

# CHAPTER 2

## The international financial system after Covid-19

**Maurice Obstfeld<sup>1</sup>**

University of California, Berkeley Peterson Institute for International Economics and CEPR

### INTRODUCTION

In March of 2020, international markets seized up with a violence unequalled since the Global Financial Crisis nearly a dozen years before. As economies around the world locked down in the face of the potentially deadly but completely novel SARS-CoV-2 virus, stock markets fell, firms and governments scrambled for cash, liquidity strains emerged even in the market for US Treasuries, and capital flows to emerging and developing economies (EMDEs) reversed violently. Once again, the world economy appeared on the brink of collapse – until it was pulled back by monetary and fiscal interventions that outstripped even those of the 2008–2009 Global Financial Crisis.

The Global Financial Crisis erupted after five years of global financial market expansion following the Asian crisis of the late-1990s, the dot.com collapse and Enron corporate fraud scandal, and the 9/11 attacks on the United States. Following the crisis, macroeconomists questioned their earlier theoretical paradigms, financial firms altered their business models and regulators rethought their oversight frameworks. Those paradigms, models and frameworks needed to change – they had complemented each other in allowing the most severe financial crisis since the 1930s.

The Covid-19 crisis originated in a totally different type of shock – one coming exogenously from outside the financial system rather than from within – and it provided a kind of stress test for the amended international financial system. So far, the system has survived tolerably well, even in the face of a global public health response that has underperformed on many levels. But a collapse in 2020 was avoided only thanks to unprecedented policy support, previously unthinkable in magnitude and scope, which it would be rash to rely on for the future. And now, support is being withdrawn.

<sup>1</sup> For helpful comments I thank my discussants at the conference, Kwanho Shin and Sebnem Kalemli-Özcan, as well as Yung Chul Park. Egor Gornostay, Madi Sarsenbayev, Jianlin Wang and Victoria de Quadros provided excellent research assistance. Chris Gohrband, Robin Koepke, Gian Maria Milesi-Ferretti, and Fabio Natalucci were generous in discussing and sharing data. I acknowledge with thanks financial support from the Clausen Center for International Business and Policy and the Class of 1958 Chair at UC-Berkeley. All errors and opinions are mine alone.

This chapter reviews the evolution of global financial markets since the Global Financial Crisis, changes in academic thinking about these markets' domestic impacts, the strains seen during the COVID-19 crisis and perils that may lie ahead. A key theme is that stability will be enhanced if the global community embraces reforms that elevate market resilience, rather than depending on skillful policymakers wielding aggressive but ad hoc policy interventions to ride to the rescue again. Next time could be different – and not in a good way.

The plan of this chapter is as follows. Section 1 surveys trends in financial market activity since the GFC, focusing especially on the huge demands that the Covid-19 shock placed on markets. Section 2 reviews the emerging evidence that global asset and commodity prices, capital flows and intermediary leverage are driven by a global financial cycle linked to US monetary policy.

Section 3 summarises measures central banks took to counteract the effects of the Covid-19 shock, focusing on the case of the Republic of Korea. For EMDE central banks, the episode stood in sharp contrast to earlier crises, in which their authorities sometimes felt forced to react procyclically. But it is too early to argue that EMDEs have entered a new world of copious policy space. Section 4 argues that with advanced economies defeating the pandemic more quickly than EMDEs, the world is experiencing an uneven rebound in which lagging and more indebted EMDEs are likely to be hit by a contracting global financial cycle, driving them into liquidity or solvency crises.

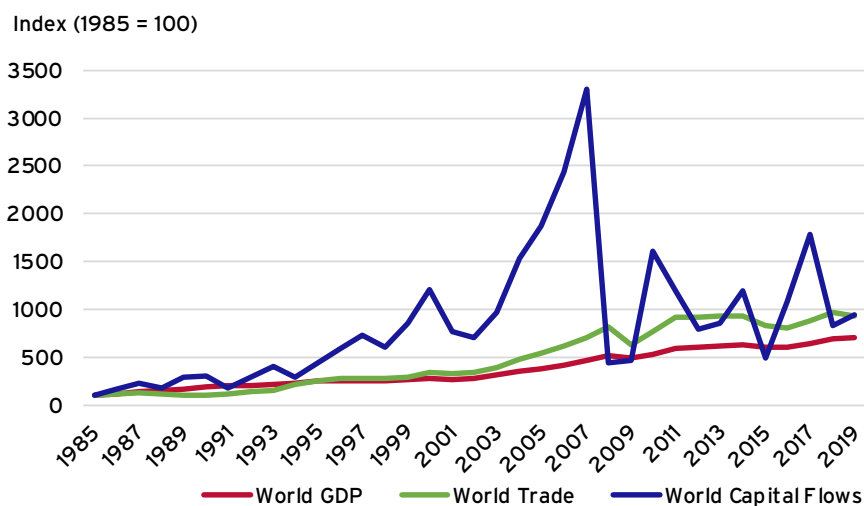
That potential scenario is just one of several threats to financial stability that the Covid-19 crisis has highlighted. Accordingly, Section 5 outlines several areas where reforms at both the global and national levels could improve the resilience of international financial markets.

## 1 TRENDS IN INTERNATIONAL FINANCIAL MARKETS

Starting in the 1990s, the scale and scope of global financial markets exploded. Eventually, additional financial vulnerabilities owing to massive and largely unregulated cross-border financial flows came to outweigh incremental gains from asset exchange, resulting in the global financial distress of 2008-09. Figure 1 shows an index of global capital flows since the mid-1980s. By the mid-1990s, growth in international financial transactions outstripped that in output or trade, even as the latter's growth was amplified in the new millennium's first decade by the proliferation of global value chains. The extreme bulge in capital flows in that same decade cannot be explained by a sudden rise in opportunities for mutually advantageous, socially beneficial asset trade. Instead, it reflected market distortions that came to tears before the decade's end. Since the Global Financial Crisis, international capital flows have fluctuated wildly in response to various shocks, though never again reaching their earlier 2007 peak. Korea has not been immune to these capital-account surges and stops.

Key to these developments has been the regulatory regime around international financial flows – the set of guardrails governments maintain to manage the volume and character of cross-border finance, as well as its uses within the domestic financial system. Figure 2 reports the Chinn-Ito (2006) measure of financial account openness, updated to 2019. This index is a de jure measure that codes the level of official restrictions as reported by the IMF, as opposed to a de facto index of actual international capital movements. After the early 1990s, high-income countries quickly removed remaining restrictions, approaching maximum levels of financial openness by the early 2000s.<sup>2</sup> Like other high-income countries, Korea has for several years been characterised by nearly complete de jure financial openness. Lower-income countries also began a liberalisation process around the early 1990s, but it has been slower and has remained incomplete, even backtracking slightly after the Global Financial Crisis. Accordingly, flows between advanced economies account for the bulk of the early-millennium surge seen in Figure 1. In general, middle- and low-income countries with current account surpluses invest them in advanced markets, which then recycle them to developing markets with current account financing needs. However, in the past two decades, the volume of direct flows between developing markets has risen (Broner et al. 2020, CGFS 2021), also supporting rising gross levels of external assets and liabilities on the part of the less prosperous economies.

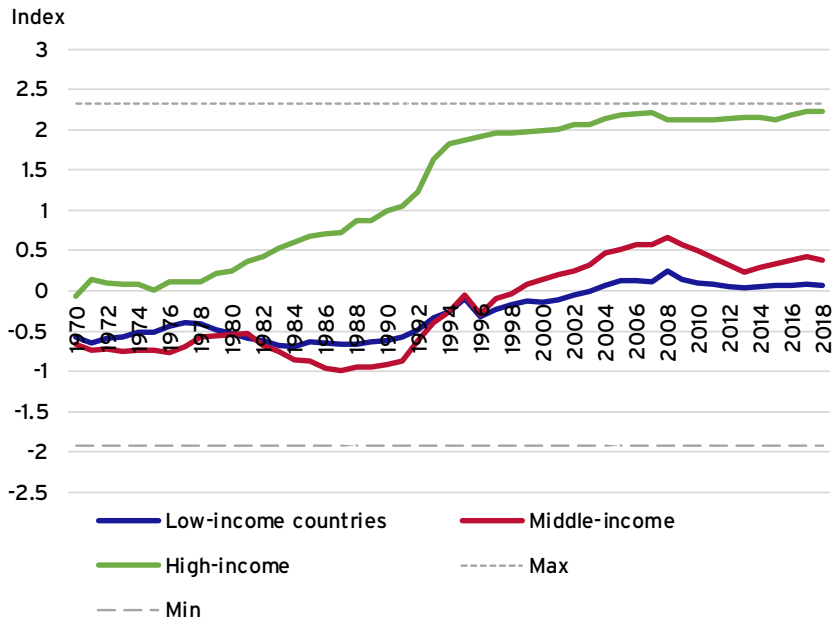
**FIGURE 1** COMPARING THE GROWTH OF WORLD GDP, WORLD TRADE, AND WORLD CAPITAL FLOWS (NOMINAL US DOLLARS, ALL SERIES REBASED TO 1985 = 100)



Sources: IMF, Balance of Payments and International Financial Statistics, and UN, Comtrade database.

<sup>2</sup> For a discussion of this process, see Obstfeld (2021a).

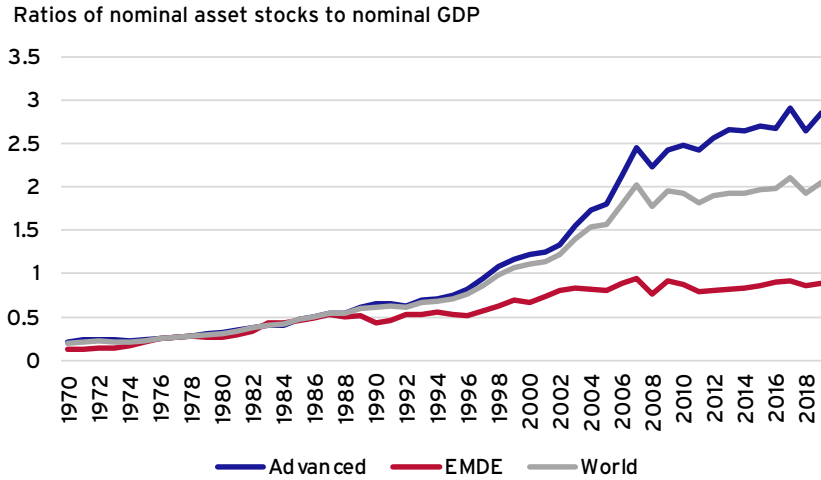
**FIGURE 2 CHINN-ITO INDEX OF FINANCIAL ACCOUNT RESTRICTIONS, 1970-2018  
(SIMPLE COUNTRY-GROUP AVERAGES)**



Source: Chinn and Ito (2006) data, updated by authors through 2018.

