequent since the global financial crisis and they are less correlated with changes in global risk. [Cerutti and others \(2017\)](#) also find limited evidence of a global financial cycle in capital flows. Separately, recent literature has found evidence of spillovers from emerging market monetary policy to US credit supply during COVID-19 ([Spiegel, 2021](#)).

<sup>3</sup> Recent papers have also explored alternative frictions. For example, [Ma and Wei \(2020\)](#) model endogenous composition of capital flows, whereby poor institutional quality leads to an inefficiently low share of equity financing relative to debt and inefficiently high total inflows.

## A. CFMs for Macroeconomic Management

**9. Inflow CFMs can enhance monetary autonomy in countries with shallow FX markets in certain circumstances** ([Basu and others, 2020](#) aka the IPF conceptual model; [IMF, 2020b](#)). In the IPF conceptual model, a positive foreign appetite shock (i.e., a non-fundamental and transitory shock unrelated to domestic conditions) leads to a surge in local currency inflows and a reduction in the uncovered interest parity (UIP) premia in countries with a shallow FX market, which in turn can spur overborrowing. A combination of inflow CFMs (to counter the surge and further borrowing) and FXI (to counter the change in the UIP premia) is a more effective response than changing the policy rate, under both dominant currency pricing (DCP) and producer currency pricing (PCP). Inflow CFMs and FXI can then help stabilize domestic aggregate demand, and allow monetary policy to focus on addressing domestic sources of price pressures.

**10. Constraints on monetary policy can strengthen the case for FXI and CFMs in countries with shallow FX markets.** In countries where medium-term inflation expectations may be poorly anchored, these expectations may be destabilized by the pass-through from an appreciation, worsening the tradeoff between inflation and output stabilization. In such circumstances, countercyclical use of FXI and CFMs can improve the output-inflation tradeoffs faced by monetary policy ([Adrian and others, 2020](#) aka the IPF quantitative model; [IMF 2020b](#); [Coulibaly, 2018](#)). The presence of a liquidity trap or fixed exchange rate regime could also justify the use of CFMs for macroeconomic management as the economy cannot fully adjust through use of monetary policy alone ([Korinek and Simsek, 2016](#); [Schmitt-Grohe and Uribe, 2016](#)).

**11. Inflow surges can magnify existing real or financial frictions, creating another potential case for CFMs.** A reallocation of resources away from tradable sectors driven by currency appreciation during surges can be costly when the tradeable sector has important learning-by-doing externalities that are not internalized by agents ([Yepez, 2021](#)). Further, when the degree of financial frictions differs across sectors, inflow surges can overheat the sector with lower frictions, crowding out liquidity from the sector with more frictions, and potentially lead to a misallocation of resources, for example, over-investment in the real estate sector ([Bleck and Liu, 2018](#)). This can lead to a self-reinforcing spiral because of feedback effects between liquidity inflows, asset prices and collateral values. It could potentially also lead to irreversible destruction of sectors with tighter financial constraints ([Caballero and Lorenzoni, 2014](#)).

## B. CFMs/MPMs for Managing the Financial Stability Risks from Capital Flows

**12. Capital inflow surges are associated with a greater probability of future banking crises, in countries that see a buildup of macro-financial vulnerabilities in boom times** ([Caballero, 2014](#); [Ghosh and others, 2016](#)). The early warning literature finds that increases in the ratio of a broad measure of credit (including bank, non-bank, and foreign sources) to GDP relative to its trend (known as the credit gap), is the single most powerful predictor of banking crises in advanced and

emerging markets ([Drehmann and Tsatsaronis, 2014](#); [IMF, 2014](#)).<sup>4</sup> Capital inflow surges, especially when composed of offshore borrowing and associated with appreciation in exchange rates, contribute to increases in the credit gap, justifying the use of MPMs as well as potentially CFM/MPMs ([Fendoglu, 2017](#); [Nier and others, 2020](#); [IMF, 2017](#)). Surges in inflows can also be associated with increases in wholesale-funded credit, heightening liquidity risks. This is found to be the case in particular in countries where the supervisory and regulatory environment is weak, underlining the case for strengthening these aspects ([Merrouche and Nier, 2017](#)). During surges, countries with less flexible exchange rate regimes experience a greater expansion in bank credit, and a shift towards credit in FX, suggesting that they are likely to benefit relatively more from CFM/MPMs during these episodes ([Magud and Vesperoni, 2015](#)).

**13. Capital inflow surges can fuel housing booms and domestic leverage, giving rise to a feedback loop.** Empirical studies find that mortgage leverage and housing booms increase financial fragility and that capital flows have been an important driver of housing vulnerabilities in advanced as well as emerging market economies ([Jorda and others, 2015](#); [Badarinsa and Ramodarai, 2018](#); [Gorback and Keys, 2020](#)). As real estate lending is backed by (non-tradable) real estate assets as collateral, a pecuniary externality arises when agents do not consider the impact of their borrowing decisions on the value of the collateral ([Basu and others, 2020](#); [Bianchi and Mendoza, 2020](#)). This can lead to a feedback loop between credit and house prices, and create vulnerabilities to reversals, both when inflows into real estate markets take the form of direct purchases by non-residents as well as borrowing from abroad.

**14. When high debt stocks give rise to systemic vulnerabilities, primarily FX mismatches, this may justify the use of preemptive CFM/MPMs** ([Basu and others, 2020](#) aka IPF conceptual model; [IMF, 2020b](#)).<sup>5</sup> The IPF conceptual model emphasizes that private agents in an open economy may overborrow in FX because they do not internalize the impact of their decisions on the future market stress that can arise when foreign lending conditions tighten, currencies depreciate, and balance sheets weaken. Using CFM/MPMs before the negative shock hits (i.e., preemptively) can moderate further borrowing in FX and reduce financial stability risks stemming from FX mismatches. Empirically, a high existing stock of external debt liabilities in FX increases the likelihood of a sovereign external debt default, debt restructuring, or an IMF program, particularly in emerging and developing economies, and is associated with higher output losses during such episodes, while high stocks of those external debt liabilities which are likely to be short-term or in FX are among the strongest predictors of capital inflow reversal episodes which have a large growth impact ([IMF, 2021a](#); [IMF, 2020c](#)).<sup>6</sup>

<sup>4</sup> Similarly, [Gourinchas and Obstfeld \(2012\)](#) find that the two most important predictors of crises, for advanced and emerging economies alike, and across a range of definitions for crisis events, are credit growth and real appreciation.

<sup>5</sup> See also [Farhi and Werning \(2016\)](#), [Korinek \(2018, 2020\)](#), [Bianchi \(2011\)](#), [Korinek and Mendoza \(2014\)](#), [Benigno et al. \(2016\)](#), [Brunnermeier and Sannikov \(2015\)](#), [Korinek and Sandri \(2018\)](#), [Erten et al. \(2019\)](#) and the papers surveyed in [Rebucci and Ma \(2019\)](#).

<sup>6</sup> External debt liabilities are strong predictors of external stress irrespective of the currency denomination when both advanced and emerging markets are considered ([IMF, 2020c](#)).



**15. The case for preemptive CFM/MPMs is strongest when the remaining maturity of FX debt is short term.** When there is a mismatch between short-term FX liabilities and FX liquid assets, it exposes borrowers to rollover risk, which can compound the solvency pressures on agents from a depreciation ([Hur and Kondo, 2016](#); [IMF, 2017](#); [Brunnermeier and Sannikov, 2015](#)).<sup>7</sup> In line with this, empirically, external crisis risks tend to increase more strongly with short-term and maturing external debt ([Basu and others, 2020](#)). Where the risk of default is greater, short-term borrowing can arise endogenously, and can increase the risk of fire sales and premature liquidation of assets, thereby ultimately increasing volatility of output, investment, and total factor productivity ([Benmelech and Dvir, 2013](#); [Brunnermeier and Oehmke, 2012](#); [Bocola and Lorenzoni, 2020](#); [Converse, 2018](#)).

**16. While MPMs play the primary role in reducing systemic vulnerabilities, CFM/MPMs can have a complementary role.** The literature finds that MPMs can have sizable effects in reducing systemic vulnerabilities, thereby reducing tail risks to output ([Brandao and others, 2020](#)). However, there is evidence that the use of MPMs on domestic lending increases cross-border borrowing (borrowing directly from abroad or from foreign branches), justifying a complementary use of residency-based measures to contain such “leakage” in certain circumstances. ([Nier and others, 2020](#); [Ahnert and others, 2020](#)).

## CONSIDERATIONS THAT CAUTION AGAINST THE USE OF CFMS AND CFM/MPMS

**17. Several considerations caution against CFMs and CFM/MPMs.** The recent literature and experience in using the tools suggest several considerations that argue for a limited use of CFMs and CFM/MPMs, only under the well-described circumstances described in the IV and this review.

**18. CFMs and CFM/MPMs can distort productive investments, hinder competition, and disproportionately burden smaller firms.** Such measures can distort resource allocation across firms and reduce aggregate productivity ([Andreasen and others, 2019](#); [Andreasen and others, 2021](#)). They may also have effects on market structure and competition that hinder investment in technology ([Varela, 2017](#)). The controls can disproportionately burden smaller and external finance dependent firms ([Alfaro and others 2017](#)). For these firms, alternative forms of financing (e.g., issuing international depository receipts) are also relatively more expensive, since they have less established reputations. They may also be affected more if the controls reduce the bank financing that these firms rely on ([Forbes, 2007](#)). While an increase in borrowing costs will to some extent be an intended effect of imposing CFMs, such differential impacts across the cross-section of firms can add to the costs of CFMs, as small and medium enterprises are a significant source of job growth and investment in many countries.

<sup>7</sup> [Bleakley and Cowan \(2010\)](#) use balance sheet data from publicly listed firms in emerging markets and do not find an impact of maturity mismatch on firm investment during sudden stops but do find that firms exposed to short-term debt pay higher financing costs.

**19. CFMs and CFM/MPMs can create incentives for rent-seeking and corruption.** CFMs and CFM/MPMs can create interest groups that benefit or lose from the use of these tools, and thereby encourage rent-seeking and corruption, for example, trade mis-invoicing or bribery ([Das and Biswas, 2020](#)). These adverse effects may be larger in countries with greater political fragmentation ([Chanda, 2005](#)), and there is some evidence that countries with more corrupt bureaucracies are more likely to impose capital controls ([Wei and Bai, 2016](#)).

**20. Reliance on CFMs and CFM/MPMs may reduce the impetus for reform and perpetuate the frictions that necessitate their use.** Depending on their design and frequency of use, CFMs or CFM/MPMs can hinder development of domestic FX and local currency securities markets, perpetuating the frictions that necessitate their use ([Aghion and others, 2013](#); [Bena and others, 2017](#); [Bae and others, 2012](#); [He and others, 2013](#); [Ng and others, 2016](#); [Liu and others, 2020](#)).<sup>8</sup> Reliance on CFMs or CFM/MPMs can also reduce the urgency of reforms to increase the reliance on and depth of these markets, or even of fiscal frameworks (e.g., if CFMs are designed as taxes and bring in revenue) ([Aizenman and Pasricha, 2013](#); [Reinhardt and Sbrancia, 2015](#)). CFMs or CFM/MPMs can also be used to substitute or delay warranted macroeconomic adjustment more broadly.

**21. CFMs and CFM/MPMs may reduce the longer-term attractiveness of the country to investors, especially if they are poorly designed or communicated.** Such measures could generate adverse market reactions, affecting future willingness to invest, if they are interpreted as an “anti-investor bias” of the government. Such adverse reactions are more likely if CFMs or CFM/MPMs are seen to substitute for warranted macroeconomic and policy adjustments, and less likely when the proper objectives of CFMs and CFM/MPMs are well communicated ([Forbes and others, 2016](#)). Investors tend to invest less in countries with less transparency and weak investor protection. Countries may therefore need to consider the impact of frequent reliance on CFMs or CFM/MPMs on the longer-term attractiveness of the country to investors.

**22. CFMs and CFM/MPMs can generate significant compliance costs as well as policy uncertainty, which may be compounded by frequent changes.** Depending on the design of the CFMs, compliance costs can be significant both for the businesses affected and the banks and other financial institutions that facilitate the implementation of CFMs. For instance, financial institutions required to verify compliance often must build up complex systems to support the implementation of the CFMs, increasing their operating cost and reducing their profitability and competitiveness. Frequent changes in such measures can create additional compliance costs for firms needing to keep abreast of new or frequently changing regulations as well as policy uncertainty. Transparency about the overall policy strategy could help mitigate such costs and uncertainty, as is the case for macroprudential tools (IMF, 2014). Nevertheless, the potential adjustment costs for the financial and productive sectors argue for a more limited use of CFMs, i.e., only in well-defined circumstances.

**23. The costs of CFMs and CFM/MPMs increase the broader the measures are and the longer they remain in place, calling for caution in the use of CFMs for macroeconomic**

<sup>8</sup> If financial integration exceeds financial deepening, capital flows are more likely to be misallocated ([Reis, 2013](#)).

**management, and for periodic reassessments of CFM/MPMs.** CFMs used for macroeconomic management may need to be broader in scope, since leakages can shift the type of flows subject to a surge in foreign demand. A broad application can, in turn, increase the likely costs from a distortion of resource allocation, implying relatively greater costs for CFMs than for CFM/MPMs that can often be more targeted. However, inflow CFM/MPMs they may need to stay in place longer than inflow CFMs used for macroeconomic management. The longer CFMs or CFM/MPMs are being kept in place, the more likely that the interest of the groups that benefit from the CFMs and the structures to evade CFMs become entrenched. This increases the distortive costs of controls that stay in place for an extended period and argues for a periodic assessment of benefits and costs, as envisaged in this review.

**24. CFM/MPMs may need to be complemented with other policies to reduce frictions and reliance on these measures in the long run.** A preference on the part of private agents to borrow in FX often has deeper structural causes, and is likely to persist if these factors are left unaddressed ([Levy-Yeyati, 2021](#)). Consideration should therefore be given to complementing the policy approach with other structural and financial policies that can help reduce incentives to borrow in FX, as envisaged in this review. These policies could include, for example, developing domestic financial systems, including local currency securities and hedging markets, monetary and fiscal frameworks, crisis preparedness and the lender-of-last-resort function of central banks ([Hale and others, 2020](#); [IMF, 2021b](#); [Hofman and others, 2021](#)).

