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Independent Evaluation Office
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BACKGROUND PAPER

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IMF Advice on Capital Flows to the Republic of Korea and Selected ASEAN Economies

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IMF Advice on Capital Flows to the Republic of Korea and Selected ASEAN Economies

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ABBREVIATIONS

AE	advanced economy
ARA	assessment of reserve adequacy
ASEAN	Association of Southeast Asian Nations
BI	Bank Indonesia
BNM	Bank Negara Malaysia
BoK	Bank of Korea
BoP	balance of payments
BOT	Bank of Thailand
CA	current account
CFM	capital flow management measure
EBA	External Balance Assessment
EM	emerging market economy
ESR	External Sector Report
FKRSU	Fernandez-Klein-Rebucci-Schindler-Uribe index
FX	foreign exchange
FXI	foreign exchange intervention
G20	Group of Twenty
GFC	global financial crisis
IPF	Integrated Policy Framework
IV	Institutional View on the Liberalization and Management of Capital Flows
MPM	macroprudential measure
OECD	Organization for Economic Cooperation and Development
REER	real effective exchange rate
WEO	*World Economic Outlook*

I. INTRODUCTION

1. This paper reviews the analysis and advice by IMF staff of capital flows and capital-flow-related policies adopted in four Asian countries: Indonesia, Korea, Malaysia, and Thailand, and documents the views of the authorities in these countries and of other observers on IMF staff advice. The analysis focuses on the period since the global financial crisis (GFC), and in particular since the approval in 2012 of the IMF's Institutional View on the Liberalization and Management of Capital Flows (IV) (IMF, 2012) and it was largely completed before the onset of the COVID-19 crisis. While the study has been updated to report on recent developments, it does not seek to evaluate the recent experience. Where relevant, a broader historical perspective is brought to bear.

2. The four countries covered in this paper share a number of characteristics. While all have adopted flexible exchange rates, they intervene in the foreign exchange market on occasion to counter excessive exchange rate volatility and maintain a high level of foreign exchange reserves; all have experienced occasional large inflows and outflows of capital—akin to so-called surges and sudden stops; and all have introduced macroprudential measures (MPMs), some of which are currency-based or residency-based, to deal with risks to financial stability.

3. The degree of capital account openness and its evolution differs across the four countries, while capital flow volatility has shown more similar patterns. Korea's capital account liberalization may be considered largely complete, but the other countries have less than fully open capital accounts. Korea and Thailand have maintained their degree of openness on the whole while in Indonesia and Malaysia openness has declined somewhat since the global financial crisis. There have been several distinct episodes of capital inflow surges and reversals since the GFC, including during the COVID-19 crisis, which was a sudden stop for all.

4. In response to the financial stability risks associated with capital flow volatility, the four countries each adopted macroprudential policies differentiating between currencies or types of flows, in addition to standard monetary and exchange rate policy responses. In each case, the IMF judged that some of the measures taken by the authorities constituted capital flow management measures (CFMs) under the Institutional View. While the IMF staff supported the measures when they contributed to financial soundness, it called for their continuous review and their gradual replacement with non-discriminatory alternatives. By contrast, the authorities felt that these measures should be part of a permanent toolkit to boost resilience and argued that they should not be called CFMs.

5. Against this background, the experience of these four countries provides potentially useful insights into the IMF's approach to advice on the liberalization and management of capital flows. The analysis of the IMF's advice in this paper is based on three principal sources: review of Article IV consultation documents; review of other relevant internal and external documents representing the staff and authorities' views; and interviews with IMF staff members in charge of

the work on the countries considered, current and former policymakers in these countries, and representatives of the private sector.[1]

6. The remainder of this paper consists of three sections. Section II describes Korea's experience with capital account liberalization and management of capital flows, and its engagement with the IMF, giving special attention to the application of the IV. Section III focuses on the experiences of Indonesia, Thailand, Malaysia in a similar manner. Section IV highlights lessons from the analysis of the four country cases.

II. KOREA[2]

A. Context and Experience

Opening up the capital account and experience during the global financial crisis

7. For decades after the Korean War (1950–53), Korea followed an export-led growth strategy in the presence of import restrictions and capital controls (Park, 2011). Delinking domestic and international financial markets was seen to be an essential part of such a public-sector-led development strategy. Starting in the first part of the 1990s, capital accounts and trade were gradually liberalized, initially with some hesitation out of concern that excess domestic demand for investment and favorable interest rate differentials might engender overwhelming inflows of capital. Capital inflows were mainly used to fund the expansion of export-oriented manufacturing firms, which supported sustained high economic growth.

8. An investment boom between 1994 and 1996 was funded by heavy reliance on short-term foreign borrowing. Capital inflows tripled—mostly intermediated through the financial system and driven by financial deregulation and liberalization—contributing to rising currency and maturity mismatches. Equity and longer-term inflows remained subdued. During the Asian crisis in the late 1990s, foreign exchange reserves proved insufficient to deal with the large and sudden reversal of these flows and neither a massive exchange rate depreciation nor a sharp rise in interest rates could stem the outflows. Deteriorating macroeconomic conditions at the onset of the crisis also played a role, but most observers agree that mismanagement of external debt (prior to the crisis) and foreign exchange reserves (during the initial stages of the crisis) was a decisive factor (Kim, 2000). The resolution of the crisis required balance sheet restructuring of the financial and corporate sectors and external financial support to the sovereign.

9. After the Asian financial crisis, the opening of Korea's capital account regained momentum. The authorities were mindful that many observers had attributed Korea's difficulties during the Asian crisis to a lack of market-based allocation of resources, an underdeveloped and

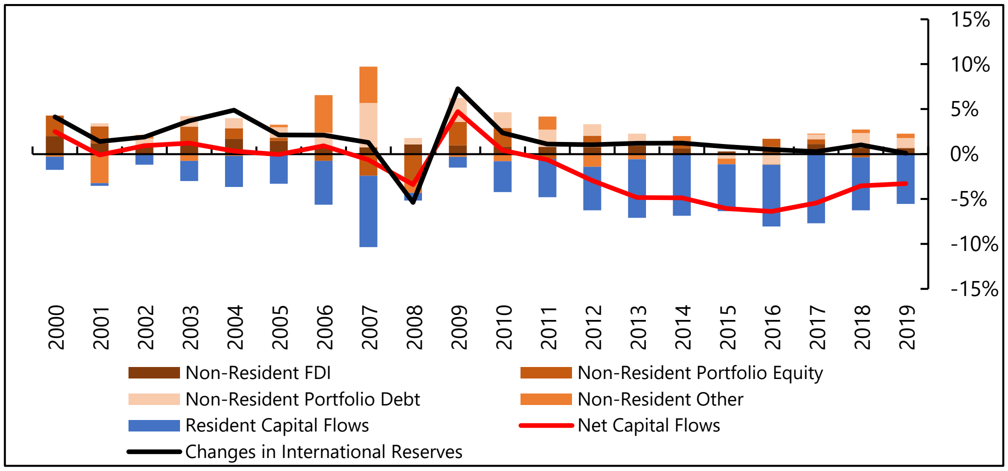
[1] The interviews and document review were largely completed before the onset of the COVID-19 crisis. While the study has been updated to report on recent developments, it does not seek to evaluate the recent experience.

[2] Prepared by Luc Everaert.

under-supervised financial system, and an overleveraged corporate sector, and they decided to switch to a path of decisive market liberalization, including full opening of the capital account (Stanley, 2018). In late 1997, Korea had established a floating exchange rate regime, supported by an inflation-targeting monetary policy framework, as part of its crisis response. By 2002, it had fully liberalized capital inflows and removed restrictions on foreign exchange transactions; the result was a sizable renewal of inflows. By 2007, partly in response to upward pressure on the exchange rate, Korea had also liberalized outflows, though this did not significantly stem the appreciation pressures (Baba and Kokenyne, 2011). Hence, on the eve of the global financial crisis, Korea's capital account liberalization was largely complete. Repatriation requirements for proceeds from exports, transfers, and capital transactions remained in place for some time after the GFC but were abolished in 2017. Korea's remaining capital account restrictions relate to inward foreign direct investment in sensitive sectors, foreign exchange derivative transactions, and foreign exchange funding by banks (IMF, 2018a).

10. The global financial crisis again demonstrated that opening up the capital account could pose significant challenges, even in a country whose macroeconomic performance seemed strong. As in some other advanced economies (e.g., in Europe), the impact on Korea originated in liquidity mismatches in the financial system that were aggravated by the sharp downturn in global economic activity. In the years before the GFC, Korea's continued pursuit of liberalization following the Asian financial crisis had established favorable conditions for capital inflows, including fewer capital account restrictions, the existence of large, well developed, and actively traded securities markets, and transparent regulatory frameworks (Park, 2011). Once again, capital inflows surged, more than doubling in the two years preceding the GFC. However, this time gross outflows rose as well, nearly balancing inflows (Kim, Kim, and Suh, 2009, and Figure 1). Vulnerability stemmed mainly from two factors: the concurrent rise in short-term external debt and maturity mismatches in the banking system (Figure 2), and decisions by investors to take advantage of the high liquidity in Korea's financial markets to retrench their broader exposures in emerging market economies (EMs) at the time of the GFC (Kang, 2012). But unlike in 1997–98, resolving the vulnerability did not require balance sheet restructuring and macroeconomic retrenchment. While Korea's use of its ample foreign exchange reserves did not restore confidence, drawing on the U.S. Fed's swap line (US$16.4 billion out of US$30 billion available) appeared to do so (Baba and Shim, 2010). And, in contrast with its response to the Asian financial crisis, Korea aggressively eased its fiscal and monetary policies to mitigate the impact on the real economy.

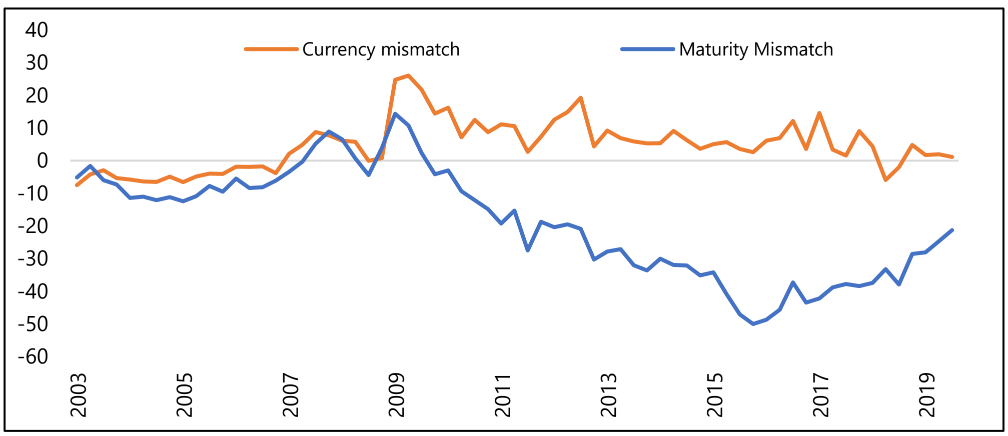
Figure 1. Korea: Net Capital Flows, 2000–2019
(In percent of GDP)



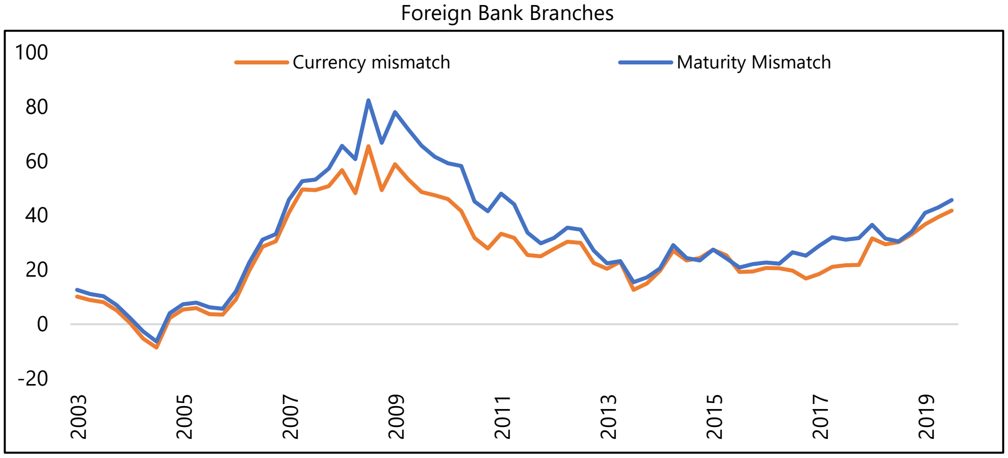
Sources: Institute of International Finance; April 2020 *WEO* database.

Figure 2. Korea: Banking Sector Indicators, 2000–2019
(In billions of USD)

Domestic Banks



Foreign Bank Branches



Notes: Currency mismatch= foreign liabilities minus foreign assets. Maturity mismatch=short-term foreign liabilities minus short-term foreign assets.