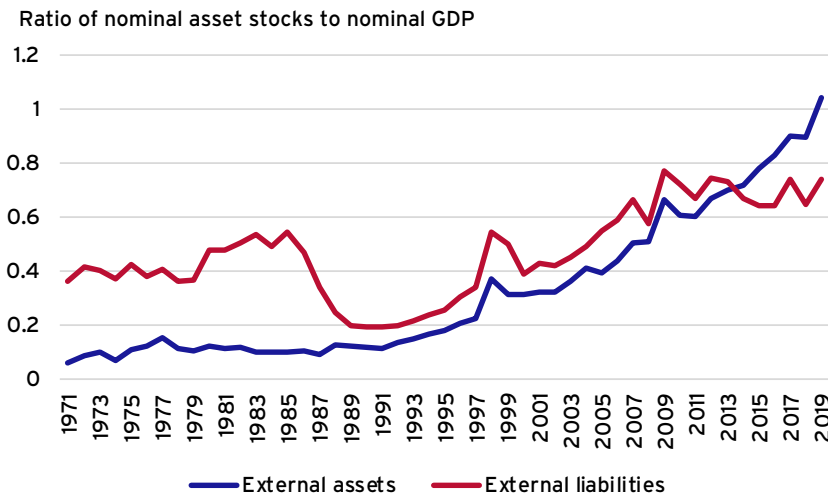
A country's level of gross external assets and liabilities relative to GDP furnishes one possible de facto measure of international financial integration. For the advanced and EMDE country groups, Figure 3 shows the average of external assets and liabilities as a ratio to GDP (based on the data of Lane and Milesi-Ferretti 2018). The rapid run-up in advanced economies, starting in the early 1990s but slowing sharply after the Global Financial Crisis, is evident and quite consistent with Figure 2. The very high numbers (recently around three times GDP) reflect in part the extreme sizes of the balance sheets of financial centres, including offshore havens. Also consistent with Figure 2, EMDEs show a less extreme (though still pronounced) increase after the early 1990s. However, that trend has pretty much stalled relative to the de facto openness levels reached just before 2008, in contrast to the continuing slow rise seen for advanced economies. Figure 4 shows the external assets and liabilities of Korea, also as a share of GDP. The magnitudes are similar to those for the EMDE grouping in Figure 3. In Korea's case, however, while the growth of gross external liabilities (relative to output) has stalled since the Global Financial Crisis, external assets have continued to grow, consistent with Korea's ongoing current account surpluses (which in 2015 reached 7.2% of GDP, falling to a still substantial 4.6% in 2020).

**FIGURE 3 RATIOS OF EXTERNAL FINANCIAL EXPOSURE TO GDP FOR ADVANCED ECONOMIES AND EMDES, 1970-2019 (AVERAGE OF GROSS EXTERNAL ASSETS AND LIABILITIES)**



Source: Lane and Milesi-Ferretti (2018) data, updated by authors through 2019.

**FIGURE 4 KOREA: RATIOS OF EXTERNAL ASSETS AND LIABILITIES TO GDP, 1971-2019**



Source: See note for figure 3.

Extreme as they may seem compared with world trade, the capital flow numbers graphed in Figure 1 far understate true gross levels of international transactions in financial instruments. To see why, note that Figure 1 shows the sum of all countries' capital (or financial) inflows (which equals the sum of global capital outflows apart from errors and omissions in the official data). By definition, a country's capital (or financial) inflow equals

foreign purchases of assets issued by domestic residents less foreign sales of assets issued by domestic residents, that is, net foreign purchases of domestic assets. Capital outflows are defined analogously as domestic residents' purchases of foreign assets less their sales of the same. However, reported capital inflows and outflows – often referred to as 'gross' capital flows because their difference is the *net capital inflow* or current account deficit (again, apart from errors and omissions) – actually are themselves the result of netting the purchases and sales carried out on the same period by a particular set of actors. In principle, such 'gross' capital flows thus understate the absolute levels of two-way flows (Koepke and Paetzold 2020). To get an accurate assessment, we need the gross 'gross' numbers, that is, purchases and sales of domestic and foreign residents before netting.

Such data are hard to come by, but at least for the United States, we can calculate a workable lower bound from the US Treasury's Treasury International Capital (TIC) System data and compare those numbers both with the *net* capital flow required to offset the current account and the conventionally defined gross capital inflow and outflow. The TIC data are monthly and report:

1. Gross US resident sales to foreign residents of US stocks and US long-term bonds (for example, excluding Treasury bills, but including long-term corporate bonds). These necessarily equal foreign purchases of the US assets.
2. Gross US resident purchases of US stocks and US long-term bonds from foreign residents. These necessarily equal foreign sales of the US assets.
3. Gross US resident purchases of foreign stocks and bonds from foreign residents.
4. Gross US resident sales of foreign stocks and bonds to foreign residents.

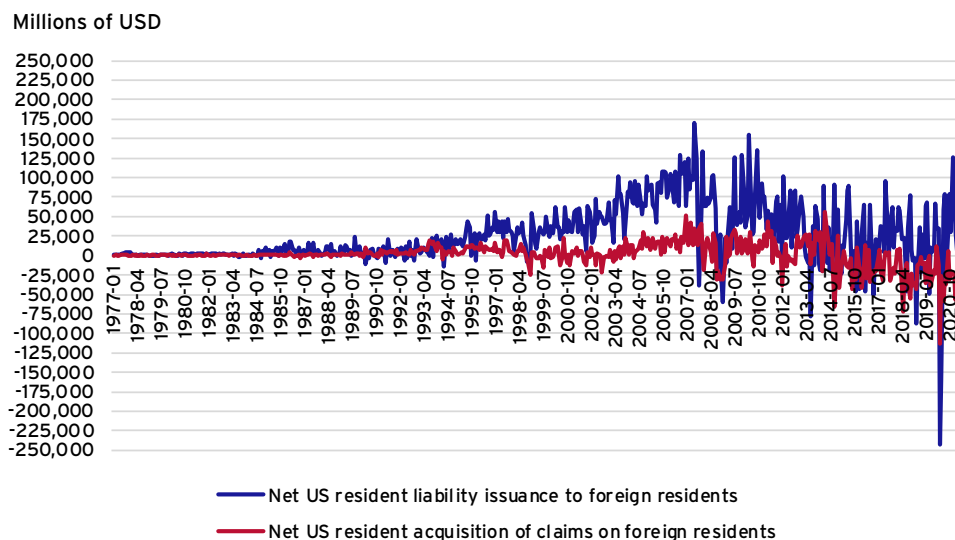
These data therefore capture much of portfolio capital flows; they exclude, in addition to transactions in short-maturity US Treasury bills, foreign direct investment flows and flows of bank loans. In conventional balance-of-payments accounting, US capital inflows relate closely to (a) less (b), whereas US capital outflows relate closely to (c) less (d).

Figure 5 graphs these two proxies for the US 'gross' capital inflow and outflow. In terms of overall magnitude, the absolute values of the series stay below \$250 billion, which is short of 1% of current annual US GDP. Because these are monthly flows and not expressed at an annual rate, however, the correct comparison is with one-twelfth of annual GDP. So, we are looking at monthly inflows and outflows that can be in the order of 10% of GDP. If the TIC data offered a comprehensive picture of all financial flows, the US current account deficit would equal the difference between capital inflows (a) – (b) and capital outflows (c) – (d).<sup>3</sup> The deficit was about 3% of GDP over 2020 – roughly one-third the magnitude of 'gross' capital inflows and outflows. Also notable in Figure 5 are the abrupt

<sup>3</sup> Thus, if the data were comprehensive, the current account deficit would also equal (a) + (d) - [(b) + (c)]: gross US resident sales of all assets to foreigners (whether claims on the United States or a foreign country) less gross US resident purchases of all assets from foreigners.

contractions in international positions – with foreign residents selling US assets and US residents selling foreign assets – around the Lehman shock in 2008 (see Figure 3) and the Covid-19 shock in the early spring of 2020. US recovery and fiscal stimulus early in 2021 bring a surge of capital inflows.

**FIGURE 5 US CONVENTIONAL ‘GROSS’ MONTHLY LONG-TERM PORTFOLIO INFLOWS AND OUTFLOWS**

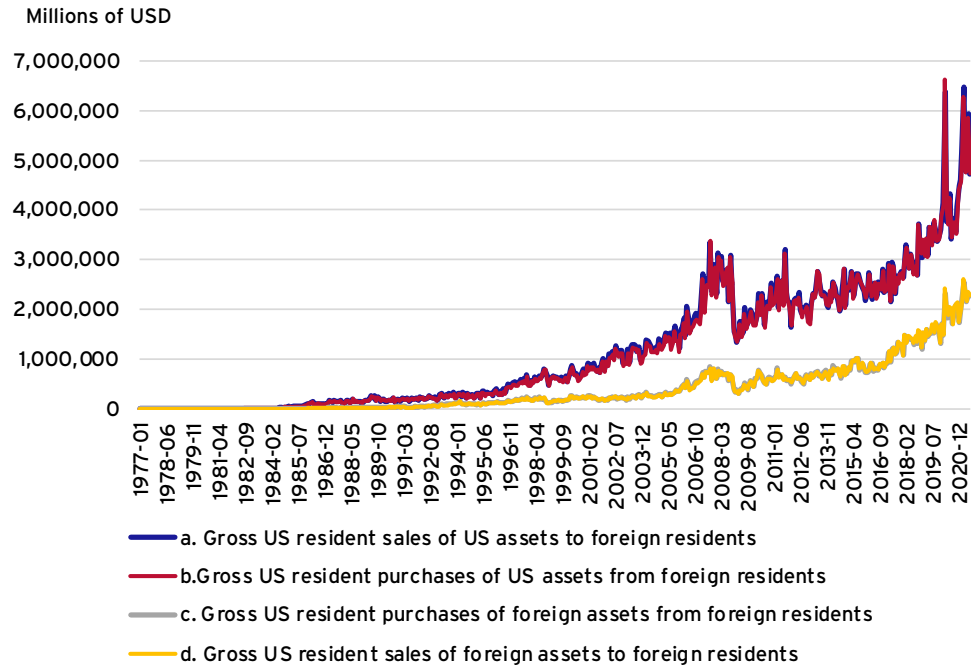


Source: U.S. Treasury, Treasury International Capital System, Monthly Transactions in Long-term Securities.

Figure 6 graphs the true gross capital account transactions (gross ‘gross’ flows) – the sales and purchases considered separately. Often these may be legs of a single transaction, corresponding to offsetting bookkeeping entries in the balance of payments, but nonetheless the magnitudes of transaction volumes are breath-taking.<sup>4</sup> The numbers have tended to grow over time, falling after Lehman but then rising back up and reaching very high levels in the volatile market conditions of the Covid-19 crisis. Transaction volumes for US long-term assets have recently approached \$7 trillion per month, which would exceed monthly US GDP by a factor of between three and four (and these numbers exclude trade in short-term assets). One interesting (if unsurprising) feature of the data is that in trades involving US residents, transaction volumes for US assets are consistently much higher than those for foreign assets. This is a reflection of continuing ‘home bias’ by US residents, of the outsized role of the dollar in global financial markets and of the United States’ big net debtor position. Moreover, the gap between transaction volume in US assets and in foreign assets appears to be secularly widening over the 2000s.

<sup>4</sup> That is why the series are so highly correlated. Suppose a foreign resident holder of a US brokerage account shifts from US bonds to US stocks. The United States is selling them a stock but buying back a bond in payment. The trade gives rise to offsetting items in category (a) and (b) above, with no net impact on US capital inflows (a) – (b).

**FIGURE 6 GROSS US RESIDENT MONTHLY LONG-TERM PORTFOLIO ASSET SALES TO AND PURCHASES FROM FOREIGN RESIDENTS**



Source: See note for Figure 5.

Net capital flows (the current account) matter as a component of aggregate demand. Conventionally defined gross capital flows matter as a measure of the net global demand for country assets. A general collapse in gross flows may signal a global risk-off episode, while a collapse in gross inflows (a sudden stop) can leave an economy with depressed asset prices as well as an inability to pay maturing debts (Forbes and Warnock 2012). The enormous volume of *truly* gross two-way asset trade indicates how small are the asymmetric proportional changes that can potentially spark crises. The same is true of foreign portfolio shifts between a given country's asset classes. Such shocks could be amplified if the financial system's plumbing leads to liquidity shortages, fire sales, failed settlement or other dysfunction. The volume of global financial transactions seems disproportional to any fundamental economic need or activity, yet produces a system prone to fragility.<sup>5</sup> Like the Global Financial Crisis, the Covid-19 shock in the spring of 2020 illustrated the need for massive central bank intervention as a backstop to market stability.