**25. The use of inflow CFMs or CFM/MPMs to manipulate the terms of trade can have adverse beggar-thy-neighbor spillovers and reduce global welfare, justifying caution in the use of these tools.** The empirical literature suggests that trade competitiveness motivations remain relevant in the use of CFMs, and that inflow controls can increase the trade surplus or the persistence of undervaluation ([Choi and Taylor, 2017](#); [Montecino, 2018](#); [Pasricha, 2020](#)). This evidence underscores the need to avoid the use of inflow CFMs for trade competitiveness motivations.<sup>9</sup> The literature lends support to the notion that it is prudent to consider the use of CFMs during surges appropriate only when the currency is overvalued, as in the IV, and to weigh carefully the additional considerations proposed in this review for the appropriateness of preemptive CFM/MPMs that could lead to or exacerbate an existing undervaluation.

## CONSIDERATIONS THAT CAN INFORM THE USE OR DESIGN OF CFMS AND CFM/MPMS

**26. Structural characteristics of a country can constrain the use of CFMs and CFM/MPMs or inform their design.** Experience suggests that the decision to use CFMs and CFM/MPMs can depend on circumstances outside of those under which they are considered appropriate under the

<sup>9</sup> Additional metrics have been proposed in the literature to assess whether the measures were taken with trade competitiveness or financial stability motivations ([Pasricha, 2020](#)).

IV. Some of those characteristics can reduce the need to use these tools, while others, such as the ability to enforce tools, can inform the design of the tool.

**27. The imposition of CFMs and CFM/MPMs requires an administrative infrastructure, with attendant costs.** Countries need to have an infrastructure in place to impose controls, monitor and enforce them, and to plug leakages. For countries that do not have this administrative infrastructure, establishing it can be onerous to such an extent that it outweighs the benefits of the measure. In particular, to implement CFMs in response to changing macroeconomic conditions, countries need to have legislation in place that allows a designated authority to flexibly introduce and adjust them to maintain their effectiveness. The enforcement of the controls themselves may also entail significant administrative costs for the authorities and compliance costs for the targeted sectors, as noted above.

**28. Enforcement considerations can also inform choices across specific tools:**

- *Price-based vs. other tools:* While price-based controls are more transparent, countries generally use the tools that are already in their arsenal and for which the power to deploy exists in their legal frameworks. For instance, even when a tax-like CFM is desirable on economic grounds, it may be difficult to put it in place, or to change it with changing economic conditions, in countries where such changes can only take place through primary legislation. URRs are easier to implement for the central bank, but calibrating them effectively may be a challenge. Countries may also prefer to use those tools that have been used before, as agents assisting in compliance (e.g., banks) would be familiar with the implementation aspects, reducing the cost of implementation.
- *Targeted vs. broad-based tools:* Targeted controls may be less distortionary and have fewer unintended consequences than broad-based measures. However, targeted measures may be subject to leakages, especially where the financial system is relatively well-developed, which may necessitate broadening their coverage, in turn increasing the associated distortions ([Ostry and others, 2011](#)).

**29. International obligations and prior experiences may prevent countries from implementing CFMs even when they are appropriate under the IV.** For instance, where a country has committed to the OECD Codes of Liberalization or other international agreements, using CFMs for purposes of macroeconomic management may be constrained. Other countries may have had prior negative experiences with CFMs that reduce their willingness to use these tools.

**30. Accumulated resident-held foreign asset positions increase the resilience to adverse foreign appetite shocks and can mitigate the need to use inflow CFMs during surges.** When residents can accumulate foreign assets in periods of global booms and liquidate them in periods of global stress, this can mitigate the impact of gross inflow reversals on net capital inflows and on output and employment ([Agosin and others, 2019](#); [Broner and others, 2013](#); [Goel and Miyajima, 2021](#)). Resident flows appear to have acted as a shock-absorber rather than as a shock-amplifier even in emerging markets during the global financial crisis ([IMF WEO, 2013](#)). Further, movements in

gross flows can affect exchange rates and monetary policy autonomy without a change in net flows, for example, if the order flow matters.<sup>10</sup> Therefore, countries with larger and more liquid resident foreign asset positions may not see an emergence of distortions even in response to foreign appetite shocks, or may have less need to tighten inflow CFMs during surges.

**31. Domestic financial market development—beyond FX market depth—is important for determining the need to use CFMs.** Where domestic securities markets are better developed, they can mitigate the price impact of foreign appetite shocks and hence the need to use CFMs in response to these shocks (IMF, 2014b). More developed financial markets in local currency instruments can also reduce currency mismatches ([Caballero and Krishnamurthy, 2003](#)). In particular, the development of a local investor base for local currency bonds can help cushion shocks. Using a capital-flows-at-risk framework, deeper domestic financial markets have been found to improve the outlook for both FX and local currency portfolio inflows and significantly limit the likelihood of negative or weak flows ([IMF, 2020a](#)).

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<sup>10</sup> [Pasricha and others \(2018\)](#) find that capital controls matter mostly for gross flows and not for their net movement, but nevertheless affects exchange rates and monetary policy autonomy. On the impact of order flows and expectations on exchange rates, see [Fan and Lyons \(2003\)](#), [Evans and Lyons \(2002\)](#) and [Gyntelberg and others \(2018\)](#).

## References

- Adrian, T., Erceg, C., Linde, J., Zabczyk, and P., Zhou, J., 2020. "A Quantitative Model for the Integrated Policy Framework," IMF Working Paper No. 20/122, International Monetary Fund, Washington, D.C.
- Aghion, P., Van Reenen, and J., Zingales, L., 2013. "Innovation and Institutional Ownership," *American Economic Review*, vol. 103, no. 1, pp. 227-304.
- Aggarwal, R., Erel, I., Ferreira, M., and Matos, P., 2011. "Does Governance Travel Around the World? Evidence from Institutional Investors," *Journal of Financial Economics*, vol. 100, issue 1, pp. 154-181.
- Agosin, M., Dias, J., and Karnani, M., 2019. "Sudden Stops of Capital Flows: Do Foreign Assets Behave Differently from Foreign Liabilities?" *Journal of International Money and Finance*, vol. 96, pp. 28-36.
- Ahnert, T., Forbes, K., Friedrich, C., and Reinhardt, D., 2021. "Macroprudential FX Regulations: Shifting the Snowbanks of FX Vulnerability?" *Journal of Financial Economics*, vol. 140, issue 1, pp. 145-174.
- Aizenman, J., Chinn, M., and Ito, H., 2016. "Monetary Policy Spillovers and the Trilemma in the New Normal: Periphery Country Sensitivity to Core Country Conditions," *Journal of International Money and Finance*, vol. 68, pp. 298-330.
- Aizenman, J. and Pasricha, G.K., 2013. "Why do emerging markets liberalize capital outflow controls? Fiscal versus net capital flow concerns," *Journal of International Money and Finance*, Elsevier, vol. 39(C), pages 28-64.
- Alfaro, L., Chari, A., and Kanczuk, A., 2017. "The Real Effects of Capital Controls: Firm-Level Evidence from a Policy Experiment," *Journal of International Economics*, vol. 108, issue C, pp. 191-210.
- Alfaro, L., and Chen, M., 2012. "Surviving the Global Financial Crisis: Foreign Ownership and Establishment Performance," *American Economic Journal: Economic Policy*, vol. 4, no. 3, pp. 30-55.
- Alfaro, L., and Chen, M., 2018. "Selection and Market Reallocation: Productivity Gains from Multinational Production," *American Economic Journal: Economic Policy*, vol. 10, no. 2, pp. 1-38.
- Andreasen, E., Bauducco, S., and Dardati, E., 2019. "Capital Controls and Firm Performance," Working Papers of Central Bank of Chile, no. 852, Central Bank of Chile, Santiago.

- Andreasen, E., Bauducco, S., and Dardati, E., 2021. "Beware the Side Effects: Capital Controls Cause Misallocation and Reduce Welfare," Paper presented at conference "S1 2021 International Finance & Macroeconomics" Sponsored by NBER, Cambridge, MA.
- Badarinza, C., and Ramadorai, T., 2018. "Home Away from Home? Foreign Demand and London House Prices," *Journal of Financial Economics*, vol. 130, issue 3, pp. 532-555.
- Bae, K. H., Ozoguz, A., Tan, H., and Wirjanto, T., 2012. "Do Foreigners Facilitate Information Transmission in Emerging Markets?" *Journal of Financial Economics*, vol. 105, issue 1, pp. 209-227.
- Banerjee, R., Devereux, M., Lombardo, G., 2015. "Self-Oriented Monetary Policy, Global Financial Markets and Excess Volatility of International Capital Flows," NBER Working Paper 21737, National Bureau of Economic Research, Inc., Cambridge, MA.
- Baskaya, Y., di Giovanni, J., Kalemli-Özcan, S., Peydró, J. L., and Ulu, M., 2017. "Capital Flows and the International Credit Channel," *Journal of International Economics*, vol. 108, supp. 1, pp. S15-S22.
- Bau, N., and Matray, A., 2020. "Misallocation and Capital Market Integration: Evidence from India," NBER Working Paper 27955, National Bureau of Economic Research, Inc., Cambridge, MA.
- Basu, S., Boz, E., Gopinath, G., Roch, F., and Unsal, F., 2020. "A Conceptual Model for the Integrated Policy Framework," IMF Working Paper No. 12/21, International Monetary Fund, Washington, D.C.
- Bena, J., Ferreira, M., Matos, P., and Pires, P., 2017. "Are Foreign Investors Locusts? The Long-Term Effects of Foreign Institutional Ownership," *Journal of Financial Economics*, vol. 126, issue 1, pp. 122-146.
- Benigno, G., Chen, H., Trok, C., Rebucci, A., and Young, E., 2016. "Optimal Capital Controls and Real Exchange Rate Policies: A Pecuniary Externality Perspective," NBER Working Paper 22224, National Bureau of Economic Research, Inc., Cambridge, MA.
- Benmelech, E., and Dvir, E., 2013. "Does Short-Term Debt Increase Vulnerability to Crisis? Evidence from the East Asian Financial Crisis," *Journal of International Economics*, vol. 89, issue 2, pp. 485-494.
- Bianchi, J., 2011. "Overborrowing and Systemic Externalities in the Business Cycle," *American Economic Review*, vol. 101, no. 7, pp. 3400-3426.
- Bianchi, J., and Mendoza, E., 2020. "A Fisherian Approach to Financial Crises: Lessons from the Sudden Stops Literature," *Review of Economic Dynamics*, vol. 37, supp. 1, pp. S254-S283.



- Bleakley, H., and Cowan, K., 2010. "Maturity Mismatch and Financial Crises: Evidence from Emerging Market Corporations," *Journal of Development Economics*, vol. 93, issue 2, pp. 189-205.
- Bleck, A., and Liu, X., 2018. "Credit Expansion and Credit Misallocation," *Journal of Monetary Economics*, vol. 94, pp. 27-40.
- Bocola, L., and Lorenzoni, G., 2020. "Financial Crises, Dollarization, and Lending of Last Resort in Open Economies," *American Economic Review*, vol. 110, no. 8, pp. 2524-2557.
- Brandao-Marques, L., Gelos, R. G., Narita, M., Nier, E., 2020. "Leaning Against the Wind: A Cost-Benefit Analysis for an Integrated Policy Framework" IMF Working Paper No. 20/123, International Monetary Fund, Washington, D.C.
- Broner, F., Didier, T., Erce, A., and Shmuckler, S., 2013. "Gross Capital Flows: Dynamics and Crises," *Journal of Monetary Economics*, vol. 60, issue 1, pp. 113-133.
- Bruno, V., and Hauswald, R., 2014. "The Real Effect of Foreign Banks," *Review of Finance*, vol. 18, issue 5, pp. 1683-1716.
- Brunnermeier, M., and Oehmke, M., 2012. "The Maturity Rat Race," *The Journal of Finance*, vol. 68, issue 2, pp. 483-521.
- Brunnermeier, M., and Sannikov, Y., 2015. "International Credit Flows and Pecuniary Externalities," *American Economic Journal: Macroeconomics*, vol. 7, no. 1, pp. 297-338.
- Buch, C., and Goldberg, L., 2020. "Global Banking: Toward and Assessment of Benefits and Costs," *Annual Review of Financial Economics*, vol. 12, pp. 141-175.
- Caballero, J., 2014. "Do Surges in International Capital Inflows Influence the Likelihood of Banking Crises," *The Economic Journal*, vol. 126, issue 591, pp. 281-316.
- Caballero, R. J., and Krishnamurthy, A., 2003. "Excessive Dollar Debt: Financial Development and Underinsurance," *Journal of Finance*, vol. 58, issue 2, pp. 867-893.
- Caballero, R. J., and Lorenzoni, G., 2014. "Persistent Appreciations and Overshooting: A Normative Analysis," *IMF Economic Review* vol. 62, no. 1, pages 1-47, April., Palgrave Macmillan; International Monetary Fund.
- Carrière-Swallow, Y., and Céspedes, L. F., 2013. "The Impact of Uncertainty Shocks in Emerging Economies," *Journal of International Economics*, vol. 90, issue 2, pp. 316-325.