11. Korea's difficulties at the time of the global financial crisis were to some extent idiosyncratic, based on an excessive and poorly supervised use of foreign exchange derivatives. With the general expectation of a secular appreciation in the won, corporates with long gestation export contracts (e.g., in shipbuilding) as well as domestic portfolio investors diversifying abroad (a byproduct of the opening of resident capital outflows) felt a need to hedge their foreign exchange exposures. Without natural buyers of long foreign exchange forward exposures, a deviation from covered interest parity emerged, which foreign bank branches were happy to take advantage of (Baba and Shim, 2010). Korean regulators believed that they did not need to be concerned about the short-term liabilities of foreign bank branches, assuming that these could count on enough liquidity support from their headquarters (Lee and Rhee, 2012). In practice, however, owing to acute liquidity conditions in their home countries, foreign branches proved unable to roll over their funding, leaving Korea exposed to severe dislocations in their foreign exchange swap market (Baba and Shim, 2010).

Handling capital flow volatility after the global financial crisis

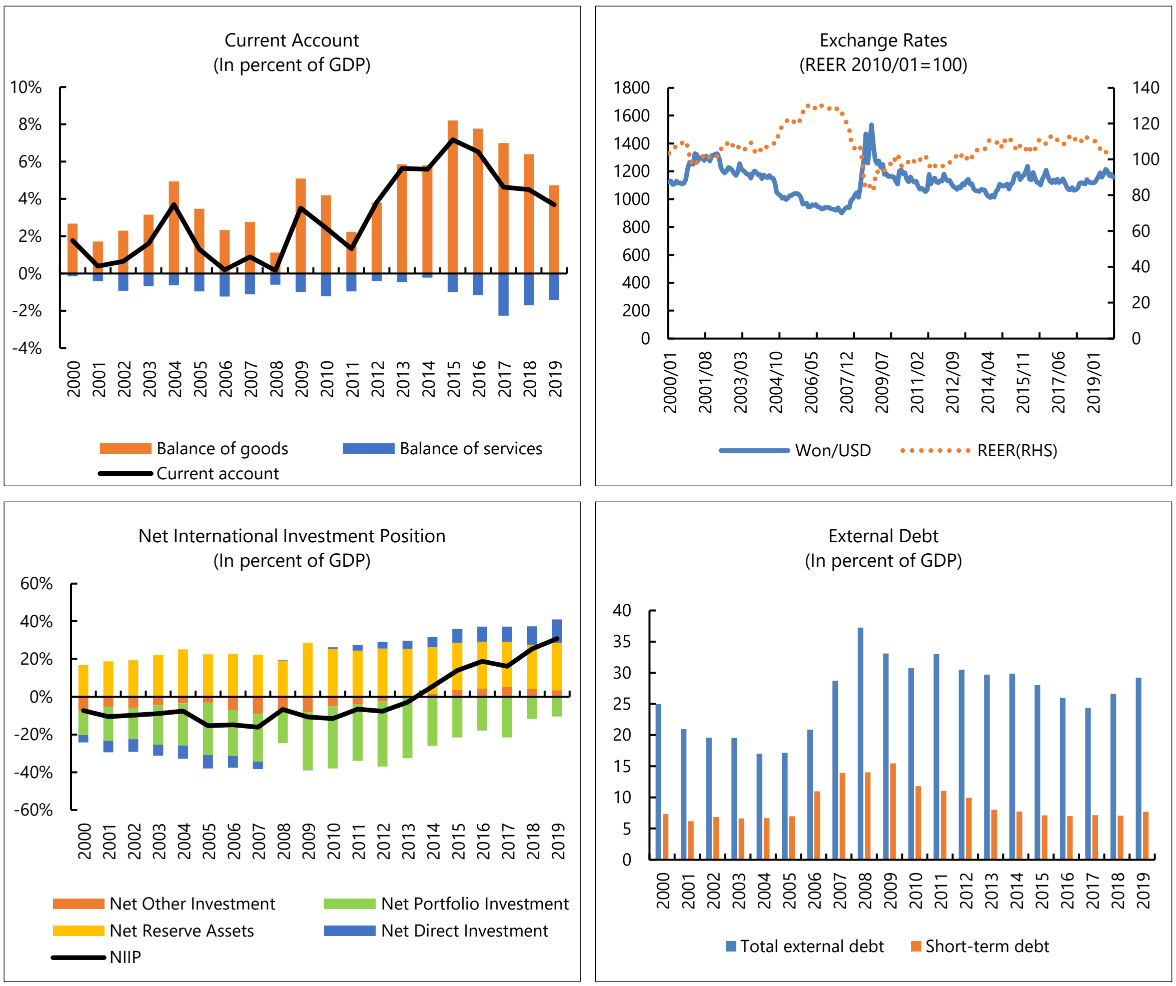
12. Since the global financial crisis, non-resident inflows have stabilized in the context of large and persistent current account surpluses (Figure 3). With high domestic savings looking increasingly for global diversification, and the growing role of domestic institutional investors, resident outflows (both bank lending and portfolio flows) have become much larger (Yun, 2019). With non-resident inflows relatively subdued after 2013, Korea has in fact experienced sizable net capital outflows.

13. The nature of capital volatility facing Korea appears to have changed since the global financial crisis. With rising confidence in the country's overall policy framework, non-resident capital flows became less sensitive to global financial market stress after 2010, as seen from the muted response to the "taper tantrum" episode of 2013 (Bruno and Shin, 2014). Nonetheless, for some domestic assets, such as equity, the share of variance of returns explained by regional and global factors remained high, at 40–45 percent (Lee, 2017). While gross flows have become more volatile, net flows have become more stable (Hansen and Krogstrup, 2019). Risk-off episodes have become less associated with net outflows, as retrenchment by non-residents has been offset by repatriation by residents, following a similar value-at-risk framework.

14. Following the difficult experiences of the two sudden stops, Korea's policies since the global financial crisis have focused on avoiding further capital flow reversals, containing currency mismatches, and avoiding financial distress. Soon after the GFC, policymakers were concerned that exchange rate fluctuations continued to be larger for the won than for other currencies, and they underscored that macroeconomic policies ought to be implemented to avoid expectations of unidirectional exchange rate movements (Financial Services Commission, 2010). They took the view that strengthening exchange rate stability by maintaining appropriate levels of foreign exchange reserves and intervening to smooth fluctuations were essential to this end. In practice, this led to a net build-up in reserves for a number of years which they felt built resilience (Figure 4). Korean policymakers also emphasized the need to maintain strict fiscal discipline, in

order to secure room for effective policy responses should those be needed, and to incorporate financial stability considerations in the conduct of monetary policy. In addition, like their counterparts in some other Organization for Economic Cooperation and Development (OECD) as well as emerging market economies, they adopted a broad set of macroprudential policies, including currency-based measures, to mitigate risks from balance sheet mismatches in the financial system (Park, 2011).[3] The currency-based measures, including a levy on financial institutions' currency liabilities and a cap on banks' derivative positions, became effective in 2010–11 and were subsequently adjusted (Box 1). The authorities also supported efforts to enhance the Global Financial Safety Net, leading these efforts as G20 Chair in 2010 (Kang, 2012).

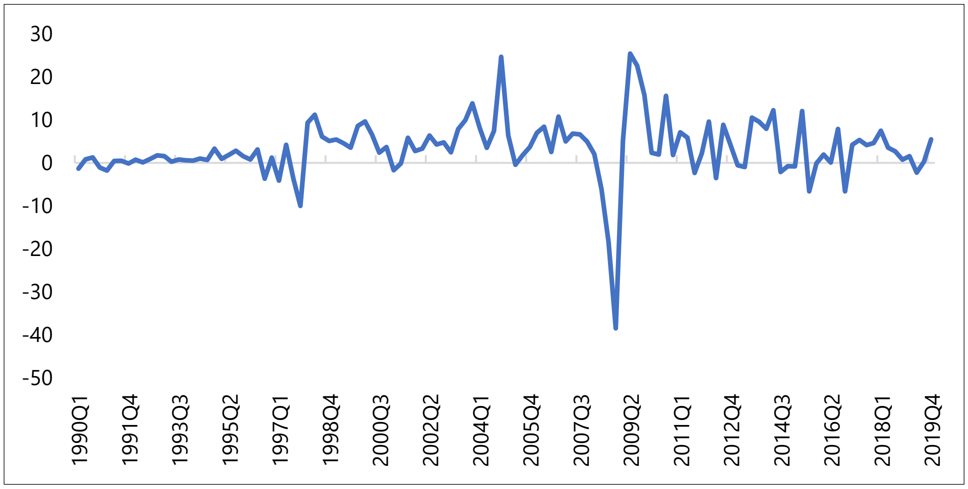
Figure 3. Korea: Selected External Indicators



Sources: IMF, International Financial Statistics; April 2020 *WEO* database; BIS Effective Exchange Rate Indices; and IEO staff calculations.

[3] Currency-based measures affecting banks' foreign exchange liabilities were used in the post-GFC period in a number of OECD economies (Czech Republic, Hungary, Israel, Korea, Mexico, Poland, Turkey, and the Slovak Republic) (de Crescenzio, Golin, and Ott, 2015).

Figure 4. Korea: Changes in International Reserves
(In USD Billions)



Source: IMF, International Financial Statistics (IFS).

Box 1. Korea: Currency-Based Measures Post-Global Financial Crisis

To mitigate the systemic risk in the foreign exchange sector related to high capital flow volatility, the authorities implemented the following measures:

Leverage cap on banks' foreign exchange derivative positions (first introduced October 2010). The maximum limits on banks' foreign exchange derivative contracts were set at 50 percent (for domestic banks) and 250 percent (for foreign bank branches) of the bank's capital in the previous month. In mid-2011, the limits were reduced to 40 percent for domestic banks and 200 percent for foreign banks. In January 2013, the limits were lowered to 30 percent for domestic banks and 150 percent for foreign bank branches. In March 2020, they were raised to 50 percent for domestic banks and 250 percent for foreign bank branches. The limits remained in place as of the completion of this report.

Macroprudential stability levy (announced December 2010, introduced August 2011). A levy was imposed on banks' non-deposit foreign currency liabilities according to the initial maturity of the liabilities (0.2 percent for < 1 year, 0.1 percent for 1–3 years; 0.05 percent for 3–5 years; and 0.02 percent for >5 years). In case of a sudden surge of capital inflows, an extra levy could be imposed for up to 6 months and up to 1 percent. Starting in July 2015, the list of target institutions was expanded beyond banks to include securities companies, credit-specialized financial institutions, and insurance companies in order to achieve equal treatment between banks and non-bank financial institutions. For non-bank institutions, the levy applies to non-deposit foreign currency liabilities that exceed a monthly average of US$10 million and were incurred after July 1, 2015. In July 2015, the rate was reduced to 0.1 percent on non-deposit FX liabilities with remaining maturity of one year or less (regardless of initial maturity). The levy is collected in foreign currency and the proceeds may be used by the Ministry of Finance for liquidity provision in crisis situations. This levy remained in place as of the completion of this report.

Sources: IMF (2018b); Kang (2012); Financial Services Commission (2010).

15. Policymakers and observers have found that the currency-based measures effectively strengthened the resilience of the Korean financial system to capital flow volatility. The Governor of the Bank of Korea (BoK) reported that both the leverage cap on banks' foreign exchange derivative positions and the levy on banks' non-deposit foreign currency liabilities helped reduce short-term foreign exchange borrowing and improved the maturity structure of external debt (Kim, 2014). Analysis by BoK staff revealed that the measures caused a sizable reduction in short-term bank inflows but that they had little or no impact on long-term flows (Choi, 2014). Other observers concurred that the measures reduced the proportion of short-term debt in total external debt, especially of foreign bank branches (Shin, Lee, and Park, 2017), and that they reduced the foreign exchange derivatives positions of foreign bank branches and the non-deposit foreign liabilities of financial institutions (Hwang, 2017).

16. In recent years, Korean authorities have continued to adjust prudential regulations to deal with foreign currency liquidity concerns. A foreign currency liquidity coverage ratio was adopted in 2015 as a monitoring tool, became binding in 2017, and has been gradually tightened subsequently. This requirement supplemented Korea's long-standing regulations on open foreign exchange positions and reserve requirements for foreign currency deposits. A net stable funding ratio requirement in line with Basel III is being implemented, but it is not differentiated according to currency.