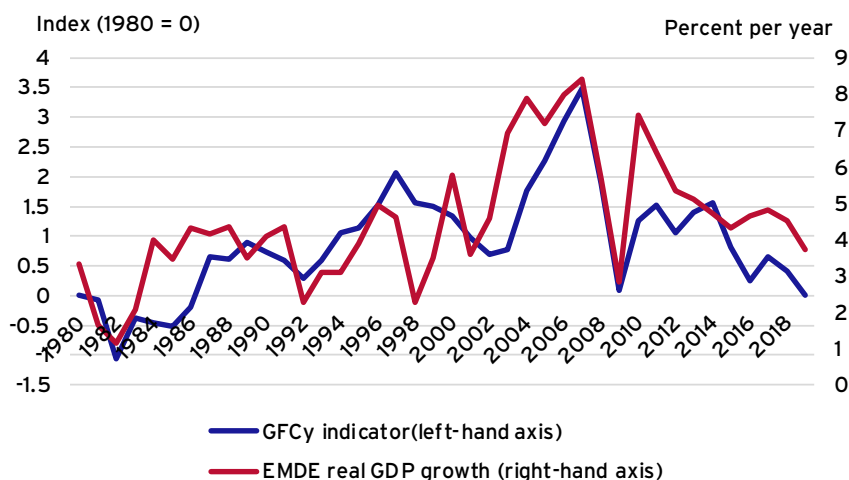
<sup>5</sup> Trading levels may be socially inefficient for several reasons, among them: tax arbitrage schemes or money-laundering motives, investor overconfidence (Odean 1999), externalities from liquidity management (He and Kondor 2016), or the design of fund managers' incentive contracts (Kashyap et al. 2020).



## 2 GLOBAL CYCLES IN ASSET PRICES, COMMODITY PRICES AND ASSET FLOWS

The last section described the distinct upward trends in international financial integration and transaction volumes. But what forces underlie the fluctuations around trend that the data also show? Recent research points to a pattern of synchronized international movements in financial conditions, such that asset prices, commodity prices, capital flows, and intermediary leverage tend to surge and ebb together across a range of national markets (Miranda-Agrippino and Rey 2021). Given the central role of US financial markets and the dollar in global markets, US financial conditions and Federal Reserve monetary policy are key drivers of the global cycle. Financial conditions and monetary policies in other developed markets also play roles, and global fluctuations in risk aversion certainly correlate with the cycle, partly as cause and partly as effect. Figure 7 suggests a cyclical behaviour in global capital flows, most notably in the run-up to the Global Financial Crisis.<sup>6</sup>

**FIGURE 7 GROWTH IN EMERGING AND DEVELOPING ECONOMIES AND THE GLOBAL FINANCIAL CYCLE**



Source: GFCy variable with data updated through 2019 is available at <http://silviamirandaagrippino.com/code-data>. The raw monthly data are averaged to derive annual observations. Real GDP growth is from IMF, World Economic Outlook database, April 2020.

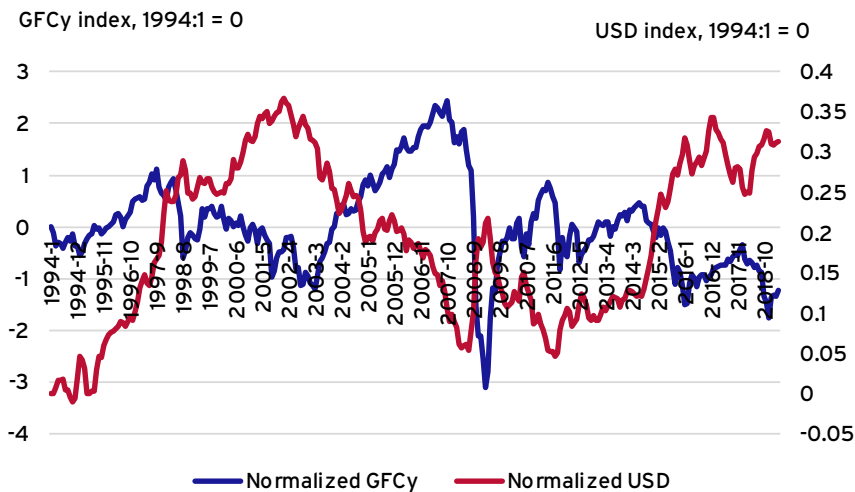
For countries with some degree of integration into world markets, these cycles reflect global financial-market impulses with potentially powerful effects on exchange rates, growth, prices and financial stability. Researchers have therefore sought to measure the global financial cycle and to ascertain its effects and the variables that drive it.

6 There is disagreement over the scope of the global financial cycle. For example, Cerutti et al. (2019) argue that the cycle encompasses asset prices but not capital flows.

Miranda-Agrippino and Rey (2020) use a monthly dynamic factor model of equity, bond and commodity prices spanning five continents to estimate a single-global factor accounting for 20% of the common variance of the asset prices. Scheubel et al. (2019) develop alternative measures based on a latent factor model that includes not only asset prices but also non-price indicators including portfolio inflows to EMDEs, global credit volume and the leverage of broker-dealers. Davis et al. (2021) apply a related approach to explain net and gross capital flows (gross being defined in the conventional sense). They find that two factors – a global financial cycle factor and an energy price factor – have high explanatory power for gross and net flows across advanced economies and EMDEs. Both the Scheubel-Stracca-Tille factor and the Davis-Valente-van Wincoop financial factor correlate well with the factor of Miranda-Agrippino and Rey, which I denote by *GFCy*.

Figure 8 illustrates the close relationship between the global financial cycle index *GFCy* and real output growth in EMDEs, which are especially vulnerable to the vicissitudes of international capital flows. For the annual data in the figure, changes in EMDE growth rates track broadly the swings in *GFCy*.

**FIGURE 8 GFCY INDEX VERSUS BIS BROAD NOMINAL DOLLAR INDEX**



Source: *GFCy* variable with data updated through 2019 is available at <http://silviimirandaagrippino.com/code-data>. Exchange rate data from Bank for International Settlements, available at <https://www.bis.org/statistics/eer.htm>.

Several studies identify the US dollar's nominal effective exchange rate as a bellwether for global financial conditions, operating through international banking activity (as in Bruno and Shin 2015 and Shin 2019) and possibly other channels. This association likely reflects, in part, the impact of US monetary policy shocks on the dollar's exchange rate, restrictive policy implying dollar appreciation and tighter lending conditions. In this case, cross-border US *dollar flows* will react most strongly, yielding an especially powerful negative impulse given the dollar's centrality in cross-border transactions.

Using a vector-autoregression framework, Miranda-Agrippino and Rey (2020) show how alternative measures of US contractionary monetary policy shocks induce dollar appreciation, falls in financial intermediary leverage, credit and banking flows, and a decline in the global cycle index *GFCy*. As to the mechanisms at work, Cesa-Bianchi et al. (2018) present evidence to support a model in which currency and house-price appreciation inflates collateral values, amplifying the expansionary effect of capital inflows. The association could also reflect dynamics in which causality flows from exogenous shifts in global risk appetite into simultaneous movements of the dollar (through safe-haven effects) and the global asset prices that underpin *GFCy*.

Looking at the data from 30,000 feet, the unconditional negative correlation between the dollar's strength and the Miranda-Agrippino and Rey global cycle factor is striking. Figure 8 shows the relationship since 1994: the correlation coefficient between the two monthly series is  $-0.35$ . More impressive than the negative month-to-month correlation, however, is the strong negative relationship between low-frequency swings in the series. The figure thus suggests that the dollar's foreign exchange value is indeed a powerful inverse indicator of the global financial cycle.<sup>7</sup>

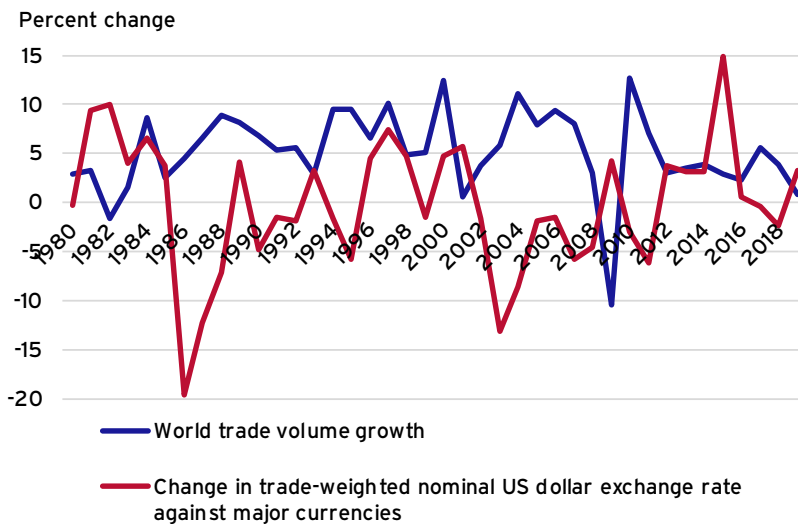
The mechanisms linking the dollar and the cycle affect EMDEs with special force, helping to explain Figure 7. One factor is the prevalence of foreign currency borrowing in some countries, implying that a depreciation of local currency against the dollar will batter domestic balance sheets, with contractionary macro effects. Even where sovereigns have largely graduated to domestic currency borrowing and banks avoid currency mismatch, duration mismatches in foreign currency matter, and emerging market corporates borrow extensively in foreign currency. Moreover, foreign holders of domestic currency debts may be especially sensitive to prospective exchange rate movements, creating outsized capital-flow responses that can destabilise domestic financial markets unless the domestic investor base is deep (Carstens and Shin 2019). Two additional mechanisms follow from the dollar's impact on global trade and commodity prices.

A striking relationship in the data is the strong negative association between nominal dollar appreciation and world trade volume. Figure 9 shows this relationship in annual data from 1980. This relationship is not fully understood, but likely owes to at least five primary (and complementary) mechanisms. First is a direct effect of dollar-induced financial tightening, operating through the need for trade finance credit. This effect has likely become stronger with the proliferation of global value chains since the 1990s (Bruno and Shin 2021). A second potential mechanism works through the dollar's safe-haven tendency to strengthen in global crises, when risk appetite falls sharply as trade contracts. A third mechanism would be a contractionary effect of a stronger dollar on

<sup>7</sup> Figure 8 should be interpreted with caution, as the *GFCy* index is based on asset prices measured in dollars. However, Miranda-Agrippino and Rey (2020, online appendix) state that its general behaviour is robust to estimation based on assets' local currency prices.

export demand when export prices are invoiced in US dollars and sticky.<sup>8</sup> Gopinath et al. (2020) show how dollar appreciation reduces ex-US world merchandise export growth, even controlling for global GDP growth and risk aversion (as proxied by the VIX). A fourth possible mechanism is a global decline in investment when the dollar strengthens and funding conditions tighten, insofar as international trade is particularly sensitive to investment (IMF 2016). Finally, a fifth mechanism is driven by the fall in real commodity prices that tends (as I document next) to accompany a stronger dollar (see also Druck et al. 2018).

