

SECTION 6

PRESERVING MACROECONOMIC AND FINANCIAL STABILITY IN SMALL, OPEN, AND FINANCIALLY INTEGRATED ECONOMIES

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A. Introduction

Prevailing views have, in recent decades, changed significantly on the nature and size of the challenges faced by small, open economies (SOEs) as they grew progressively more financially integrated with the rest of the world. With it has come a reassessment of the appropriate use of policy tools aimed at preserving macroeconomic and financial stability in these economies. The potential benefits from cross-border financial integration continue to be recognised, but there is a better understanding that for these economies, cross-border financial integration also comes with significant risks and can give rise to difficult trade-offs that call for the use of more policy tools than was deemed appropriate by the former prevailing orthodoxy.

This shift was underpinned by analytical advances on how to deal with volatile capital flows in emerging market economies (EMEs), and a better recognition that heterodox policy responses that had been used by many of them had some merits. Research at the International Monetary Fund (IMF) has played an important role in this reassessment.² This analytical work was reflected in the publication in 2012 of the IMF's Institutional View on the Liberalisation and Management of Capital Flows (IV), but only partly (IMF, 2012). With further analytical developments and policy experience in the years after the IV was adopted, the case for a revision grew. The IV was subsequently revised in March 2022 (IMF, 2022).

¹ Governor, Central Bank of Iceland, 2009-2019. I would like to thank Hans Genberg, Mangal Goswami, Ole Rummel, Rogelio Mercado Jr., and Victor Pontines for helpful comments. This paper is a part of my contribution to the project of The SEACEN Centre in Kuala Lumpur on challenges and options in managing capital flows. It was prepared during and between my stays as a Visiting Scholar at The SEACEN Centre in early 2020 and late 2022. The views expressed in this paper are those of the author and do not necessarily reflect views of the institutions that the author has been associated with.

² See for instance Korinek (2011) and Ostry et al. (2011). Gosh et al. (2017) provide an overview on the state of play of IMF staff's research in this area.

The main aim of this background paper is to contribute from a former policymaker's perspective to the ongoing discussion about improved frameworks for preserving macroeconomic and financial stability in what I call small, open, and financially integrated economies, or SOFIEs.³ By using this acronym, I want to highlight that cross-border financial integration is a key to the nature of the challenges that are analysed in the paper. Not all SOEs are financially integrated as they have relatively closed capital accounts and underdeveloped financial markets. It is, however, not necessary for economies to qualify as SOFIEs to have completely open capital accounts, only that they are sufficiently open so that global financial conditions, shaped by a few big countries, have a significant influence on financial conditions in the domestic economies. This definition of SOFIEs will include both advanced economies (AEs) and EMEs, but there are differences between them regarding the degree of cross-border financial integration and its effects on the domestic economy that have relevance when it comes to policy responses, as will be discussed further in the main sections of this study. The key point here is that economies with more developed financial markets and less financial vulnerabilities are more able than others to absorb capital flows without creating risks to financial stability.

The risks for SOFIEs from cross-border financial integration would be smaller if big reserve currency economies took the cross-border spillovers of their macroeconomic policies into account. They would, however, not disappear. Shifts in investor risk-appetite could, for instance, still generate volatile capital flows. These risks are also mitigated by a stronger global financial safety net (GFSN) and by international and regional arrangements on foreign exchange (FX) liquidity support. These issues are not covered in this paper that is on what SOFIEs can do in the absence of such reforms. International or regional restrictions on the use of some of the relevant instruments, such as capital flow management measures (CFMs), and the policy advice of international organisations on the use of such instruments is, however, discussed.

³ The paper is motivated and informed by my role as Governor of the Central Bank of Iceland 2009-2019, my work on these issues at the Bank for International Settlements during the build-up and break-out of the Great Financial Crisis (GFC) and my recent involvement with the capital flows project of The SEACEN Centre, see Part 1 of this publication. For other key publications of mine in this field, see Guðmundsson (2008, 2017).

The rest of this paper is organised as follows. The next section analyses the effects of cross-border financial integration on SOFIEs with a special focus on those aspects that might call for policy responses. Section C discusses policy options of SOFIEs for dealing with the challenges created by cross-border financial integration. Section D discusses the role of multilateral treaties and organisations in this policy making, especially that of the IMF and the Organisation for Economic Co-operation and Development (OECD). Section E outlines the key elements of an integrated policy framework around instruments that belong to central banks and financial supervisors in SOFIEs that have flexible exchange rates and the aspiration to operate independent monetary policies. Section F provides some concluding remarks. The appendix presents estimates of cross-border financial integration for a selected group of SOFIEs.

B. Stability Challenges from Cross-Border Financial Integration

(i) Effects of cross-border financial integration on financial prices

Full financial integration implies that expected risk adjusted real returns on similar types of financial assets will be equal in any two or more fully integrated markets. To draw out the implication of this for SOFIEs, let us assume a world of one big economy that shapes global financial conditions (core rate-setter) and several SOFIEs that have individually no influence on global financial conditions. Let us further assume that both the inflation differential and the risk premiums on financial assets in each SOFIE are constant vis-à-vis those in the big economy. Then nominal returns on financial assets in SOFIEs are pegged to those in the big country. Their levels can vary but the correlation of changes in nominal returns will be one. This, of course, is an “unrealistic” theoretical simplification, but it gives a starting point for our analysis, and it indicates the direction we will be heading in if global financial integration progresses further.⁴

In the case of a significant, but not full, cross-border financial integration, the strength of the link between the expected real returns on financial assets in SOFIEs with those of the big economy will depend on the intensity of the

⁴ This subsection is based on this author’s previous work where the analytical statements are more fully explained (Guðmundsson, 2008, 2017).

integration.⁵ This will, in turn, be translated into correlations in changes of nominal returns to the degree that depends on the fluctuations of inflation differentials and risks premiums. These correlations will be stronger at the longer end of the maturity spectrum.

SOFIEs that have their own currency, and flexible exchange rate regimes can still have independent monetary policies of a sort even if changes in their long-term nominal interest rates are mostly determined by conditions in the big economy. They can choose their own inflation targets and set their own short-term interest rates that would affect economic activity in the short-run and inflation in the long-run. In this case, the transmission of monetary policy shifts from the interest rate channel to the exchange rate channel as the effects of the policy rate on longer term interest rates becomes more limited.⁶ If the exchange rate is “well behaved” in the sense that it moves smoothly in line with underlying economic conditions, then monetary transmission through the exchange rate channel can work reasonably well. However, there is a significant body of literature showing empirical evidence that exchange rates could be misaligned with underlying fundamentals for a protracted period. The existence of carry trade can be seen as evidence of this, as it involves betting that interest rate differentials are not fully compensated by exchange rate movements over the investment horizon. This is supported by evidence from several empirical studies that uncovered interest rate parity does not hold, except at long horizons, while the exchange rate can go through sharp and disorderly corrections in the short-term.⁷

⁵ Full integration implies that the correlation of changes in expected real returns on financial assets in the SOFIE is one. The integration becomes significant when the correlation is positive and significant, and higher correlation indicates a stronger integration.

⁶ To sharpen the focus on the effects of cross-border financial integration on financial prices, particularly those most relevant for the transmission of monetary policy, I ignore other transmission channels such as the credit and risk-taking channels. Those are not needed to pinpoint the main effects and there is less investigation on how they change with cross-border financial integration. Bruno and Shin (2013) analyse the relationship between capital flows and the risk-taking channel of monetary policy. In that context, it is the transmission of US monetary policy that matter, whereas I am focusing here on how the transmission of domestic monetary policy in SOFIEs is affected by cross-border financial integration.

⁷ See for instance Plantin and Shin (2006) and Breedon et al. (2012).

Such disorderly exchange rate dynamics can potentially give rise to two concerns. The first is that excess volatility and misaligned exchange rates can have detrimental effects on the traded goods sector. The second is the potential adverse interaction with financial stability due to the presence of domestic financial vulnerabilities like currency and FX maturity mismatches in domestic balance sheets and income flows. In the case of a significant depreciation, such vulnerabilities will increase the debt burden in domestic currency terms. That, in turn, can undermine the stability of domestic financial institutions to the degree that they play a role in the intermediation of FX denominated credit to unhedged entities. In addition, the exchange rate could turn into a shock amplifier, for instance when the negative effects on domestic demand due to higher FX debt burden in domestic currency terms, are stronger than the traditional positive effects on net exports.

The close correlation of changes in long-term interest rates in SOFIEs with those of the big core rate setters does not in itself pose a stability challenge. However, it is the reliance of monetary transmission on exchange rate adjustment, especially for financially integrated economies, that may entail excessive volatility and under- or over- shooting from the equilibrium exchange rate. This scenario carries economic costs compared to the case of an orderly exchange rate adjustment and poses risks to financial stability as explained above.