17. The sudden stop in capital flows to emerging markets resulting from the COVID-19 pandemic crisis did not spare Korea, creating severe dollar funding shortages in early 2020. To facilitate dollar funding, the BoK opened a bilateral swap line with the U.S. Federal Reserve for US$60 billion and relaxed some currency-based measures on capital inflows, including raising foreign exchange futures trading limits, temporarily suspending a levy on short-term foreign exchange liabilities, and temporarily reducing the minimum foreign exchange liquidity coverage ratio for banks from 80 percent to 70 percent. The situation has since stabilized, with the depreciation of the won thus far in 2020 limited to about 5 percent without any intervention from the BoK. More broadly, to mitigate the domestic impact of the global pandemic crisis, the BoK lowered its policy rate to an all-time low of 0.5 percent and broadened eligible collateral for open market operations to provide liquidity to financial markets. The government has also provided substantial fiscal support and launched a wide-ranging financial stabilization program, including targeted support to households and several sectors.

B. IMF Engagement

18. Since the Asian financial crisis, the IMF has consistently advised Korea to liberalize capital flows and maintain an open capital account. The advice to liberalize capital flows was initially embedded in the IMF's call for financial deregulation and development, including an explicit condition to liberalize foreign access to Korean money and bond markets in the IMF-supported program in 1997 (IMF, 1997). Maintaining an open capital account remained an essential element of the IMF's advice after capital flows were fully liberalized and in the face of the capital inflow surge that took place ahead of the GFC. In 2007, the Article IV Report stated that "measures to

curb short-term external debt would be at odds with capital account liberalization." And in the 2008 Article IV Report, the staff reiterated that restrictions on capital flows should be avoided.

19. Like the Korean authorities, the IMF failed to appreciate the vulnerabilities associated with liquidity mismatches that led to the financial distress at the time of the GFC.[4] Despite a rapid build-up in external debt, the staff noted on the eve of the GFC that "given the relatively benign nature of the short-term foreign borrowing—largely borrowing of foreign bank branches from parent companies—there were only limited concerns that these would increase Korea's vulnerabilities" (2007 Article IV Report). The staff further asserted that rules (such as the thin capitalization rule)[5] to attempt to limit external borrowing and fine-tune capital flows would "unlikely be effective for long and could be counterproductive" (2008 Article IV Report). Even after the GFC, the IMF continued to discourage measures to restrict capital flows, based on the arguments that Korea stood to lose if it were seen to be moving away from being a very open economy, and that restrictive measures could easily be circumvented and were unlikely to be effective in guarding against sudden reversals of capital flows (2010 and 2011 Article IV Reports).

20. Instead, the staff emphasized the pursuit of sound macroeconomic policies, especially a freely floating exchange rate, financial deepening, and strong supervision, as the keys to handling capital flow volatility. It called for macroprudential measures to further strengthen the financial sector so as to enhance the ability of the economy to cope with externally generated shocks, though without offering specifics (2010 Article IV Report). The staff became particularly concerned about exchange rate policy when the won remained the only currency among those hit by the GFC not to return to pre-crisis levels in real effective terms after the crisis (2011 Article IV Report). From 2010 onward, the staff judged that Korea's current account position was stronger than warranted and its exchange rate somewhat undervalued (2010–17 Article IV Reports)—a judgment that the authorities strongly disagreed with. The staff ascribed the stronger-than-warranted external position mostly to domestic policies, seeing fiscal policy as too tight.

21. The IMF staff argued that an undervalued exchange rate and substantial foreign exchange intervention to maintain this value were key problems in effectively managing capital flows. It warned that this stance and pattern of foreign exchange intervention was generating expectations of one-way bets on the value of the won, thus reducing the effectiveness of measures taken to safeguard financial stability, including those focused on foreign currency liabilities (2010 Article IV Report). Following Korea's adoption of the currency-based measures in 2010, the 2011 Article IV Report noted that "capital flow measures would need to be supported by macroeconomic policies and exchange rate flexibility to address capital flow concerns," and further that "the efficacy of measures targeting specific components of capital flows would be

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[4] In some ways, this parallels the experience of the Asian financial crisis: "failure to adequately identify the risks posed by the uneven pace of capital account liberalization and the extent of banking system weaknesses" was seen as a major failure of IMF surveillance at that time (IEO, 2003).

[5] A thin capitalization rule sets a maximum ratio of debt to equity for the purpose of income tax calculation to limit the deductibility of interest expense.

limited as long as profit incentives for circumvention remain." Though the staff was supportive of Korea's need to maintain adequate foreign exchange reserves, it stated in the 2012 Article IV Report that reserves had reached an adequate level and that there was "no need for further reserve accumulation beyond what would be needed to keep pace with rising foreign liabilities over time." While the authorities agreed in principle and emphasized that the exchange rate was market determined, reserve accumulation through intervention continued at least through 2015. Pointing to this fact, the IMF staff consistently called, especially after 2012, for foreign exchange intervention to be limited to smoothing operations, and for timely publication of intervention data, including on forward markets. In 2018, Korean authorities did begin to release lagged foreign exchange intervention data, a change welcomed by the United States (U.S. Department of the Treasury, 2018).

22. In speeches and publications, officials of the Bank of Korea and the Ministry of Strategy and Finance recognized that dealing with capital flows had been a major challenge (Kim, 2014; Eun, 2012). They recognized that their strategy of building up large foreign exchange resources could have had adverse side effects (including with respect to global imbalances), but they felt that in the absence of a large and credible global financial safety net they had had no other option. They agreed that foreign exchange intervention should be limited to smoothing operations, and stated that a further build-up of official reserves was not a policy objective. They did not see capital controls as an effective or desirable way to deal with capital flow volatility, but argued instead that recourse to prudential regulations, including currency-based measures, provided an effective means to address a particular source of concern.

23. Initially, especially prior to the adoption of the Institutional View, IMF support for Korea's currency-based measures was guarded, reflecting the debate about whether capital flow management measures were an appropriate part of the policy toolkit (2010 and 2011 Article IV Reports). As reported in interviews of IMF staff members, the generally held internal IMF view was that if a country's capital account ran into difficulties, an underlying policy stance or action must require correction. However, some staff members felt that financial stability risks could materialize even when other policy settings were correct, and that the most efficient and effective way to address them would be through specific targeted actions. The staff recognized that Korea's measures had succeeded in reducing banks' foreign exchange derivative positions and related short-term external debt and suggested that the impact on capital inflows was likely to be marginal (IMF, 2011). Korea's currency-based measures, which the staff supported as having a macroprudential purpose, raised some issues with the country's commitments under the OECD Code on the Liberalization of Capital Movements.[6]

24. After the adoption of the IV, the IMF continued to support Korea's currency-based measures, but accompanied its support with a call for continuous review of their effectiveness. The authorities expressed appreciation for the staff's acknowledgment that currency-based

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[6] The case of Korea later induced a revision to the OECD's approach to currency-based measures introduced for financial stability purposes (see the background paper by Towe (2020).

macroprudential measures were useful for non-core currency countries. The 2012–13 Article IV consultation reports acknowledged that the measures had helped to lower the banks' vulnerability to external liquidity shocks, but noted that they had been less effective in containing overall capital flow volatility. A more comprehensive assessment in the context of the IMF 2014 Financial Sector Assessment Program (IMF, 2014) observed a marked improvement of banks' liquidity profiles, reflecting lower foreign currency liquidity mismatches and less reliance on wholesale funding. In the 2015 Article IV Consultation Report, the staff assessed "these measures as appropriately aimed at addressing systemic financial sector stability," though (in a footnote) it called for an ongoing assessment of their costs and benefits and warned that the measures should not substitute for warranted macroeconomic adjustment. The same Article IV Report argued that to remove the measures at that time would increase the risk of rebuilding banks' liquidity and maturity mismatches. The following year, the 2016 Article IV Report supported the combined easing and expansion of coverage of the measures, noting that they had succeeded in increasing financial sector resilience by limiting exposure to liquidity risk and reducing maturity mismatches related to foreign exchange borrowing. The 2015 Article IV Report had been the first to mention the term "macroprudential tools and capital flow management measures" but without explicitly labeling them as such, and the 2016 Article IV Report took a similar approach. Up to this point, none of the country reports had made any specific reference to the IV or explicitly applied its framework.[7] The authorities also observed that no explanation had been given in Article IV reports for the IMF's designation of the measures as MPMs or CFMs.

25. In the 2017 Article IV Report, the IMF staff called more explicitly for a review of Korea's currency-based measures and their replacement with alternative measures, particularly since the capital flow surge that had inspired the measures had long since receded. The staff's position triggered strong objections from the Korean authorities at the Executive Board meeting.[8] The 2017 report was the first to use the CFM/MPM labeling for the Korean measures, but it did not explain the motivation for this designation—and thus elicited a request from Executive Directors for clarification.[9] The staff suggested that with the measures having been in place for seven years without substantial modification it was time for a review. Up to 2017, the authorities had not objected to the staff designation of their measures as "macroprudential tools and capital flow

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[7] IMF policy papers reviewing the experience with managing capital inflows (IMF, 2011) and with the IV (IMF, 2016), as well as the OECD note to the G20 on its approach to CFMs with MPM intent (OECD, 2015), clearly spelled out how the two currency-based measures adopted by Korea were simultaneously MPMs and CFMs. They remained described as such in the 2018 Taxonomy of CFMs prepared for the G20 (IMF, 2018b).

[8] "These measures are assessed by staff as capital flow management measures as well as macroprudential measures (CFM/MPM). CFMs/MPMs should be continuously reviewed and the authorities should consider alternative measures that directly address the systemic financial risks but are not designed to limit capital flows" (IMF, 2017).

[9] The staff's response indicated that: (i) the measures were designed to both limit capital flows and reduce systemic financial risk stemming from such flows, although they did not discriminate on the basis of residency, and (ii) were introduced in the context of strong capital inflow pressures. The staff further noted that the measures had previously been described as CFMs/MPMs and that their objective, design, and role remained unchanged although the capital inflow surge had long since receded.

management measures," but they now rejected the designation as CFMs, emphasizing that the measures were not residency-based, did not restrict capital flows, and had never been intended to limit capital flows but only to reduce systemic risk. The authorities felt that the measures were integral to their macroprudential framework and essential to raise and maintain Korea's resilience to external market volatility (IMF, 2015 Article IV Report), and therefore ought to be classified as MPMs under the IMF's Institutional View. Executive Directors were divided on the matter, with some calling for a revision of the classification framework of the IV, taking into account the primary purpose of the measures, and others supporting the prevailing application of the IV and calling for the removal of the measures. One Director furthermore suggested that the measures had contributed to maintaining an undervalued exchange rate, supporting their immediate removal. In the 2019 Article IV consultation, the staff reiterated its 2017 position while the Korean Executive Director's statement again maintained that the measures were never intended to limit capital flows and should be classified as MPMs under the IV.

26. At the time of the 2017 Executive Board meeting, the staff noted that it had discussed alternatives to the currency-based measures used by Korea, though this discussion was not reflected in the Article IV Staff Report. There is no evidence from prior staff reports that the IMF had actively explored additional or alternative macroprudential measures to deal with foreign exchange related vulnerabilities, even though the staff had observed that the traditional macroprudential measures—such as FX open position limits and FX liquidity requirements—that Korea had had in place before the global financial crisis had failed to ensure resilience against liquidity shocks (IMF, 2017). In interviews, IMF staff members involved with Korea reported that because the currency-based measures were seen to contribute to financial stability and because the stance of the IMF with respect to CFMs/MPMs was becoming more supportive, they did not seek alternative policies that would achieve the same outcome without being seen as CFMs. Moreover, staff members involved with designing MPMs to improve countries' resilience to large and volatile capital flows noted in an interview that hitherto no systemic effort had been made to analyze how CFMs/MPMs could be modified into equivalently effective MPMs.[10] In 2017, while the staff reported to the Executive Board that it had suggested the use of a currency-differentiated net stable funding ratio as a broader measure to achieve the same outcome, it was left unclear whether such a measure would avoid the CFM designation. Staff members noted in interviews that the designation would depend on the intent of the measure and its effective impact on capital flows.

27. In response to interview questions, Korean authorities noted that the staff should have provided more specific and realistic alternatives, taking into account country circumstances. They pointed out that with the Korean won not being a core international reserve currency, alternative MPMs that were not currency based might not be able to attain the desired financial stability objectives. Beyond the Korean specifics, the authorities saw a need for clarification of the criteria

[10] During the 2017 Article IV Board discussion, one Director called for the IMF to point to such alternatives and the institutional requirements to use them effectively.

used for designating measures as CFMs, including in the IMF's assessment and in the application of the OECD Code of Liberalization of Capital Movements.

C. Assessment

28. The IMF and the Korean authorities have broadly agreed on the long-term merits of capital account liberalization, while recognizing the costs of capital flow reversals and volatility for financial stability. Korea's experience suggests that while sound macroeconomic and financial policies and policy frameworks are essential to support financial stability, specific macroprudential measures— targeted at mitigating the risks from foreign currency mismatches related to leveraged borrowing by banks and other financial institutions—can also have value to address specific financial vulnerabilities. In this area, the authorities' views have differed from those of the Fund. The authorities felt the need to complement their standard macroprudential policies addressing foreign exchange exposures (e.g., open position limits) with two currency-based measures, which the IMF designated as CFMs/MPMs. Both the Koreans and the Fund staff agreed that these measures were effective in dealing with the targeted risks. However, the authorities saw these measures as being useful on a permanent and preemptive basis, while the staff advised that they should be phased out and replaced with alternative macroprudential measures that are not CFMs, in line with the Fund's Institutional View.

