INTERNATIONAL MONETARY FUND

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.[1] 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; Maggiori, 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

[1] 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).[2] 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).[3]

[2] 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).

[3] 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).[4] 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; Badarinza 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).[5] 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).[6]

[4] 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.

[5] 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).

[6] 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).[7] 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 Oemhke, 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.

[7] 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).[8] 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

[8] 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.[9] 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

[9] 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.[10] 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).

[10] 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.

Fendoğlu, 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 Spegel, 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.

Maggiori, 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.