(ii) Capital flows

In the preceding subsection, the focus was on how cross-border financial integration affects financial prices. The duality of prices and quantities mean that the quantity of capital flows and balance sheet are equally relevant. Shifting the focus to quantities reveal further stability challenges due to potential large swings in capital flows that can significantly affect financial conditions in SOFIEs, sometimes in the opposite direction of what is needed for domestic economic stability. That, in turn, can contribute to economic and financial imbalances that pose risks to financial stability.

It is useful to make a distinction between what are called push and pull factors when analysing the drivers of capital flows. Push factors are those that are external to the economies receiving the flows, primarily global financial conditions. Pull factors are those that are internal to individual economies receiving capital flows, such as their business environment and

investment opportunities. Push factor driven flows are generally seen to have a bigger potential to adversely affect macroeconomic and financial stability in SOFIEs, whereas pull factor driven flows can be more benign as they are more likely to contribute to growth in economic potential in the receiving economies.

Several recent studies have provided rather convincing evidence that the US financial cycle is the main driver of global financial conditions.⁸ This cycle creates synchronised swings in capital flows to SOFIEs, which are to a significant degree unrelated to their domestic conditions. These push factor driven capital flows can, therefore, cause unwarranted and unwanted changes in domestic financial conditions and give rise to stability challenges as discussed above.

Investors generally differentiate based on economic fundamentals when they invest in individual economies, while capital flows driven by pull factors can come with substantial benefits. These positive attributes, however, are not always problem free. One example of this is when the economic cycle in a SOFIE is out of sync with its major trading partners and there is a need to tighten monetary policy to keep inflation on target. Higher policy rates can induce carry trade flows that can divert monetary transmission towards the exchange rate channel, including through foreign exchange intervention, and result in the accumulation of investment holdings that could exit in a disorderly manner when investor sentiment towards SOFIEs change. This is then a case where cross-border financial integration reduces the scope for independent monetary policy. Another, but related example, is when foreign investors become overoptimistic about the economic prospects of an individual SOFIE. This can result in the build-up of economic and financial imbalances during the inflow phase such as an unsustainable current account deficit, strong credit growth and over-indebtedness. This, in turn, can lead to financial instability when foreign investors abruptly change their views and leave in a disorderly manner.

The degree to which significant swings in capital flows create stability challenges in an individual SOFIE depends on the level of development of its financial markets, the soundness of financial regulations, the quality of financial supervision and the resilience of systemic financial institutions. Relatively deep FX and domestic bond markets, availability of reasonably

⁸ For some key contributions, see Rey (2013), and Obstfeld (2015, 2021).

priced hedges against FX risks, regulatory limits on currency mismatches and FX mismatches and effective supervision that is alert to the relevant risks increase the capacity of SOFIEs to absorb capital flows without too high a risk to financial stability.

(iii) Level of cross-border financial integration in AE and EME SOFIEs

The stability challenges for individual SOFIEs will be bigger for economies with stronger financial integration, holding everything else constant. In general, we would expect AE SOFIEs to be more financially integrated with the rest of the world than EME SOFIEs. Because of the higher level of financial market development and institutional strength of AEs, we also expect them to be more able to absorb capital flows and deal with other negative effects of cross-border financial integration. How these factors counteract each other has relevance for the design of policy responses to the challenges created by cross-border financial integration. That will vary between AEs and EMEs and individual economies within these groups. The first step in that evaluation is to assess the level of cross-border financial integration in individual economies and look at its distribution within and between AEs and EMEs.

Table 6A.1 in the appendix provides two indicators of the level of cross-border financial integration for fifteen SOEs, including seven AEs and eight EMEs. The first indicator is correlations of monthly changes in nominal long-term government bond rates with corresponding US rates for eight years before the GFC (2000-2007) and eleven years after (2009-2019). The second indicator is the sum of gross external assets and liabilities relative to GDP (gross IIP) in 2007 and 2019. The choice of SOEs, and the rationale and the construction of the indicators are explained in the appendix. Most of the SOEs have highly significant rate correlations in the post GFC period, which is consistent with a relatively high degree of cross-border financial integration. The same was mostly the case in the period before the GFC, but in some cases, the data was not available in the sources quoted. Three countries had insignificant rate correlations in the second period and when coupled with other information, it seems that their level of cross-border financial integration was insufficient to label them SOFIEs. They are, therefore, excluded in the analysis below. The gross IIP positions are more difficult to

interpret as there is no clear benchmark as in the case of rate correlations.⁹ Higher gross IIP is expected to be associated with a higher degree of cross-border financial integration and country ranking is instructive. The numbers in **Table 6A.1** seem to broadly reflect this.

The numbers in **Table 6A.1** indicate that the differences between AEs and EMEs are indeed significant. The range of rate correlations in AE SOFIEs from 2009 to 2019 was from 0.5 to 0.8 and the GDP-weighted average was 0.7. Comparable figures for EMEs were 0.3-0.5 for the range and 0.4 for the weighted average. AE gross IIP ranged from 2 to 20 in 2019, and the weighted average was 7.4 compared to a range of 2-3 and a weighted average of 2 for EMEs. However, although the differences between AEs and EMEs SOFIEs as groups are, on average, highly significant for the rate correlations, there is no clear demarcation between them as can be seen from the result that the correlations in the period of 2009-2019 are almost the same for the highest EME as for the lowest AE. This partly explains significant variations in policy responses within the groups.

(iv) Developments in volume and volatility of capital flows

Looking at several indicators, the big picture seems to be that cross-border financial integration peaked globally just prior to the GFC. It then reversed somewhat as capital flows turned back to the big rate-setting economies, cross-border banking partly retreated to home base, and restrictions on capital movements were in some cases reintroduced. It is, however, a mixed picture and varies between AEs and EMEs. As an example, capital account openness increased strongly among AEs in the 1990s and has since stayed mostly flat in spite of the GFC. Among EMEs, however, it continued to increase during the 2000s to reach a peak in 2008, although at a substantially lower level than in AEs. It then fell back and has remained at a lower level than before the GFC.¹⁰ World gross capital flows also peaked before the GFC. They have since remained at a significantly lower level but have been more volatile (Obstfeld, 2021).

⁹ These correlations need to be positive and significantly different from zero to indicate cross-border financial integration and the closer to the limit of one, the higher the degree of the integration is likely to be.

¹⁰ This is based on the Chinn and Ito (2006) *de jure* index reported by Obstfeld (2021) for industrial, emerging market and less developed countries from 1970 to 2018.

There is some evidence indicating that the effects of the global financial cycle on SOFIEs have become stronger after the GFC. As an example, recent studies looking at the total distribution of capital flows suggest that push factors (global financial cycle) are affecting EMEs more strongly in recent years. This seems to be partly attributable to the increase in the role of market-based finance in capital flows.¹¹ EME fundamentals have, however, improved since before the GFC. It is against this background that Mark Carney wrote in 2019 that “fast reforming EMEs could be running to stand still in their quest for higher sustainable capital flows” (Carney, 2019).

(v) The case for policy interventions

History has shown that the interaction of volatile capital flows and disorderly exchange rate dynamics with domestic financial vulnerabilities can result in a financial crisis if it is left to run its course in the absence of policy interventions. In a nutshell, the process in an individual economy starts from a surge in capital inflows that leads to the appreciation of the exchange rate, increases credit growth, and lifts asset prices. The process is reinforced by balance sheet amplification mechanisms and feedback loops. The result is the accumulation of systemic risk and macroeconomic imbalances that may become unsustainable but are initially not perceived to be problematic. Shifts in expectations caused by an external shock and/or the increasing visibility of financial fragility and macroeconomic imbalances can reverse the process with capital outflows and a currency depreciation that through amplification mechanisms and feedback loops, ends in a full-scale financial crisis followed by an economic recession. The case for policy responses that aim to avoid this scenario is, therefore, strong.

In the final analysis, the case for policy responses in this area is based on market failures where individual agents do not take the aggregate effect of their actions on macroeconomic and financial stability into account.¹² The implication is that all individual policy interventions and the overall policy mix should, in principle at least, meet the criteria of adding to net expected future welfare. The chosen policy package should ideally be the one that maximises net expected future social welfare. This, however, tends to take the form of risk management rather than explicit maximisation when uncertainty about the situation and the effects of policy instruments is high. The next section will discuss what these policy responses might be.

¹¹ Refer to Part 1 of this report for discussions.

¹² Korinek (2011) provides a welfare economic rationale for capital controls.

C. Policy Options

The optimal policy response to the stability challenges explored in this paper will vary between economies depending on the depth and level of development of their financial markets. It will also depend on the degree of those financial vulnerabilities that are particularly relevant in the case of cross-border financial integration and volatile capital flows. The optimal policy response will therefore vary between AE and EME SOFIEs and within these groups. For most EMEs and at least some AE SOFIEs this does not, however, undermine the validity of the statement that with completely free capital movements and a freely floating exchange rate, it is not sufficient to only use “old orthodoxy” (pre-GFC) instruments for preserving macroeconomic and financial stability. An adequate response to these challenges has to involve a departure from inflation targeting monetary policy with the policy interest rate as almost the only tool, micro-supervision and “let the markets do the rest”. Furthermore, a floating exchange rate is not sufficient for “safe” monetary policy independence. This implies that more instruments and reformed policy frameworks are needed compared to the pre-GFC orthodoxy for SOFIEs to be better placed to deal with the shocks, the complexities and the difficult trade-offs involved.