29. The experience with the IMF's advice on the liberalization and management of capital flows in the Korean context draws attention to a number of issues:

- *Currency-based tools in the Institutional View*: Korea's experience suggests that consideration should be given to allowing IMF support for preemptive and permanent application of currency-based tools for financial stability purposes under the IV. Korea's vulnerabilities took time to build up, during a period when there were no signs of overheating or obvious policy shortcomings, while other policies already in place to deal with foreign exchange related vulnerabilities failed to secure resilience.

- *Alternative policies or measures*: The IMF needs to be better prepared to advise proactively on how to deal with foreign exchange related vulnerabilities that may threaten financial stability. If the Fund believes that it should warn that currency-based measures may not be the first-best alternative, then it needs to be ready to advise on how the same objectives may be better achieved with alternative policies. This may be especially the case for countries whose currencies are not widely used globally and therefore may not be able to use broad based and non-differentiated MPMs to achieve resilience.

- *Labeling of currency-differentiated macroprudential measures*: There is still a lack of clarity on how the Fund determines whether a currency-based MPM is also a CFM. This contributes to authorities' concerns about consistency and evenhandedness in the application of the IV. In the Korean context, the staff could have more clearly demonstrated how the measures impacted capital flows and spelt out how it assessed the timing and magnitude of the capital surges that justified its support for the measures as well as its call for their removal.

- *Role of appropriate macroeconomic policies*: The Fund's support for an CFM/MPM is contingent on its assessment that it is not a substitute for macroeconomic policies needed for warranted external adjustment. In the case of Korea, the Fund's support for currency-based measures was complicated by concerns about an undervalued exchange rate and an excessive current account surplus, which contributed to a perception that the measures were being used to resist external adjustment irrespective of financial stability considerations. Leaving aside the merit of the arguments in Korea's context, it is clearly important for the transparency and traction of IMF surveillance that the Fund offer convincing analysis of how various policy distortions may contribute to external imbalances and what is the optimal approach to address foreign exchange vulnerabilities. Otherwise, there is a danger that the Fund's advice may be muddied by the perception that one or other concerns is driving the Fund's policy conclusions—for example in weighing against policies that are justified to mitigate financial stability because these might also have implications for the overall external position.

- *Possible tensions with other international commitments*: Tensions arising from application of the IMF's Institutional View and the OECD Code on the Liberalization of Capital Movements to Korea's currency-based measures were one factor prompting a broader reassessment of the OECD Code, which ultimately led to a limited carve-out for such measures in the revised Code (OECD, 2019). While the objectives of the IMF's capital flow advice and the application of the OECD Code are different, it would seem desirable to ensure close collaboration between the Fund and OECD on capital account issues to encourage clear messages to member countries. Judgments may differ under different policy frameworks, but at least the reasons for such differences should be coherent and well understood.[11]

III. INDONESIA, MALAYSIA, AND THAILAND[12]

A. Context and Experience

30. Indonesia, Malaysia, and Thailand share a number of characteristics. While all have adopted flexible exchange rates, they have intervened in the foreign exchange market on occasion to counter "excessive exchange rate volatility." They have less than fully open capital accounts as measured by conventional *de jure* measures, and on some measures this is reflected also in *de facto* capital account openness. Swings in capital inflows and outflows have occasionally been large, akin to so-called surges and sudden stops. The countries have introduced MPMs to deal with risks to financial stability, some of which are related to capital

[11] For more on this issue, see the background paper by Towe (2020).

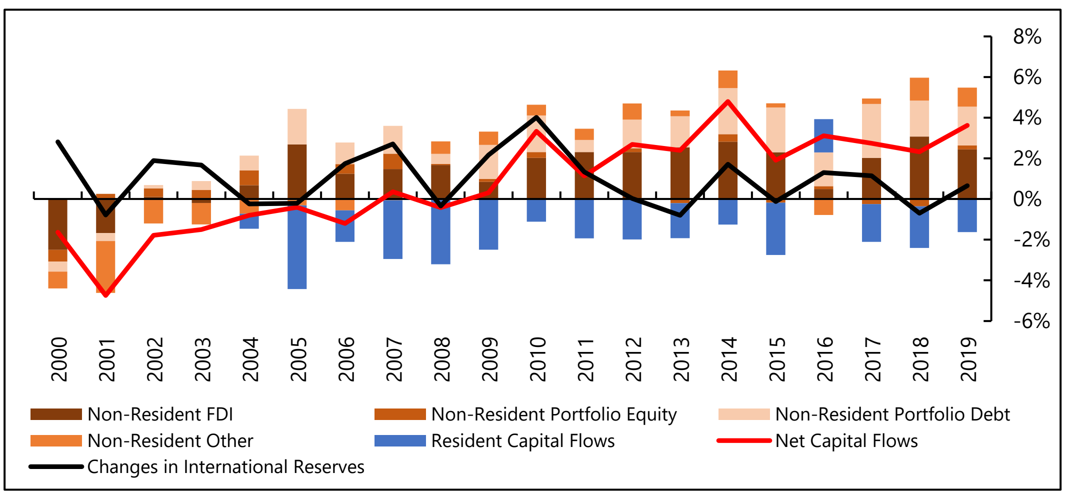
[12] Prepared by Hans Genberg.

flows. Two of the three—Indonesia and Thailand—have adopted inflation targeting as their monetary policy strategy; the third—Malaysia—has not, although stable and low inflation is one of the Malaysian Central Bank's monetary policy objectives.

Capital flows

31. Capital inflows to Indonesia (Figure 5), Malaysia (Figure 6), and Thailand (Figure 7) show a similar pattern to those of other emerging market economies, falling into distinct phases over the past two decades. A large surge of non-resident inflows in 2004–07, prior to the GFC, was followed by a sharp retrenchment during the crisis (2008–09) and then by a marked resumption of inflows, leading to surges, in the post-GFC years 2010–13. In subsequent years (2014–19), the economies reported a moderation in capital inflows, though more so in Malaysia and Thailand than in Indonesia. This trend reflects gradual steps towards the normalization of U.S. monetary policy and a more cautious investor outlook. All three economies experienced a dramatic sudden stop in portfolio capital inflows during the EM-wide retrenchment that followed the COVID-19 shock in March 2020, with some stabilization in subsequent months as global financial markets recovered.

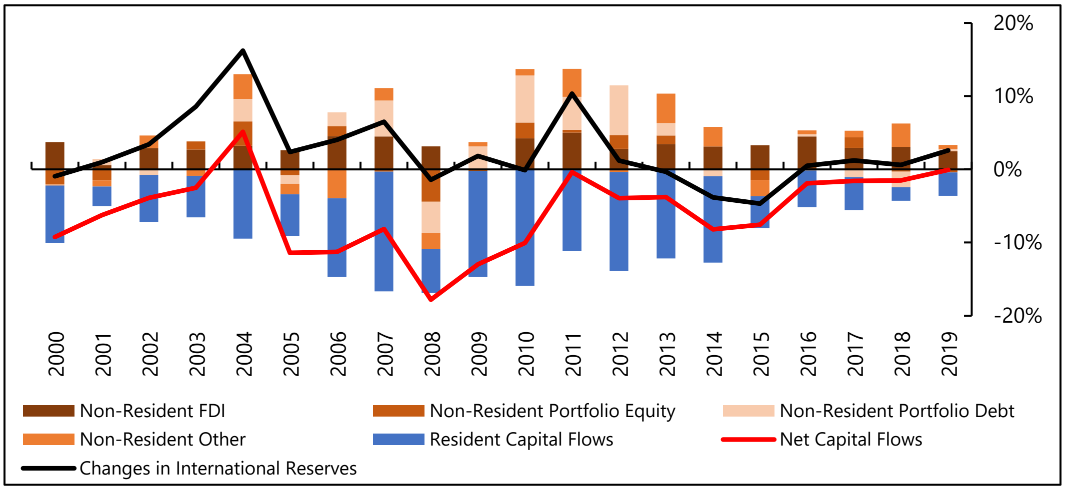
Figure 5. Indonesia: Net Capital Flows, 2000–2019
(In percent of GDP)



Sources: Institute of International Finance; April 2020 *WEO* database.

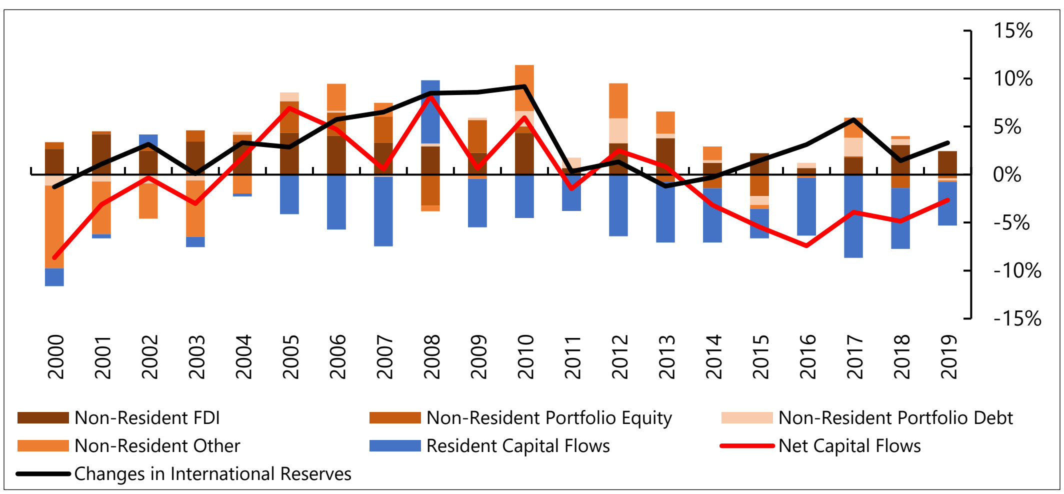
32. With respect to the composition of non-resident capital inflows, several observations can be made. First, among the three economies, Indonesia has received the largest flows of foreign direct investment (which includes both greenfield investment and mergers and acquisitions). Second, portfolio investment inflows have been mostly in the form of portfolio debt inflows. Indonesia remains the largest recipient of portfolio debt inflows, followed by Malaysia. Portfolio debt inflows to these economies increased markedly in the post-GFC years 2010–13, before receding from 2014 onward in the case of Malaysia and Thailand. These patterns are in line with those in other emerging market economies.

Figure 6. Malaysia: Net Capital Flows, 2000–2019
(In percent of GDP)



Sources: Institute of International Finance; April 2020 *WEO* database.

Figure 7. Thailand: Net Capital Flows, 2000–2019
(In percent of GDP)



Sources: Institute of International Finance; April 2020 *WEO* database.

33. The volatility of capital flows (as measured by standard deviations) to Indonesia and Thailand is within the range for EMs across the pre- and post-crisis periods, but for Malaysia it has consistently been higher (Table 1).