**FIGURE 9 US DOLLAR APPRECIATION CORRELATES WITH LOWER GROWTH IN THE VOLUME OF WORLD TRADE**



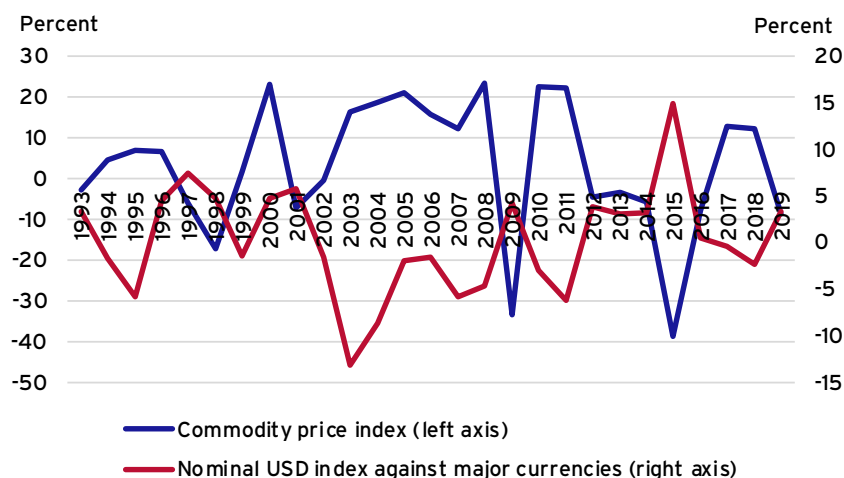
Source: International Monetary Fund, World Economic Outlook database, April 2021, trade volume of goods and services; FRED, dollar exchange rate series TWEXMANL, trade-weighted based on goods trade with major-currency trading partners (Euro area, Canada, Japan, United Kingdom, Switzerland, Australia, and Sweden).

Trade fluctuations have disproportionate effects on smaller and more open economies, especially EMDEs. Another channel through which dollar exchange rate movements affect many of them is the dollar's association with commodity prices. (In 2019, about 20% of world trade consisted of primary commodities, but the exports of poorer countries were disproportionately concentrated on commodities.) Figure 10 shows the strong negative correlation between nominal dollar appreciation and changes in dollar commodity prices. The simple correlation coefficient is  $-0.72$  over 1993–2019. Part of the strong negative correlation between the GFCy index and the dollar comes through the dollar's negative association with commodity prices. It may not be immediately obvious that commodity-

<sup>8</sup> As Bruno and Shin (2021) point out, dollar invoicing of exports likely increases the demand for dollar-denominated trade credits (since the short dollar position is naturally hedged), accentuating the impact of dollar appreciation through the previous mechanism.

price declines due to a stronger dollar harm the real incomes of the exporting countries. Let  $E_{lc/\$}$  be the local-currency price of the US dollar, let  $P_{\$}^{comm}$  be the world dollar price of commodities, and let  $P_{lc}^{GDP}$  be the local GDP deflator in terms of domestic currency. Then the price of commodities in terms of exporter GDP equals  $E_{lc/\$} P_{\$}^{comm} / P_{lc}^{GDP}$ . If a stronger dollar means that all nominal dollar prices fall in proportion – as in the case of a purely monetary shock in a flexible-price world – then  $E_{lc/\$}$  rises (local currency depreciates) in the same proportion as  $P_{\$}^{comm}$  falls. With the local price level unchanged, the real price of the commodity export in terms of local output would remain unchanged, as would local real incomes.

**FIGURE 10 DOLLAR COMMODITY PRICES TEND TO FALL WHEN THE US DOLLAR APPRECIATES IN NOMINAL TERMS**



Source: See note for Figure 9.

But this is far from what happens in practice when the dollar becomes stronger. When the dollar appreciates by  $x\%$  in nominal effective terms against other advanced-country currencies,  $E_{lc/\$}$  may well rise by less than  $x\%$ : some commodity exporters intervene in foreign exchange to limit exchange rate movements ('fear of floating'), while others may peg their currencies to the dollar outright. More importantly,  $P_{\$}^{comm}$  will tend to fall by *more* than  $x\%$ , as is evident from the much larger scale of the left axis in Figure 10. Both factors result in a fall in the relative price  $E_{lc/\$} P_{\$}^{comm} / P_{lc}^{GDP}$  when the dollar appreciates, and a consequent fall in exporter real income. A stronger dollar, if not accompanied by a rise in global commodity demand, will hammer primary exporters' terms of trade and real incomes. Table 1 shows, for six emerging markets, the negative correlations between monthly movements in the real local value of the IMF commodity price index (with CPIs standing in for GDP deflators) and the dollar's nominal exchange rate against advanced country currencies.

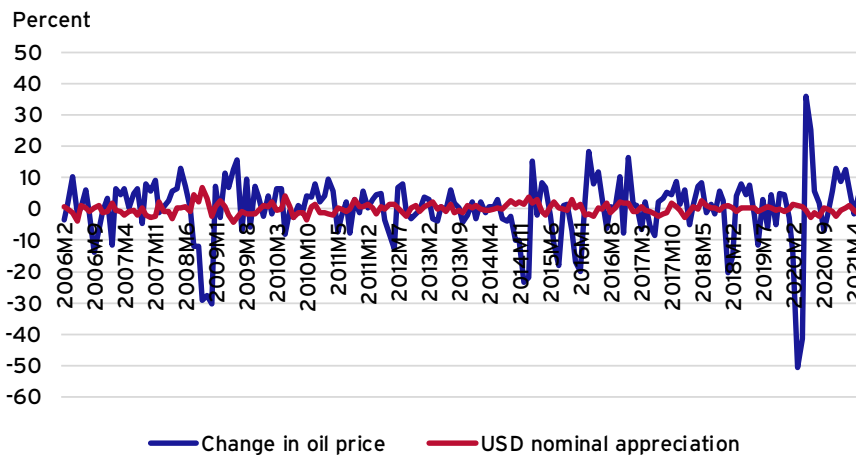
**TABLE 1 MONTHLY CORRELATION BETWEEN CHANGE IN NOMINAL DOLLAR INDEX AGAINST MAJOR CURRENCIES AND CHANGE IN REAL LOCAL COMMODITY PRICE, FEBRUARY 2006 TO JUNE 2021**

Brazil	Chile	India	Saudi Arabia	South Africa	Thailand
-0.20	-0.35	-0.44	-0.58	-0.21	-0.45

Source: US dollar nominal effective exchange rate against advanced country currencies from Federal Reserve Board of Governors. Monthly dollar commodity price index from IMF Primary Commodities Prices website. Monthly local CPI data and country exchange rates against US dollar from FRED. For Thailand, monthly CPI from national sources via Haver.

Figure 11 focuses on the case of oil prices, showing their outsized fluctuations compared with those in the dollar's nominal effective rate. The correlation coefficient between the price changes for the dollar and oil is  $-0.39$  over the period shown.<sup>9</sup>

**FIGURE 11 US DOLLAR APPRECIATION AND CHANGE IN DOLLAR OIL PRICE, MONTHLY DATA**



Source: Nominal effective U.S. dollar exchange rate against advanced economies, as reported by the Federal Reserve Board of Governors. IMF dollar oil price index from IMF Primary Commodity Prices website.

Rey's important paper on the global financial cycle focused attention on the degree to which more flexible exchange rates can help countries, and especially EMDEs, steer an independent policy course amid the monetary and financial shocks arriving through global capital markets (Rey 2013). An earlier 'fear of floating' literature (Calvo and Reinhart 2002) pointed out that with faster pass-through of exchange rates to domestic prices and more dollarised domestic debts, EMDEs faced a harsher policy trade-off between stabilisation and inflation in responding to adverse foreign shocks with currency

9 Simple OLS regression of the oil-price change on dollar appreciation (both in natural logarithms) yields a coefficient of  $-2.45$  (standard error of 0.42,  $R^2 = 0.15$ ).

depreciation, and would therefore opt for more limited exchange-rate flexibility.<sup>10</sup> Even earlier, Cooper (1999) argued that exchange-rate movements driven by capital flows could be a source of discomfort for policymakers.

The ‘trilemma versus dilemma’ description of this problem is simplistic. Even among the most ardent proponents of flexible exchange rates, few have contended that they would provide perfect insulation against all shocks. Countries may well face more difficult trade-offs owing to fluctuations in global financial conditions. This happens when some instruments become less effective at promoting desired macroeconomic responses while simultaneously inflicting more unintended consequences. Yet, exchange rate flexibility still affords a precious degree of freedom for policy, without which macro outcomes would be worse overall (Obstfeld 2015). The need for flexibility may be greatest during crises, when exceptional policies can be brought to bear to mitigate the adverse side effects of large exchange rate movements, for example, allocating foreign exchange reserves to the economy’s systemically important foreign currency debtors. In both the Global Financial Crisis and the crisis associated with the outbreak of Covid-19, many EMDEs allowed the currencies to depreciate sharply (Figure 12).

**FIGURE 12 EMERGING MARKET NOMINAL EFFECTIVE EXCHANGE RATE INDEX, 2005-2021**



Source: Monthly data from J. P. Morgan/Haver.

Recent studies affirm that policy trade-offs are indeed worse for EMDEs, but that exchange-rate flexibility mitigates the negative impacts of various shocks. Klein and Shambaugh (2015) conclude that for EMDEs, capital controls afford relatively little

<sup>10</sup> Gourinchas (2017) presents a notably clear account of this trade-off.

policy autonomy unless they are extensive, whereas policy autonomy (in the sense of independence of short-term interest rates) rises with more exchange rate flexibility. Looking in detail at the case of Chile, Gourinchas (2017) estimates a dynamic model in which a conventionally responsive domestic monetary policy will help mitigate spillovers from foreign shocks, so that “flexible exchange rates remain the primary line of defence against foreign monetary policy and global financial cycles alike” (p. 282). Based on quarterly 1996–2018 data for 55 emerging markets and 14 advanced economies, Kalemli-Özcan (2019) finds that tighter US monetary policy propagates powerfully to EMDEs (though not to advanced economies) through capital flows and increases in interest-rate risk premia. However, she also finds that exchange rate flexibility can moderate the impact on economic activity. In data for a quarterly panel of 40 emerging market economies over 1973–2016, Ben Zeev (2019) finds that countries with pegs fare significantly worse (in terms of output, exports, asset prices and other key variables) in the face of contractionary Gilchrist-Zakrajsek credit shocks than countries with more flexible regimes. Using a large global set of monthly data spanning 30 advanced and emerging economies over 1990–2018, Degasperi et al. (2021) reaffirm the Kalemli-Özcan result that US monetary policy affects emerging markets through higher term premia regardless of exchange rate regime, but conclude that “both real and nominal spillover effects are larger in countries with more rigid exchange rate regimes” (pp. 3–4). This relatively short list of studies is selective rather than complete, but it stands in for a much larger body of evidence pointing in the same direction.

The global financial cycle impacts all countries in some way, whether advanced, emerging, developing or a high-income emerging market like Korea that is nonetheless subject to volatile capital flows. Higher-income economies seem to absorb the resulting shocks more easily due to deeper and more fluid financial markets, their wealth, their productive diversity in many cases, the generally greater credibility of their policy frameworks and elements of the global financial safety net from which they benefit disproportionately. Nonetheless, the initial phase of Covid-19 indicated that emerging market economies also had policy space to address the crisis – in part by exploiting exchange rate flexibility, and with an assist from macroeconomic support policies in advanced economies.