It is useful in this connection to distinguish between three types of policy responses. The first is structural reforms and other measures aimed at increasing resilience to shocks, reducing domestic financial vulnerabilities, and increasing the capacity of economies to absorb capital flows without the need for short-term action by economic and financial authorities. The second is exchange rate arrangements. The third is the addition of tools and better use of existing tools for shorter-term management of macroeconomic and financial stability. The time dimensions of these three types of policy responses are different. Building resilience and absorptive capacity are longer-term measures, both because they take time to implement and because their effect is long lasting. Exchange rate arrangements are usually not changed frequently. Stabilisation tools, however, operate in a cyclical or higher frequency domain. These three types of policy responses are discussed in turn in the next three sub-sections.

(i) Structural reforms, resilience, and institutional strength

Various factors that make macroeconomic management to be able to deal with capital flows and exchange rate volatility without putting financial

stability at risk, fall under the heading of this sub-section. Among those are measures to develop deeper and more efficient domestic financial markets, the accumulation of adequate buffers (e.g., FX, bank capital and liquidity), management of space for fiscal and monetary policies to mitigate adverse shocks, hard-wired prudential rules that limit financial vulnerabilities (e.g., limits on currency mismatches and maturity mismatches in FX), and robust micro-prudential rules. Institutional strength is also important for good management of the challenges arising from cross-border financial integration, in particular, independent and properly resourced central banks and financial supervisory institutions.

Developing local currency bond markets is a good example of a relevant structural reform. Deeper and more efficient markets have generally more capacity to facilitate the adjustment to shocks and are better in assessing, allocating and mitigating risk. In the case of financial markets, this will reduce systemic risk, increase the capacity to absorb capital flows and decrease currency mismatches. EMEs have therefore been advised to develop such markets. While such reforms are certainly a step forward, they are not a panacea. Unhedged foreign investments in local currency bonds can still create unwelcome swings in the exchange rate and in domestic financial conditions. Furthermore, there is an element of the double-edged sword in that deeper and faster moving markets could increase the volume and volatility of capital flows when there are sudden shifts in expectations.

There was significant progress on structural reforms and the building of resilience among EMEs after their crises of the 1990s and again after the GFC. However, structural reforms often take time to implement and deliver their benefits. Furthermore, EMEs cannot change themselves into AEs overnight and there are limits to how deep FX and other financial markets can be in small economies. The need to use additional macroeconomic and financial stability tools will therefore remain part of such reforms. There will still be a need for a multitude of higher frequency instruments and the development of policy frameworks around them.

(ii) Exchange rate arrangements

Capital account liberalisation in the decades leading up to the GFC made it more difficult to maintain pegged exchange rates. As a result, there was a shift away from such pegs, mostly towards flexible exchange rates, but among EU

countries towards a monetary union.¹³ The stability challenges from cross-border financial integration that are discussed in this paper give, however, a cause to revisit this issue. It is at least clear that a freely floating exchange rate might not be the best option for SOFIEs. A good case can be made that a better option, at least for most EMEs and some of the smaller and more vulnerable AE SOFIEs, would be a managed float where various policy tools are used with the aim to keep the exchange rate aligned with fundamentals and to avoid it becoming a shock amplifier. The optimal degree of exchange rate management will vary from time to time and between economies, depending among other things, on their size and the level of financial market development.

There are in principle alternative exchange rate arrangements for SOFIEs other than a flexible exchange rate in the free or managed form. These include an entry into a monetary union, unilateral adoption of another economy's currency, or pegging to such a currency. The pegs can take various forms that affect their credibility and the perceived risk that they could be discontinued. In that connection, it matters whether the pegs are unilateral or bilateral and whether there are enhanced commitment mechanisms attached to them or not.

From the vantage point of this paper, which is the macroeconomic and financial stability risks associated with cross-border financial integration and volatile capital flows, a monetary union is a better option than a peg due to its multilateral nature, common safety nets and higher probability of durability. There are, after all, several examples in relatively recent history where broken exchange rate pegs have been the trigger of a severe financial crisis. Unilateral adoption of another currency has been less frequent and so far, less tested, but the risks with having banking systems without a lender-of-last-resort can hardly be overlooked.

For a SOFIE that enters a monetary union that is at the same time its biggest trading partner, excess exchange rate volatility and currency mismatches will become much less critical. A monetary union has, however, wider pros and cons that will not be discussed here. Furthermore, apart from SOFIEs on the

¹³ Some economies succeeded in maintaining their pegs, such as Denmark against the Deutsche mark and later the euro and the Hong Kong dollar against the US dollar, but required large FX reserves and in the case of Denmark, a special arrangement with the European Central Bank.

periphery of the euro area, most SOFIEs around the world do not currently have this as a realistic option within a reasonable time horizon.

For the reasons presented above, the case of a monetary union or various fixed exchange rate arrangements will not be considered further in this paper.

(iii) Stabilisation tools

The tools considered here include those generally used for shorter-term stabilisation of the macroeconomy by minimising deviations of actual output from potential and inflation from target, and by minimising deviations from external equilibrium (exchange rate aligned with fundamentals and sustainable current and capital accounts of the balance of payments). This excludes measures taken to affect the supply side of the economy or income distribution. These are usually more long-term and have a less clear relationship with destabilising capital flows or adverse exchange rate dynamics that are the focus of this paper. Also included here are tools that are aimed at keeping deviations from financial stability at bay and tools that affect capital flows or the exchange rate more directly.

Stabilization tools for macroeconomic management include fiscal policy, monetary policy and macroprudential policy, along with the use of foreign exchange reserves and capital flow management measures. The first three are usually assigned to specified goals such as balanced growth with sustainable full employment in the case of fiscal policy, price stability in the case of monetary policy and financial stability in the case of macroprudential policy. The use of foreign exchange reserves and CFM can, depending on context, both be used for macroeconomic stabilisation and financial stability. In relation to the topic of this paper, what matters is the degree to which these tools could and should be used to deal with the stability challenges created by cross-border financial integration. We would generally expect that the best contribution of individual tools is to deliver on their primary goals. In special situations and/or due to the interactions of the tools, that might not always be the case. This, in turn, gives rise to the possibility of temporary diversions of tools from their primary goals. That can be justified if there is an overall net benefit from doing so and other tools are not available that can be used without putting important goals at risk. In what follows, we analyse how these tools could be used to limit deviations from assigned macroeconomic and financial stability goals and tackle the stability challenges from cross-border financial integration.

Both fiscal and monetary policies play key roles in macroeconomic stabilisation, each on their own and in their interactions. The mix of these two policies can, as such, have important effects on capital flows and macroeconomic stability, and it matters whether these two arms of macroeconomic management are pulling in the same direction or are in conflict.

An example of an inferior policy mix is when policy rates are raised to prevent inflation from increasing above target due to a positive output gap, and foreign investors interpret the higher interest rate differential as a profit opportunity rather than increased risk. This then leads to more capital inflows that put upward pressure on the exchange rate and downward pressure on market interest rates, which blunts the transmission of monetary policy across the yield curve. The exchange rate appreciation is helpful in holding inflation down in the short-term, but the risk is that it will be reversed in a disorderly process going forward when risk perceptions turn. This is an example of how cross-border financial integration can weaken monetary transmission through the interest rate channel, which blunts the intended effect of monetary policy. In this case, a better outcome is likely to be achieved if fiscal policy is used to lower aggregate demand, thus reducing the need to tighten monetary policy.

An outright policy conflict would arise if the fiscal policy stance was loosened at the same time as monetary policy needs to be tightened. In that case, monetary policy would need to do more than otherwise, and the process described above would become more pronounced and riskier. As a result, investor confidence may reverse down the road, with more serious consequences for macroeconomic and financial stability.

The above examples underline what history has repeatedly shown, that conflicts between fiscal and monetary policy can be risky. The problem is, however, that fiscal and monetary policies are, largely for good reasons, managed by separate governance mechanisms. Fiscal policy cannot therefore be easily included in an integrated policy framework where the use of all the relevant instruments is decided jointly. The stakes are, however, so high that it is important to try to avoid policy conflicts involving fiscal policy. This requires at least information sharing and policy dialogue.

Macroprudential policy is one of the additional instruments if compared with the pre-GFC prevailing orthodoxy. Several of its tools have, however, been

around for much longer and been used earlier by EMEs than even by AEs. The distinction between the macroprudential and microprudential spheres is not always sharp in small economies - for instance, the soundness of a few systemically important banks can be crucial for macro-financial stability, and flaws in key microprudential regulations can have macro-financial implications. Furthermore, there is a distinction between more permanent settings of certain macroprudential tools that are part of the resilience considered before in this section and macroprudential tools with variable setting that are considered here as part of stabilisation tools.