34. Using the Forbes and Warnock (2012) method of defining capital flow "surges" and "stops" yields the following conclusions. The three economies experienced surges immediately after the peak of the GFC. The surge episodes for Indonesia and Thailand were followed by a stop episode in 2011, and for Indonesia two additional stop episodes occurred in 2012 and

2015–16. Malaysia had a short surge period in late 2016. Thailand did not experience any such episodes between 2012 and 2017.[13]

Table 1. Volatilities of Non-Resident Capital Flows

Economy	Period	Inflows	FDI	Port_Eq	Port_DB	DERL	OI
Malaysia	Pre-crisis	2.42	0.52	1.16	1.41	0.17	1.34
	Crisis	3.58	0.14	0.68	2.12	0.05	2.19
	Post-crisis	2.12	0.67	0.42	1.75	0.18	0.81
	Recent	1.52	0.32	0.52	1.00	0.04	1.05
Indonesia	Pre-crisis	0.49	0.26	0.18	0.34	0.00	0.21
	Crisis	0.42	0.15	0.06	0.48	0.00	0.36
	Post-crisis	0.43	0.19	0.10	0.31	0.02	0.29
	Recent	0.64	0.37	0.13	0.30	0.01	0.24
Thailand	Pre-crisis	1.36	0.30	0.67	0.22	0.11	0.77
	Crisis	1.29	0.24	0.73	0.07	0.01	0.83
	Post-crisis	1.99	0.78	0.56	0.41	0.29	1.01
	Recent	1.01	0.51	0.40	0.43	0.13	0.55
EMs_Mean	Pre-crisis	1.57	0.97	0.32	0.55	0.07	0.78
	Crisis	2.54	1.41	0.31	0.42	0.17	1.02
	Post-crisis	1.29	0.78	0.20	0.46	0.16	0.67
	Recent	2.11	1.56	0.18	0.49	0.14	0.66
EMs_Median	Pre-crisis	1.17	0.48	0.21	0.47	0.01	0.59
	Crisis	1.35	0.29	0.21	0.35	0.02	0.79
	Post-crisis	0.84	0.27	0.19	0.42	0.05	0.60
	Recent	0.90	0.32	0.17	0.50	0.09	0.55

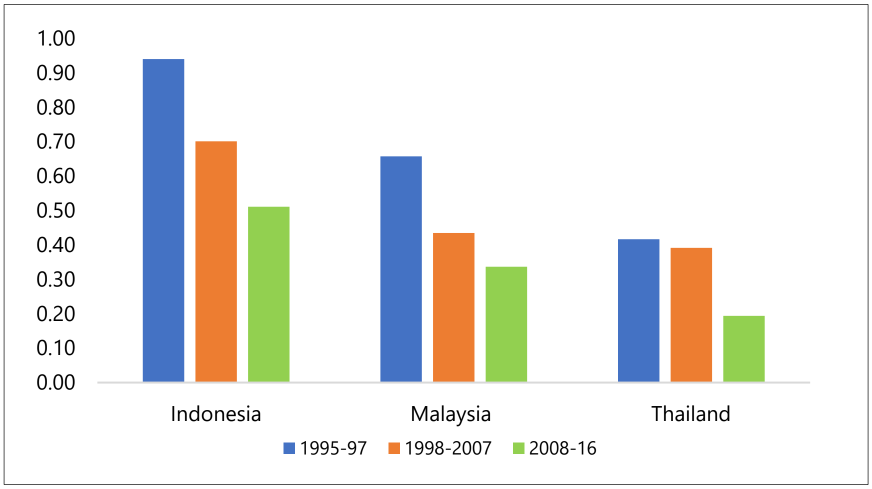
Source: Author's calculations based on IMF data.
Notes: (1) Values refer to the period standard deviation of quarterly non-resident flows as percent of GDP. Pre-crisis period refers to 1Q2004–2Q2008; crisis period 3Q2008–2Q2009, post-crisis period 3Q2009–4Q2013, and recent period includes 1Q2014–4Q2018. (2) Emerging market economies (EMs) are Indonesia, Malaysia, Thailand, Brazil, Russia, India, China, South Africa, Philippines, Vietnam, Argentina, Chile, Mexico, Hungary, Poland, Ukraine, and Turkey.

Capital account measures

35. Conventional measures of *de jure* capital account openness indicate that the three economies have become less open since the Asian financial crisis in 1997–98, consistent with the view that they have attempted to mitigate concerns that highly open capital accounts had rendered them vulnerable to the vagaries of international capital flows. The Chinn-Ito index in Figure 8 shows a decline in openness in the period after the Asian financial crisis until the GFC in 2007–08, and a further decline thereafter.

[13] Though it is too early to apply this methodology to cover the period of the COVID-19 crisis, it is likely that the episode will qualify as a sudden stop.

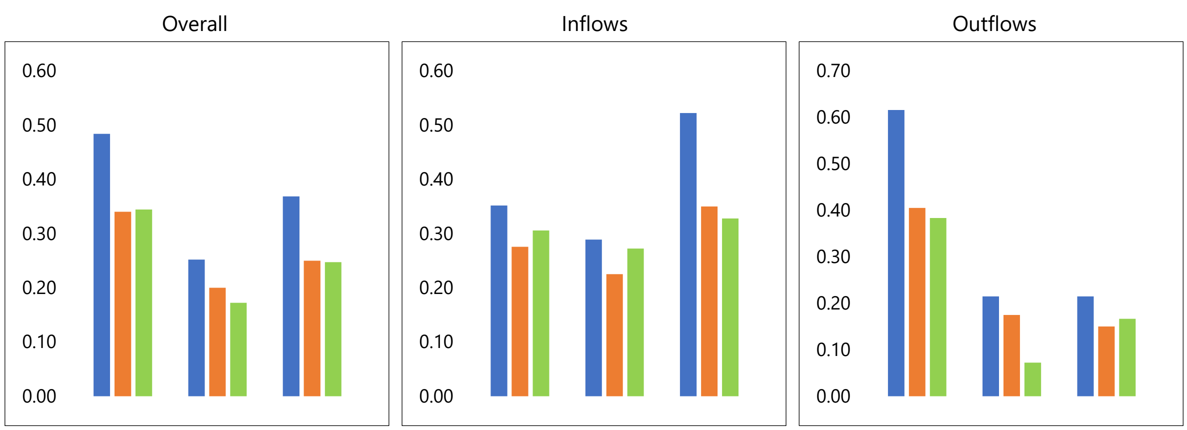
Figure 8. Chinn-Ito Capital Account Openness Index



Source: IEO staff calculations based on data from Chinn and Ito (2006).

36. The index of Fernández and others (2015) (FKRSU) tells a similar, albeit not identical, story (Figure 9). Overall openness declined in all three economies, although only marginally so in Indonesia and Thailand, after the global financial crisis. Openness to capital inflows appears to have increased in Indonesia and Malaysia after the GFC, whereas in Thailand it was the openness to resident capital outflows that increased.

Figure 9. FKRSU Measures of Capital Openness



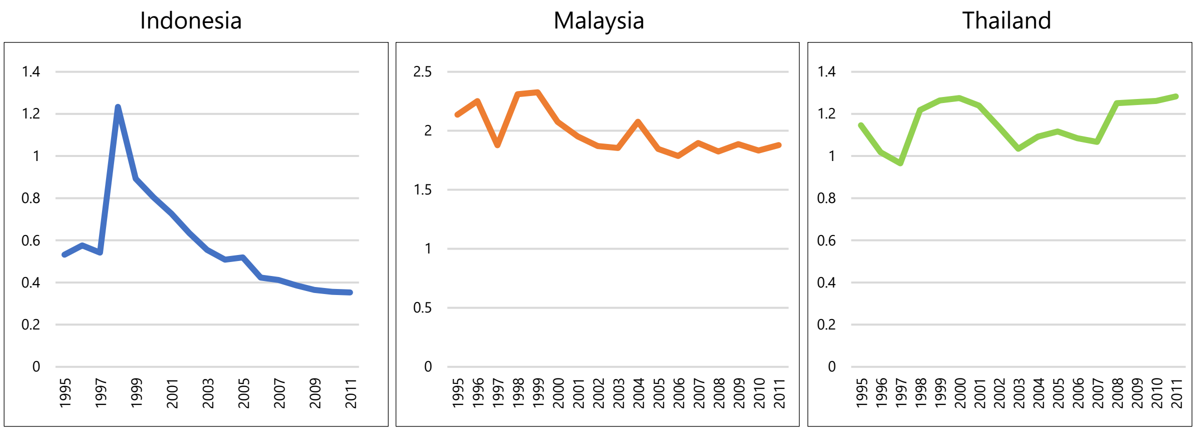
Source: IEO staff calculations based on data from Fernández and others (2015).
Notes: (1) In each panel, the first set of three columns refer to Indonesia, the second set to Malaysia, and the third set to Thailand. (2) Blue columns refer to the average for 1995–97, red to the average of 1998–2007, and green to the average of 2008–16.

37. The country authorities consider that these types of indices take inadequate account of the variations in restrictiveness associated with the regulations in place, since the indices only

record their *de jure* existence. This caveat notwithstanding, the indices indicate that the economies continue to have extensive restrictions on international capital transactions in place.

38. Metrics such as resident foreign assets or liabilities relative to GDP show a steady increase over time in *de facto* capital account openness data for all three countries, but this may in part reflect the increased globalization of finance in general, rather than factors specific to these three economies. Indeed, Figure 10 based on Genberg (2019) shows that *de facto* openness has declined in Indonesia and Malaysia when measured relative to the evolution of average openness of the world as a whole, consistent with the *de jure* measures. For Thailand, the *de facto* openness measured in relative terms has not shown any noticeable trend since the immediate aftermath of the Asian financial crisis.

Figure 10. De Facto Capital Account Openness Relative to the World



Source: IEO staff calculations based on data from Lane and Milesi-Ferretti (2007).

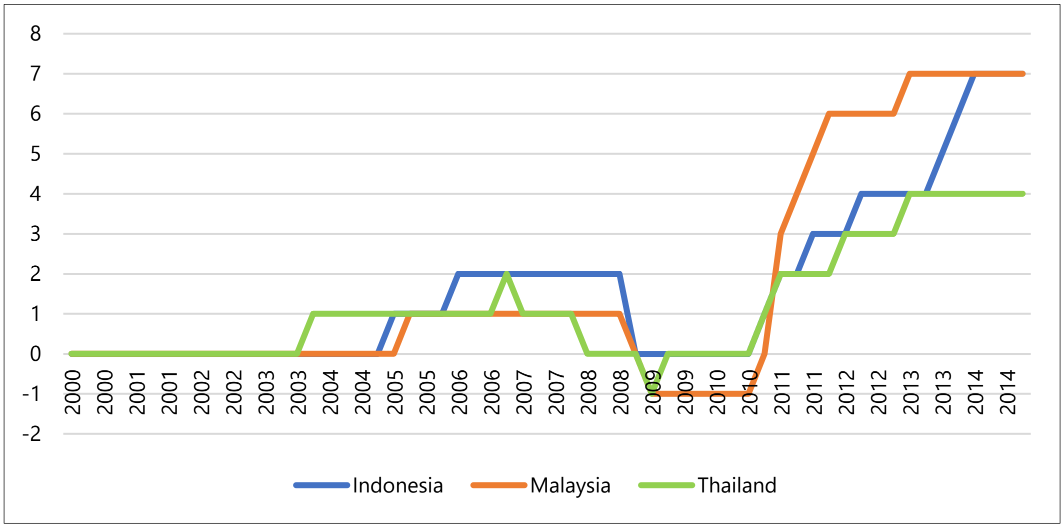
Macroprudential measures

39. Authorities across East Asia began using MPMs to safeguard financial stability early in the 2000s drawing on experiences during the Asian financial crisis in the late 1990s. In fact, data presented in Zhang and Zoli (2014) show that such measures were introduced earlier and to a greater extent in East Asia than in other regions.

40. Figure 11 shows changes in macroprudential policy instruments for the three economies covered here. It is based on the index of Cerutti and others (2016) which tracks changes in nine types of measures: sector-specific capital buffers (three subcategories covering real estate, consumer credit, and other sectors); general capital requirements (implementation of Basel recommendations); concentration limits; interbank exposure limits; loan-to-value ratio caps; reserve requirements on foreign currency-denominated accounts; and reserve requirements on local currency-denominated accounts. The figure confirms the Zhang and Zoli finding that Asian authorities started introducing macroprudential policy measures shortly after the Asian financial

crisis, and it also shows that changes in these measures became notably more frequent after the GFC in 2008–09.

Figure 11. Cumulative Changes in Macroprudential Policy Index*



Source: IEO staff calculations based on data from Cerutti and others (2016).
*Country index by time t and country c, equal to 1 if the sum of the nine instruments is >=1 and -1 if the sum of the instruments is <=-1, 0 otherwise. In this case, all individual instruments are adjusted to have maximum and minimum changes of 1 and -1.

41. Looking behind the aggregate figures reveals that in each of the three economies, limits in loan-to-value ratios have been among the most frequently used measures, together with sector-specific capital requirements related to credit to the real estate sector (in Malaysia and Thailand) and concentration limits (in Indonesia).[14] These countries have also taken a number of residency-based and currency-based measures intended to promote financial stability and market development.

Monetary policy and foreign exchange intervention

42. Bank Indonesia (BI) and the Bank of Thailand (BOT) have both adopted inflation targeting as a monetary policy strategy. The legally defined goal of BI's monetary policy is to achieve price stability, which the Bank pursues using a forward-looking inflation targeting framework. The target is determined by the government and for 2020 it is set at 3±1 percent. BI also pays attention to the exchange rate by pursuing a policy to "minimize excessive rate volatility" but

[14] See the online appendix to Cerutti and others (2016). Accessed at https://www.newyorkfed.org/IBRN/index.html.

does not target any particular level of the exchange rate.[15] It does so by intervening on a discretionary basis when faced with disorderly market conditions.

43. The BOT adopted a flexible inflation targeting regime in 2000. The inflation target for 2020 is to keep headline inflation within the range of 1–3 percent. Like Bank Indonesia, BOT conducts its monetary policy with an eye on exchange rate developments. In fact, it explicitly states that it operates a managed-float exchange rate regime.[16] Again like BI, the BOT does not target a fixed level of the exchange rate but stands ready to intervene to counter excessive exchange rate movements, particularly those that are associated with speculative capital flows.