- Carrière-Swallow, Y., Gruss, B., Magud, N., and Valencia, F., 2021. "Monetary Policy Credibility and Exchange Rate Pass-Through," *International Journal of Central Banking*, vol. 17, no. 3, pp. 61-94.
- Cerutti, E., Claessens, S., and Rose, A., 2017. "How Important is the Global Financial Cycle? Evidence from Capital Flows," BIS Working Papers No. 661, Bank for International Settlements, Basel.
- Chanda, A., 2005. "The Influence of Capital Controls on Long Run Growth: Where and How Much?" *Journal of Development Economics*, vol. 77, issue 2, pp. 441-466.
- Chari, A., Henry, P., and Sasson, D., 2012. "Capital Market Integration and Wages," *American Economic Journal: Macroeconomics*, vol. 4, no. 2, pp. 102-132.
- Choi, W., and Taylor, A., 2017. "Precaution Versus Mercantilism: Reserve Accumulation, Capital Controls, and the Real Exchange Rate," NBER Working Papers 23341, National Bureau of Economic Research, Inc., Cambridge, MA.
- Cingano, F., and Hassan, F., 2020. "International Financial Flows and Misallocation," CEP Discussion Paper No 1697, Center for Economic Performance, London.
- Claessens, S., and van Horen, N., 2021. "Foreign Banks and Trade," *Journal of Financial Intermediation*, no. 100856, vol. 44.
- Colombo, J., Loncan, T., and Caldeira, J., 2018. "Do Foreign Portfolio Capital Flows Affect Domestic Investments? Evidence from Brazil," *International Journal of Finance & Economics*, vol. 24, issue 2, pp. 855-883.
- Committee on the Global Financial System (CGFS), 2021. "Changing Patterns of Capital Flows," CGFS Papers, Bank for International Settlements, Basel.
- Converse, N., 2018. "Uncertainty, Capital Flows, and Maturity Mismatch," *Journal of International Money and Finance*, vol. 88, pp. 260-275.
- Correa, R., Du, W., and Liao, G., 2020. "U.S. Banks and Global Liquidity" NBER Working Paper 27491, National Bureau of Economic Research, Inc., Cambridge, MA.
- Coulibaly, L., 2018. "Monetary Policy in Sudden Stop-Prone Economies," *Emerging Markets Economics: Macroeconomic Issues & Challenges eJournal*.
- Das, S., Biswas, A., 2020. "Trade Mis-Invoicing Between India & USA: An Empirical Exercise," *Foreign Trade Review*, vol. 56.

- Desai, M., Foley, C. F., and Hines, J., 2009. "Domestic Effects of the Foreign Activities of US Multinationals," *American Economic Journal: Economic Policy*, vol. 1, no. 1, pp. 181-203.
- Drehmann, M., and Tsatsaronis, K., 2014. "The Credit-to-GDP and Countercyclical Capital Buffers: Questions and Answers," *BIS Quarterly Review*, March, Bank for International Settlements, Basel.
- Du, W., Pflueger, C., and Schreger, J., 2020. "Sovereign Debt Portfolios, Bond Risks, and the Credibility of Monetary Policy," *The Journal of Finance*, vol. 75, issue 6, pp. 3097-3138.
- Engel, C., and Park, J., 2019. "Debauchery and Original Sin: The Currency Composition of Sovereign Debt," NBER Working Paper 24671, National Bureau of Economic Research, Inc., Cambridge, MA.
- Erten, B., Korinek, A., and Ocampo, J. A., 2019. "Capital Controls: Theory and Evidence," NBER Working Paper 26447, National Bureau of Economic Research, Inc., Cambridge, MA.
- Evans, M., and Lyons, R., 2002. "Order Flow and Exchange Rate Dynamics," *Journal of Political Economy*, vol. 110, no. 1, pp. 170-180.
- Evans, M., and Hnatkovska, V., 2014. "International Capital Flows, Returns and World Financial Integration," *Journal of International Economics*, vol. 92, issue 1, pp. 14-33.
- Faia, E., Laffitte, S., and Ottaviano, G., 2019. "Foreign Expansion, Competition, and Bank Risk," *Journal of International Economics*, vol. 118, pp. 179-199.
- Fan, M., and Lyons, R., 2003. "Customer Trades and Extreme Events in Foreign Exchange," in *Monetary History, Exchange Rates and Financial Markets*, Chapter 6, ed by Paul Mizen, Edward Elgar Publishing, Cheltenham, United Kingdom.
- Farhi, E., and Werning, I., 2016. "A Theory of Macroprudential Policies in the Presence of Nominal Rigidities" *Econometrica*, vol. 84, issue 5, pp. 1645-1704.
- Fendođlu, S., 2017. "Credit Cycles and Capital Flows: Effectiveness of the Macroprudential Policy Framework in Emerging Market Economies," *Journal of Banking & Finance*, vol. 79, pp. 110-128.
- Ferreira, M., and Laux, P., 2009. "Portfolio Flows, Volatility and Growth" *Journal of International Money and Finance*, vol. 28, pp. 271-292,
- Ferreira, M., Massa, M., and Matos, P., 2010. "Shareholders at the Gate? Institutional Investors and Cross-Border Mergers and Acquisitions," *The Review of Financial Studies*, vol. 23, issue 2, pp. 601-644.

- Forbes, K., 2007. "One Cost of the Chilean Capital Controls: Increased Financial Constraints for Smaller Traded Firms," *Journal of International Economics*, vol. 71(2), pp. 294-323.
- Forbes, K., Fratzscher, M. & Kostka, T., and Straub, R., 2016. "Bubble Thy Neighbour: Portfolio Effects and Externalities from Capital Controls," *Journal of International Economics*, vol. 99, pp. 85-104.
- Forbes, K., and Warnock, F., 2020. "Capital Flow Waves—or Ripples? Extreme Capital Flow Movements Since the Crisis," NBER Working Paper 26851, National Bureau of Economic Research, Inc., Cambridge, MA.
- Gelos, R. G., Gornicka, L., Koepke, R., Sahay, R., and Sgherri, S., 2019. "Capital Flows at Risk: Taming the Ebbs and Flows" IMF Working Paper No. 19/279, International Monetary Fund, Washington, D.C.
- Ghosh, A. R., Ostry, J., and Qureshi, M., 2016. "When do Capital Inflow Surges End in Tears?" *American Economic Review*, vol. 106, no. 5.
- Goel, R., and Miyajima, K., 2021. "Analyzing Capital Flow Drivers Using the 'At-Risk' Framework: South Africa's Case," IMF Working Paper No. 2021/253, International Monetary Fund, Washington, D.C.
- Gorback, C., and Keys, B., 2020. "Global Capital and Local Assets: House Prices, Quantities, and Elasticities," NBER Working Paper 27370, National Bureau of Economic Research, Inc., Cambridge, MA.
- Gorodnichenko, Y., Svejnar, J., and Terrell, K., 2010. "Globalization and Innovation in Emerging Markets" *American Economic Journal: Economic Policy*, vol. 2, no. 2, pp. 194-226.
- Gourinchas, P. O., and Obstfeld, M., 2012. "Stories of the Twentieth Century for the Twenty First," *American Economic Review*, vol. 4, no. 1, pp. 226-265.
- Guadalupe, M., Kuzmina, O., and Thomas, C., 2012. "Innovation and Foreign Ownership" *American Economic Journal: Economic Policy*, vol. 102, no. 7, pp. 3594-3627.
- Gyntelberg, J., Loretan, M., and Subhanij, T., 2018. "Private Information, Capital Flows, and Exchange Rates," *Journal of International Money and Finance*, vol. 81, pp. 40-55.
- Hale, G., Jones, P., and Spiegel, M., 2020. "Home Currency Issuance in International Bond Markets," *Journal of International Economics*, vol. 122, no. 103256.

- He, W., Li, D., Shen, J., and Zhang, B., 2013. "Large Foreign Ownership and Stock Price Informativeness Around the World," *Journal of International Money and Finance*, vol, 36, pp. 211-230.
- Hofman, M., Shim, I., and Shin, H., 2021. "Emerging Market Economy Exchange Rates and Local Currency Bond Markets Amid the COVID-19 Pandemic", BIS Bulletin no. 5, Bank for International Settlements, Basel, Switzerland.
- Hur, S., and Kondo, I., 2016. "A Theory of Rollover Risk, Sudden Stops, and Foreign Reserves," *Journal of International Economics*, vol. 103, pp. 44-63.
- Igan, D., Kutan, A., and Mirzaei, A., 2020. "The Real Effects of Capital Inflows in Emerging Markets," *Journal of Banking & Finance*, vol. 119, no. 105933.
- International Monetary Fund (IMF), 2013. *World Economic Outlook: Transition and Tensions*, Washington, D.C., October.
- \_\_\_\_\_, 2014. "Staff Guidance Note on Macroprudential Policy," IMF Staff Guidance Note, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_, 2015. *Global Financial Stability Report: Navigating Monetary Policy Challenges and Managing Risks*, Washington, D.C., April
- \_\_\_\_\_, 2017. "Increasing Resilience to Large and Volatile Capital Flows—The Role of Macroprudential Policies," IMF Policy Paper, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_, 2020a. *Global Financial Stability Report: Markets in the Time of COVID-19*, Washington, D.C., April.
- \_\_\_\_\_, 2020b. "Toward an Integrated Policy Framework," Policy Paper No. 2020/046, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_, 2020c. *External Sector Report: Global Imbalances and the COVID-19 Crisis*, International Monetary Fund, Washington, D.C., August.
- \_\_\_\_\_, 2021a. "How to Assess Country Risk," IMF Technical Notes and Manuals no. 2021/003, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_, 2021b. "Guidance Note for Developing Government Local Currency Bond Markets," IMF Analytical Notes no. 2021/001, International Monetary Fund, Washington, D.C.

- Islamaj, Ergys & Kose, M. Ayhan, 2016. "How does the sensitivity of consumption to income vary over time? International evidence," *Journal of Economic Dynamics and Control*, Elsevier, vol. 72(C), pages 169-179.
- Jorda, Ò., Schularick, M., and Taylor, M., 2015. "Betting the House," *Journal of International Economics*, vol. 96, supp. 1, pp. S2-S18.
- Jotikasthira, C., Lundblad, C., and Ramadorai, T., 2012. "Asset Fire Sales and Purchases and the International Transmission of Funding Shocks," *The Journal of Finance*, vol. 67, issue 6, pp. 2015-2050.
- Ju, J., and Wei, S. J., 2010. "Domestic Institutions and the Bypass Effect of Financial Globalization," *American Economic Journal: Economic Policy*, vol. 2, no. 4, pp. 173-204.
- Julio, B., and Yook, Y., 2016. "Policy Uncertainty, Irreversibility, and Cross-Border Flows of Capital," *Journal of International Economics*, vol. 103, pp. 13-26.
- Kalemli-Ozcan, S., Papaioannou, E., and Peydró, J.L., 2013. "Financial Regulation, Financial Globalization, and the Synchronization of Economic Activity" *Journal of Finance*, vol. 68, issue 3, pp. 1179-1228
- Klein, M., Shambaugh, J., 2015. "Rounding the Corners of the Policy Trilemma: Sources of Monetary Policy Autonomy," *American Economic Journal: Macroeconomics*, vol. 7, no. 4, pp. 33-66.
- Korinek, A., 2018. "Regulating Capital Flows to Emerging Markets: An Externality View," *Journal of International Economics*, vol. 111, pp. 61-80.
- Korinek, A., 2020. "Managing Capital Flows: Theoretical Advances and IMF Policy Frameworks," IEO Background Paper BP/20-01-01, Independent Evaluation Office of the International Monetary Fund, Washington, D.C.
- Korinek, A., and Mendoza, E., 2014. "From Sudden Stops to Fisherian Deflation: Quantitative Theory and Policy" *Annual Review of Economics*, vol. 6, pp. 299-332.
- Korinek, A., and Sandri, D., 2016. "Capital Controls or Macroprudential Regulation?" *Journal of International Economics*, vol. 99, supp. 1, pp. S27-S42.
- Korinek, A., and Simsek, A., 2016. "Liquidity Trap and Excessive Leverage." *American Economic Review*, vol. 106, no. 3, pp. 699-738.
- Larrain, M., and Stumpner, S., 2017. "Capital Account Liberalization and Aggregate Productivity: The Role of Firm Capital Allocation," *Journal of Finance*, vol. 72, issue 4, pp. 1825-1858.

- Leuz, C., Lins, K., and Warnock, F., 2008. "Do Foreigners Invest Less in Poorly Governed Firms?" *The Review of Financial Studies*, vol. 22, issue 8, pp. 3245–3285.
- Levy-Yeyati, E., 2021. "Financial Dollarization and De-Dollarization in the New Millennium," Department of Economics Working Paper, Universidad Torcuato Di Tella, Buenos Aires, Argentina.
- Li, X., and Su, D., 2020. "Total Factor Productivity Growth at the Firm-Level: The Effects of Capital Account Liberalization," Working Paper available at SSRN.
- Liu, X., Wie, S., and Zhou, Y. 2020. "A Liberalization Spillover: From Equities to Loans" NBER Working Papers 27305, , National Bureau of Economic Research, Inc., Cambridge, MA.
- Ma, C., Wei, S. J., 2020. "International Equity and Debt Flows: Composition, Crisis, and Controls" NBER Working Papers 27129, National Bureau of Economic Research, Inc., Cambridge, MA.
- Maggiore, M., 2017. "Financial Intermediation, International Risk Sharing, and Reserve Currencies," *American Economic Review*, vol. 107, no. 10, pp. 3038-3071.
- Magud, N., and Vesperoni, E., 2015. "Exchange Rate Flexibility and Credit During Capital Inflow Reversals: Purgatory...not Paradise," *Journal of International Money and Finance*, vol. 55, pp. 88-110.
- Merrouche, O., Nier, E., 2017. "Capital Inflows, Monetary Policy, and Financial Imbalances," *Journal of International Money and Finance*, vol. 77, pp. 117-142.
- Mian, A., Sufi, A., Verner, E., 2017. "Household Debt and Business Cycles Worldwide," *The Quarterly Journal of Economics*, vol. 132, issue 4, pp. 1755–1817.
- Montecino, J., 2018. "Capital Controls and the Real Exchange Rate: Do Controls Promote Disequilibria?" *Journal of International Economics*, vol. 114, September, pp. 80-95.
- Montiel, Peter, 2020. "The IMF's Advice on Capital Flows: How Well is it Supported by Empirical Evidence?" Internal Evaluation Office (IEO) Background Paper No. BP/20-02/02 for IEO evaluation of IMF Advice on Capital Flows, International Monetary Fund, Washington, D.C.
- Morais, B., Peydró, J. L., Roldán-Peña, J., Ruiz-Ortega, C., 2018. "The International Bank Lending Channel of Monetary Policy Rates and QE: Credit Supply, Reach-for-Yield, and Real Effects," *Journal of Finance*, vol. 74, issue 1, pp. 55-90.
- Mukherjee, R., 2015. "Institutions, Corporate Governance, and Capital Flows," *Journal of International Economics*, vol. 96, issue 2, pp. 338-359.