Good macroprudential policy will mitigate the risks from volatile capital flows and disorderly exchange rate dynamics by leaning against the financial cycle and preventing the accumulation of financial vulnerabilities. Examples of this are the use of macroprudential tools that indirectly reduce capital inflows and the tightening of variable prudential limits during a capital inflow surge. Macroprudential policy can also have a beneficial interaction with monetary policy, which, in turn, helps to deal with the stability challenges of cross-border financial integration. One example of this is a tightening of prudential limits in the housing market (e.g., debt service to income, debt to residential property value and debt to income ratios), which lowers house price increases that feed into inflation measures and therefore allows policy rates to be lower than otherwise. Macroprudential policy and monetary policy can, of course, pull in different directions, sometimes for good reasons.¹⁴

The use of foreign exchange reserves and CFMs are, like macroprudential policy, also part of the additional instruments when compared to the pre-GFC prevailing orthodoxy and also have a long history of being used by EMEs and before by AEs. As these are not strongly assigned to a particular goal and can be used in an on-off manner, they can be used to support other tools that have a primary assignment, mitigate the effect of policy conflicts and in the absence of other instruments to deal directly with capital flow surges and bad exchange rate dynamics.

¹⁴ Bean (2015) provides the example of a beneficial supply shock where monetary policy needs to be loosened to balance aggregate supply and demand, and macroprudential policy tightened to lean against a potential credit boom.

The use of foreign exchange intervention includes the buying and selling in the FX market and operations with financial institutions that bypass the market in the first round. The former is traditional sterilised foreign exchange intervention (FXI) conducted to affect the exchange rate or address disorderly market conditions. The second can take various forms and is more likely to be implemented for financial stability reasons. An example of this is FX lender-of-last-resort (LOLR) lending by central banks to domestic banks that are unable to roll over their short-term FX liabilities during crises. FXI can be used to mitigate the effects of temporary balance of payments shocks, whereas the rule is to adjust to long lasting ones. FXI can mitigate the effects of capital flows on domestic financial conditions. Views on the use of FXI have shifted considerably in recent decades and it seems to have become widely accepted that it is one of the potential tools for managing the stability challenges from cross-border financial integration in SOFIEs. FXI has its limits, especially in the case of outflows. The same applies to FX lending to domestic banks. In both cases, the size of FX reserves and the ability to acquire FX through borrowing or swap lines will be a binding constraint.

CFMs are, in this paper, defined as measures that directly affect the volume or composition of capital flows, either through outright restrictions of particular flows or through influencing the expected payoff to investors in the case of inflows (e.g., taxes or non-remunerated reserve requirements).¹⁵ CFMs can certainly be rather forceful interventions, especially on the outflow side. Targeted inflow CFMs can, however, be designed in relatively market friendly ways that make them far removed from full scale capital controls. That is probably more likely to be the case if they are price-based rather than quantity-based.¹⁶ There will still be economic costs associated with such measures as with most other policy interventions. As with other public actions, particular CFMs should not be implemented except if the expected benefits outweigh the expected costs. The details of the design will matter in this regard, especially that the CFMs are well targeted at the particular problems they are meant to solve and are reversed when temporary ones are overcome. This does not exclude preventive and more permanent CFMs, subject to the same principle of assessment of expected net benefits.

¹⁵ It depends on the forcefulness and design of CMFs as to what degree they affect the overall volume of capital flows versus the composition. Some studies suggest that targeted inflow CFMs affect mostly the composition, which can still be important in reducing financial stability risks from such inflows.

¹⁶ Box 7 in Part 1 of this publication reports that market participants had expressed their preference for price-based rather than quantity-based CFMs.

The same applies to the alleged costs of CMFs, net benefits of capital account liberalisation and the costs of outright capital controls have been proven difficult to validate in empirical studies but they are generally perceived to be substantial. Furthermore, there are case studies suggesting net benefits in particular situations.¹⁷ More work is needed in this area, but in the meantime, policy makers should not shy away from using such tools in situations where the case for net benefits is strong. But at the same time, we should be careful to ensure that such tools are not more intrusive than necessary.

Let us take two examples to demonstrate how FXI and CFM can help in dealing with the stability challenges of cross-border financial integration.

The first example is related to the one that was discussed before, where there is a need to restrain aggregate demand and fiscal policy is either not helping or is actively going in the other direction, with the additional concern that the exchange rate is becoming overvalued. There is of course the option of diverting monetary policy from its primary goal and that it is not tightened sufficiently to preserve internal equilibrium, but this is an inferior option for the reasons discussed earlier. In this case, FXI could be used to lean against further appreciation and mitigate the effects on domestic financial conditions that might otherwise result in increased systemic risk. CFM could, of course, also be used for this purpose or FXI and CFM could complement each other. Since FXI can be used at short notice, whereas CFMs often need designing or an activation process that might include other authorities than the central bank, then there is a case that FXI should be considered first. FXI, however, has its limits and can become costly in the case of inflows and with a positive interest rate differential with the rest of the world. Furthermore, going too far in facilitating through FXI and the entry and exit of carry trades, raises issues of moral hazard and social justice and can induce bigger flows in the future.

The second example is one where there is an inflow surge at the same time as the economy is at the risk of overheating, the exchange rate becoming overvalued, foreign exchange reserves are already ample and fiscal policy is already countercyclical. In this case, the policy rate should not be cut to deter inflows, exchange rate appreciation is risky and FXI too costly. Here CFMs could be helpful. This is the classical example of the IMF's Institutional View (2012) or IV1 on a case where the use of CMFs would be advisable.

¹⁷ See case studies in Box 5.1 of Part 1 and Box 9.

This section has so far presented a menu of policy options to deal with the stability challenges of cross-border financial integration. In the next subsection, we explore what has been picked from this menu by individual economies.

(iv) What options have been chosen?

Most economies expanded their toolkit for preserving macroeconomic and financial stability after the GFC. The most significant part of that was due to the international effort to improve prudential regulation of the financial sector and develop macroprudential policies. This was largely driven by the need to heed the lessons from the financial crisis regarding how to regulate the banking system and manage the domestic financial cycle. These reforms help to deal with the stability challenges arising from cross-border financial integration by building resilience and containing systemic risk. Furthermore, economies that are more exposed to capital flows and FX risks have, under the umbrella of these reforms, introduced specific regulations pertaining to them (e.g., liquidity coverage ratios, or LCRs, and net stable funding ratios, or NSFRs, in FX, and limits on FX lending to unhedged borrowers).

The big picture of how individual economies deal with the stability challenges arising from cross-border financial integration varies in ways that are broadly consistent with their structural characteristics. Big AEs and several AE SOFIEs have opted to live with them by sticking mostly to freely floating exchange rates and abstaining from using CFMs. Some AE SOFIEs have, however, used FX interventions more actively in the recent period, but in some cases at least, that was intended to deliver their preferred monetary stance (e.g., Czech Republic and Switzerland) rather than due to concerns about the financial stability risks of large and volatile capital flows. EMEs have been more active in using FXI and CFMs. Let us look at that more closely.

In 2020, the BIS published a report by a working group on capital flows, exchange rates and policy frameworks in emerging Asia based on questionnaires to central banks.¹⁸ In 2021, it published a similar report for Latin America, South Africa, and Turkey.¹⁹ The reports show that central banks in EMEs are all reacting to the stability challenges arising from large and volatile capital flows and are using most of the tools surveyed in this section. All are using macroprudential tools, including in many cases those that are directed at FX related risks. Macroprudential policy tools are mostly assigned to financial stability. Most central banks have actively used FXI and stand ready to do so in the future. FXI is generally not intended to affect the level of the exchange rate but to mitigate excessive exchange rate volatility and preserve orderly market conditions. There is more variation when it comes to CFMs that are reported to have been more commonly used by Asian EMEs than EMEs in the other report.²⁰ The economies that are classified as AEs in these reports (Australia, Canada, and New Zealand) do not use CFMs and rarely intervene in foreign exchange markets.

A 2019 report by an ASEAN Working Committee on Capital Account Liberalisation described how four ASEAN economies (Indonesia, Philippines, Malaysia, and Thailand) had dealt with stability challenges arising from large and volatile capital flows. The report confirms in the case of these four economies, the readiness to use additional tools labelled as “conventional” (e.g., fiscal policy, monetary policy, exchange rate flexibility and FXI). This includes macroprudential measures and capital flow management measures.

¹⁸ See BIS (2020). The monetary authorities represented in the working group were those of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; and Thailand. Those of Australia, Japan, and New Zealand were observers representing the viewpoints of AEs. Five of those are included in Appendix 1 (Indonesia, Malaysia, New Zealand, Philippines, Singapore, and Thailand), but there Singapore is classified as an AE in line with IMF WEO classifications, and so is Republic of Korea (which is not included in Appendix 1).