44. Financial stability is another concern of the BOT. According to Pongsaparn, Wongwachara, and Nudam (2017, p. 8), "the conduct of monetary policy under a 'flexible inflation targeting' framework allows for a balancing act between multiple objectives, namely price stability, economic growth, and financial stability. In practice, the Monetary Policy Committee not only weighs the tradeoff between inflation and output, but also constantly monitors financial imbalances in key sectors, including financial institutions, households, and external stability."

45. Malaysia does not have a formal inflation targeting regime. According to the Central Bank of Malaysia Act of 2009, Bank Negara Malaysia (BNM) "shall pursue a monetary policy which serves the interests of the country with the primary objective of maintaining price stability giving due regard to the developments in the economy."[17] The dual objectives of price stability and sustainable growth can be deduced from published statements by the Monetary Policy Committee following its meetings to decide on the level of the policy interest rate. These frequently contain phrases of the type "At the current level of the OPR (Overnight Policy Rate), the stance of monetary policy remains accommodative and supportive of economic activity. The MPC will continue to assess the balance of risks to domestic growth and inflation, to ensure that the monetary policy stance remains conducive to sustainable growth amid price stability."[18]

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[15] "The goal of Bank Indonesia is to achieve and maintain the stability of the rupiah. This goal is stipulated in article 7 of Act No. 3 of 2004 concerning Bank Indonesia.... Rupiah stability is defined, among others, as stability of prices for goods and services reflected in inflation. To achieve this goal, Bank Indonesia decided in 2005 to adopt the inflation targeting framework, in which inflation is the primary monetary policy objective, while adhering to the free-floating exchange rate system. Exchange rate stability plays a crucial role in achieving price and financial system stability. For this reason, Bank Indonesia also operates an exchange rate policy designed to minimize excessive rate volatility, rather than to peg the exchange rate to a particular level." Bank Indonesia's website at https://www.bi.go.id/en/moneter/Contents/Default.aspx.

[16] See the description on the BOT website at https://www.bot.or.th/English/MonetaryPolicy/MonetPolicyKnowledge/Pages/ExchangeRate.aspx.

[17] Para 22 of the Central Bank Negara Act of 2009, at https://www.bnm.gov.my/index.php?ch=59&pg=160&ac=486&bb=file.

[18] Monetary Policy Statement, November 5, 2019.

Occasionally reference is also made to the potential build-up of risk due to prolonged periods of low interest rates.[19]

46. Like BI and BOT, BNM considers financial stability as one of its principal objectives. It pursues this objective principally through micro- and macroprudential regulation and supervision. BNM operates a floating exchange rate regime where the exchange rate is principally driven by market forces and central bank interventions are aimed at ensuring orderly market conditions and dealing with excessive disruptions to the market. This policy has been in effect since 2005 when the fixed exchange rate policy introduced after the Asian financial crisis was discontinued.

Developments since the COVID-19 crisis

47. The outbreak of the pandemic had an immediate and deep adverse impact on ASEAN countries, given their close ties to China through global supply chains, their dependence on tourism, and, in the case of Malaysia, exposure to the decline in global energy prices. The crisis prompted strong efforts by all three governments to bolster their economies through fiscal stimulus, adjustments in various macroprudential regulations to boost liquidity in domestic financial markets, and monetary policy easing. Between February and June 2020, the Central Banks of Indonesia, Malaysia, and Thailand all cut rates by between 50 and 75 basis points.

48. In the external sector, the pandemic led to a rise in global risk aversion and large asset redemption flows. In March alone, total portfolio outflows from ASEAN and Korea exceeded the total inflows of the previous year (AMRO, 2020). Some of the stress was alleviated by aggressive monetary easing by the major advanced economy central banks, while the U.S. Fed helped to address dollar funding stress by extending swap lines with some central banks (including Korea's, as noted earlier) and a temporary repo facility for U.S. government securities with other central banks with accounts at the NY Federal Reserve Bank, including a US$60 billion facility with Bank Indonesia.

49. Countries have taken additional steps to reduce funding stresses and restore external sector stability. Indonesia has been affected more than other ASEAN members, reflecting its heavier reliance on portfolio inflows to finance deficits: non-resident investors held about 40 percent of local currency government bonds and about a third of nonfinancial corporate debt at end-2019. As the rupiah depreciated sharply in March–April 2020 amidst unsettled market conditions, Bank Indonesia intervened in the spot and domestic non-deliverable foreign exchange markets, halved the FX reserve requirements for commercial banks, and also lowered the rupiah reserve requirements for banks financing export-import activity. Malaysia has eased regulations so as to allow residents greater flexibility in hedging foreign currency loan obligations and in obtaining financial guarantees from non-residents such as parent companies. It also exempted resident exporters from the requirement to convert export proceeds into

[19] Monetary Policy Statement, January 25, 2018.

domestic currency for transactions below a limit, in order to ease administrative burdens, particularly for small and medium enterprises.

B. IMF Engagement

Assessment of capital flows

50. When Article IV staff reports on these three countries contained discussions of capital flows, the descriptions were mostly factual including occasional references to exogenous drivers related, for example, to monetary policy developments in advanced economies (e.g., the "taper tantrum" episode) and developments in international capital markets (e.g., risk-on, risk-off episodes).[20]

51. Some of the Article IV reports also recognized the possibility of capital flow surges and sudden stops, and the consequences of these for "excessive" exchange rate changes or asset price movements (IMF, Malaysia 2012 Article IV Staff Report). The staff sometimes emphasized the role of domestic institutional investors (IMF, Malaysia 2013 Article IV Staff Report) in dampening the effects of capital flows on the domestic economy, and the role of capital and foreign exchange market depth in providing hedging opportunities for the private sector (IMF, Thailand 2015 Article IV Staff Report).

Advice on exchange rate policy

52. A recurring theme in Article IV staff reports is that a flexible exchange rate should be the first line of defense against the consequences of variations in capital flows and that interventions in the foreign exchange market should only be used to moderate excessive exchange rate volatility or disorderly market conditions. The frequency of statements to this effect gives the impression that they were simply included as a routine part of all discussions of capital flows.

53. In practice, the IMF staff advice on FX intervention has been based less on assessments of what constituted "excessive" exchange rate changes or "excessive" capital flows than on considerations of reserve adequacy. As the examples in Box 2 illustrate, while the Fund's external balance assessment methodology (EBA) suggested that Malaysia and Thailand's exchange rates were well below the respective EBA norms, advice on the appropriateness of FX intervention has been mostly related to reserve adequacy and avoidance of disorderly conditions.

54. The reactions of authorities and Executive Directors representing these countries to staff advice also have followed a recurrent pattern. In response to staff comments that a flexible exchange rate should be the first line of defense, the authorities typically replied that interventions in the foreign exchange market were only carried out in case of disorderly conditions in the market

[20] This paragraph refers to descriptions and analysis of capital flows in Article IV reports related to these three countries. The IMF staff has of course written extensively on capital flows and related policies in other publications, See, for example, Ghosh, Ostry, and Qureshi (2017).

or to smooth out excessive exchange rate movements. At times authorities also added that their interventions did not target a particular level of the exchange rate.

Box 2. Advice on Exchange Rate Levels and FX Interventions

Malaysia

2015 Article IV Staff Report. "The EBA REER index regression estimates Malaysia's REER to be 21 percent below levels warranted by fundamentals and desirable policies, though most of the gap is an unexplained residual. The analysis of the level REER provides an estimate of 15 percent undervaluation. Staff's assessment is that the REER undervaluation for 2014 is 13 percent (plus or minus 5 percent), based on staff's view of the CA gap and the semi-elasticity of the current account with respect to the REER." … "At the end of December of 2014, official reserves stood at about 83 percent of the IMF's composite reserve adequacy metric, and covered 81 percent and 27 percent of short-term external debt and broad money, respectively. However, reserves in excess of the current level proved useful in 2014 and the authorities may increase reserves in favorable occasions."[1]

2018 Article IV Staff Report. "The EBA REER models (index and level based) estimate Malaysia's REER to be about 28–37 percent below what is warranted by fundamentals and desirable policies. However, the usual macroeconomic stresses associated with such undervaluation are absent" … "Under the IMF's composite reserve adequacy metric," … "official reserves, at about 118 percent of the metric, are currently within the adequacy range." … "In case of disorderly market conditions reserves could be deployed. In the face of a capital inflow surge, a combination of further reserve accumulation and some exchange rate appreciation would be appropriate."[2]

2019 Article IV Staff Report. "The EBA REER models estimate Malaysia's REER to be about 26–29 percent below what is warranted by fundamentals and desirable policies. However, the usual macroeconomic stresses associated with such undervaluation are absent," … "Under the IMF's composite reserve adequacy metric (ARA), reserves remain broadly adequate." … "FX interventions should be limited to preventing disorderly market conditions."[1]

Thailand

2018 Article IV Staff Report. "Using an elasticity of 0.6, staff assesses the 2017 REER to be 6 percent to 13 percent below levels consistent with medium-term fundamentals and desirable policies. This gap is expected to narrow over the medium term as policy stimulus and structural reform are deployed, supporting domestic demand and a growth-driven real exchange rate appreciation process. … Reserves are higher than the range of IMF's adequacy metrics and there is no need to build up reserves for precautionary purposes. … The exchange rate should move flexibly, acting as a shock absorber, with intervention limited to avoiding disorderly market conditions."[4]

2019 Article IV Staff Report. "Using an elasticity of 0.64, the 2018 REER would be assessed as around 5–10 percent below the levels consistent with medium-term fundamentals and desirable policies. … Reserves are higher than the range of IMF's adequacy metrics and there continues to be no need to build up reserves for precautionary purposes. The exchange rate should move flexibly to act as a shock absorber, with FX intervention limited to avoiding disorderly market conditions."[5]

55. The implicit assumption behind the mantra that a flexible exchange rate should be the first line of defense must either be that a flexible exchange rate is the best response regardless of the nature of capital flows, or that capital flows reflect persistent changes in real economic conditions that require real exchange rate adjustments, rather than being temporary changes in the risk preferences of asset managers on international capital markets that could be

accommodated by foreign exchange market interventions.[21] Whatever the underlying model and assumptions may have been, they were not articulated in the staff reports.

56. A rare exception is contained in the 2019 Article IV Staff Report on Thailand. After the customary statement that a "flexible exchange rate should be the first line of defense against external shocks" and that "FX intervention should be limited to avoiding disorderly market conditions" the Staff Report goes on to say that "Excessive FXI could also unnecessarily delay optimal adjustment in demand and prices to permanent real or financial shocks. The authorities' capacity to affect the real exchange rate through foreign exchange intervention (FXI) may be limited to the very short term, requiring large and continuous FXI to offset the impact of a persistent shock."

57. Recently, authorities have been more ready to challenge the staff on the issue of exchange rate flexibility. In Thailand, for example, in the 2019 Article IV consultation the authorities reiterated their commitment to exchange rate flexibility but they "differed from staff's views on how to cope with recent capital inflows and stressed the need to factor in the impact of market dynamics on exchange rate movements. They stressed that a fully flexible exchange rate could become a shock amplifier in the face of strong appreciation driven by self-fulfilling expectations and herding behavior in the market, and FXI could be a useful short-term tool in the policy toolkit to cope with exchange rate volatilities. In their view, Thailand experiences such herding behavior especially when there are major push factors (i.e., policy announcement from AEs), which often leads to overshooting of the exchange rate, particularly in the thin market sessions."[22,23]

58. Furthermore, "The authorities viewed that recent episodes of the baht's sharp appreciation were not warranted by economic fundamentals and could pose risks to macroeconomic stability. To follow staff's recommendation to let the exchange rate act as shock

[21] That exchange rate adjustment should be encouraged only in the first of these cases seems to be implicit in the following paragraph from the 2013 Malaysia Article IV Consultation (p. 70): "Countries experiencing outflows of foreign capital may respond through a combination of financial and real adjustment. Financial adjustment involves either a drawdown of official reserves or offsetting inflows by residents of non-reserve assets. Real adjustment involves changes in domestic absorption (the sum of private and government consumption and investment) which improve the current account through a combination of real exchange rate depreciation, and fiscal and monetary tightening. Real adjustment is usually more painful than financial adjustment, since it comes following a boom in inflows which has resulted in higher domestic spending and a widening of the current account deficit, which must now be reversed. Countries that can rely on financial adjustment in response to capital outflows are therefore bound to be more resilient." This quotation is itself based on Chapter 4 in the October 2013 *World Economic Outlook*, "The Yin and Yang of Capital Flow Management: Balancing Capital Inflow with Capital Outflows."

[22] 2019 Thailand Article IV Consultation, pp. 14-15. Available at: https://www.imf.org/en/Publications/CR/Issues/2018/06/04/Thailand-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45928.

[23] Recent IMF research has recognized the possibility that exchange rates can act as shock amplifiers. See IMF (2019).

absorber would risk disrupting real-sector adjustments as such recommendations do not take into account the impact of foreign exchange market dynamics and the fact that the exchange rate can become a shock amplifier in an environment of excessive global liquidity."[24]

59. In short, in this episode the Thai authorities and the IMF staff held different views of the underlying shock to the economy and of the dynamic behavior of the foreign exchange market.