### **3 EMERGING MARKET POLICY RESPONSES TO THE INITIAL COVID-19 SHOCK**

The appearance of the global pandemic inflicted massive external real and financial shocks on EMDEs. Global trade collapsed in the first quarter of 2020, to a degree comparable with 2008’s trade collapse. Korea of course did not escape this shock, but suffered to a degree less than the global average. The financial shock manifested in a sharp reversal of capital inflows in March 2020. Figure 13 shows the pattern of portfolio capital inflows for a group of 26 mostly middle-income countries, including Korea. Figure 14 shows the Korean data, which suggest a March 2020 capital flow reversal comparable with that around the Lehman event.



Korea is a high-income economy with a very flexible exchange rate, credible policies, and an evolved macroprudential framework including measures targeting foreign-currency liabilities (IMF 2017a, Lee 2017). Its monetary and financial policy reactions to the Covid-19 crisis parallel those successfully used elsewhere in many economies, and notably in emerging market economies.

English et al. (2021) offer an excellent compendium on central banks' responses to the initial phase of the Covid-19 crisis, with the chapter by Céspedes and De Gregorio (2021) focusing on emerging economies. While the details differ among emerging markets – indeed, Indonesia went so far as to allow temporarily direct financing of the fiscal deficit by Bank Indonesia – a partial list of measures undertaken by emerging market central banks often included the following:

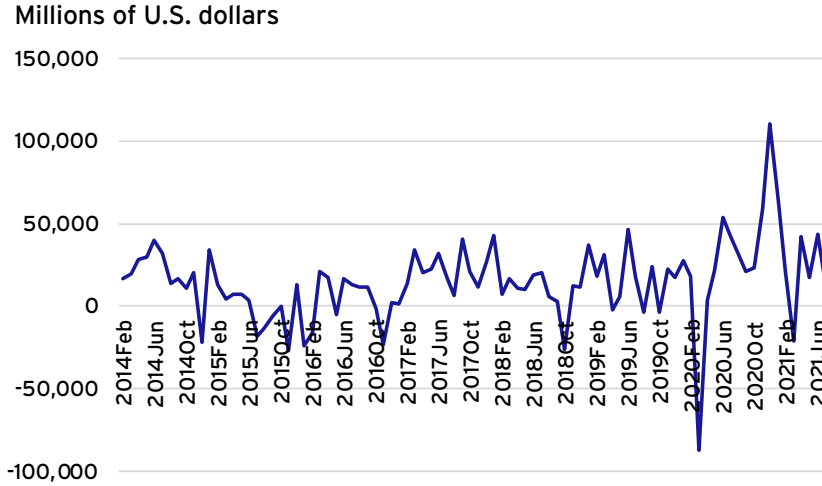
- interest rate cuts
- large-scale central bank purchases of domestic assets, mostly sovereign debt
- foreign exchange intervention
- looser reserve requirements (including loosening those discouraging capital inflows)
- liquidity enhancing operations
- measures to promote bank loans to businesses
- macro-prudential easing (e.g. relaxed capital requirements)
- market functioning enhancements.

EMDEs benefited, however, from the massive monetary and financial stimulus provided by advanced economies early in the crisis, and especially from the easing actions of the US Federal Reserve. These actions underpinned the sudden reversal of negative capital inflows after March 2020, evident in Figures 13 and 14. Although capital flows have continued to be volatile since then, even turning negative again in a few months, the financial environment has generally remained benign for EMDEs so far, as a new expansive phase of the global financial cycle has set in. In particular, the generalised wave of EMDE sovereign defaults that some predicted at the outbreak of the crisis did not materialise in 2020–2021, despite those countries' aggressive use of their monetary and fiscal policy space.

Providing important support to the global economy, the Fed extended dollar swap lines to 14 central banks, reducing the cost and lengthening the tenor of its offerings. Although only two emerging economies – Brazil and Mexico – were offered swap lines (as in 2008), the facilities offered to advanced economy authorities can help stabilise conditions in a broader region that includes emerging markets (for example, the impact on emerging Europe of swap lines to Nordic central banks). In the current crisis, the locus of swap line

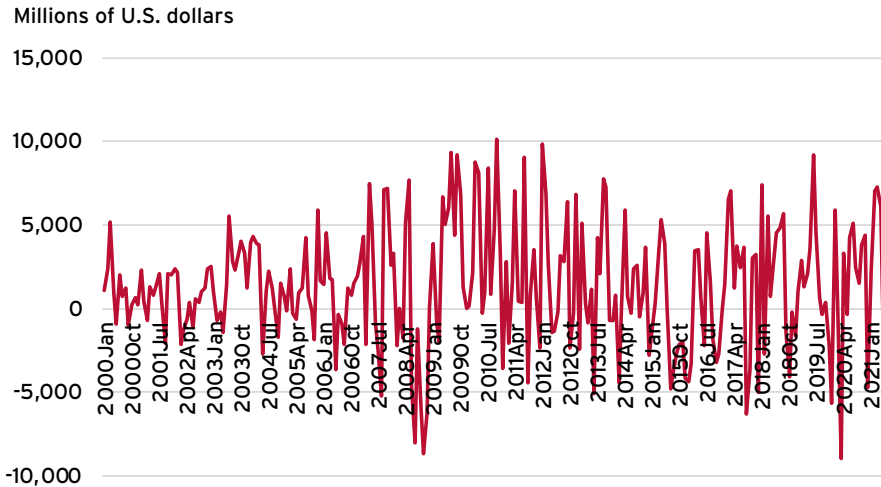
usage shifted geographically compared with the Global Financial Crisis, from Europe to Asia. This time, drawings by the Bank of Japan exceeded those by the ECB, and the Bank of Korea and Monetary Authority of Singapore also participated (Gislén et al. 2021).

**FIGURE 13 CAPITAL INFLOWS TO 26 EMERGING MARKET ECONOMIES, 2014-2021**



Source: Data for a group of mostly middle-income countries assembled by Koepke and Paetzold (2020).

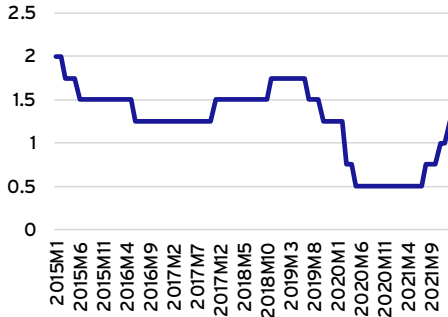
**FIGURE 14 CAPITAL INFLOWS TO THE REPUBLIC OF KOREA, 2000-2021**



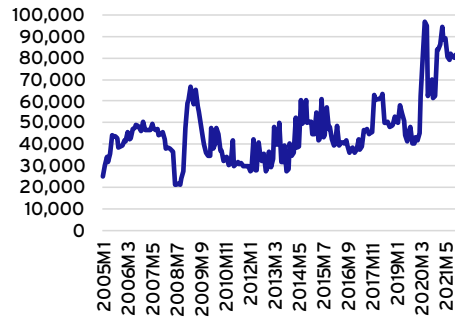
Source: See note for Figure 13.

**FIGURE 15 KOREA RESPONSES TO THE COVID-19 CRISIS**

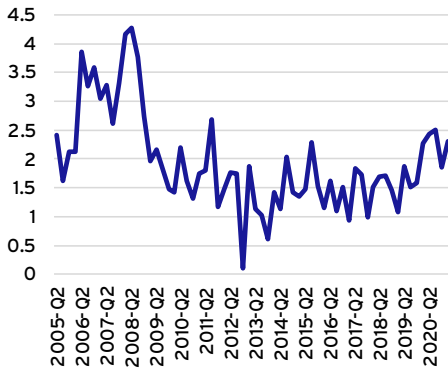
**(a) BoK policy interest rate (percent)**



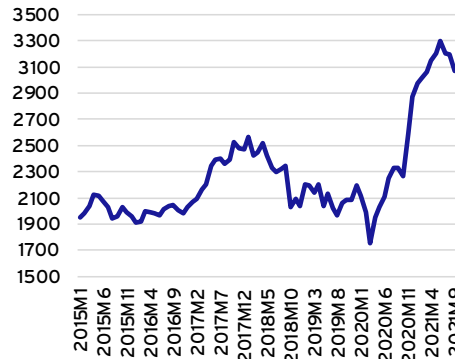
**(b) Central bank domestic assets (billions of won)**



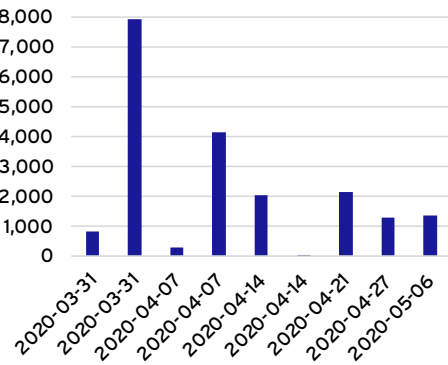
**(c) Credit to the private nonfinancial sector from all sources (percent change in won value)**



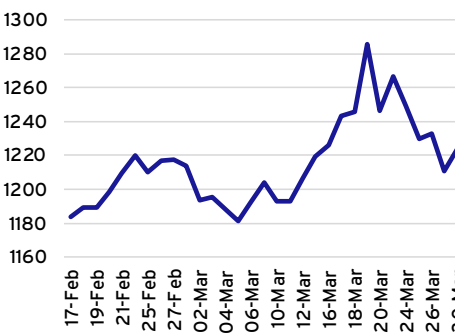
**(d) KOSPI stock market index**



**(e) Korea swap line drawings (millions of USD)**



**(f) Won/USD closing exchange rate, February 17 to March 31, 2020**



Sources: Bank of Korea, Korea Stock Exchange, BIS, Federal Reserve Bank of New York.

Figure 15 summarises aspects of Korea's response. The Bank of Korea promptly cut its policy interest rate, though not all the way to zero (panel (a)). It also expanded its balance sheet (panel (b)). (The Bank of Korea has already raised the rate three times more recently in the face of inflation and financial stability concerns.)

Céspedes and De Gregorio (2021) emphasise how emerging market central banks were able to maintain domestic credit growth in 2020, unlike the experience in the Global Financial Crisis. For Korea, this pattern is evident in panel (c). Credit growth rose once the Covid-19 crisis hit, unlike its decline in 2008–2009 (albeit then, from very high levels that were symptomatic of the forces generating the previous crisis). In line with lower interest rates and the growth in domestic credit, panel (d) indicates that Korea has participated in the current expansive phase of the global financial cycle, with a sharp increase in its equity prices, as in the United States and other countries following the initial crash in March 2020.

Korea drew several times on its \$60 billion swap line with the Fed (panel (e)), auctioning these dollars to domestic banks with dollar funding needs. Even the announcement of the swap agreement had a dramatic impact on the foreign exchange market. Korean authorities allowed the won to depreciate sharply during the generalised panic after the WHO's 11 March 2020 declaration of a global pandemic (panel (f)). The won/dollar exchange rate reached a high point on 19 March; later that day, the Fed announced the Korean dollar swap line, prompting an immediate reversal in the won's depreciation.

#### 4 CONTINUING VULNERABILITIES FOR EMDES

The ability of EMDEs to use monetary (as well as fiscal) policies to mount strong counter-cyclical responses was a positive surprise at the start of the Covid-19 crisis. In general, they built on the accumulated capital of monetary policy credibility (which had reduced EMDE inflation rates to low levels compared with past decades); on the increasing intellectual sophistication and operational expertise of their policymakers; on a comparatively strong cyclical position at the start of 2020; and on a strong lift from expansionary policies in advanced economies in the face of a shock with initially deflationary consequences. They departed from past practice also in more fully exploiting exchange rate flexibility, cutting interest rates even as their currencies depreciated in the face of a capital flow sudden stop.<sup>11</sup> This response suggests that the trilemma has not collapsed to a simple dilemma: open capital account without monetary autonomy, or closed capital account with monetary autonomy – regardless of the exchange rate regime.