¹⁹ See BIS (2021). Central banks represented in the working group were those of Argentina, Brazil, Canada, Chile, Columbia, Mexico, Peru, South Africa, and Turkey. Three of those are included in Appendix 1, namely Chile, Columbia, and Peru.

²⁰ Three out of nine classified EMEs in the Asian report acknowledge using CFMs for managing external stability. Looking at the other six, one can see economies that still have not liberalised their capital account (China) and others that have used CFMs in the past. In the other report, only Argentina currently uses CFMs.

In this connection, the report is critical about the inflexibility of the IMF in this area.²¹ That is what we turn to in the next section.

D. The Role of Multilateral Treaties and Organisations

Economies might be restricted in using CFMs due to international or regional obligations that they have committed to. Examples of this is the free movement of capital rule in the European Union single market, which extends to a few other European countries through the Treaty of the European Economic Area, and the OECD Code for Liberalisation of Capital Movements (OECD, 2022). Multilateral treaties that aim at free movement of capital tend to have escape clauses that allow deviations from the rule under certain conditions, such as a balance of payment crisis. Usually, these deviations require the formal approval of the other partners to the treaty. The OECD Code is a partial exemption from this, as certain measures relating mainly to short-term capital movements can be taken immediately by the country involved but are required to be subject to a peer dialogue that provides transparency and accountability.

The IMF plays an important role as an economic adviser to its member countries. Free movement of capital, however, is not part of its Articles of Agreement (IMF, 2020a) and the members are, therefore, not under obligation to follow its advice in that area.²² The exemption to that is if the use of CFMs is deemed to be in breach of other Articles that bind the members, such as on the unfair manipulation of exchanges rates.²³ But CFMs should not be special in this regard as the same should apply to other instruments that individually or in combination are used for such manipulation.

²¹ Refer to ASEAN (2019). Everaert and Genberg (2020) analyse IMF advice on capital flows and report on the views of policy makers in Korea and three ASEAN countries (Indonesia, Malaysia and Thailand). The application of the IMF's Institutional View (2012) is seen to be too inflexible and CFMs should become an integral part of the toolkit. AMRO (2022) provides a more recent assessment from the region and expresses similar views. All these reports were written before the review of the IMF's Institutional View at the end of March 2022.

²² Article VI (3) states: "Members may exercise such controls as are necessary to regulate international capital movements."

²³ Article IV (1) states that "each member shall ... avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain unfair competitive advantage over other members."

The dialogue between the IMF and its members is important and is often fruitful in terms of improving policies aimed at preserving macroeconomic and financial stability in individual countries. It matters in that connection that the countries receiving the advice generally see it as well grounded and helpful, even if they might disagree with individual proposals. It is, likewise, important that the entire membership feels that IMF advice is even handed, which means that truly similar cases are not treated differently.

These concerns were behind the 2012 adoption by the Board of the IMF of the Institutional View (IV) on the Liberalisation and Management of Capital Flows (IMF, 2012) at the same time as it, at least partly, reflected analytical advances regarding the stability challenges of capital flows and how to deal with them. In a nutshell, regarding capital inflows, the 2012 IV accepts the use of CFMs when an inflow surge has been identified (no prevention) and other more traditional instruments (policy interest rate, exchange rate and FXI) are not available. CFMs should not substitute for warranted economic adjustment and policies. It was also seen to be useful in certain situations to safeguard systemic financial stability or buy time for macroeconomic adjustment.

Although the 2012 IV was a step forward, it fell behind analytical developments in subsequent years and came under criticism for being too inflexible and incompatible with a truly integrated policy framework that the IMF has been working on.²⁴ It was also seen to be a bit problematic that IMF and OECD advice in this area were, in some cases, in conflict (see Box 9 for a case study). The IV was revised in March 2022 (IMF, 2022). The main changes are, again in a nutshell, that preventive use of CFMs is now accepted under certain conditions (e.g., debt inflows in the presence of currency mismatches) and the exclusion of certain measures that are related to international cooperation from IMF surveillance based on the IV.²⁵

²⁴ Before the review of the IV, the Independent Evaluation Office of the IMF (2020) was critical regarding the compatibility of the IV and IPF. Honohan (p. 25, 2020) writes in a diplomatic language: “If the IV must thus be interpreted as indicating a lexicographical preference for other measures over capital controls, it will sit uneasily with advocates of a more integrated policy approach.”

²⁵ National or international security, implementation of internationally agreed prudential frameworks, anti-money laundering (AML), countering financing of terrorism (CFT), and international tax cooperation.

The IMF's Institutional View in 2022 or IV2 (IMF, 2022) is certainly a step forward but time will tell how big and to what degree it deals adequately with the criticism that was directed at the IV1 (IMF, 2012). The issue about its compatibility with an integrated policy framework seems to remain, but the elements of such a framework are discussed in the next section. The bottom line is that critical analysis and policy advice of the IMF are very valuable, especially if they are based on the concrete situation and are helpful in the sense that truly better options are proposed when CFMs used by countries are criticised.

Box 9: Special Reserve Requirement on Capital Inflows into Interest-Bearing Financial Assets in Iceland 2016-2019²⁶
(Már Guðmundsson)

The Central Bank of Iceland activated on 4 June 2016 a special reserve requirement (SRR) on capital inflows into domestic bonds, bills, and high yielding deposits. The SRR was 40%, un-renumerated and had a holding period of one year. This implied that expected returns on investments of foreign currency funds in Icelandic currency interest bearing financial assets were reduced, and significantly more so for investors with short horizons.²⁷

The SRR was a currency-based capital flow management measure (CFM) and did not discriminate based on residency, although in practice it most probably affected foreign investors disproportionately. It applied to investments in domestic currency interest bearing assets of foreign currency funds that were exchanged to Icelandic krónur for this purpose at a domestic bank. Given the then capital control mechanism, this was the only way for such funds to be invested in domestic currency interest-bearing assets.

²⁶ For details on the SRR and analysis of its effects, see Central Bank of Iceland (2016) and Guðmundsson (forthcoming, 2023).

²⁷ In June 2016, the interest rate differential of 10-year Icelandic government bonds vis-à-vis a 50-50 weighted portfolio of US and German bonds of the same maturity was 5.4%. Over a one-year horizon, the SRR reduced the effective interest rate differential to 3.2%, but to only 4.9% over a five-year horizon.

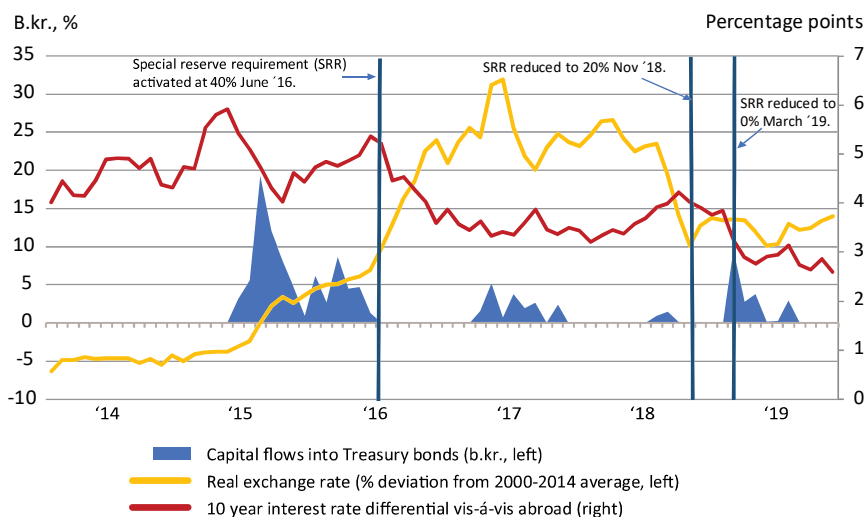
The main reason for activating the SRR at the time was the perceived risk to the orderly lifting of comprehensive capital controls, which were imposed in 2008 as part of the crisis measures under the IMF programme. The strategy of lifting capital controls had three stages. The first was dealing with potential capital outflows associated with the resolution of the estates of the failed banks. That was successfully carried out in 2015 and early 2016. The second was to reduce and release the big carry trade positions that had accumulated in Iceland prior to the financial crisis of 2008. Big measures on that front were implemented around the time of the activation of the SRR. The third step was to lift capital controls on domestic households and companies that was mostly carried out in the second half of 2016 and early 2017. New carry trade positions had begun to accumulate in late 2015. The concern was that it would upset the sequencing of the strategy that was based on the premise of reducing potentially volatile foreign positions in anticipation of the lifting of capital controls on residents. In addition, the SRR was helpful in dealing with the macroeconomic challenges at the time, which were the risks of overheating and an overvaluation of the exchange rate.

The SRR had a strong effect on the intended inflows and averted the risks to the capital flow liberalisation strategy. Furthermore, it strengthened the transmission of monetary policy through the interest rate channel, which helped to avoid the risks of overheating and overvaluation of the exchange rate. It was deactivated in two steps in late 2018 and early 2019 (**Figure B9**).