Advice related to capital flow management measures and macroprudential measures

60. The staff has often commended authorities for their use of macroprudential policies to safeguard financial stability, and on occasion made suggestions for altering these policies to respond to a perceived need (e.g., IMF, Thailand 2016 Article IV Staff Report). Authorities typically agreed that current MPMs were helpful, but sometimes pushed back on staff advice to alter them, referring to possible tradeoffs with other policy goals and possible unintended consequences.

61. The authorities tended to view macroprudential measures as a part of an integrated policy framework where settings of multiple policy instruments needed to be calibrated to achieve multiple objectives. They saw joint calibration of the instruments as necessary because each had an impact on each of the objectives, albeit with different intensity. In the views of the authorities, the IMF staff tended to view each policy instrument as being assigned to a specific objective: e.g., monetary policy to macroeconomic stability and MPMs to financial stability. The staff might suggest tightening MPMs to deal with a perceived financial stability risk, but the authorities would resist doing so because tighter macroprudential policies would have a dampening effect on aggregate demand.[25]

62. Authorities also questioned the assignment of monetary policy exclusively to the macroeconomic stability objective on the grounds that this monetary policy also has financial stability implications that may be difficult to counteract with MPMs. A case in point was the impact of lower policy interest rates on risk taking outside the regulated financial system. Even if

[24] Statement by Ms. Alisara Mahasandana, Executive Director for Thailand, and Mr. Acharawat Srisongkram, Advisor to the Executive Director, September 30, 2019. Available at: https://www.imf.org/en/Publications/CR/Issues/2018/06/04/Thailand-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45928.

[25] In 2016, "The authorities note[d] staff's recommendation to tighten the macroprudential policies, but consider that the various measures currently in place are sufficient at this juncture. ... The authorities are of the view that further tightening would require caution in light of sluggish growth. The degree of adjustment and timing of implementation are also critical to achieve the desired outcome without unintended consequences." Statement by Pornvipa Tangcharoenmonkong, Alternate Executive Director for Thailand, May 23, 2016, p. 4.

tighter MPMs were introduced, they would not "get into all the cracks"[26] where the low policy interest rate had led to greater risk taking.[27]

63. In recent years, the staff has taken an increasingly firm stance towards actions by authorities that were judged to introduce new CFM measures or to tighten existing ones. Consultations with Malaysian authorities related to the announcement by Bank Negara Malaysia in December 2016 of measures intended to develop the onshore foreign exchange market are a case in point. These measures included an export proceed conversion requirement and limits on foreign currency investments by residents with domestic ringgit borrowing (including the limit by resident non-exporters). The 2017 Article IV Report contained detailed discussions of these measures, and concluded that "Going forward, and in line with the Fund's Institutional View on capital flows, exchange rate flexibility and macroeconomic policy adjustments should remain the main line of defense to external shocks. BNM should keep the new FX market measures under review, recognizing their costs and benefits. It should also maintain its close consultation and communication with market participants to sustain investor confidence and support an orderly functioning of the FX market."

64. The 2017 Article IV Report for Malaysia explicitly noted that the 2016 measures had been "classified as capital flow management measures under the IMF's Institutional View on Capital Flows." In the 2019 consultation, the staff noted that the measures can be distortive, potentially leading to resource misallocation, and therefore may not support market development."[28] In conclusion, the staff advised that the "measures should be gradually phased out with due regard to market conditions."

65. The authorities disagreed with the staff's assessment and advice. They argued that rather than causing distortion, the measures "helped reinforce Malaysia's long-standing policy on the non-internationalization of the ringgit, limit speculation that causes excessive exchange rate

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[26] Stein (2013).

[27] In 2017, "The authorities agreed on the merits of further developing macroprudential tools, which they viewed as a complement, rather than a substitute, to sound monetary policy. They emphasized that macroprudential tools should not be expected to work effectively against the broader monetary policy stance. They cited concerns over financial stability risks in the decision to keep monetary policy rates on hold, and highlighted that if the policy rate was lowered, a tightening of macroprudential policies may not be effective in containing the emergence of risks through new forms of shadow banking. These risks originated from exploiting regulatory loopholes and would take time to address." Thailand 2017 Article IV Consultation, p. 12. https://www.imf.org/en/Publications/CR/Issues/2017/05/31/Thailand-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-44948.

[28] 2019 Malaysia Article IV Consultation, p. 14. https://www.imf.org/en/Publications/CR/Issues/2019/03/08/Malaysia-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-46651. These measures had been assessed to be CFM measures [or CFMs] by the IMF.

volatility, and deepen onshore markets."[29] Consequently they did not agree that the measures should be phased out.

66. The 2019 Article IV Consultation Report with Malaysia contained an additional instance of disagreement on the classification of policy measures. The IMF staff suggested that "the residency-based differentiation in the real estate measures introduced in 2014 should be gradually phased out." The measures had been classified by the IMF as jointly residency-based CFMs and MPMs, and the authorities again pushed back. "They noted staff's recommendation to phase out the residency-based differentiation in the real property gains tax and property floor price but consider these measures necessary to limit speculative demand and minimize financial sector risks, given the rebound in growth of property purchases by non-citizens in 2017–2018H1."[30]

67. Differences in opinion about the use of capital flow measures also surfaced in recent consultations in Thailand. Referring to a policy introduced in July 2019 to reduce the daily limit of Thai baht maintained in non-resident baht accounts, the 2019 Article IV Staff Report commented that "The recent tightening of existing CFMs to address speculative flows should be phased out and replaced with appropriate macroeconomic, financial and structural policies."[31] The report did not elaborate on why the measures should be phased out, nor did it provide examples of what the "appropriate macroeconomic, financial and structural policies" would consist of.

68. The Thai authorities pushed back. A statement by the Executive Director for Thailand explained that the measure was intended to safeguard financial stability, and furthermore: (i) was not a CFM as it "neither prevents nor limits the quantity of inflows into Thai financial markets;" (ii) alternative measures such as changes in the policy interest "might be sub-optimal, given the blunt nature of the instrument and possible unintended consequences on financial stability;" and (iii) to counter risks to financial stability "[t]he authorities believe that measures to address the source of pressure would be a more effective policy alternative."[32]

69. A similar disagreement between the IMF staff and country authorities is recorded in the 2019 Article IV Consultation report on Indonesia. In this report, the staff recommended that a corporate prudential FX regulation assessed as a CFM/MPM—which requires a minimum rating and hedging of short-term external debt—should be extended to cover all FX liabilities of systemic corporates to reduce enforcement and compliance costs. The authorities argued that the measure was neither a CFM nor a CFM/MPM as "[t]he regulation aims to ensure macro-

[29] Ibid., p. 14.

[30] Ibid., p. 16.

[31] Thailand 2019 Article IV Consultation, p. 23.
https://www.imf.org/en/Publications/CR/Issues/2019/10/07/Thailand-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-48724.

[32] Statement by Ms. Alisara Mahasandana, Executive Director for Thailand, and Mr. Acharawat Srisongkram, Advisor to the Executive Director, September 30, 2019 attached to the 2019 Article IV Consultation document.

financial stability through the adoption of prudential principles on corporate foreign borrowing." In other words, they considered the measure as a pure MPM.[33]

70. Authorities noted that discussions about CFMs and related policies had indeed intensified in the recent past. They felt that the recent pushback on use of measures for financial stability purposes necessitated robust responses by country authorities, hence the disagreements noted in the Article IV consultation reports. Authorities felt that the Fund's treatment of these measures was too legalistic and did not adequately take into account the rationale and objectives of the measures.

71. Since the start of the COVID-19 pandemic, the staff has supported the strong policy actions taken by the three countries' authorities in the form of monetary easing and fiscal stimulus packages to support their economies and steps to alleviate external sector stress in the face of the global shock. Staff has also acknowledged that "there can be a role for temporary outflow capital controls to help ensure stability in the face of large capital flows, balance sheet mismatches, and limited scope to use other policy tools" (Rhee, 2020).

C. Assessment

72. Overall, country officials in Indonesia, Malaysia, and Thailand feel that the Fund's analysis and policy advice on capital flows has not provided much value added or influenced their policy choices in dealing with the challenges posed by volatile capital flows. In their view, the IV has not been a very useful framework, and they have highlighted a number of concerns from their experience in a joint policy paper (ASEAN, 2019). [34]

73. Country authorities who were interviewed felt that the IMF staff analysis of capital flows typically has been too general and has not recognized the possibility of market dynamics leading to herding behavior. Nor has it attempted to provide insights on the underlying sources of changes in capital flows and whether these changes were likely to be temporary or persistent. Staff advice on exchange rate policy was thus not been seen as well grounded.

74. The authorities also did not view favorably the external balance assessment used to assess the appropriate level of the exchange rate. From their perspective, its application has typically been too rigid and has not adequately incorporated country-specific circumstances. Many officials viewed the EBA as a cookie-cutter, one-size-fits-all approach.

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[33] 2019 Indonesia Article IV Consultation, p. 16. https://www.imf.org/en/Publications/CR/Issues/2019/07/30/Indonesia-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-48535.

[34] The official ASEAN document, "Capital Account Safeguard Measures in the ASEAN Context" (ASEAN, 2019) raises substantially the same concerns as reported in this section. As an official ASEAN publication, it had been vetted by country officials at the highest level.

75. Authorities generally felt that the staff's advocacy of capital account liberalization should be based on solid supporting evidence on the benefits of further liberalization for their countries. More discussions about the country's circumstances, the risks of liberalization, and the appropriate sequencing and pace of reforms, as well as discussion of cross-country experience of the liberalization process, would help enrich the quality of staff analysis and policy advice.

76. Officials also argued that the IV could discourage the removal of CFM measures in place. They observed that the perceived stance of the IV, that capital account liberalization should not be backtracked, actually made them more cautious on the pace of liberalization, out of concern that the IMF would advise against reintroducing restrictions should future needs arise.

77. In the authorities' view, the staff has been too inflexible in its assessment of MPM and CFM measures. Regarding CFM measures in particular, officials in all three countries felt that the IMF was too legalistic in the definition of what constitutes a CFM measure. In their view, many instruments that are classified as CFMs, and therefore discouraged by the Fund, are used preemptively to avoid a build-up in financial vulnerabilities and should essentially be seen as valid parts of the toolkit that could be deployed to meet stabilization objectives.[35] Authorities felt that while Article IV teams in the field were often sympathetic to their views, the design of the IV left them with limited flexibility in providing advice.

78. Authorities thought it would be useful for the staff to pay more attention to assessing the effectiveness of standard macro prescriptions to deal with large capital inflows and outflows. In particular, they would like more analysis and discussions about how best to incorporate CFM, MPM, and foreign exchange market policies into an effective mix of policies to deal with the consequences of capital flow volatility for financial stability and economic growth.

79. Authorities also felt that discussions with the staff on how to cope with capital flow volatility have tended be too reactive, with the staff questioning the authorities about the implementation of measures, rationales, and motivations. It would be more useful if the staff could also prepare an in-depth analysis of capital flow development and share their views on the effectiveness of the policy tools as well as the best policy mix—which includes CFMs and FX interventions. The staff's recommendations on the policy mix have still tended towards the "one tool, one objective" view.

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[35] In this context the views of two IMF Governors reported in the *Financial Times* on the sidelines of the IMF-World Bank meeting in Bali in October 2019 are worth repeating: "Countries in this region should be allowed to use capital flow regimen policies as a legitimate policy tool that can be deployed in a preemptive manner to deal with potential risk to financial market stability" (Governor Nor Shamsiah Modh Yunus, Bank Negara Malaysia); "Our markets tend to be small, so sometimes we need to be able to [use] preventive measures and throw sand in the wheels. We need to be able to combine the different policy tools—macroprudential, capital flow management and exchange rate" (Governor Veerathai Santiprabhob, Bank of Thailand). *Financial Times*, October 16, 2019, "Malaysia central bank governor wants option of capital controls."

80. In this context, some authorities opined that it would be helpful to have staff teams with a more diverse background, and especially with more understanding of the tradeoffs and constraints authorities face when they have to decide on policy implementation.

81. Authorities were generally pleased that the Fund was proceeding with an ambitious Integrated Policy Framework (IPF) work program aimed at incorporating interrelationships between monetary policy, FX intervention, macroprudential, and capital account tools in a comprehensive assessment of stabilization policies in their economies. In their view, to be useful the IPF must lead to more flexibility and country-specificity in IMF advice. It should be more accommodating with respect to including CFMs and MPMs in a policy mix together with monetary, fiscal, and exchange rate policies. If the IPF turned out to be just IV 2.0 it would be very disappointing.