- Ng, L., Wu, F., Yu, J., Zhang, B., 2016. "Foreign Investor Heterogeneity and Stock Liquidity around the World," *Review of Finance*, vol. 20, issue 5, pp. 1867-1910.
- Nier, E., Olafsson, T., Rollinson, Y., 2020. "Exchange Rates and Domestic Credit—Can Macroprudential Policy Reduce the Link?" IMF Working Paper No. 20/187, International Monetary Fund, Washington, D.C.
- Obstfeld, M., Ostry, J., Qureshi, M., 2019. "A Tie That Binds: Revisiting the Trilemma in Emerging Market Economies," *The Review of Economics and Statistics*, vol. 101 issue 2, pp. 279-293
- Ostry, J., Ghosh, A., Habermeier, K., Laeven, L., Chamon, M., Qureshi, Kokenyne, A., 2011. "Managing Capital Flows: What Tools to Use?" IMF Staff Discussion Note 11/06, International Monetary Fund, Washington, D.C.
- Pasricha, G., Falagiarda, M., Bijsterbosch, M., Aizenman, J., 2018. "Domestic and Multilateral Effects of Capital Controls in Emerging Markets," *Journal of International Economics*, vol. 115, pp. 48–58.
- Pasricha, G., 2020. "Estimated Policy Rules for Capital Controls," IMF Working Paper No. 20/80, International Monetary Fund, Washington, D.C.
- Rangvid, J., Santa-Clara, P., Schmeling, M., 2016. "Capital Market Integration and Consumption Risk Sharing over the Long Run," *Journal of International Economics*, vol. 103, pp. 27-43.
- Rebucci, A., and Ma, C., 2019. "Capital Controls: A Survey of the New Literature" NBER Working Paper 26558, National Bureau of Economic Research, Inc., Cambridge, MA
- Reinhardt, D., Ricci, L., Tressel, T., 2013. "International Capital Flows and Development: Financial Openness Matters," *Journal of International Economics*, vol. 91, pp. 235-251.
- Reinhardt, D. and Sbrancia, M.B., 2015. "The Liquidation of Government Debt," *Economic Policy*, vol. 30(82), pp. 291-333.
- Reis, R., 2013. "The Portuguese Slump and Crash and the Euro Crisis," NBER Working Paper 19288, National Bureau of Economic Research, Inc., Cambridge, MA.
- Rey, H., 2013. "Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence," Proceedings Economic Policy Symposium: Jackson Hole, Federal Reserve of Kansas City Economic Symposium, p 285-333.
- Schmitt-Grohe, S., and Uribe, M., 2016. "Downward Nominal Wage Rigidity, Currency Pegs, and Involuntary Unemployment," *Journal of Political Economy*, vol. 124, issue 5, pp. 1466-1514.



- Spiegel, M., 2021. "Monetary Policy Spillovers Under Covid-19: Evidence from U.S. Foreign Bank Subsidiaries," Working Paper 2021-14, Federal Reserve Bank of San Francisco.
- Varela, L., 2017. "Reallocation, Competition, and Productivity: Evidence from a Financial Liberalization Episode," *The Review of Economic Studies*, vol. 85, issue 2, pp.1279–1313.
- Wei, S. J., Bai, C.E., 2016. "The Quality of Bureaucracy and Capital Account Policies," Working Paper available at SSRN.
- Wei, S. J., Zhou, J., 2018. "Quality of Public Governance and the Capital Structure of Nations and Firms," NBER Working Papers 24184, National Bureau of Economic Research, Inc., Cambridge, MA.
- Yepez, J., 2021. "Unintended Consequences of U.S. Monetary Policy Shocks: Dutch Disease and Capital Flow Measures in Emerging Markets and Development Economies," IMF Working Paper No. 2021/209, International Monetary Fund, Washington, D.C.
- Zeev, N., 2019. "Global Credit Supply Shocks and Exchange Rate Regimes," *Journal of International Economics*, vol. 116, pp. 1-32.



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## BACKGROUND NOTE 2: ASSESSING SYSTEMIC FINANCIAL STABILITY RISKS DUE TO FX MISMATCHES

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# INTRODUCTION<sup>1</sup>

**1. This note outlines the approach of the proposed revision to the Institutional View (IV) when assessing whether systemic financial stability risks are elevated due to foreign currency (FX) mismatches.**<sup>2</sup> The proposed change to the IV considers the use of preemptive CFM/MPMs to be appropriate in certain circumstances when systemic risks are elevated, mainly owing to FX mismatches in the private sector. This note illustrates the sources of systemic risks from FX mismatches, the proposed approach to assess such risks, and examples of the information and tools that can be useful in this context.

**2. The approach builds on the staff guidance regarding risk assessments in bilateral surveillance, while allowing for flexibility to draw on future advances in best practice.** The guidance for bilateral surveillance requires Article IV consultations to include a systemic financial risk assessment, also emphasized in the 2021 Comprehensive Surveillance Review.<sup>3</sup> This note elaborates on the component of these risks that relate to FX mismatches, with a view to facilitate the assessment of the appropriate use of preemptive CFM/MPMs under the IV.

**3. This note proposes a two-step approach to assess systemic risks from FX mismatches.** The first step involves assessing FX mismatches at the relevant remaining maturities, using multiple indicators, with a view to establishing whether these mismatches are high enough to warrant moving to the second step. The second step involves an assessment of systemic risks stemming from such FX mismatches, also taking account of any amplifying and mitigating factors.

**4. This note is organized as follows.** Section II outlines the sources of systemic risks stemming from FX debt and potential amplification channels. Section III outlines the risk assessment approach in practice and Section IV concludes.

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<sup>1</sup> This background note elaborates on paragraphs 15 and 16 of the Board paper. Paragraph 15 of the Board paper states that for preemptive CFM/MPMs on FX debt inflows to be appropriate, systemic financial risks should be elevated owing to FX mismatches. The assessment of such risks is the focus of this Background Note. Paragraph 16 of the Board paper considers that in narrow and exceptional circumstances, there may be a case for the use of preemptive CFM/MPMs on local currency debt inflows. The assessment of systemic financial stability risks for this case is described in the Annex of this Background Note.

<sup>2</sup> FX mismatch at any relevant remaining maturity is defined as the stock of FX liabilities which is not covered by liquid FX assets or FX hedges (either natural hedges or financial contracts in deep hedging markets). FX mismatches give rise to solvency risks that may arise from impact of currency depreciation on the entire balance sheet and/or liquidity risks from short-term liabilities.

<sup>3</sup> See Section III.A of IMF (2015) and IMF (2021a-e).

## SOURCES OF SYSTEMIC RISKS FROM FX MISMATCHES

*A high stock of FX-denominated debt may expose countries to vulnerabilities that give rise to systemic risks. Vulnerabilities from FX debt stocks can arise from: (i) FX balance sheet mismatches, where assets and liabilities are denominated in different currencies and balance sheet solvency is affected by changes in exchange rates; and (ii) FX maturity mismatches, where firms' operations and/or long-term assets are funded by short-term FX liabilities, creating rollover risk in the event of liquidity pressure, such as from a capital flow reversal. FX liquidity risk is more concerning than liquidity risk in local currency since the central bank's ability to function as a lender of last resort may be limited when the liquidity gap that needs to be bridged is in FX. Risks from FX mismatches can be further amplified by high leverage of domestic borrowers or lenders, or overvalued asset prices. The degree of foreign investor holdings of local currency securities can also be an amplifier, as an abrupt reversal in response to a global shock can lead to a large depreciation which leads to realization of liquidity and solvency risks due to preexisting FX mismatches.*

**5. FX mismatches can arise from an overall FX balance-sheet mismatch across all remaining maturities, or an FX maturity mismatch at shorter horizons, or both.**<sup>4</sup> An FX balance sheet mismatch arises if the currency denomination of a borrower's liabilities differs from that of assets. Currency movements then affect valuations of assets and liabilities in expectation across all remaining maturities, and hence solvency. But even in the absence of an overall balance sheet mismatch, the borrower may have an FX maturity mismatch: a mismatch between FX liabilities coming due and the FX resources readily available (from FX income, hedges, or liquid FX).<sup>5</sup> Overall, a borrower is fully hedged only in the absence of currency mismatches affecting valuations even over long horizons, and liquidity shortfalls at shorter maturities.

**6. Both types of FX mismatches can give rise to systemic risks.** FX mismatches can give rise to systemic risks when they amplify the effects of financial shocks, such as a reversal of capital inflows or a depreciation of the exchange rate, and thereby lead to sharp adverse effects on the economy. Such macro-financial effects can contribute to a sharp tightening of financial conditions, a procyclical cutback in lending (in both local currency and FX), and in extreme situations, a systemic banking and/or a currency crisis. For example:

- *FX balance sheet mismatch.* When agents in the private sector hold local currency assets funded by FX-denominated liabilities and do not hold hedges to offset the balance sheet

<sup>4</sup> The term FX balance sheet mismatch as defined here corresponds closely to the commonly used term "currency mismatch" and reflects the gap between FX assets and liabilities irrespective of their maturities. The term FX maturity mismatch relates closely to the commonly used term "FX liquidity risk." FX liquidity risks arise in the presence of FX maturity mismatches, as defined here, whether owing to contracted or unforeseen cash outflows, and lead to shortages in the availability of liquid FX assets to service FX obligations.

<sup>5</sup> An agent faces FX liquidity stress when their net FX cash outflows exceed their FX liquid asset buffers. FX cash outflows could become larger than FX cash inflows (i.e., net FX cash outflows) for both flow and stock reasons. A sharp decline of export receipts (i.e., commodity price declines to commodity exporters) reduces FX cash inflows. Contingent claims, such as activation of FX credit lines for financial institutions, derivatives contracts, and covenants with FX debt that trigger repayment before maturity, could also spike FX cash outflows.

effects from changes in exchange rates, a depreciation increases the value of FX liabilities in local currency, while the value of assets remains the same, putting pressure on solvency.<sup>6</sup> The depreciation also increases the local currency value of FX debt service coming due. These pressures may lead to higher direct and indirect credit risk as the agents may default on both FX and local currency debt, and can also lead to broader macro-financial feedback effects, e.g., through cutbacks in expenditure.<sup>7</sup>

- *FX maturity mismatch.* FX maturity mismatches can cause both liquidity and solvency risks.<sup>8</sup> For instance, when agents hold short-maturity FX-denominated liabilities, they are exposed to rollover risk in the event of a reversal of FX debt inflows. Contingent claims, such as activation of FX credit lines for financial institutions, derivatives contracts, and covenants with FX debt that trigger repayment before maturity, could also spike FX cash outflows. In this event, borrowers may default on short-term FX liabilities, or liquidate physical or financial assets at fire sale prices to generate FX liquidity. Moreover, when agents sell illiquid assets, they may incur valuation losses, affecting solvency. Interest costs could also rise if agents try to borrow money to fill the cashflow gap. These valuation losses and higher funding costs can weigh on profitability and weaken solvency.

**7. Each type of FX mismatch may be present without the other.** Rollover risk can be present without an overall FX balance sheet mismatch, which therefore necessitates assessing balance sheet mismatches at the relevant remaining maturities. For example, for banks, regulatory limits on open FX positions or capital requirements based on market risk typically keep FX mismatches on their balance sheet limited or hedged, but these regulations by themselves often do not prevent the use of short-term FX funding to fund short- or long-term FX assets, such as FX loans.<sup>9</sup> Conversely, an overall FX balance sheet mismatch does not require FX maturity mismatches to be present, as FX liabilities could be long-term (short-term) and funding local currency long-term (short-term) assets.

**8. Systemic risks from FX mismatches can be amplified by leverage.** To illustrate, the likelihood to default on current obligations in the event of a depreciation is greater when debt

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<sup>6</sup> The concept of FX balance sheet mismatch also may be applied to cases where FX assets are funded by local currency debt (in which case an appreciation can threaten solvency) or where assets and liabilities are both in FX but in different foreign currencies.

<sup>7</sup> For instance, FX balance sheet mismatches were widespread in Central and Eastern Europe prior to the global financial crisis and contributed to sharp increases in banks' non-performing loans in a number of these countries (see, e.g., Rosenberg and Tirpák, 2008, and Ranciere and others, 2010). The experience in Iceland was similar (see e.g., Olafsson and Vignisdottir, 2012). Aghion and others (2001) analyze the role of firms' FX debt obligations in a currency crisis.

<sup>8</sup> The role of FX maturity mismatches in creating systemic risk is discussed in IMF (2017) and the accompanying case studies for Korea, Sweden, and Turkey. See also Ree and others (2012) for empirical evidence on Korea. Chang and Velasco (2001) study the role of maturity mismatch and illiquidity of short-term funding in an emerging market financial crisis model. Barkbu and Ong (2010) discuss how the extensive use of FX swaps for funding and hedging purposes may expose banks to liquidity risk, especially in periods of market stress.

<sup>9</sup> Several macroprudential tools are available to address liquidity risks and maturity mismatches including the Basel III liquidity coverage ratio and net stable funding ratio.

service costs are a larger share of income. In addition, and more broadly, if firms' leverage is high, the macro-financial effect from a depreciation can be expected to be greater since it is a non-linear function of the size of the equity cushion. If firms have high leverage, the small equity cushion may not be able to absorb the valuation effects of a depreciation, increasing the likelihood of cutbacks in operations or investments and a rise in unemployment. High leverage is also likely to affect the rollover risk from FX maturity mismatches. If agents have strong capital positions, their ability to convince foreign investors to roll over or extend funding—or attain FX funding locally—may be enhanced.

**9. High leverage from accumulated FX debt stocks can be coupled with an overvaluation of local asset prices, adding another layer of systemic vulnerability.** If inflows lead to an accumulation of FX debt stocks (such as through mortgages denominated or indexed in FX), the increase in leverage may fuel an overvaluation of domestic asset prices. This can present an additional systemic vulnerability during a capital flow reversal, as a fall in asset prices would typically compound the tightening of financial conditions for both local currency and FX borrowers.