The management and staff of the IMF opposed the use of the SRR on the grounds that there was no capital inflow surge and the IV at the time did not accept preventive CFMs.²⁸ The Board of the IMF was less critical and the OECD in its surveys in Iceland was supportive. It clearly helped in that regard that the SRR did not substitute for warranted economic adjustment and policies but on the contrary facilitated them.

²⁸ Guðmundsson (forthcoming, 2023) argues that there actually was a capital inflow surge, and that the assessment of the IMF staff was flawed in the sense that it did not take structural breaks into account.

Figure B9: Government Bond Market Inflows (Gross), Interest Rate Differential, Real Exchange Rate and the Special Reserve Requirement (January 2014 - December 2019)



Notes: Interest rate differential is the spread of 10-year Treasury bonds for Iceland versus equally weighted Treasury bond yields for the US and Germany. Real exchange rate relative to consumer prices (15-year average, 2000-2014).

Source: Central Bank of Iceland.

E. Elements of an Integrated Policy Framework

In this section, we discuss the elements of an integrated policy framework for SOFIEs that have a flexible exchange rate regime and aspire to have some degree of independent monetary policy. Except for the bigger AE SOFIEs, it is likely to be an important aspect of the framework that the exchange rate regime is a managed float where tools are used with the aim of limiting deviations of the exchange rate from the equilibrium rate.

The tools considered are those that are assigned to central banks and financial regulators and supervisors. This excludes fiscal policy, but its importance was discussed in Section D. The reason is our initial assumption that the tools are used as if they were in the hands of a single policy maker that attempts to combine the tools in an optimal way. That is not realistic if fiscal policy is part of the policy mix. In this case, the goals are, arguably, financial stability and

monetary stability rather than overall macroeconomic stability that would require the help of fiscal policy.

The relevant tools are those of monetary policy (policy interest rate, the use of the domestic currency part of central bank balance sheets and reserve requirements that are not CFMs), MPMs, FXI and CFMs. We take the structural characteristics of economies, the level of development of financial markets and microprudential regulation and supervision as given, but changes in these are likely to affect the optimal calibration and combination of tools as they affect the relevant financial vulnerabilities and systemic risk as discussed in Section D. We further assume that there are no legal impediments to the speedy use of these tools when they are needed. Such impediments are probably most likely in the case of CFMs. There might, therefore, be a case for those economies that are more likely to need such tools to have a few legally enabled CFMs on the shelves, which could be quickly activated.

In a fully integrated policy framework, there are no *a priori* restrictions on the use of individual tools. Calibration and the combination of tools depends on the context that is revealed by careful analysis of the concrete situation and the assessed efficacy, side effects and interaction of tools. There is, in principle, a contradiction between this approach and that of the IMF IV which restricts the use of CFMs to particular predetermined conditions.

Accumulated experience and research will inform the calibration and combination of tools in the integrated policy framework. We are, however, still far from having the knowledge to be able to formulate robust policy rules for the multitude of tools that can cover all contingencies.²⁹ This might argue for an institutional solution where goals are set, tools are assigned, policy committees are set-up, and analytical support is provided. Then there would be a learning curve to climb with dynamic interactions between domestic policy makers, international organisations, and the academia.

²⁹ Even within the past simple monetary policy frameworks that proved difficult as witnessed by the addition of quantitative easing and deviations from simple Taylor rules.

The IMF has done valuable analytical work in recent years to support the development of its Integrated Policy Framework around the toolset listed above. The main conclusions, based on a theoretical model, a quantitative model and case studies, are summarised in IMF (2020). The most relevant ones from the standpoint of this study are the following:

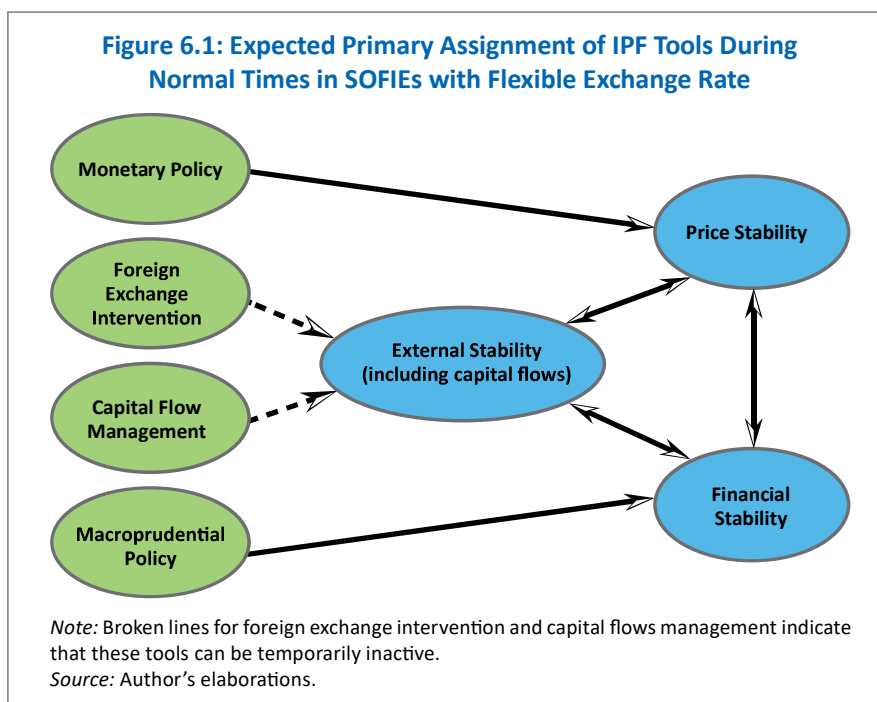
- Optimal policy combinations depend on the nature of shocks (e.g., real versus financial and temporary versus permanent); country characteristics such as currency mismatches and the depth of FX markets; and initial conditions such as the composition and level of debt.
- There are no *a priori* restrictions on the use of individual tools and their combinations.
- Policy combinations can, depending on conditions, be more effective than using a single tool.
- The appropriate use of MPMs, FXI and CFMs can create greater room for monetary policy to focus on price stability.
- MPMs and inflow CFMs used during normal times can prevent the build-up of risky liability structures.
- Precautionary CFMs on capital inflows can lower risks to financial stability in economies that are vulnerable to sudden stops.
- In a risk-off situation, economies with shallow FX markets should use FXI, CFMs and MPMs in a temporary fashion to stabilise interest rate premia.
- There is some evidence that FXI can encourage the build-up of unhedged FX liabilities.
- The models do not provide a rationale for the use of FXI and CFMs in AEs with deep FX markets and continuous market access.

The results of the IMF research amount to a strong case for the use of FXI and CFMs as part of an IPF in EMEs and, possibly, also in smaller AEs with relatively shallow FX markets. There are, however, also words of warnings against the inappropriate use and negative side-effects of such tools in IMF (2022). They should not be a substitute for warranted macroeconomic adjustment or support a misaligned exchange rate. There is a risk that CMFs might become unnecessarily sticky. Communication may become more complicated, which can negatively affect credibility. It might be easier to

build and maintain central bank reputation and credibility when following a relatively simple and transparent approach. There is a need for safeguards against the inappropriate use of such tools.

These points are, as such, correct but in the context a bit misleading as these words of warnings apply to any tool, not only these. Monetary and fiscal policies should not be used as substitutes for warranted macroeconomic adjustment and no tool should be used to support a misaligned exchange rate. The whole point about the use of these additional tools in the context of preserving macroeconomic and financial stability is to try to avoid misaligned exchange rates from turning into shock amplifiers. The issue about a potential stickiness should not be used to deter the use of CFMs when they are highly appropriate. The solution is to counteract the alleged unnecessary stickiness that is avoidable as the case study in **Box 9** shows. The communication challenges are a real issue that needs to be given serious consideration (see below). A simpler framework that ignores the real-world complexities and difficult trade-offs involved is, however, not the solution. Shying away from using additional instruments when conditions require can, as history has shown, contribute to serious financial instability further down the road with long lasting negative consequences for central bank reputation and credibility.

Even if the principle of the IPF models is that there is no *a priori* assignment of individual tools to particular goals, it might still make sense to do so in practice. Some tools have more effect on particular goals than others and for this reason it is likely that the outcome of an unconstrained optimisation will in normal times be closer to the assignment of the type that is shown in **Figure 6.1**. The figure shows a case where monetary policy is assigned to price stability, MPMs to financial stability, and FXI and CFMs to external stability, which in turn feeds into both price stability and financial stability. The restrictions on the use of CFMs in the IV2 are not fully consistent with an IPF approach, but even they might, in many cases, not be binding in normal times. This assignment, however, might in an IPF perspective be somewhat flexible in special cases such as during strong capital inflows and accumulation of systemic risk or during intense risk-off episodes.



This will make communication somewhat easier than would otherwise. The remaining challenges will have to be faced head-on which means that central banks and other relevant authorities should attempt to clearly explain the rationale of their actions, the uncertainties, and complexities they face. It remains a work in progress.