Nonetheless, EMDEs could be vulnerable to sudden stops in the near-term future as the next contractionary phase of the global financial cycle is getting underway.<sup>12</sup> Two current factors make this more likely.

11 See also Aguilar and Cantú (2020).

12 Kalemli-Özcan (2021), IMF (2021) and Obstfeld (2021b) voice similar concerns.

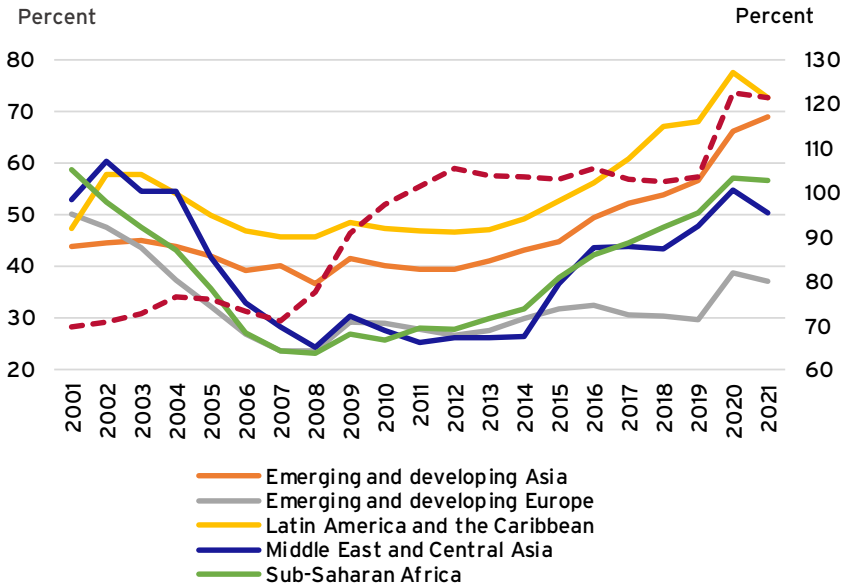
First, the rollout of vaccines has been slower in most EMDEs than in advanced economies, and in many cases much slower. Moreover, some EMDEs are using less-effective vaccines (notably less effective against the Delta variant of SARS-CoV-2), while often what vaccines are available can go to waste due to underdeveloped infrastructures for getting shots into arms. The Covax mechanism has failed to meet even its modest targets as rich countries have effectively hoarded vaccine doses. In the longer run, this imbalance will threaten even highly vaccinated countries because unvaccinated regions will remain breeding grounds for new resistant variants. But in the near term, it implies a more rapid recovery in the advanced world than in EMDEs, with a consequent rise in global interest rates while EMDEs are still struggling.

Second, EMDE fiscal responses to the crisis have made them more vulnerable to hikes in advanced economy interest rates – which could set off a contractionary phase of the global financial cycle. In advanced and less prosperous countries alike, fiscal deficits grew in 2020 as governments intervened to support firms and households during lockdowns, raised public health spending and lost revenues due to compressed economic activity levels. In many EMDEs, public revenue fell even as a percent of their lower levels of GDP. While the fiscal responses in EMDEs were not as extensive as those of advanced economies, the EMDEs have historically been constrained to lower debt levels due to their less-developed revenue capacities and capital markets. Being able to fund sovereign debt in domestic currency is no panacea, because higher debt levels undermine inflation credibility more quickly for EMDEs and raise their vulnerability to capital-flow reversals (Carstens and Shin 2019).

Figure 16 shows the development of general public debt-to-GDP ratios in advanced economies and emerging and developing regions (figures for 2021 are IMF projections as of October 2021). While the 2020 runoff in advanced economies (tracked on the right-hand axis) is bigger in absolute terms, all EMDE regions also show significant jumps for that year. Moreover, in all regions, debt-to-GDP ratios had already been rising since the early 2010s. (See also Kose et al. 2021 on the current debt boom.) Figure 17 offers a more relevant comparison of the percent increases in debt-to-GDP ratios in the country groupings. Here, advanced economies are in the middle of the pack for 2020. Broadly speaking, EMDEs' changes in debt-to-GDP ratios were comparable to those of advanced economies, conditional on the lower debt capacity of the former group. The improvement in EMDE debt ratios the IMF assumes for 2021 relies on relatively optimistic growth forecasts, and also reflect less ambition in fiscal support policies – although greater fiscal support might be needed to generate the assumed growth.<sup>13</sup>

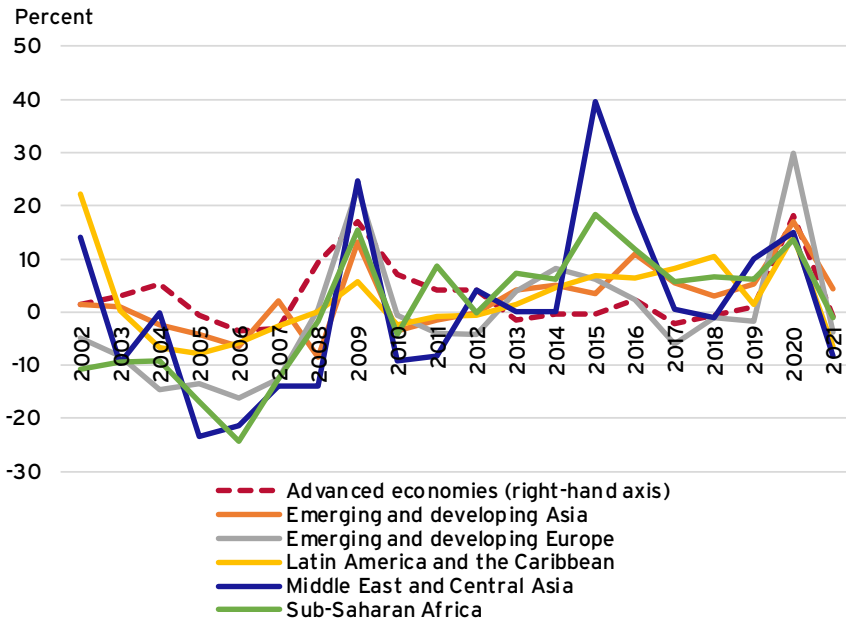
13 The sharp 2021 reduction in debt ratios for the Middle East and Central Asia is the result of elevated energy prices in that year, driven by global recovery and a fairly restrictive policy by OPEC+.

**FIGURE 16 GENERAL GOVERNMENT DEBT-TO-GDP RATIOS IN ADVANCED AND EMDE ECONOMIES**



Source: IMF, World Economic Outlook database, October 2021.

**FIGURE 17 PERCENT CHANGES IN GENERAL PUBLIC DEBT-GDP RATIOS IN ADVANCED AND EMDE ECONOMIES**



Source: See note for Figure 16.

In short, higher interest rates in advanced economies will put greater stress on public finances in EMDEs. They will also harm the fortunes of EMDE corporates that borrowed more since the crisis began, a downside legacy of the continuing domestic credit growth that supported EMDE economies in 2020. The same observations apply to the macroprudential easing policies that were positive for growth in 2020 (see Bergant and Forbes 2021).

Figure 18 focuses on one particular source of potential fragility, namely, the concentration of new sovereign debt issuance on domestic bank balance sheets in a number of EMDEs (Sachdeva and Harvey 2020, IMF 2021). This pattern sets up the possibility of a sovereign-bank doom loop. As Kalemli-Özcan (2019) shows, US monetary tightening transmits to EMDEs via a rise in longer-term bond premia, and therefore a fall in bond prices. By weakening EMDE bank balance sheets, that development could set up destabilising expectations of government fiscal intervention to support the banking sector, higher deficits, more accommodative monetary policy and yet lower bond prices. Figure 18 also indicates that in the first year of the Covid-19 crisis, foreign investors on the whole *reduced* their sovereign exposures. Higher domestic saving due to the lockdowns facilitates the domestic placement of sovereign debt, but with recovery, higher saving rates will not persist. A further challenge, facing advanced and less prosperous economies alike, comes from the inflationary pressures that supply chain disruptions are exacerbating.

We should therefore expect heightened financial fragility as an uneven rebound unfolds in the world economy. Apart from the home-grown problems that advanced economies may face emerging from a period of prolonged policy accommodation, they could face significant spillovers from EMDE woes. How resilient will global financial markets prove in the face of these pressures?

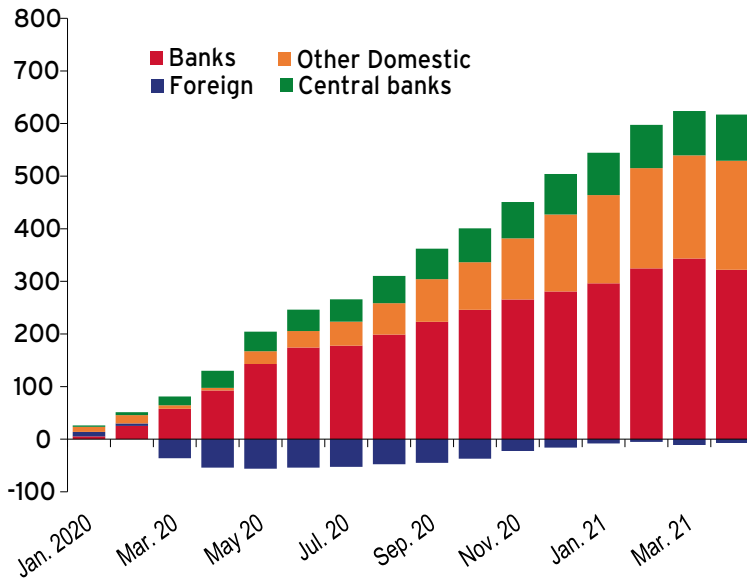
## 5 ENHANCING THE RESILIENCE OF GLOBAL FINANCIAL MARKETS

Reforms in several directions could strengthen the global financial system to face the turbulence that may lie ahead. Most of these proposals reflect long-standing needs, although the experience in the recent Covid-19 crisis underscores the urgency of action.<sup>14</sup>

In the spring of 2020, banks avoided the widespread distress of the Global Financial Crisis. In large part this success owed to the origin of the Covid-19 shock being *outside* of the banking sector. But some credit is also due to the national and international banking sector reforms that followed the 2008–09 crisis and the euro area crisis, which augmented bank capital, enhanced the liquidity of balance sheets and upgraded prudential regulatory frameworks in many countries.

<sup>14</sup> See also Eguren Martin et al. (2020).

**FIGURE 18 DOMESTIC SOVEREIGN BOND HOLDINGS IN 12 EMERGING MARKET ECONOMIES (CUMULATIVE CHANGE, BILLIONS OF US DOLLARS)**



Source: Update to figure 1.6.6 in International Monetary Fund (2021), data courtesy IMF Money and Capital Markets Department.