**10. Significant presence of foreign investors in local currency bond markets, when these markets are not well developed, may in some cases amplify the risks from FX mismatches.**<sup>10</sup> Foreign investors investing in local currency bond markets may have FX mismatches on their balance sheets which are absorbed only at a premium, and their inflows could be sensitive to changes in global financial conditions and currency valuations. A reversal of funding by foreign investors in response to a global shock, when these investors hold a significant share of the market and the domestic investor base is not deep, could put pressure on the local currency bond market at the same time as there is a reversal of FX debt inflows. The sale of local currency bonds and subsequent purchases of FX may lead to a tightening of financial conditions and a sharp depreciation, compounding problems for those borrowers who have FX-denominated liabilities.

## RISK ASSESSMENT APPROACH

*Systemic risks from FX mismatches can be assessed using a two-step approach. The first step involves assessing FX mismatches at the relevant remaining maturities, using multiple indicators, with a view to establishing that these mismatches are high enough to warrant moving to the second step. The second step involves an assessment of systemic risks stemming from such FX mismatches, also taking account of any amplifying and mitigating factors.*

### A. Step 1. Assessing the Level of FX Mismatches at Relevant Maturities

**11. The first step would comprise assessing the level of FX mismatches at the relevant remaining maturities.** To assess FX mismatches at the relevant maturities, three components are needed: (i) the stock of FX liabilities; (ii) the denomination of assets and availability of hedges; and (iii) the maturity structure of the balance sheet (including FX liabilities, assets and hedges). Multiple

<sup>10</sup> See BIS (2021) for a discussion of the evidence.

indicators should be used to assess each of these components, subject to data availability.<sup>11</sup> Box 1 illustrates how publicly available data sources can be used to assess FX mismatches for a hypothetical country.

## 12. The assessment of FX mismatches at relevant maturities could involve the following elements and data:

- *FX debt stocks.* To assess the liabilities component of FX mismatches, it would be helpful to look at the stock of private sector FX debt, both economy-wide as well as at the sectoral level. The breakdown of FX debt stocks across households, non-financial corporations (NFCs), banks, and non-bank financial institutions (NBFIs) could be particularly useful in identifying pockets of vulnerabilities that would be difficult to identify in the aggregate data. Even within these sectors, there may be significant heterogeneity that should be investigated as much as possible. For example, NFCs that are exporters and/or larger in size may have higher FX debt stocks but may also have better access to international financial markets to weather capital flow reversals. In addition, corporates may issue FX debt through their offshore affiliates, or may be interlinked through trade credit in FX, and where possible, such off-balance sheet exposures or contingent liabilities should be considered.
- *FX assets and hedges.* The assessment of FX assets and hedges would involve assessing whether the sector's FX debt is hedged at the relevant maturities. This hedging could be of various forms: natural; or via holdings of liquid FX assets; or through financial contracts in deep hedging markets.<sup>12</sup> Natural hedges can be approximated by export revenues net of FX expenses for corporates or remittances for households. However, natural hedges may provide coverage for only a limited segment of the economy, i.e., the export sector or households supported by remittances from abroad. Hedging through non-deliverable instruments (such as onshore non-deliverable forwards) protects the buyer from losses due

<sup>11</sup> Sectoral breakdown of the FX and/or external balance sheet is available in BIS Locational Banking Statistics (LBS), BIS International Debt Securities Statistics (IDS), BIS Quarterly External Debt Statistics (QEDS), IMF Monetary and Financial Statistics (MFS), and IMF International Investment Position Statistics (IIP). The data availability for end-2019 is as follows. Households: 145 countries from IDS, 186 countries from LBS and 156 countries from MFS. NFCs: 86 countries from IDS, 182 countries from LBS and 156 countries from MFS. Non-Bank Financial Institutions: 76 countries from IDS, 147 countries from LBS. Banks/deposit taking corporations: 78 countries from IDS, 180 countries from LBS, 114 countries from QEDS, and 156 countries from MFS. Other sectors: 113 countries from QEDS. The Balance Sheet Approach (BSA) matrix data are also well-suited for this analysis, as it contains sectoral from-who-to-whom exposures which may have a breakdown between local currency and FX. Some countries (e.g., Australia, EU members, USA, Japan, etc.) also compile full sectoral accounts, that contain sectoral balance sheets by instruments. For an application of this data, see IMF (2018). IDS provides a breakdown not only by currency and sector but also by maturity, i.e., "short-term" (up to one year) and "long-term" (greater than one year). QEDS provides a breakdown of external debt by maturity for deposit-taking corporations and other sectors for up to 114 countries, and by currency and maturity for up to 44 countries.

<sup>12</sup> In a deep hedging market, investors can execute their (large) transactions efficiently, i.e., without causing significant price movements that could affect the cost of executing the transaction, or significantly increasing their exposure to counterparty risk. The key measures of market illiquidity are price impact and price reversal. Bid-ask spreads and effective spreads could also capture market liquidity, but high frequency data on these are unreliable in more underdeveloped markets. These and other useful measures for assessing market liquidity are discussed in Abdi and Ranaldo (2017), Amihud (2002), Corwin and Schultz (2012), Roll (1984), and Vayanos and Wang (2013).



to exchange rate movements but does not provide the FX liquidity needed at maturity. Liquid FX assets of both short- and long-term maturities can be used to cover debt positions of all maturities. Another important consideration is whether the entities that are indebted are also the ones that hold the hedging instruments, the assessment of which requires more granular data than country-wide or even sector-wide aggregates, and this data may only be available for few countries.

- *Maturity structure.* A breakdown of FX debt stocks and assets by maturity would help identify whether a sector that carries high FX debt has high short-term FX debt, and if so, whether there is a mismatch between FX obligations falling due in the short term and the stock of liquid FX assets. The timing of FX income and the maturity structure of hedges would provide important information as to whether there is a mismatch with the maturity of FX obligations, and whether the financial hedges need to be rolled over, creating further FX maturity risks. In this context, a key question is whether hedging markets will remain deep and liquid even under conditions of stress.<sup>13</sup> Some data gaps may be filled by complementing the available data with soft information. For example, if the maturity structure of FX debt is not available, it can be helpful to use as proxies those debt categories that are likely to comprise mostly short-term and FX debt, e.g., external interbank debt. On the asset side, portfolio assets and other investment assets (especially the currency and deposits subcomponent) in the IIP or BSA data can be assumed to have significant liquid components. Available information could also be used to come up with a reasonable proxy for the ratio of FX to local currency debt in the short-term external debt series available in the IIP database.

**13. Other country-specific information should be used to assess FX mismatches.** While the primary data sources proposed for this exercise provide coverage for a great majority of the Fund's membership, data gaps may be severe for some countries, e.g., the country may not be included in the dataset, or the datasets may not measure all information on external liabilities and assets, which may be large for some countries (such as FX loans from non-BIS-reporting institutions, inter-company FX debts, contingent FX liabilities, FX swaps, and other off-balance-sheet FX liabilities). In these cases, quantitative and qualitative information regarding these debt and asset positions should be uncovered as much as possible to assess the level of FX mismatches. Country authorities contemplating preemptive CFM/MPMs may have access to additional information, e.g., unpublished data on FX mismatches. Similarly, they may have other soft information, e.g., whether most borrowing is by FDI companies with parent guarantees, which can be considered hedged, or from parent companies, which may be considered more stable.

**14. The assessment of whether FX mismatches are elevated would require judgment.**

Granular data on FX debt and hedges are often incomplete, and in addition, country-specific factors affect the functioning of hedging markets and the appropriate level of sectoral aggregation at which

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<sup>13</sup> Barkbu and Ong (2010) discuss how the extensive use of FX swaps for funding and hedging purposes may expose banks to liquidity risk, especially in periods of market stress.



to measure FX mismatches. As a result, judgment on whether FX mismatches are elevated requires a holistic assessment of the available data and country-specific factors, and should consider historical trends and peer country information among others.

**15. If FX mismatches at relevant maturities are judged to be high in Step 1 for at least one macro-critical sector, the assessment would proceed to Step 2.** In cases where FX mismatches are in an intermediate range—neither high enough to clearly be assessed as elevated, nor low enough to clearly be considered as safe—it would be desirable to err on the side of caution and move to Step 2. It would be sufficient for the FX mismatches to be elevated for one macro-critical sector, and the analysis in Step 2 should focus on the identified sectors.

### Box 1. Step 1 Applied to a Hypothetical Country

This box illustrates how the level of FX mismatches can be assessed using publicly available, granular data for a hypothetical country. We assess FX debt stocks across four sectors: households, NFCs, NBFIs, and the banking sector. The figure plots the stock of internationally issued FX bonds, cross-border FX loans from BIS reporting institutions, and FX loans from domestic financial institutions.

This hypothetical country's data suggests that the FX debt of the non-financial corporate sector may be elevated. The household and NBFi FX liabilities as a share of GDP are both quite low, and possibly not worrisome (Text Box Figures 1a and 1c). However, NFCs' FX borrowing is substantial: about 6 percent of GDP from external sources and about 25 percent of GDP from domestic sources (Text Box Figure 1b). The banks' cross-border borrowing in FX is high, at about 19 percent of GDP, and it is possible that some of this borrowing is being channeled to domestic NFCs (Text Box Figure 1d). Banks themselves may be hedged, but the "final recipient" of that flow may be an unhedged corporate entity.

NFCs' domestic and cross-border FX liabilities have grown steadily over time (Text Box Figure 2). Finally, NFCs' cross-border borrowing in FX as a share of GDP is moderate relative to peers, but their domestic FX debt is relatively high (Text Box Figure 3).

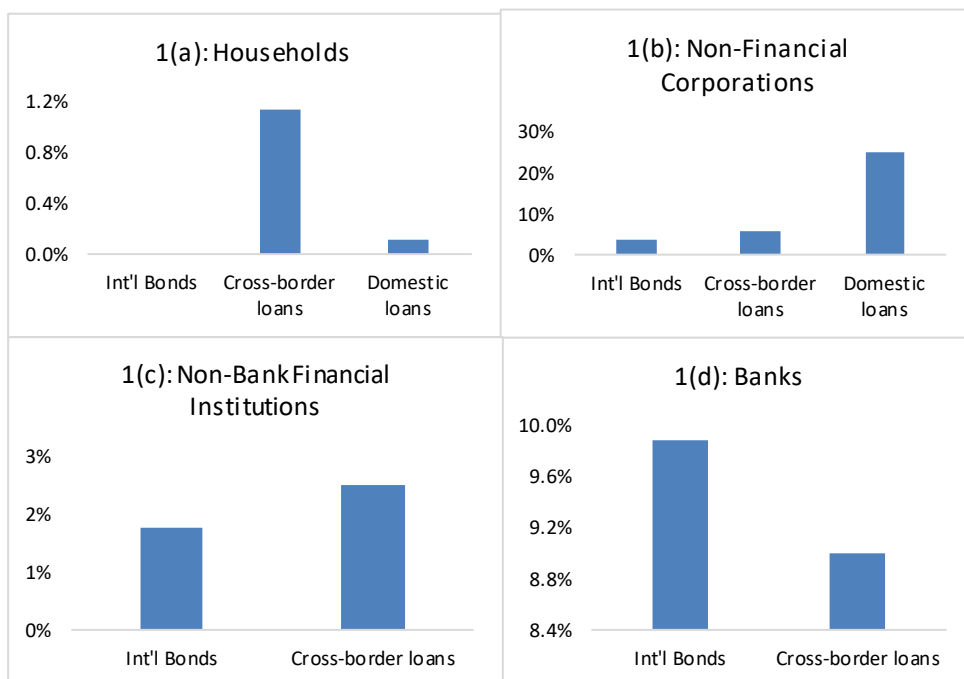
On the assets side, while the data available is less granular and comprehensive than the liabilities data, the liquid FX and external assets (proxied by claims on domestic or foreign banks and portfolio assets) appear to be smaller than the liabilities as a share of GDP, although total external assets (available in BSA data) are larger, especially for NFCs (Text Box Figure 4).<sup>1/</sup>

On the maturity composition, while the share of short-term debt in total external debt and in internationally-issued FX securities for banks or depository corporations has declined in recent years, it remains significant at about 40 percent (Text Box Figure 5a). If this borrowing is used to lend longer term in FX to NFCs, it could pose risks to the continued stable funding for these corporations in the event of rollover problems for banks. For other sectors, the share of short-term debt in total external debt is stable over time but still significant at 30 percent.

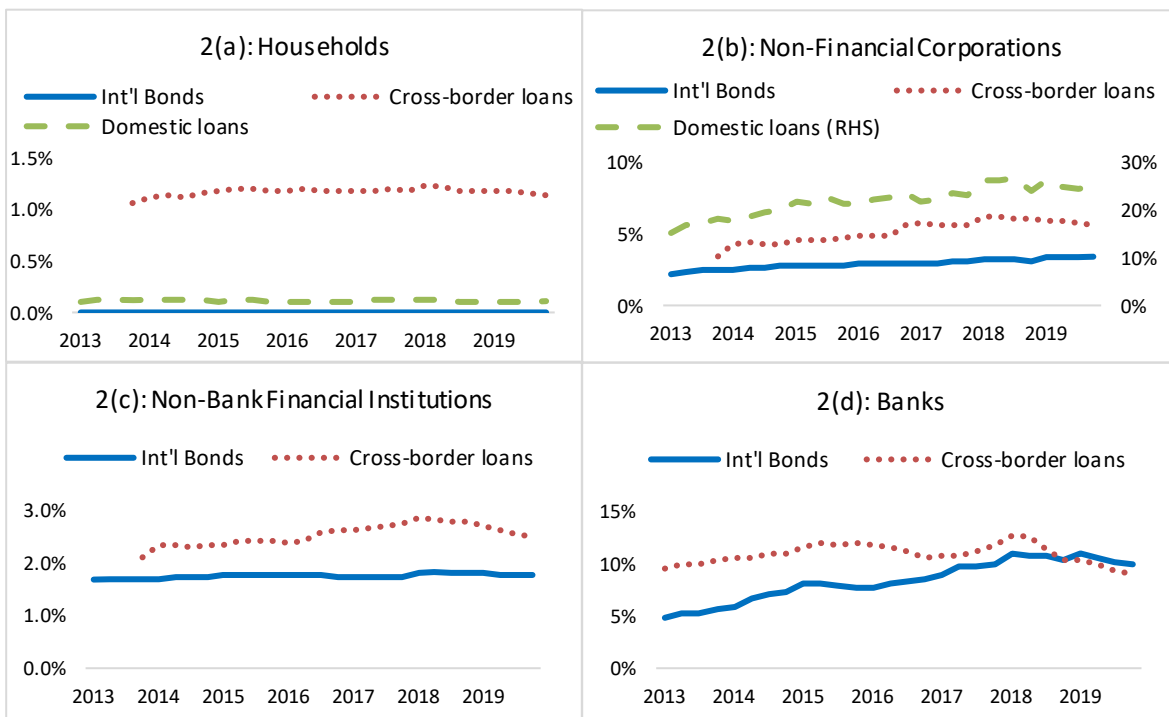
Ideally, the assessment would also use other information on the maturity structure of assets and the hedging of FX liabilities in NFCs. However, based on the publicly available data already shown, there may be sufficient reason to judge that FX mismatches are high enough to proceed to step 2.