Finally, it should be mentioned that a new framework around an enhanced toolset might call for institutional reforms of central banks and financial supervisors that facilitate integrated policy making. Integrated policy making is more likely to work well if monetary policy, macroprudential policy and financial regulation and supervision are part of a single institution or other mechanisms are in place to ensure close coordination. The same can be said about analytical support and the operational aspects of implementing such policies.

F. Concluding Remarks

Although cross-border financial integration comes with significant benefits, it is also associated with risks to macroeconomic and financial stability in SOFIEs. These risks have two related sources. The first is the interaction of a weakened transmission of monetary policy through the interest rate channel, a potentially disorderly exchange rate dynamic, and financial vulnerabilities. The second is large and volatile capital flows driven by the global financial cycle, shaped by big reserve currency economies (mainly the US). There is some evidence that these challenges have increased since the GFC, but emerging market fundamentals have at the same time improved.

History has shown that the interaction of volatile capital flows and disorderly exchange rate dynamics with domestic financial vulnerabilities can, in the limit, result in a financial crisis if it is left to run its course by the absence of policy interventions. The case for policy responses that aim to avoid this scenario is, therefore, strong.

The optimal policy response to the stability challenges created by cross-border financial integration will vary between economies depending on the depth and level of development of their financial markets, and the nature and size of their financial vulnerabilities. The optimal policy response will, therefore, vary between AE and EME SOFIEs and within these groups. For most EMEs and at least some AE SOFIEs, this does not, however, undermine the validity of the statement that with completely free capital movements and a freely floating exchange rate, it is not sufficient to only use “old orthodoxy” (pre-GFC) instruments for preserving macroeconomic and financial stability. An adequate response to these challenges will, therefore, have to involve a departure from inflation targeting monetary policy with the policy interest rate as almost the only tool, using only microprudential supervision while “letting the markets do the rest”. This implies that more instruments and reformed policy frameworks are needed for SOFIEs compared to the pre-GFC orthodoxy for economies to be better placed to deal with the shocks, the complexities and the difficult trade-offs involved.

Most economies expanded their toolkit for preserving macroeconomic and financial stability after the GFC, which varies in ways that are broadly consistent with their structural characteristics. Big AEs and several AE SOFIEs have opted to live with them by sticking mostly to freely floating exchange rates and abstaining from using CFMs. Some AE SOFIEs have, however, used

FXI interventions more actively in the recent period. EMEs have been more active in using FXI and CFMs.

The IMF work on IPF and its revision of the IV are welcome steps in the right direction that are based on major research contributions that IMF staff have made to this field since the GFC. It is, however, unclear to what degree the revised IV is flexible enough and consistent with a fully-fledged IPF.

The development of an IPF by the IMF and the authorities in individual economies, remains a work in progress. Furthermore, we are still far from being able to formulate robust policy rules for multiple tools that can cover all contingencies. This might argue for an institutional solution where goals are set, tools are assigned, policy committees are set-up, and analytical support is provided. Then there would be a learning curve to climb with dynamic interactions between domestic policy makers, international organisations, and the academia. It is an exciting task!



APPENDIX

PRESERVING MACROECONOMIC AND FINANCIAL STABILITY IN SMALL, OPEN, AND FINANCIALLY INTEGRATED ECONOMIES

Appendix 1: Indicators of Cross-Border Financial Integration in Selected SOEs

This appendix provides two indicators of the level of cross-border financial integration for a selected group of 15 small, open economies (SOEs), seven advanced economies (AEs) and eight emerging market economies (EMEs). The indicators are correlations of changes in nominal long-term government bond rates with corresponding US rates and the sum of gross external assets and liabilities as a ratio of GDP.

Various indicators of cross border financial integration have been suggested in the literature. Some of them are based on how financial prices are expected to behave due to cross-border financial integration and others on how financial quantities might be expected to evolve. Still others, not used here, look at the degree to which theoretical predictions of the effects of cross-border financial integration show up in reduced home bias in domestic portfolios, lower correlation of domestic saving and investment or lower correlation of consumption and GDP. All these indicators are intended to reflect the degree of cross-border financial integration in the economics sense, which is the strength of the tendency to equalise expected real asset returns.

There are measures of capital account openness that are widely used in the discussion of external financial liberalisation. These are relevant in some context but less so for the topic of this paper. Abolishment of legal restrictions on capital flows is a precondition for almost full financial integration in the economic sense, but it requires in addition harmonisation of some aspects of legal systems and business practices along with a market driven process that over time increases the degree of actual cross-border financial integration.

Price-based indicators are founded on the theorem that full cross-border financial integration implies that expected risk adjusted real asset returns are equalised between any two or more fully integrated markets. The issue is to attempt to measure to what degree that is the case. That process is, however, subject to potentially significant measurement errors. One reason is that good measures of inflation expectations and relevant risk premiums are lacking. To cut corners, we tend to look at correlations of changes in nominal returns on assets with similar maturity and other characteristics, such as long-term government bonds. Volatility of interest rate differentials and country risk premiums will, however, bias this indicator as a measure of cross-border financial integration, but that can be mitigated as in **Table 6A.1** by averaging over longer periods. A potentially bigger problem is that we could, in principle, observe high correlations of changes in nominal long-term interest rates without cross-border financial integration being the main reason, for instance if business cycles are highly synchronised, inflation targets are the same and central banks use similar monetary policies. However, context and case studies can help to assess the plausibility of these correlations as reflections of the degree of cross-border financial integration. If we observe, as we have done on many occasions in recent decades, that business cycles in individual SOEs are not synchronised with the big rate-setting economies, they are at the same time trying their best to follow their own monetary policy, but long-term interest rates continue to be highly correlated and we observe the capital flows that bring that about, then we can be rather confident that the reason is cross-border financial integration.

Quantity-based indicators use the proposition that cross-border financial integration will be associated with higher cross-border capital flows and external assets and liabilities. The data shows that to generally be the case. The advantage of these kind of indicators is that they are more straightforward to calculate and to interpret than price-based indicators. As an example, the quantity-based indicator in **Table 6A.1**, which is a simplified version of the widely used Lane and Milesi-Ferretti (2018) indicator, uses the ratio of available IIP and GDP. The problem with this and other quantity-based indicators is that there is no clear benchmark of what constitutes a high degree of cross-border financial integration as there is in the case of correlations of asset returns.

Table 6A.1 shows the two indicators for the selected SOEs listed in alphabetical order. The selection might seem arbitrary, but it is composed of two groups of countries. The first is a group of SOEs (both AEs and EMEs)

that meets regularly at BIS bi-monthly meetings. The second is the ASEAN-5 countries.³⁰ All these countries had their own currencies during the period covered in the table. All the EMEs are middle-income economies according to IMF WEO classifications. Not all of them, however, were sufficiently financially integrated with the rest of the world to be labelled SOFIEs during the whole period. For example, Indonesia had an insignificant correlation of long-term rates with the US during the 2009-2019 period and a relatively low level of gross IIP. Another example is that Iceland stopped being a SOFIE after the financial crisis of 2008 due to comprehensive capital controls but became so again after they were mostly lifted in 2017. This shows up in the numbers in **Table 6A.1**, with significant correlation of rates in the period of 2000-2007 but none in the 2000-2019 period and with gross IIP relative to GDP collapsing from 11 in 2007 to 2.4 in 2019.

The numbers in **Table 6A.1** reflect the expected higher degree of cross-border financial integration of the AE SOFIEs than the EME SOFIEs. For AEs excluding Iceland, the rate correlation in the 2009-2019 period ranges from 0.5 to 0.8, with a GDP-weighted average of 0.7. The range for gross IIP for AEs in 2019 is 2-20, with a weighted average of 7.4. For EMEs, excluding Croatia and Indonesia, the interest rate correlation for the period 2009-2019 ranges from 0.3 to 0.5, with a weighted average of 0.4. The range for gross IIP for EMEs in 2019 is 2-3 with a weighted average of 2. Although the difference between AEs and EMEs is highly significant, it is more of degree than being qualitative. Thus, the interest rate correlations for the period of 2009-2019 are almost the same for the highest EME as for the lowest AE.

³⁰ This author was a member of the BIS group of governors from SOEs in the period of 2009-2019 and its chairman for the period of 2017-2019. The discussions in the group made it amply clear that risks associated with cross-border financial integration were not just an issue for EMEs. The ASEAN-5 countries are Indonesia, Malaysia, Philippines, Singapore, and Thailand. Some of these were, during this period, members of the BIS group of governors from SOEs. This author decided to include the whole group as it has sometimes acted together in the debate on how to manage volatile capital flows. See, for instance, ASEAN Working Committee on Capital Account Liberalisation (2019).