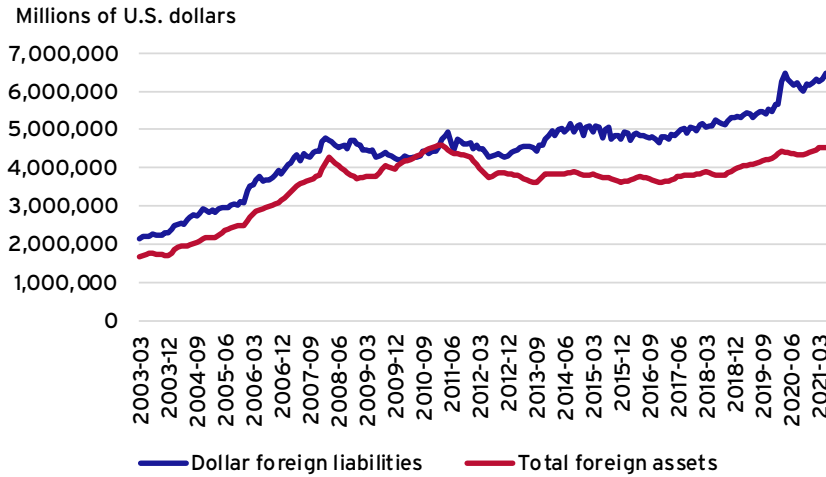
A predictable side effect, however, has been the migration of financial activity from the more constrained banking sector to unregulated or loosely regulated nonbank financial actors. In its recent report, the Committee on the Global Financial System (CGFS) of the BIS notes several changes in the structure of international capital flows, but first among them is the growing share of market-based capital flows (CGFS 2021).<sup>15</sup> Since 2007, the share of bank loans in the external debt of advanced economies has shrunk from about 35% to about 22%, whereas the share of portfolio debt has risen from about 43% to 50%. At the same time, the share of bank loans in the external debt of emerging market borrowers has fallen from around 52% to 45%, and the share of portfolio debt has risen from around 24% to nearly 40%. Advanced economy cross-border bank claims (which include debt securities, not just loans) declined from about 70% of home-country GDP at the time of the Global Financial Crisis to around 50% in 2019 (CGFS 2021, Graph 1.2). Eguren Martin et al. (2020) document the dominant role of nonbank actors in the reversal of EMDE capital flows in March 2020.

Returning to the TIC data, Figure 19 shows how the foreign position of US banks and other financial institutions has essentially been stagnant in nominal terms since just before the Global Financial Crisis.

<sup>15</sup> See also Lane and Milesi-Ferretti (2018).



**FIGURE 19 US BANKS' AND OTHER FINANCIAL INSTITUTIONS' FOREIGN ASSETS AND LIABILITIES, 2003-2020**



Source: US Treasury, Treasury International Capital System, US Banking Data.

Notes: Monthly asset data are interpolated quarterly data. The dollar liability data cover about 95 percent of total liabilities (that is, liabilities in all currencies). The liability series also encompasses all non-US holdings of short-term Treasury securities.

At the same time, and as noted earlier, the cross-border activity of emerging market banks has risen – according to CGFS (2021), from about 7% to 9% of home GDP between 2008 and 2019. However, it remains small in scale compared with advanced economies’ international bank activity.

From a policy perspective, this evolution points to the need for more thinking about financial stability risks coming from the nonbank sector, for example through increasingly complex intermediation chains that may ultimately also impinge on the banks. The spread of innovative FinTech platforms only increases the risks, including from cybersecurity breaches, and may render prudential oversight more difficult. All along, climate-related risks are only rising. The challenges that the international dimension raises are particularly big, owing to the seams between national regulatory systems. The Financial Stability Board (FSB) has outlined an extensive programme to assess the risks from nonbank financial institutions in light of the Covid-19 market turmoil of spring 2020 (FSB 2020). However, it seems fair to say that even bank regulation now needs to encompass an even broader set of potential systemic risks than were envisioned in the immediate post-Global Financial Crisis reforms. The trend of emerging market banks increasingly venturing abroad into other emerging markets only raises the stakes for those countries.

Another part of the financial market infrastructure in need of strengthening is the global financial safety net (GFSN), in which bilateral swap lines have become increasingly important (Perks et al. 2021). Federal Reserve swap lines were essential in stabilising

global markets in the spring of 2020 in light of the dollar's continuing dominance as a funding and investment currency. But the geographic coverage and market reach of those swap lines was limited, especially because dollar funding activity has tended to migrate from the European theatre that was dominant in the Global Financial Crisis to Asia and emerging markets (CGFS 2020).

The need to extend central bank swap lines multilaterally, especially the Fed's, has long been apparent (e.g. Obstfeld 2009), though it remains unclear what institutional structure would be most politically acceptable to the issuers of funding currencies, and what lending safeguards would be necessary. At the least, building trust would demand a higher degree of coordination in financial regulatory policies than now exists. In 2017, IMF staff developed a proposal for a Short-term Liquidity Swap facility to "provide liquidity support for potential balance of payments needs of a short-term, frequent, and moderate nature, resulting from volatility in international capital markets" (IMF 2017b). The facility was meant to be available to countries with "strong fundamentals" and without ex-post conditionality. The IMF Executive Board was divided on the proposal, which some major shareholders opposed, and turned it down. Amid the market disruption in April 2020, however, the IMF Board approved a similar Short-term Liquidity Line (SLL) facility intended to address some of the gaps in the network of bilateral swaps. Unfortunately, potential beneficiaries seem not to view the SLL (or the Fund's two other precautionary credit lines originating in the Global Financial Crisis period) as equivalent to central bank swaps, and indeed, not a single country has drawn on the SLL so far. Plant and Rojas-Suarez (2021) provide an excellent discussion of the likely reasons, as well as the ways the IMF could encourage take-up of the facility. The IMF declined to adopt the pandemic support facility that Fisher and Mazerai (2020) proposed, but such a policy instrument would also strengthen the GFSN during the current pandemic, and could be mobilised during future contagious outbreaks. Also relevant is the proposed Resilience and Sustainability Trust, which would provide an IMF umbrella for richer countries to lend Special Drawing Rights (SDRs) for investments in climate adaptation, health and other areas of vulnerability.<sup>16</sup> The IMF's upcoming Sixteenth General Review of Quotas will provide another opportunity to strengthen the GFSN through enhanced non-borrowed lending resources.

The US market for Treasury securities showed unexpected dysfunctionality in March 2020, notably during a 'dash for cash' later in the month when Treasuries became temporarily illiquid as domestic and foreign holders rushed to sell them for money (Duffie 2020, FSB 2020). The dollar remains by far the central currency in the international financial system (CGFS 2020) and, for better or worse, no serious competitor is yet in view. At the same time, central bank dollar reserves play a key role in the overall resilience of the GFSN. If central banks or sovereign wealth funds cannot rely on converting their

16 See also G30 Working Group on Sovereign Debt and COVID-19 (2021).

Treasury holdings at par, those reserves become less effective in providing insurance to their holders. Thus, the health of the Treasury market is vital to that of the GFSN, and measures that strengthen its functioning also strengthen the GFSN.<sup>17</sup>

To enhance the liquidity of Treasuries amid the turmoil, on 31 March 2020 the Fed established the Foreign and International Monetary Authorities (FIMA) repo facility for converting official foreign Treasury into cash. It became a standing facility on 28 July 2021. (Reflecting ongoing tensions in domestic markets, the Bank of Korea in June 2020 floated an analogous facility to allow domestic banks, insurance companies and brokerages to swap US Treasuries into dollar cash; see Roh and Park 2020.) Several changes would enhance the plumbing of the US Treasury market, the most far-reaching of which would be central clearing of transactions in the market, including repo (for reform proposals, see Duffie 2020, G30 Working Group on Treasury Market Liquidity 2021, Hubbard et. al 2021).

For EMDEs, improved defensive policies can bolster resilience – and thereby global resilience. Their vulnerability to the global financial cycle makes it understandable why so many less-affluent economies, even emerging market economies, have stopped short of full financial opening (recall Figure 2). In 2012, the IMF officially recognised this reality by developing an “institutional view” (IV) on capital controls that allows for their use in some circumstances, notably when financial flows threaten economic or financial stability and the capital flow measures (CFMs) do not substitute for necessary adjustments in macroprudential, monetary or fiscal policies (IMF 2012).<sup>18</sup> The Fund’s acceptance of CFMs as a legitimate policy tool was a huge shift in approach: an aversion to exchange control resides deep within the institution’s DNA, and even an attempt to focus surgically on cross-border financial transactions could spill over to the current account.

Nonetheless, the IV is in several ways too restrictive. Research shows that CFMs are rarely imposed in the temporary manner the IV envisions, in response to cyclical tides in the global capital market. Instead, they are generally structural and thus long-lived in nature. Notwithstanding the IV, many Fund members feel that global markets might stigmatise them if they vary CFMs reactively. Thus, the Article IV surveillance process has regularly featured disagreements between Fund staff and country authorities as to whether particular policy measures should be labelled as CFMs or macroprudential measures (MPMs), with the authorities often advocating for the latter designation (Everaert and

17 Euro reserves are also an important component of global international reserves, and in the spring of 2020 euro bond markets also experienced liquidity problems.

18 Even before the IV, however, IMF staff accepted and even recommended capital controls in some individual country cases. For the case of Iceland in 2008, see Honohan (2020).

Genberg 2020).<sup>19</sup> A particular cause of disagreement has been policy in some countries – including some richer countries, such as Canada – to limit foreign speculative purchases of property in soaring real estate markets. Finally, the IV is asymmetric with respect to inflow and outflow controls, restricting use of the latter to situations of imminent or ongoing crisis. The Fund’s internal Independent Evaluation Office recognised these criticisms in a comprehensive review and recommended rethinking the IV (IEO 2020).

Recently, the Fund has proposed an Integrated Policy Framework that conceptualises the use of CFMs, foreign exchange intervention, monetary policy, fiscal policy and macroprudential policy as distinct instruments that may all be needed to reach multiple policy goals in a small open economy (IMF 2020).<sup>20</sup> Importantly, the approach has the potential to place capital control and foreign exchange intervention policies on an equivalent plane with monetary, fiscal and macroprudential policies, and thereby remove some of the stigma that currently attaches to CFMs. In light of this work and the limitations of the IV, the Fund is currently reconsidering its advice on CFMs, and could go further in the direction of regularising their use in a wider set of circumstances.<sup>21</sup> This approach would also be in line with the recent recommendations of a group of ASEAN central banks (ASEAN WC-CAL 2019). Following a 2016-2019 review, the revised OECD Code of Liberalisation of Capital Movements addresses some of the same criticisms IMF member countries have raised concerning the IV (OECD 2020).

If a future sudden stop in capital flows to EMDEs is protracted, and especially if the pandemic lingers on, liquidity support may not be enough to stave off solvency problems. Despite some recent improvements, however, the current international architecture for external debt restructuring is inadequate to handle a rash of sovereign defaults, some potentially affecting systemic countries (G30 Working Group on Sovereign Debt and Covid-19 2021). Earlier hints by the Group of Twenty pointing towards mandatory private-sector participation in debt restructurings have fallen by the wayside as global financial conditions have remained easy. It should not take a renewed financial crisis to revive those ideas.

19 CFMs can play a macroprudential role (for example, when they limit foreign funding of imprudent domestic investments) but they can also play other policy roles that IMF rules proscribe (for example, preventing adjustment of an undervalued exchange rate). In contrast, a hypothetical ‘pure’ MPM would not discriminate in its implementation between domestic and foreign residents. The overlap in the roles of MPMs and CFMs has sometimes blurred the distinction between them, as has the difficulty smaller countries face in counteracting the global financial cycle through MPMs without the support of measures that could be characterised (at least partially) as CFMs.

20 See Jeanne (2021) for a related framework.

21 As Honohan (2020: 25) aptly puts it, the 2012 IV approach “is quite different from seeing [capital flow] measures as a tool to be actively integrated with monetary, exchange rate, and macroprudential measures”.