**Box 1. Step 1 Applied to a Hypothetical Country (Continued)**

**Figure 1. FX Debt to GDP Across Sectors**

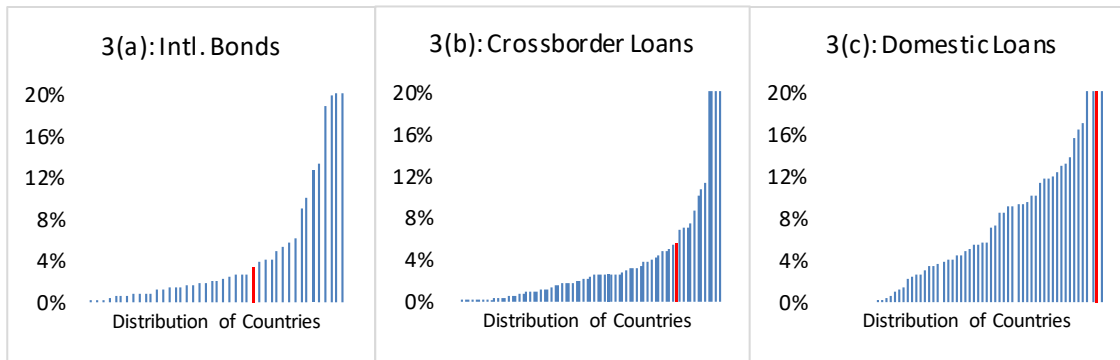


**Figure 2. FX Debt to GDP Across Sectors and Time**

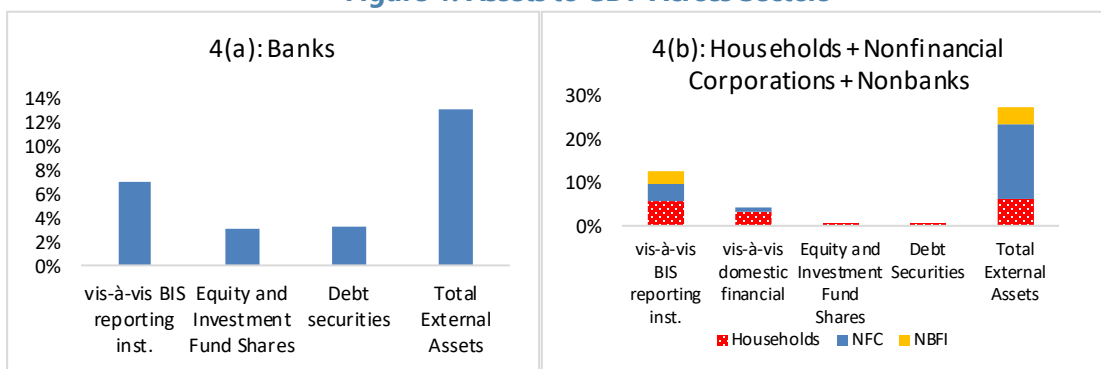


**Box 1. Step 1 Applied to a Hypothetical Country (Concluded)**

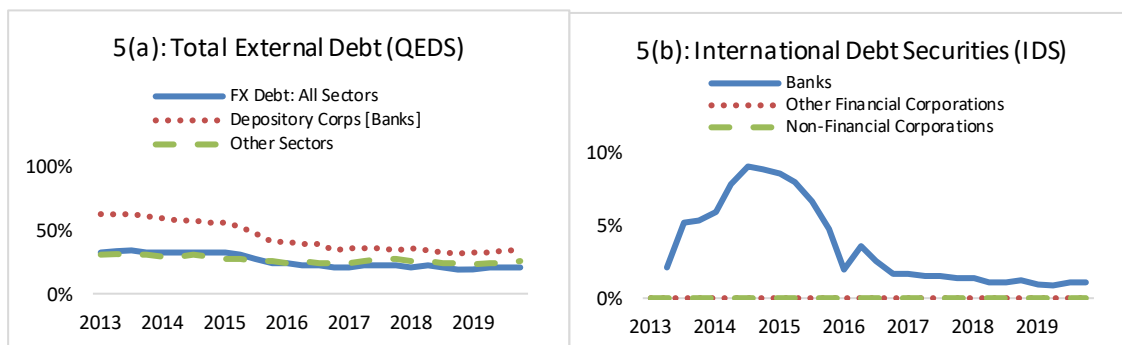
**Figure 3. Non-financial Corporates' FX Debt to GDP Relative to Its Peers**



**Figure 4. Assets to GDP Across Sectors**



**Figure 5. Short-Term Debt in External Debt, by Sector and Currency**



<sup>1/</sup> Text Box Figure 4 does not include some types of FX assets held by the private sector, including FDI and trade credits, as without further information, it is unclear how much of it can be considered liquid assets.

## B. Step 2. Assessing Systemic Risks from Elevated FX Mismatches

**16. The second step is to assess whether the systemic financial stability risks arising from those FX mismatches are elevated.** For any given level of FX mismatches, the associated systemic risks depend on the economy's financial structure, the type and strength of the expected macro-financial linkages, and the factors which may mitigate or amplify the domestic transmission of shocks through these linkages. Multiple sources of information and tools should be used to understand how shocks may interact with FX mismatches and other mitigating or amplifying factors, and trickle down through the financial system.

**17. A preferred approach is a granular stress test of the relevant sectors.** A stress test would allow for designing a reasonable adverse scenario and trace the transmission of shocks through the domestic financial and non-financial sectors. Stress tests may cover both liquidity and solvency risks and may be available from a past Financial Sector Assessment Program (FSAP) or can be done in the context of the Article IV surveillance if the necessary data are available.

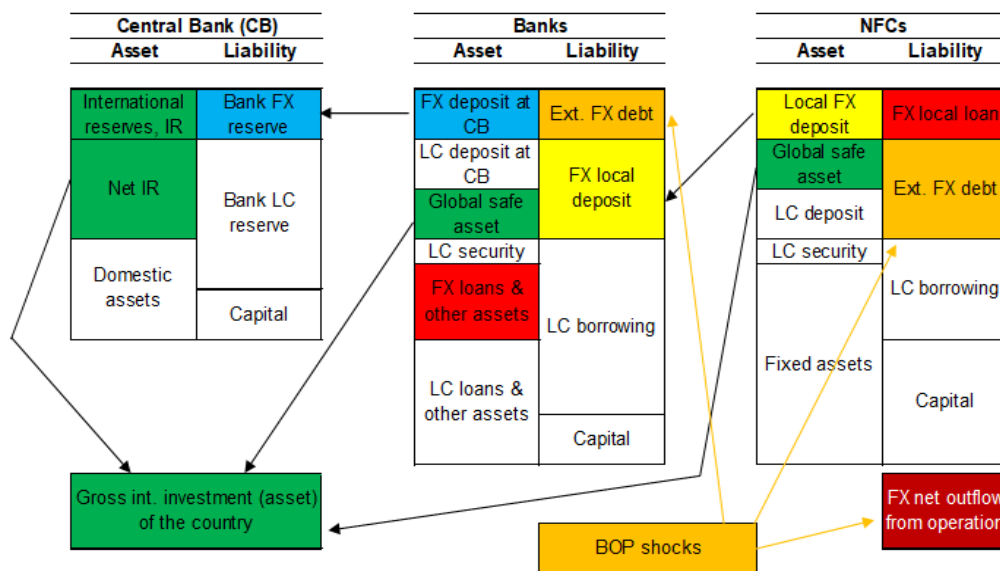
- A solvency stress test can be used to assess how an adverse macroeconomic scenario, including a calibrated level of depreciation, may increase the defaults of private sector agents such as banks, corporates, and households owing to FX balance sheet mismatches, and how this in turn may affect the solvency of banks.
- A liquidity stress test attempts to understand how a withdrawal of FX funding or a drop in FX revenue interacts with FX maturity mismatches at the sectoral level to create systemic shortfalls including through amplification from an interaction between domestic sectors. Such an exercise would begin with a calibration of the size of the depreciation and the withdrawal of FX funding to the private sector, together with assumptions for the liquidation of each sector's FX assets and the operation of the FX hedging markets under stress. The stress test would enable the identification of the spillovers of FX shortfalls onto the rest of the economy, using available information on the structure of the financial system, the presence of elevated asset valuations, and the availability of policy support.
- The objective of both kinds of stress tests is to assess whether the key sectors can withstand the shock, to quantify the size of the domestic contagion, and to judge the degree of FX policy support that may be needed. Box 2 illustrates one example of a system-wide FX liquidity stress-testing tool that is available to country teams.

### Box 2. System-Wide FX Liquidity Stress Testing Tool

This box provides an example of a stress-testing tool which may be useful in assessing the liquidity dimension of the systemic risks from FX mismatches, namely, FX liquidity risks (Oura and Leika, 2020; Oura, forthcoming).

The tool applies the standard liquidity stress-testing approach for banks to other sectors. Agents fall into FX liquidity stress when their net FX cash outflows within a given period exceed their FX liquid asset buffers. There are three sources of cashflows: operations (such as import expenses and export receipts), investment income and expenses (such as interest and dividend payments), and financing. Financing flows include contractual flows, contingent flows such as credit lines and repayments related to the triggering of debt covenants, and new contracts including rollovers.

Figure 1. Illustration of System-Wide FX Liquidity Stress Testing Tool1/



The tool identifies the key channels of transmission from balance-of-payment-related FX liquidity shocks to domestic contagion via cross-sector balance sheet linkages. Text Box Figure 1 illustrates a stress test in which capital outflows trigger FX liquidity shocks to NFCs with substantial external debt. If the NFCs have sufficiently high FX liquid assets, they can absorb the shock. If their FX liquid assets consist of global safe assets, these can be sold to foreign counterparts, and domestic contagion should be limited. However, if most of their FX liquid assets are FX deposits at local banks, the NFCs’ liquidity stress is transmitted to banks. If the banks’ FX liquid assets are mostly reserve deposits and central bank paper, the banks’ FX liquidity stress could be transmitted to the central bank, causing a drawdown in international reserves.

The extent of contagion effects and the drawdown in reserves depends on the extent of maturity mismatch in FX assets and liabilities, the composition and nature of liquid FX assets, and the order in which agents liquidate.

**Box 2. System-Wide FX Liquidity Stress Testing Tool (Concluded)**

The tool relies mostly on the balance sheet approach matrix data (also called the “who-to-whom” flow of funds, capturing the financial account data by counterparty). These data are becoming increasingly available for EMDEs; developing such data was called for in IMF (2015b) and has been a focus of the G20 data gap initiatives. The tool can be implemented using BSA and typical WEO projections, together with assumptions regarding the missing information and financial structure (especially for the NFC sector) and drawing on staff judgment.

<sup>1/</sup>Ext. = external; NFC = non-financial corporate; LC = local currency; global safe assets = currencies and sovereign securities of reserve currency issuers.

**18. Country authorities may have specific concerns and additional data about the transmission of systemic risks owing to FX mismatches.** The authorities may have specific concerns that can shape the analysis in Step 2, e.g., the stress scenario. Country authorities may also have access to additional information which could help inform the assumptions that staff need to make when undertaking stress tests, e.g., the composition of the foreign investor base, granular data on the financial network, unpublished information regarding non-financial corporates’ balance sheets, credit registries, and legal guidelines for the sequence of asset liquidation in adverse scenarios. In addition, they may have access to unpublished stress tests undertaken by the central bank. Staff and the authorities may also be able to fill in gaps in quantitative and qualitative information regarding the connection of the amplifying and mitigating variables to FX mismatches, e.g., the overlap between the holders of domestic assets and the sectors which undertake FX borrowing, FX contingent liabilities in large corporates, and under what circumstances the government would be able or willing to draw down its FX buffers.

**19. In addition to stress tests, and especially if stress tests are not feasible, the systemic risk assessment can build on the existing risk assessments in bilateral surveillance.** Risk assessments are routinely conducted as part of bilateral surveillance for all countries, using a variety of approaches which draw on the available data and country-specific conceptual and qualitative information. The assessment of the FX-related systemic risk would involve building a narrative with the following elements:

- *Assessment of systemic risks.* The assessment to be undertaken under the IV would build as appropriate on the assessment of systemic risks in Article IV reports that staff are already performing in line with existing guidance for such analysis (IMF, 2015; IMF, 2014). This analysis would need to become more systematic and deepened substantially when staff conduct a focused assessment of systemic risk from FX mismatches for the purposes of the IV.
- *Consequences of a capital inflow reversal.* In the context of the overall assessment of systemic risks, the relevant consideration for the use of preemptive CFM/MPMs to be appropriate relates to whether a capital inflow reversal, due to a domestic or external shock, could lead to elevated systemic financial stress.