Table 6A.1: Correlations of Long-Term Government Bond Rates with US Rates and Gross External Assets and Liabilities to GDP Ratio

	Rate correlations		Gross IIP/GDP	
	2000-2007	2009-2019	2007	2019
Chile ^a	N/A	0.44**	2.0	2.9
Colombia ^a	N/A	0.36**	0.8	1.7
Croatia ^a	N/A	-0.03	2.1	1.9
Czech Republic ^a	0.46**	0.46**	1.8	2.7
Denmark	0.80**	0.69**	4.7	6.5
Iceland	0.24**	0.06	11.8	2.4
Indonesia ^a	N/A	-0.01	0.8	1.0
Israel	0.07	0.61**	2.1	2.0
Malaysia ^a	0.39**	0.49**	2.4	2.4
New Zealand	0.83**	0.76**	2.5	2.4
Norway	0.77**	0.81**	4.6	7.0
Peru ^{a,b}	N/A	0.28**	1.2	1.5
Philippines ^a	0.02	0.37**	1.2	1.1
Singapore	0.49**	0.55**	19.0	20.4
Thailand ^a	0.39**	0.37**	1.5	2.0

Notes: Bond rates: Correlation between monthly changes in 10-year government bond rates. ** = 95% significance. All other correlations are below 90% significance. N/A where datapoints are too few to meaningfully measure correlation with US rates. Gross international investment positions refer to the sum of total assets and liabilities recorded in the IIP in USD relative to current price GDP in USD (as ratio).

a) Starting point of the data set for bond rates is after December 1999: Chile: August 2004, Colombia: February 2003, Croatia: January 2006, Czech Republic: May 2000, Indonesia: September 2004, Malaysia: December 2001, Peru: June 20006, Philippines: August 2000, Thailand: March 2001.

b) 2006 data instead of 2007.

Sources: Bond rates: Central Reserve Bank of Peru (Peru), Global economy (Croatia), Investing.com (Indonesia, Malaysia, Philippines, Thailand), OECD (Chile, Colombia, Czech Republic, Denmark, Iceland, Israel, New Zealand, Norway, United States), Monetary Authority of Singapore (Singapore). IMF's International Investment Position access through CEIC Database for data on International Investment Assets and Liabilities and IMF's World Economic Outlook Database, October 2022, accessed February 2013, for nominal GDP in US dollars.

REFERENCES

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- ASEAN+3 Macroeconomic Research Office (AMRO). 2022. Capital flow management and macroprudential measures in the ASEAN+3: Initial Recommendations. Policy Position Paper, 22-01. Available at <https://www.amro-asia.org/capital-flow-management-and-macroprudential-policy-measures-in-the-asean3-initial-recommendations/>
- ASEAN Working Committee on Capital Account Liberalisation. 2019. Capital account safeguard measures in the ASEAN context. Available at (5/8/2022): https://www.bsp.gov.ph/Media_and_Research/Primers%20Faqs/ASEAN_the_role_of_safeguard_measures_in_ASEAN.pdf
- Bank for International Settlements. 2020. Capital flows, exchange rates and policy frameworks in emerging Asia. A report by a Working Group established by the Asian Consultative Council of the BIS, November. Available at <https://www.bis.org/publ/othp34.htm>
- Bank for International Settlements. 2021. Capital flows, exchange rates and monetary policy frameworks in Latin America and other economies. A report by a group of central banks including members of the Consultative Council for the Americas and the central banks of South Africa and Turkey, April. Available at <https://www.bis.org/publ/othp37.htm>
- Bean, Charles. 2015. Discussion of “Applying an inflation targeting lens to macroprudential policy ‘institutions’”. *International Journal of Central Banking*, September 2015, pp 431-38. Available at <https://www.ijcb.org/journal/ijcb15q4a14.pdf>
- Breedon, Francis, Thórarinn Pétursson and Andrew K. Rose. 2012. Exchange rate policy in small rich economies. *Open Economies Review*, 23, 421-445. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2092877

- Bruno, Valentina and Hyun Song Shin. 2013. Capital flows and the risk-taking channel of monetary policy. NBER Working Paper 18942. Available at <http://www.nber.org/papers/w18942>
- Carney, Mark. 2019. Pull, push, pipes: Sustainable capital flows for a new world order. *Group of Thirty Occasional Paper No. 96*. Group of Thirty, Washington, D.C. Available at <https://group30.org/publications/detail/4625>
- Chinn, Menzie D. and Hiro Ito. 2006. What matters for financial development? Capital controls, institutions and interactions. *Journal of Development Economics*, 81, 162-192. Available at https://www.ssc.wisc.edu/~mchinn/Chinn_Ito_JDE.pdf
- Central Bank of Iceland. 2016. Capital flows and the central bank's new capital flow management measure. Box 1 in Monetary Bulletin 2016/4. Available at https://www.cb.is/library/Skraarsafn---EN/Monetary-Bulletin/2016/November-2016/MB_164_Box%201.pdf
- Everaert, Luc and Hans Genberg. 2020. IMF advice on capital flows to the Republic of Korea and selected ASEAN economies. IEO Background Paper. Available at <https://ieo.imf.org/en/our-work/Evaluations/Completed/2020-0930-imf-advice-on-capital-flows>
- Gosh, Atish R., Jonathan D. Ostry, and Mahavash S. Qureshi (2017). *Taming the tide of capital flows*, MIT Press. Available at <https://academic.oup.com/mit-press-scholarship-online/book/33425>
- Guðmundsson, Már. 2008. Financial globalisation: Key trends and implications for the transmissions mechanism of monetary policy. *BIS Papers No. 39*. April 2008. Available at <http://www.bis.org/publ/bppdf/bispap39c.pdf>
- Guðmundsson, Már. 2017. Global financial integration and central bank policies in small, open economies, *Singapore Economic Review*, Vol. 62, issue 01, 135-146. Available at <https://www.worldscientific.com/doi/abs/10.1142/S0217590817400069>

- Guðmundsson, Már (forthcoming in 2023). Special reserve requirement on capital inflows into interest-bearing financial assets in Iceland 2016-2019.
- Honohan, Patrick. 2020. IMF advice on crisis-driven capital controls in Europe. IEO Background Paper. Available at <https://ieo.imf.org/en/our-work/Evaluations/Completed/2020-0930-imf-advice-on-capital-flows>
- Independent Evaluation Office of the IMF. 2020. IMF advice on capital flows. Available at <https://ieo.imf.org/en/our-work/Evaluations/Completed/2020-0930-imf-advice-on-capital-flows>
- International Monetary Fund. 2012. The liberalization and management of capital flows: An institutional view. Available at Available at <https://www.imf.org/en/News/Articles/2015/09/28/04/53/pn12137>
- International Monetary Fund. 2020a. Articles of agreement. Available at <https://www.imf.org/external/pubs/ft/aa/index.htm>
- International Monetary Fund. 2020b. Towards an integrated policy framework. IMF Policy Paper. October 2020. Available at <https://www.imf.org/en/Publications/Policy-Papers/Issues/2020/10/08/Toward-an-Integrated-Policy-Framework-49813>
- International Monetary Fund. 2022. Review of the institutional view on the liberalisation and management of capital flows. IMF Policy Paper. Available at <https://www.imf.org/en/Publications/Policy-Papers/Issues/2022/03/29/Review-of-The-Institutional-View-on-The-Liberalization-and-Management-of-Capital-Flows-515883>
- Korinek, Anton. 2011. The new economics of capital controls imposed for prudential reasons. IMF Working Paper No. 2011/298. Available at <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-New-Economics-of-Capital-Controls-Imposed-for-Prudential-ReasonsL4888-25449>
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2018. The external wealth of nations revisited: International financial integration in the aftermath of the global financial crisis. *IMF Economic Review*, 66, 189–222.

- Organisation for Economic Co-operation and Development. 2022. OECD Code of liberalisation of capital movements. Available at www.oecd.org/investment/codes.htm.
- Obstfeld, Maurice. 2015. Trilemmas and trade-offs: Living with financial globalisation. *BIS Working Papers 480*. Available at <https://www.bis.org/publ/work480.htm>
- Obstfeld, Maurice. 2021. The global capital market reconsidered. *Oxford Review of Economic Policy*, Volume 37, Number 4, 2021, pp. 690–706. Available at https://static1.squarespace.com/static/5d0ed7795d764000017ccc00/t/618ac359f54f31395f6f202a/1636483929432/Oxrep_Obstfeld.pdf
- Ostry, Jonathan D., Atish R. Gosh, Karl Habermeier, Luc Laeven, Marcos Chamon, Mahvash S. Qureshi, and Annamaria Kokenye. 2011. Managing capital inflows: What tools to use? IMF Staff Discussion Note, No. 11/06.
- Plantin, Guillaume and Hyun Song Shin. 2006. Carry trades and speculative dynamics. SSRN Electronic Journal. 10.2139/ssrn.898412. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=898412
- Rey, Helene. 2013 “Dilemma not Trilemma: The global financial cycle and monetary policy independence”, Paper presented at the Jackson Hole Symposium, August 2013. Available at <http://www.kansascityfed.gov/publications/research/escp/escp-2013.cfm>