82. Representatives of private sector financial institutions expressed two types of views on CFMs and MPMs. One was that capital account measures are generally not overly disruptive provided they do not come as surprises and are well explained. Others had a less benign view, noting that market development and liquidity could be affected. In both cases, it was noted that undue complexity of measures, whatever their objective, should be avoided.

IV. CONCLUSION

83. The analysis of the four country cases (Indonesia, Korea, Malaysia, Thailand) reveals that the authorities generally appreciated the IMF's advice on how to handle capital flows and volatility but saw a need for more flexibility in the IMF's policy framework and less rigid application of the IV, a concern that has increased since 2017. Authorities and observers in the three ASEAN countries expressed concern that the IMF's increasingly rigid approach could lead to policy inaction and discourage further capital account liberalization.

84. With respect to advice on capital account liberalization, which remains a medium-term anchor for IMF policy advice, it will be important for the IMF staff to provide solid supporting evidence on the benefits of further capital account liberalization. More discussion of the risks of liberalization and the appropriate sequencing and pace of reforms would help to enrich the quality of staff analysis and policy advice and ensure that it is fully adapted to country circumstances.

85. In terms of managing capital flow volatility, increased flexibility in the IMF's policy framework would be desirable. In particular, capital flow management measures should become an integral part of the policy toolkit. The IMF should consider supporting CFMs and CFMs/MPMs as a routine part of the recommended policy mix, in the context of an economic rather than legalistic analysis of tradeoffs. The framework should allow for preemptive and permanent use of such tools, especially when the IMF staff cannot demonstrate that a superior alternative policy mix is available. In this context, it would be useful for the staff to pay more attention to the effectiveness (or lack thereof) of standard macro prescriptions to deal with large capital inflows

and outflows and to provide more analysis and discussions about how best to incorporate CFM, MPM, and foreign exchange market policies into an effective mix of policies to deal with the consequences of capital flow volatility for financial stability and economic growth.

86. To add more value, the IMF's advice should better reflect specific country circumstances, and improve the underpinnings of its advice on exchange rate intervention and fundamentals (especially the ESR/EBA) should be strengthened. In some cases, there was a concern that the IMF's analysis did not sufficiently take account of market dynamics like herding behavior and overshooting, which prompts the question (as raised particularly by the authorities of Thailand) of whether there was a greater role for foreign exchange intervention to deal with overshooting. In this context, it would be desirable for the staff to provide more insight on the underlying sources of changes in capital flows. Similarly, to ensure evenhandedness, the IMF needs to pay due attention to source-country policies as drivers of capital flows and volatility and to address recommendations to those countries. This would avoid the current perception of asymmetry in the application of the IV.

87. The IMF staff should avoid spending excessive time and resources on the labeling of measures as CFMs or CFMs/MPMs, particularly if these are primarily designed to mitigate risks to financial stability and have a limited impact on overall capital account openness. Authorities of all four countries felt that measures introduced purely for financial stability considerations and effectively targeting the source of the risk, especially balance sheet mismatches, should in fact not be labeled CFMs.

88. The analysis also suggested the need for a clearer and more transparent application of the IV to better explain why certain measures (e.g., Korea's currency-based MPMs) were also considered CFMs; how the IMF assessed the timing and magnitude of capital inflow surges (in Indonesia, Thailand, Malaysia); and how IMF support for CFMs/MPMs dovetailed with its assessment that the exchange rate was likely undervalued (in Korea, Thailand).

89. Authorities expressed support for the Fund proceeding with an ambitious IPF work program aimed at incorporating interrelationships between monetary and financial stability in a comprehensive assessment of policies in their economies. In their view, to be useful the IPF must lead to more flexibility and country-specificity in IMF advice.

REFERENCES

ASEAN+3 Macroeconomic Research Office (AMRO), 2020, "US Dollar Funding Stress in the ASEAN+3 Region," April.

Association of South East Asian Nations (ASEAN), 2019, "Capital Account Safeguard Measures in the ASEAN Context," February. Available at https://asean.org/storage/2012/05/2019-02-25-ASEAN-Paper-The-Role-of-Safeguard-Measures-in-ASEAN.pdf.

Baba, Chikako, and Annamaria Kokenyne, 2011, "Effectiveness of Capital Controls in Selected Emerging Markets in the 2000s," IMF Working Paper 11/281 (Washington: International Monetary Fund).

Baba, Naohiko, and Ilhyock Shim, 2010, "Policy Responses to Dislocations in the FX Swap Market: the Experience of Korea," in *International Banking and Financial Market Developments*, BIS Quarterly Review, June (Basel: Bank for International Settlements).

Bruno, Valentina, and Hyun Shin, 2014, "Assessing Macroprudential Policies: the Case of South Korea," *Scandinavian Journal of Economics* 116, 10.1111/sjoe.12037.

Cerutti, Eugenio, and others, 2016, "Changes in Prudential Policy Instruments: A New Cross-Country Database," International Finance Discussion Paper No. 1169, June; and IMF Working Paper No. 16/110 (Washington: Institute of International Finance and International Monetary Fund).

Chinn, Menzie D., and Hiro Ito, 2006, "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics* 81(1): 163–192.

Choi, Changho, 2014, "Assessing the Impact of FX-related Macroprudential Measures in Korea," in K. Chung and others (eds.), *Volatile Capital Flows in Korea* (New York: Springer).

de Crescenzio, Annamaria, Marta Golin, and Anne-Christelle Ott, 2015, "Currency-based Measures Targeting Banks—Balancing National Regulation of Risk and Financial Openness," OECD Working Papers on International Investment 2015/03 (Paris: Organization for Economic Cooperation and Development).

Fernández, Andrés, and others, 2015, "Capital Control Measures: A New Dataset," NBER Working Paper 20970, February (Cambridge, MA: National Bureau of Economic Research).

Financial Services Commission, 2010, *Korea Financial Stability Review 2010* (Seoul: Republic of Korea Financial Services Commission).

Forbes, Kristin J., and Francis E. Warnock, 2012, "Capital Flow Waves: Surges, Stops, Flight, and Retrenchment," *Journal of International Economics* 88(2): 235–25.

Eun, Sung Soo, 2012, "Capital Flows and Macroprudential Measures in Korea," February, Republic of Korea Ministry of Strategy and Finance.

Genberg, Hans, 2019, "Financial Integration in Asia," In Ulrich Volz, Peter J. Morgan, and Naoyuki Yoshino (eds.), *Routledge Handbook of Banking and Finance in Asia* (London and New York: Asian Development Bank Institute and Routledge), pp. 454–468.

Ghosh, Atish, Jonathan Ostry, and Mahvash Qureshi, 2017, "Managing the Tide: How Do Emerging Markets Respond to Capital Flows?" March (Washington: International Monetary Fund).

Hansen, Niels-Jakob, and Signe Krogstrup, 2019, "Recent Shifts in Capital Flow Patterns in Korea: An Investor Base Perspective," IMF Working Paper No. 19/262 (Washington: International Monetary Fund).

Hwang, Moon Woo, 2017, "FX-related Macroprudential Policies in Korea: A Study on the Effect of the FX Derivatives Position Ratio Policy on the Banks' Foreign Borrowings," Chapter 4 in *Global Liquidity and the Impact on SEACEN Economies* (Kuala Lumpur: South East Asian Central Banks Research and Training Centre).

Independent Evaluation Office of the International Monetary Fund (IEO), 2003, *The IMF and Recent Capital Account Crises in Indonesia, Korea, and Brazi*l (Washington: International Monetary Fund).

International Monetary Fund (IMF), various years, Republic of Indonesia: Article IV Staff Report (Washington).

__________, various years, Korea: Article IV Staff Report (Washington).

__________, various years, Malaysia: Article IV Staff Report (Washington).

__________, various years, Thailand: Article IV Staff Report (Washington).

________, 1997, Korea: Letter of Intent and Memorandum of Economic Policies (Washington).

________, 2011, "Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework," IMF Strategy, Policy, and Review Department (Washington).

________, 2012, "The Liberalization and Management of Capital Flows: An Institutional View" (Washington).

________, 2014, "Korea: Financial Sector Assessment Program" (Washington).

________, 2016, "Capital Flows—Review of Experience with the Institutional View," November (Washington).

________, 2017, "Increasing Resilience to Large and Volatile Capital Flows: The Role of Macroprudential Policies—Case Studies," IMF Policy Paper No. 733 (Washington).

________, 2018a, "Annual Report on Exchange Arrangements and Exchange Restrictions, 2018" (Washington).

________, 2018b, "Taxonomy of Capital Flow Management Measures," August (Washington).

________, 2019, 'Facing the Tides: Managing Capital Flows in Asia", Departmental Paper No. 19/17 (Washington).

Kang, Myung Hun, 2012, "Dealing with Volatile Capital Flows in Korea," in Bank for International Settlements (ed.), *Are Central Bank Balance Sheets in Asia Too Large?* BIS Paper 66, pp. 370–373 (Basel: Bank for International Settlements).

Kim, Choongsoo, 2014, "Korea's Experiences with Macroprudential Policy," Chapter 8 in George Akerlof, Olivier Blanchard, David Romer, and Joseph Stiglitz (eds.), *What Have We Learned? Macroeconomic Policy after the Crisis* (Cambridge, MA: MIT Press). Retrieved from www.jstor.org/stable/j.ctt9qf899.

Kim, Kyungsoo, Byung-Ki Kim, and Young Kyung Suh, 2009, "Opening to Capital Flows and Implications from Korea Institute for Monetary and Economic Research," February (Seoul: Bank of Korea).

Kim, Suduk, 2000, "Currency Crisis in Korea—When and Why It Happened," *Asia-Pacific Financial Markets* 7: 11–30.

Lane, Philip, and Gian Maria Milesi-Ferretti, 2007, "The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004," *Journal of International Economics* 73: 223–250.

Lee, H., and C. Rhee, 2012. "Lessons from the 1997 and the 2008 Crises in Korea," *Asian Economic Policy Review* 7(1): 47–64.

Lee, Jong-Wha, 2017, "Twenty Years after the Financial Crisis in the Republic of Korea," ADBI Working Paper 790 (Tokyo: Asian Development Bank Institute).

Organization for Economic Cooperation and Development (OECD), 2015, "The OECD's Approach to Capital Flow Management Measures Used with a Macroprudential Intent: Report to G20 Finance Ministers, 16-17 April, Washington D.C." (Paris: Organization for Economic Cooperation and Development). Available at https://www.oecd.org/investment/G20-OECD-Code-Report-2015.pdf.

________, 2019, OECD Code of Liberalization of Capital Movements (Paris: Organization for Economic Cooperation and Development).

Park, June, 2011, "From 'Cardinal Sin' to Policy Agenda? The Role of Capital Controls in Emerging Market Economies: A Study of the Korean Case, 1997–2011," Joint U.S.–Korea Academic Studies Emerging Voices 22 (Washington: Korea Institute of America).

Pongsaparn, Runchana, Warapong Wongwachara, and Rattasat Nudam, 2017, "Macroprudential Policy: Its Role, Effectiveness and Interaction with Monetary Policy," Bank of Thailand, Focused and Quick (FAQ) Issue 121, November 8.

Rhee, Changyong, 2020, "COVID-19 Pandemic and the Asia-Pacific Region," IMF Blog, April 15.

Shin, Ho Soon, Jung Yeoun Lee, and Jungmin Park, 2017, "Macroprudential Frameworks, Implementation and Relationship with Other Policies in Korea," in Bank for International Settlements (ed.), *Macroprudential Frameworks, Implementation and Relationship with Other Policies*, BIS Paper 94, pp. 219–229 (Basel: Bank for International Settlements).

Stanley, Leonardo E., 2018, *Emerging Market Economies and Financial Globalization: Argentina, Brazil, China, India, and South Korea* (London: Anthem Press).

Stein, Jeremy, 2013, "Overheating in Credit Markets: Origins, Measurement, and Policy Responses," Speech given at the "Restoring Household Financial Stability after the Great Recession: Why Household Balance Sheets Matter" research symposium sponsored by the Federal Reserve Bank of St. Louis, St. Louis, Missouri, February 7. Available at https://www.federalreserve.gov/newsevents/speech/stein20130207a.htm.

Towe, Christopher, 2020, "IMF Policy Advice on Capital Flows: Multilateral Issues," IEO Background Paper No. BP/20-02/04 for IEO evaluation of "IMF Advice on Capital Flows" (Washington: International Monetary Fund).

U.S. Department of the Treasury, 2018, "Report to Congress: Macroeconomic and Foreign Exchange Policies of Major Trading Partners of the US" (Washington).

Yun, Youngjin, 2019, "Post-Crisis Changes in the Pattern of Capital Flows—The Case of Korea," Global Research Unit Working Paper No. 2019–028, City University of Hong Kong.

Zhang, Longmei, and Edda Zoli, 2014, "Leaning Against the Wind : Macroprudential Policy in Asia," IMF Working Paper No. WP/14/22, February 6 (Washington: International Monetary Fund).