- *Connection of the amplifying and mitigating factors to FX mismatches.* There should be an explanation of whether the variables judged to be amplifying or mitigating the risk of a costly capital flow reversal operate via transmission mechanisms which are closely connected to the FX mismatches identified in Step 1, e.g., whether FX debt service is high as a percentage of export revenues, whether elevated housing or stock price valuations are associated with high leverage which would be unwound in the event of a reversal of FX debt inflows, whether there are large FX contingent liabilities in adverse scenarios, whether FX hedging markets would continue operating smoothly in such scenarios, whether the central bank or the government has access to FX buffers such as sovereign wealth funds, FX reserves, FX swap lines, and/or Fund arrangements, etc.

## CONCLUSION

**20. The two-step approach outlined in this note helps structure the assessment of the systemic financial stability risks arising from FX mismatches.** The approach emphasizes a holistic assessment, using all available data and judgment. The question of whether elevated FX mismatches pose systemic risks is a key element of the assessment process for the appropriateness of preemptive CFM/MPMs, even as other elements listed in Section II of the Board paper, e.g., that MPMs are not sufficient, need also be met. The granular information uncovered in this risk assessment can help better understand the structure of the financial system and its interlinkages to the domestic macroeconomy, which could be useful in the assessment of risks in bilateral surveillance more broadly. While the elements included in this note would be a natural starting point for such analyses by Article IV teams, there may be methodological and data innovations that would lead the approaches to evolve over time.

## Annex I. Assessment for Preemptive CFM/MPMs on Local Currency Debt Inflows

*Preemptive CFM/MPMs on local currency debt inflows may be appropriate in narrow and exceptional circumstances. In these circumstances, systemic risks from local currency debt stocks can be assessed using a two-step approach. The first step involves assessing whether there are elevated local currency leverage and/or maturity mismatches that are fueled by local currency debt inflows. The second step involves an assessment of the associated systemic risks.*

**1. The circumstances for beginning the assessment process for preemptive CFM/MPMs on local currency debt inflows would be narrow and exceptional.** For such CFM/MPMs, it would first need to be judged that conditions (i)-(iv) from paragraph 16 of the Board paper—which relate to the functioning of FX and local currency markets under stress, the effects of depreciation, and the impairment of other policy instruments during crises—are jointly satisfied. If they are satisfied, the risk assessment process would begin. If they are not satisfied, the CFM/MPM would not be appropriate. By contrast, these conditions do not need to be satisfied for the risk assessment process for preemptive CFM/MPMs on FX debt inflows to begin; as a result, the circumstances for beginning the assessment process for measures on local currency debt inflows are narrower and more exceptional.

**2. Once it is decided to begin the assessment process, Step 1 of the risk assessment would be to establish that local currency leverage and maturity mismatches are elevated owing to local currency debt inflows.**<sup>1</sup> Data on local currency debt stocks, assets, and maturity structure would be used to establish whether leverage and maturity mismatches are high enough in at least one macro-critical sector to proceed to Step 2. Judgment would be necessary, and in cases where leverage and maturity mismatches are neither high enough to clearly be assessed as elevated nor low enough to clearly be considered safe, it would be desirable to proceed to err on the side of caution and move to Step 2. The analysis in Step 2 would focus on the identified sector(s).

**3. Step 2 of the risk assessment would be to assess the systemic risks related to local currency leverage and maturity mismatches:**

- *Stress tests.* A preferred approach would be granular stress tests of the relevant sectors to assess both solvency and liquidity risks (such as those already conducted in FSSAs). The stress tests would build in the impairment of policy instruments during crises which is considered applicable for the specific country and which justified the beginning of the assessment process (such as the need for sharp increases in policy rates, or the inability of the central bank to provide liquidity support).

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<sup>1</sup> If the main vulnerability of concern is FX mismatch owing to FX debt inflows, staff should conduct the risk assessment outlined in Section III of this Background Note. If local currency vulnerabilities are substantial owing to local currency debt inflows, and the narrow circumstances outlined in this Annex apply, staff should conduct the risk assessment outlined in this Annex.



- *Building on existing risk assessments.* The risk assessment can also build as appropriate on existing risk assessments in Article IV reports that staff already perform in line with existing guidance (IMF, 2015; IMF, 2014). There would need to be a narrative establishing whether the systemic vulnerabilities arise from the local currency debt inflows, and whether crisis risks would be accentuated in the event of a reversal in these flows owing to FX mismatches or to other factors, e.g., whether elevated housing or stock price valuations are associated with high leverage due to local currency debt inflows and which, when unwound during a reversal, would lead to stress that could not be alleviated by central bank local currency liquidity support.

## References

- Abdi, F., and A. Ranaldo (2012). "A Simple Estimation of Bid-Ask Spreads from Daily Close, High, and Low Prices," *The Review of Financial Studies*, Volume 30, Issue 12, December 2017, Pages 4437–4480.
- Aghion, P., P. Bacchetta, and A. Banerjee (2001). "Currency Crises and Monetary Policy in an Economy with Credit Constraints," *European Economic Review*, Vol. 45, Issue 7, 1121-1150.
- Amihud, Y. (2002). "Illiquidity and stock returns: Cross-section and time-series effects" *Journal of Financial Markets* 5:31–56.
- Barkbu, B. B., and L. L. Ong (2010). FX Swaps: Implications for Financial and Economic Stability. IMF Working Paper No. 10/55.
- BIS (2021). "Changing patterns of capital flows," Committee on the Global Financial System paper no. 66.
- Chang, R., & Velasco, A. (2001). "A Model of Financial Crises in Emerging Markets," *The Quarterly Journal of Economics*, Vol. 116(2), 489–517.
- Corwin, S. A., and P. Schultz (2012). "A Simple Way to Estimate Bid-Ask Spreads from Daily High and Low Prices," *The Journal of Finance*, Volume 67, Issue 2, pages 719-760, April 2012.
- International Monetary Fund, 2014. Staff Guidance Note on Macroprudential Policy, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2015a, Guidance Note for Surveillance under Article IV Consultations. International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2015b, Balance Sheet Analysis in Fund Surveillance, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2017, "Increasing Resilience to Large and Volatile Capital Flows—The Role of Macroprudential Policies," IMF Policy Paper, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2018. "Romania: Financial Sector Assessment Program-Technical Note-Balance Sheet Analysis," Country Report No. 18/162, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2021a. "IMF Executive Board Concludes the 2021 Comprehensive Surveillance Review." Press Release No. 21/136., International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2021b. "2021 Comprehensive Surveillance Review — Overview Paper" IMF Policy Paper No. 2021/027, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2021c. "2021 Comprehensive Surveillance Review— Modalities for Modernizing Surveillance." IMF Policy Paper No. 2021/028, International Monetary Fund, Washington, D.C.
- \_\_\_\_\_. 2021d. "2021 Comprehensive Surveillance Review— Background Paper on The Surveillance Priority Confronting Risks and Uncertainties." IMF Policy Paper No. 2021/029, International Monetary Fund, Washington, D.C.

- \_\_\_\_\_. 2021e. "2021 Comprehensive Surveillance Review— Background Paper on Systemic Risk and Macroprudential Policy Advice in Article IV Consultations." IMF Policy Paper No. 2021/033, International Monetary Fund, Washington, D.C.
- Olafsson, T., Vignisdottir, K., 2012. "Households' Position in the Financial Crisis in Iceland: Analysis Based on a Nationwide Household-Level Database" Working Paper No. 59, Department of Economics, Central Bank of Iceland.
- Oura, Hiroko (forthcoming). "Capital Flows and Systemwide FX-Liquidity Stress Tests," IMF Working Paper.
- Oura, Hiroko, and Mindaugas Leika (2020). "System-wide FX Liquidity Stress Test," Special Series on COVID-19, June 29.
- Ranciere, R., A. Vamvakidis, and A. Tornell (2010). "Currency Mismatch, Systemic Risk and Growth in Emerging Europe," *Economic Policy*, Vol. 25, 597-658.
- Ree, Jack Joo K., Kyoungsoo Yoon, and Hail Park (2012). "FX Funding Risks and Exchange Rate Volatility—Korea's Case," IMF Working Paper No. 12/268.
- Roll, Richard (1984). "A Simple Implicit Measure of the Effective Bid-Ask Spread in an Efficient Market" *The Journal of Finance*, Volume 39, Issue 4, Pages 1127-1139, September 1984.
- Rosenberg, C. B. and M. Tirpák (2008). "Determinants of Foreign Currency Borrowing in the New Member States of the EU", IMF Working Paper No. 08/173.
- Vayanos, Dimitri, and Jiang Wang (2013). "Chapter 19 - Market Liquidity—Theory and Empirical Evidence" *Handbook of the Economics of Finance*, Volume 2, Part B, 2013, pages 1289-1361.



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## BACKGROUND NOTE 3: PRINCIPLES FOR THE DESIGN OF MEASURES TO ADDRESS SYSTEMIC RISKS FROM FX MISMATCHES

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# PRINCIPLES FOR THE DESIGN OF MEASURES TO ADDRESS SYSTEMIC RISKS FROM FX MISMATCHES

*This note describes the key principles for the design and implementation of preemptive CFM/MPMs. These measures should be designed to be effective—so they achieve their intended goal and are not easily circumvented—and efficient—so they minimize distortions and costs. Preemptive CFM/MPMs should be targeted, calibrated to risks, transparent, and as temporary as possible. The appropriate design depends on country circumstances, such as institutional and legal constraints, as well as the precise source of the vulnerability. Where measures that do not discriminate by residency are available and effective, they should be preferred.*

**1. While this review proposes the preemptive use of CFM/MPMs, the key principles for the design of such measures follow from the 2012 Institutional View (IV) and the Fund’s macroprudential policy framework.** In particular, the use of CFM/MPMs should be aligned with the key principles that are consistent across both the IV and the macroprudential frameworks ([IMF, 2012](#), paragraph 34; [IMF, 2017](#), paragraphs 45 and 47). These are to: (i) avoid using CFMs/MPMs as a substitute for necessary macroeconomic adjustment; (ii) use the policy instruments that are the most effective, efficient, and direct, and the least distortive in addressing the policy objective; and (iii) seek to treat residents and nonresidents in an evenhanded manner. Such measures should, moreover, be transparent and generally temporary ([IMF, 2012](#)).<sup>1</sup>

**2. Preemptive CFM/MPMs should be designed to address systemic risks from FX mismatches by targeting them at source.** For the use of preemptive CFM/MPMs to be appropriate, systemic financial risks should be elevated owing to FX mismatches. To assess and mitigate these risks effectively, it is important to identify the magnitude and source of FX mismatches across the relevant sectors (financial sector, non-financial corporate sector, and household sector) as well as the underlying financial transactions (e.g., type and maturity of financial instruments) that give rise to the risks (see also Background Note 2). Based on this information (as available), the measure should closely target those specific sector(s) and financial transaction(s) that give rise to FX mismatches—on balance sheets overall, or at relevant shorter maturities. Examples of measures targeting FX mismatches for each sector are shown in Table 1.

**3. Preemptive CFM/MPMs should be calibrated in a manner that addresses vulnerabilities effectively, while minimizing costs and distortions.** The measures should be calibrated to address FX mismatches effectively without generating undesirably strong impacts on capital flows, domestic

<sup>1</sup> For measures that seek to contain systemic risk and differentiate by currency, the assessment of whether the measure is assessed as an MPM under the Fund’s macroprudential framework or a CFM/MPM under the IV, depends on the context, the calibration of the measure, and other country-specific circumstances (IMF, 2012; IMF, 2017). In practice, measures that affect domestic banks’ lending in FX to domestic unhedged borrowers have typically been assessed as an MPM only, while measures that affect FX liabilities of banks or non-financial corporates (NFCs) have been assessed as MPM or CFM/MPM depending on the circumstances (see also IMF, 2012, Annex II, and IMF, 2017, paragraphs 50 and 51). MPMs that affect international financial transactions and discriminate by residency are always assessed as CFM/MPMs.

credit, output, or market functioning (IMF, 2014). Among the alternative instruments that could target the same sources of risks, the most efficient preemptive CFM/MPMs are preferred, i.e., those that minimize distortions and costs.

- A narrowly targeted design can help contain potential unintended side-effects and costs, by reducing the scope for the measure to curtail other capital flows or develop unintended distributional effects. A potential drawback of a narrowly targeted measure can be that such a measure is prone to circumvention. The measure should therefore target risks as closely as possible without undermining effectiveness.
- Certain price-based measures (e.g., a higher reserve requirement on non-resident FX liabilities) can be easier to adjust and may be less distortionary than ceilings (i.e., dollar limits) on the volume of FX inflows, when they are well calibrated to work through incentives. However, some country authorities may face challenges in calibrating or flexibly adapting price-based measures, such as taxes that require legislation, while they may have the capacity to implement administrative measures (see also Background Note 1). There can also be informational obstacles to enforcing the most efficient tool. This can generate trade-offs for the design of CFM/MPMs, requiring a need for caution in the calibration of the tool and an effort to close such data gaps (IMF, 2014).
- CFM/MPMs that target certain types of flows (e.g., short-term FX debt) and encourage a shift toward potentially less risky flows (e.g., by imposing a reserve requirement or levy on banks' external FX liabilities that is higher for shorter maturities) may reduce systemic risks while having relatively limited effects on overall capital inflows and the exchange rate. Such measures may therefore be more efficient than broader measures, such as limits on all FX borrowing from abroad.
- Regardless of whether measures are administrative, price or quantity based, they should be calibrated in a manner that is commensurate with the policy objective, while minimizing costs and distortions (IMF, 2017). For instance, credit rating requirements, all-in-cost ceilings, or hedging requirements on agents engaged in external borrowing should not be so strict as to preclude nearly all enterprises from borrowing from abroad.

**4. Measures that increase resilience to FX mismatches can be useful, as are those that reduce amplification from an interaction with other drivers of systemic risk.** Preemptive CFM/MPMs can be designed to increase resilience to aggregate shocks by building buffers for those sectors or institutions that are exposed to FX mismatches. This increase in resilience can limit adverse effects from borrowers reaching their solvency or debt repayment capacity limits in the event of adverse shocks (see also Background Note 2). Examples of designs that help build resilience include maximum leverage limits (caps on borrowing relative to equity capital) for corporates based on their external FX borrowing, and levies on external liabilities in FX that feed a dedicated resource of liquid FX assets that can be used when rollover risk materializes (see Table 1).