## REFERENCES

- Aguilar, A and C Cantú (2020), “Monetary Policy Response in Emerging Market Economies: Why Was It Different This Time?”, *BIS Bulletin* 32.
- ASEAN WC-CAL – ASEAN Working Committee on Capital Account Liberalization (2019), *Capital Account Safeguard Measures in the ASEAN Context*.
- Ben Zeev, N (2019), “Global Credit Supply Shocks and Exchange Rate Regimes”, *Journal of International Economics* 116: 1-32.
- Bergant, K and K Forbes (2021), “Macroprudential Policy during COVID-19: The Role of Policy Space”, CEPR Discussion Paper 16607 .
- Broner, F, T Didier, S L Schmukler and G von Peter (2020), “Bilateral International Investments: The Big Sur?”, World Bank Policy Research Working Paper 9501.
- Bruno, V and H S Shin (2015), “Capital Flows and the Risk-Taking Channel of Monetary Policy”, *Journal of Monetary Economics* 71: 119-132.
- Bruno, V and H S Shin (2021), “Dollar and Exports”, BIS Working Paper 819, June (revised).
- Calvo, G A and C M Reinhart (2002), “Fear of Floating”, *Quarterly Journal of Economics* 117: 379-408.
- Carstens, A and H S Shin (2019), “Emerging Markets Aren’t Out of the Woods Yet”, *Foreign Affairs*, 15 March.
- Cerutti, E, S Claessens, and A K. Rose (2019), “How Important Is the Global Financial Cycle? Evidence from Capital Flows”, *IMF Economic Review* 67: 24-60.
- Cesa-Bianchi, A, A Ferrero, and A Rebucci (2018), “International Credit Supply Shocks”, *Journal of International Economics* 112: 219-237.
- Céspedes, L F and J De Gregorio (2021), “Central Banking and Credit Provision in Emerging Market Economies during the Covid-19 Crisis”, in B English, K Forbes, and A Ubide (eds), *Monetary Policy and Central Banking in the Covid Era*, CEPR Press.
- CGFS – Committee of the Global Financial System (2020), “US Dollar Funding: An International Perspective”, CGFS Papers No. 65, Bank for International Settlements.
- CGFS (2021), “Changing Patterns of Capital Flows”, CGFS Papers No. 66, Bank for International Settlements, May.
- Chinn, M D and H Ito (2006), “What Matters for Financial Development? Capital Controls, Institutions, and Interactions”, *Journal of Development Economics* 81: 163-192.
- Cooper, R N (1999), “Exchange Rate Choices”, in *Rethinking the International Monetary System*, Federal Reserve Bank of Boston Conference Series.

Davis, J S, G Valente, and E van Wincoop (2021), “Global Drivers of Gross and Net Capital Flows”, *Journal of International Economics* 128.

Degasperi, R, S S Hong, and G Ricco (2021), “The Global Transmission of U.S. Monetary Policy”, manuscript, University of Warwick.

Druck, P, N E, Magud, and R Mariscal (2018), “Collateral Damage: Dollar Strength and Emerging Markets’ Growth”, *North American Journal of Economics and Finance* 43: 97-117.

Duffie, D (2020), “Still the World’s Safe Haven? Redesigning the U.S. Treasury Market after the COVID-19 Crisis”, Hutchins Center Working Paper 62, Brookings Institution.

Eguren Martin, F, M Joy, C Maurini, A Moro, V Nispi Landi, A Schiavone, and C van Hombecq (2020), “Capital Flows during the Pandemic: Lessons for a More Resilient International Financial Architecture”, Financial Stability Paper No. 45, Bank of England.

English, B, K Forbes, and A Ubide (eds) (2021), *Monetary Policy and Central Banking in the Covid Era*, CEPR Press.

Everaert, L and H Genberg (2020), “IMF Advice on Capital Flows to the Republic of Korea and Selected ASEAN Economies”, IEO Background Paper BP/20-02/07, Independent Evaluation Office of the International Monetary Fund.

Fisher, M and A Mazerai (2021), “A Possible IMF Pandemic Support Facility for Emerging-Market Countries”, Peterson Institute for International Economics Policy Brief 20-11.

Forbes, K J and F E Warnock (2012), “Capital Flow Waves: Surges, Stops, Flight, and Retrenchment”, *Journal of International Economics* 88: 235-251.

FSB – Financial Stability Board (2020), *Holistic Review of the March Market Turmoil*, November.

G30 Working Group on Sovereign Debt and COVID-19 (2021), *Sovereign Debt and Financing for Recovery after the COVID-19 Shock: Next Steps to Build a Better Architecture*, Group of Thirty, May.

G30 Working Group on Treasury Market Liquidity (2021), *U.S. Treasury Markets: Steps toward Increased Resilience*, Group of Thirty, July.

Gislén, M, I Hansson, and O Melander (2021), “Dollar Liquidity from the Federal Reserve to Other Central Banks”, *Sveriges Riksbank Economic Review* 31(1): 27-51.

Gopinath, G, E Boz, C Casas, F Díez, P-O Gourinchas, and M Plagborg-Møller (2020), “Dominant Currency Paradigm”, *American Economic Review* 110: 677-719.

Gourinchas, P-O (2017), “Monetary Policy Transmission in Emerging Markets: An Application to Chile”, in E G Mendoza, E Pastén, and D Saravia (eds), *Monetary Policy and Global Spillovers: Mechanisms, Effects, and Policy Measures*, Central Bank of Chile.

He, Z and P Kondor (2016), “Inefficient Investment Waves”, *Econometrica* 84: 735-780.

Honohan, P (2020), “IMF Advice on Crisis-Driven Capital Controls in Europe”, IEO Background Paper BP/20-02/10, Independent Evaluation Office of the International Monetary Fund.

Hubbard, G, D Kohn, L Goodman, K Judge, A Kashyap, R Koijen, B Masters, S O’Connor, and K Stein (2021), *Task Force on Financial Stability*, Hutchins Center at Brookings and Chicago Booth Initiative on Global Markets, June.

IEO – Independent Evaluation Office (2020), *IMF Advice on Capital Flows*, Independent Evaluation Office of the International Monetary Fund, September.

IMF – International Monetary Fund (2012), *The Liberalization and Management of Capital Flows: An Institutional View*, November.

IMF (2016), “Global Trade: What’s behind the Slowdown?”, Chapter 2 in *World Economic Outlook*, October.

IMF (2017a), “Increasing Resilience to Large and Volatile Capital Flows: The Role of Macroprudential Policies – Case Studies”, IMF Policy Paper, September.

IMF (2017b), “Adequacy of the Global Financial Safety Net – Considerations for Fund Toolkit Reform”, IMF Policy Paper, December.

IMF (2020), *Toward an Integrated Policy Framework*, September.

IMF (2021), *Global Financial Stability Report: Preempting a Legacy of Vulnerabilities*, April.

Jeanne, O (2021), “Rounding the Corners of the Trilemma: A Simple Framework”, CEPR Discussion Paper 16717.

Kalemli-Özcan, S (2019), “U.S. Monetary Policy and International Risk Spillovers”, in *Challenges for Monetary Policy*, A Symposium Sponsored by the Federal Reserve Bank of Kansas City, Federal Reserve Bank of Kansas City.

Kalemli-Özcan, S (2021), “A COVID-19 Tantrum?”, *Finance and Development* 58: 24-27.

Kashyap, A K, N Kovrijnykh, J Li, and A Pavlova (2020), “Is There Too Much Benchmarking in Asset Management?”, NBER Working Paper 28020.

Klein, M W and J C Shambaugh (2015), “Rounding the Corners of the Policy Trilemma: Sources of Monetary Policy Autonomy”, *American Economic Journal: Macroeconomics* 7: 33-66.

Koepke, R and S Paetzold (2020), “Capital Flow Data – A Guide for Empirical Analysis and Real-time Tracking”, IMF Working Paper 2020/171.

Kose, M A, F Ohnsorge, and N Sugawara (2021), “A Mountain of Debt: Navigating the Legacy of the Pandemic”, World Bank Policy Research Working Paper 9800.

Lane, P R and G M Milesi-Ferretti (2018), “The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis”, *IMF Economic Review* 66: 189-222.

Lee, J-W (2017), “Twenty Years after the Financial Crisis in the Republic of Korea”, ADB Institute Working Paper 790, Asian Development Bank.

Miranda-Agrippino, S and H Rey (2020), “U.S. Monetary Policy and the Global Financial Cycle”, *Review of Economic Studies* 87: 2754-2776.

Miranda-Agrippino, S and H Rey (2021), “The Global Financial Cycle”, prepared for the *Handbook of International Economics*, Vol. 6.

Obstfeld, M (2009), “Lenders of Last Resort in a Globalized World”, IMES Discussion Paper Series 09-E-18, Institute for Monetary and Economic Studies, Bank of Japan.

Obstfeld, M (2015), “Trilemmas and Trade-offs: Living with Financial Globalisation”, BIS Working Papers 480, January 2015 (reprinted in S J Davis, E S Robinson, and B Yeung (eds), *The Asian Monetary Policy Forum: Insights for Central Banking*, World Scientific, 2021).

Obstfeld, M (2021a), “The Global Capital Market Reconsidered”, *Oxford Review of Economic Policy* 37: 690-706.

Obstfeld, M (2021b), “An Uneven Global Rebound Will Challenge Emerging-Market and Developing Economies”, Policy Brief 21-21, Peterson Institute for International Economics.

Odean, T (1999), “Do Investors Trade Too Much?”, *American Economic Review* 89: 1279-1298.

OECD – Organisation for Economic Co-operation and Development (2020), *OECD Code of Liberalisation of Capital Movements*.

Perks, M, Y Rao, J Shin, and K Tokuoka (2021), “Evolution of Bilateral Swap Lines”, IMF Working Paper 2021/210.

Plant, M and L Rojas-Suarez (2021), “What Do Middle-Income Countries Want from the IMF as They Look to Recover from the Pandemic?”, Center for Global Development Note, November.

Rey, H (2013), “Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence”, in *Global Dimensions of Unconventional Monetary Policy. A Symposium Sponsored by the Federal Reserve Bank of Kansas City*, Federal Reserve Bank of Kansas City.



Roh, J and Y Park (2020), “BOK to Throw New Dollar Lifeline to Financial Firms via Repo Operations”, Reuters, 30 June.

Sachdeva, M and O Harvey (2020), “Shadow QE in EM: Who Has Been Buying EM Bonds?”, Deutsche Bank Research, Fixed Income EM Special Publication, October.

Scheubel, B, L Stracca, and C Tille (2019), “The Global Financial Cycle and Capital Flow Episodes: A Wobbly Link?”, ECB Working Paper 2337.

Shin, H S (2019), “Global Liquidity and Procyclicality”, in K Basu, D Rosenblatt, and C Sepúlveda (eds) (2019), *The State of Economics, the State of the World*, MIT Press.

## ABOUT THE AUTHOR

**Maurice Obstfeld** is the Class of 1958 Professor of Economics and former Chair of the Department of Economics (1998-2001) at the University of California, Berkeley. He arrived at Berkeley in 1991 as a Professor, following permanent appointments at Columbia (1979-1986) and the University of Pennsylvania (1986-1989), and a visiting appointment at Harvard (1989-90). He received his Ph.D. in economics from MIT in 1979 after attending the University of Pennsylvania (B.A., 1973) and King’s College, Cambridge University (M.A., 1975). From September 2015 to December 2018, Dr. Obstfeld was the Economic Counsellor and Director of Research at the International Monetary Fund. From July 2014 to August 2015, he served as a Member of President Barack Obama’s Council of Economic Advisers. Dr. Obstfeld was previously (2002-2014) an Honorary Adviser to the Bank of Japan’s Institute of Monetary and Economic Studies. He is a Fellow of the Econometric Society and the American Academy of Arts and Sciences. Since February 2019, he has been a nonresident senior fellow of the Peterson Institute for International Economics.