Table 1. MPMs, CFMs, and CFM/MPMs to Address FX Mismatches

Type/sector of vulnerabilities <sup>1/</sup>	Banks and NBFIs	Non-financial corporations (NFCs)	Households (HHs)
FX balance sheet mismatch	<ul style="list-style-type: none"> <li>Capital requirements based on the net open FX position</li> <li>Constraints on the net open FX position</li> <li>Limits on FX derivatives positions</li> <li>Limits on banks' lending in FX</li> <li>Caps on credit growth in FX</li> <li>Taxes on foreign inflows of capital*</li> <li>Limits on FX borrowing from abroad*</li> <li>Higher (marginal) reserve requirement on FX than local currency liabilities</li> <li>Higher (marginal) reserve requirement on FX liabilities to nonresidents than residents*</li> </ul>	<ul style="list-style-type: none"> <li>Sectoral capital requirements (risk weights, loss given default floors) for banks FX lending to (unhedged) NFCs</li> <li>Requirements on NFCs to hedge FX exposures</li> <li>Tighter lending standards on banks for (unhedged) FX lending to NFCs</li> <li>Loan-to-value (LTV) and/or debt service coverage (DSC) limits for CRE loans in FX</li> <li>Caps on banks' sectoral FX credit growth</li> <li>Maximum leverage requirements based on NFC's borrowing from abroad in FX*</li> <li>Minimum requirements for NFC's credit rating for external borrowing*</li> <li>Taxes on foreign inflows of capital*</li> <li>Limits on (unhedged) NFCs' FX borrowing from abroad*</li> </ul>	<ul style="list-style-type: none"> <li>Sectoral capital requirements (risk weights, LGD floors) for banks' FX lending to (unhedged) HHs</li> <li>Tighter lending standards on banks for (unhedged) HH borrowing in FX</li> <li>Tighter LTV, debt-to-income (DTI), and/or debt-service-to-income (DSTI) limits on (unhedged) FX mortgage loans</li> <li>Differentiated stamp duty rates on (unhedged) HHs with FX mortgage loans</li> <li>Caps on banks' sectoral FX credit growth,</li> <li>Tax on household borrowing from abroad*</li> <li>Limits on (unhedged) HHs' FX borrowing from abroad*</li> </ul>
FX maturity mismatch	<ul style="list-style-type: none"> <li>FX liquidity coverage ratio (LCR)</li> <li>FX net stable funding ratio (NSFR)</li> <li>Caps on FX loan-to-deposit (LTD) ratio</li> <li>Maturity dependent levies on banks' non-core (e.g., short-term non-deposit) FX liabilities</li> <li>Higher (marginal) reserves requirement on short-term than long-term FX liabilities</li> <li>Higher marginal reserves requirement on the new flow of short-term non-resident FX liabilities*</li> <li>Maturity-dependent constraints on external funding in FX*</li> </ul>	<ul style="list-style-type: none"> <li>Liquid asset requirements on NFCs which borrow (unhedged) in FX</li> <li>Maturity dependent interest rate limits with which NFCs can borrow (unhedged) in FX from abroad*</li> <li>Maximum leverage requirements based on NFC short-term FX borrowing from abroad*</li> <li>Unremunerated reserve requirement on NFC short-term borrowing in FX from abroad</li> <li>Minimum liquidity ratios between short-term FX assets and liabilities for NFCs borrowing abroad*</li> </ul>	<ul style="list-style-type: none"> <li>Unremunerated reserve requirements on HH short-term borrowing from abroad in FX*</li> </ul>

<sup>1/</sup> This table includes a non-exhaustive list of measures that in practice may be MPMs, CFMs, or CFM/MPMs depending on their objectives and design. Measures affecting cross-border financial activity that discriminate on the basis of residency (marked with \*) will always constitute CFMs or CFM/MPMs. Some measures in the table could be used to contain both FX balance sheet and FX maturity mismatch, but they are recorded only once.

**5. Adjustment costs from CFM/MPMs should be considered in the implementation stage.**

Adjustment costs to banks from measures that affect the new flow will typically be smaller than measures that affect the stock of existing FX liabilities. Measures that are designed to affect the new flow only, such as marginal reserve requirements, can be calibrated in a manner that achieves relatively strong effects on new flows while avoiding adjustment costs to banks that would arise if the measure were applied to all existing FX liabilities. When effective CFM/MPMs on new flows are unavailable or inefficient and they need to be calibrated on component(s) of balance sheets (such as the stock of all existing external borrowing), such adjustment costs are likely to arise and would need to be mitigated through phase-in or a stepwise tightening.

**6. Measures that do not discriminate by residency are preferred.** Where a measure is available that does not discriminate by residency and that can contribute to containing systemic risks from FX mismatches, it should be preferred to a residency-based CFM/MPM. MPMs, which are measures that do not discriminate by residency and are not designed to limit capital flows, would always be preferred. For instance, consideration should be given to MPMs that provide incentives for banks and corporates to hedge FX mismatches, thereby reducing the underlying stock vulnerability. Indeed, as stipulated in the main paper, a CFM/MPM should be used only when MPMs are not available or are insufficient to address the policy concern.

**7. Preemptive CFM/MPMs should be transparent.** As stressed in both the IV and the macroprudential framework, clear communication of the policy objectives and the specific measures being used would help avoid disrupting market and public expectations. A timely announcement of a well explained CFM/MPM would make it easier for the targeted sectors to understand the authorities' intentions. Clear communication would also make it possible to set accurate expectations regarding when and under what conditions the measures would be removed or adjusted.

**8. Preemptive CFM/MPMs should be reassessed periodically and recalibrated if possible, to minimize possible distortions and unintended side-effects that can arise over time.** As set out in the Board paper, and in line with the IV, the CFM/MPM should be recalibrated if the vulnerabilities that led to its adoption subside or an alternative, less distortionary, tool becomes available. Moreover, as addressing stock vulnerabilities may take time, there is scope for unintended effects and distortions, such as from attempts at circumvention, to emerge and strengthen over time (Background Note 1). The continued effectiveness of the measure and the potential emergence of circumvention and side effects should therefore be regularly reviewed. These periodic evaluations can assess whether an alternative measure can be found that is an MPM or a CFM/MPM that addresses the concern in a manner that does not discriminate by residency and/or is less distortive, or whether the design of the existing CFM/MPM measure needs to be adjusted to counter the side-effects.



## References

- International Monetary Fund, 2012, *The Liberalization and Management of Capital Flows: An Institutional View* (Washington, DC: International Monetary Fund), November, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/The-Liberalization-and-Management-of-Capital-Flows-An-Institutional-View-PP4720>.
- \_\_\_\_\_, 2014, *Staff Guidance Note on Macroprudential Policy*, (Washington, DC: International Monetary Fund), November, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Staff-Guidance-Note-on-Macroprudential-Policy-PP4925>
- \_\_\_\_\_, 2017, *Increasing Resilience to Large Volatile Capital Flows: The Role of Macroprudential Policies* (Washington, DC: International Monetary Fund), September, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/07/05/pp060217-increasing-resilience-to-large-and-volatile-capital-flows>



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## BACKGROUND NOTE 4: USING THE IPF ANALYTICAL TOOLKIT TO ENHANCE POLICY ASSESSMENTS

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## USING THE IPF ANALYTICAL TOOLKIT TO ENHANCE POLICY ASSESSMENTS

**1. Insights from the IPF workstream can help guide the appropriate policy mix during an inflow surge, based on the shock and country characteristics.** This Background Note describes how the insights from the IPF workstream can help apply the IV framework during surges (right-hand side of Figure 1 in the Board paper).<sup>1</sup> The IPF examines the integrated use of all instruments, i.e., how monetary policy, fiscal policy, FXI, MPMs, CFMs, and CFM/MPMs can be used together. It recommends that when a country is facing large inflows, it is important as a first step to attempt to identify the nature of the underlying shock (fundamental, non-fundamental, or a mix of the two) and the country's characteristics. These factors would help determine the warranted macroeconomic adjustments, and the potential for economic and financial distortions, thereby informing the appropriate mix of policies to respond to the shock.

**2. Inflow surges may be caused by a range of shocks and can take different forms in different countries.** Fundamental shocks, which may be persistent, include changes in global interest rates, productivity, and commodity prices. Non-fundamental shocks include risk-on/risk-off episodes triggered by changes in investors' portfolio constraints that are not directly related to fundamentals.<sup>2</sup> The composition of inflows can also vary by country. For instance, debt flows with short-term remaining maturity, either in FX or domestic currency, can increase rollover risks when capital flows reverse.

**3. The IPF models suggest that warranted macroeconomic policy adjustments depend on the nature of the shock and country characteristics.** If the shock is at least in part fundamental or persistent, it is likely to require some adjustment to monetary, fiscal, and financial policies, and for countries with flexible exchange rate regimes, an adjustment to the nominal exchange rate. The degree of adjustment would depend on country characteristics that determine the economic and financial impact of the shock (e.g., the importance of commodity trade would matter for the response to a commodity price shock).<sup>3</sup> By contrast, if the shock is predominantly or exclusively non-fundamental (e.g., a risk-on/risk-off episode), it is not generally warranted to adjust

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<sup>1</sup> This review does not alter the IV's recommendation of the use of policy instruments during surges. The IPF workstream can help inform the judgments that are already required under the IV.

<sup>2</sup> In practice, multiple shocks may strike simultaneously, with both fundamental and non-fundamental components. Disentangling the shocks may therefore be challenging in real time and requires judgment. Under the current IV and informed by the 2013 Staff Guidance Note, staff analyze the drivers of capital flows using empirical methods supplemented with market and anecdotal information.

<sup>3</sup> The assessment of warranted adjustments should be guided by the indicators of policy space and imbalances used in bilateral surveillance (e.g., inflation expectations, output gap, debt sustainability, the ESA, and reserve adequacy).

macroeconomic policy settings away from levels that are consistent with inflation and growth objectives.<sup>4</sup>

**4. The IPF models point to shocks and country characteristics that make it difficult to effectively respond to surges using only macroeconomic policy and exchange rate adjustment.**

The IPF models suggest that the following frictions may increase the likelihood of overvaluation and overheating (although there may also be other frictions which generate the same distortions):

- *Non-fundamental shocks combined with shallow FX markets.* After fundamental or persistent shocks, irrespective of FX market depth, a rapid appreciation of the currency to its new fundamental level could facilitate external adjustment and reduce the risk of overheating without necessarily generating overvaluation (even if a temporary overshooting could take place). By contrast, for non-fundamental shocks or very large inflows into local currency debt, shallow FX markets make it more likely that an overvaluation emerges. They also make it more likely that the shock transmits into lower premia on local currency debt, leading to overheating via excessive borrowing. As asset markets deepen, the premia become less sensitive to shocks.
- *Weak monetary policy credibility.* If the appreciation is associated with high pass-through and therefore pushes overall inflation down, medium-term inflation expectations may fall excessively even alongside an output expansion driven by credit growth, which may worsen the tradeoff between inflation and output stabilization and amplify the overheating.

**5. The IPF models also suggest that, in the presence of overheating and overvaluation, the use of FXI and CFMs can enhance monetary autonomy in certain circumstances without generating other distortions.**

The models suggest that the combination of overvaluation and overheating is more likely (albeit not exclusively) to arise in countries with shallow FX markets and weakly-anchored inflation expectations after non-fundamental shocks. This combination reduces monetary autonomy: specifically, lowering the policy rate to reduce the overvaluation may exacerbate the overheating. If FX reserves are adequate or more than adequate, the IV suggests that CFMs may be appropriate, and this policy advice remains unchanged in the current review. The IPF provides further insights regarding the policy trade-offs: FXI and CFMs can enhance monetary autonomy by partially insulating the economy from such non-fundamental shocks, provided that their use does not reduce autonomy in other ways or generate other large distortions. Under the IV, the use of CFMs is not limited to enhancing monetary autonomy; in particular, CFMs can limit the degree of overvaluation and overheating by reducing appreciation pressures and external funding.

**6. The relative costs and benefits of FXI and CFMs depend on country-specific factors.** For example, FX reserve accumulation involves carry costs which may increase with the size of reserves.

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<sup>4</sup> The IV does not necessarily assume that the pre-shock policy settings were consistent with domestic and external stability. The IPF interprets this situation as a prior shock or inappropriate policy having caused a deviation from domestic and external stability. Both the IV and IPF would suggest warranted policy adjustments to address both the prior instability and the new shock.

FXI may also create confusion about the nominal anchor, may induce agents to increase their FX risk exposure, and may hinder the development of FX markets.<sup>5</sup> On the other hand, CFMs require developing enforcement mechanisms to administer the controls, and their use may be constrained by international agreements. The choice of CFMs would be informed by the country's legal and administrative infrastructure, and this can affect the costs and benefits of the instruments.

**7. The IPF models also illustrate how surges can lead to a build-up of systemic financial risks.** The IPF models suggest that inflow surges can generate systemic financial risks through:

- *Domestic collateral constraints.* Bubbles in domestic asset prices (e.g., housing) triggered by foreign inflow surges may excessively relax collateral constraints of borrowers that can lead to surges in local currency credit. Systemic financial risks may increase, as the country becomes vulnerable to debt overhang and sharp deleveraging once inflows reverse.
- *FX mismatches.* Surges in FX debt inflows may generate systemic financial risks by causing elevated FX mismatches which may no longer be sustainable once inflows reverse. The riskiest FX debt inflows tend to be short-term.

**8. The IPF workstream connects the appropriate mix of MPMs and CFM/MPMs to the structure of the country's financial system.** In assessing the case for the use of CFM/MPMs, staff should consider how the structure of the financial system affects the effectiveness and the calibration of MPMs. CFM/MPMs can be a useful complement to MPMs in some circumstances, such as when agents borrow from abroad, and risks cannot therefore be addressed by MPMs alone.

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<sup>5</sup> Such confusion may be heightened by ad-hoc FXI without appropriate modalities (e.g., announced objective and timeframe), especially if the monetary framework is not well established.