

# The global financial safety net: In need of repair?

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## Introduction: A multi-layered global financial safety net

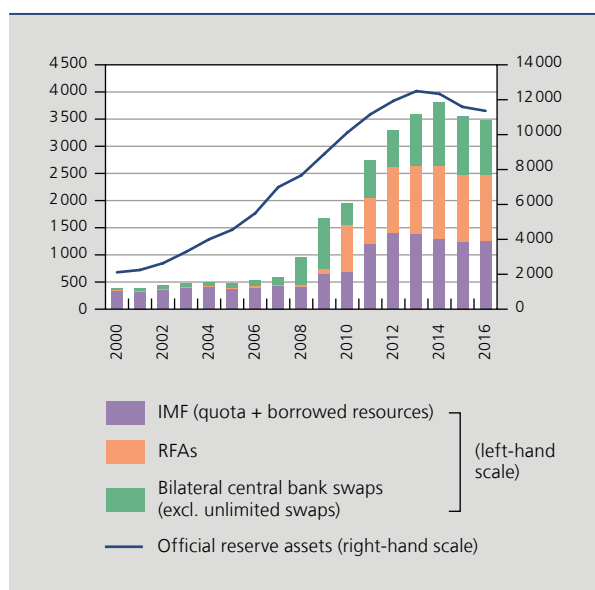
The global economy has become ever more complex. Notwithstanding recent tendencies towards more protectionist policies, the longer-term trend has been towards more trade and financial integration, especially in emerging market economies. Despite its benefits, globalisation also exposes countries to a great variety of risks, including financial stability risks related to the volatility of capital flows. Deepening financial integration thus underpins the need for an adequate structure to prevent and deal with shocks. As a first line of defence, countries should be encouraged to conduct sound macroeconomic and financial policies. Emerging market economies were more resilient during the global financial crisis than during previous crises precisely because they had better fundamentals and stronger policy frameworks in place (van Doorn *et al.*, 2010). However, sound domestic policies alone may not be sufficient to fend off a crisis and need to be complemented by a well-functioning “global financial safety net” (GFSN), which the ECB (2016, p. 36) defines as “a set of institutions and mechanisms which provide financial support to prevent a crisis and to countries hit by a crisis, both facilitating adjustment at the country level and preventing the crisis from spreading further”. This article examines the state of the GFSN and some potential reforms.

The current GFSN is typically characterised as having four distinct layers, each with its particular strengths and weaknesses (IMF, 2016a; Denbee *et al.*, 2016): first, countries’ national stock of international reserves; second, bilateral swap lines between central banks; third, regional financing arrangements (RFAs); and, finally, at the global level, the financing provided by the International Monetary Fund (IMF). The GFSN has evolved significantly, both in terms of size and scope, over the last decades and, especially, last few years (see chart 1). While the Bretton Woods institutions were put at the centre of the GFSN after the Second World War, with the IMF acting as the privileged platform for macroeconomic policy coordination and balance-of-payments crisis resolution (Cheng, 2016), the relative importance of the other layers has increased over time. Reserve accumulation has risen dramatically since the early 2000s, whereas the global financial crisis marked a rapid expansion of swap lines between central banks, as well as the further development of existing and creation of new RFAs.

Although the GFSN has undergone substantial changes, many of them prompted by the global financial crisis, it is still far from optimal. An important reason for this is that the GFSN has not been designed on the basis of an international consensus, but is rather the outcome of an historical accumulation of different forms of financial support, reflecting mostly national and regional concerns (Scheubel and Stracca, 2016 and ECB, 2016). One of the most oft-voiced concerns about the GFSN is its fragmentation. In particular, there appears to be a lack of cooperation between the different layers of the GFSN, which impairs its effectiveness. In addition, the coverage of the GFSN is very uneven; many countries do not have access to RFAs and

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**CHART 1** THE GFSN HAS EVOLVED SIGNIFICANTLY OVER THE LAST FEW DECADES<sup>(1)(2)</sup>  
(in \$ billion)



Sources: IMF International Financial Statistics (IFS); RFA websites; authors' own update of Denbee *et al.* (2016) swap database using central bank websites and media reports; Datastream.

(1) Estimates of the size of the GFSN exclude (advanced economy) bilateral central bank swap lines with no formal size limit; the value of (limited) reciprocal swap lines is counted twice.

(2) For the RFAs included, see section 3.

while some countries have excess international reserves, others have too little. In the following sections, we describe in more detail the current state of the GFSN and aim to give a balanced overview of some of the reforms that have been proposed to address its remaining flaws.

Sections 1 to 4 take a closer look at each of the four layers of the GFSN and their respective evolution, with focus on the changes since the global financial crisis. The main comparative advantages and disadvantages of each layer are also discussed. Section 5 reviews a number of proposed reforms to the GFSN, more specifically in three areas: the global reserve system, the coordination of bilateral central bank swap lines, and cooperation between the IMF and RFAs. The last section concludes.

## 1. International reserves (“Going it alone”)

### 1.1 Trend and composition

International reserves, defined as “external assets that are readily available to and controlled by monetary authorities

for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes” (IMF, 2009, p. 111), form the first layer of the GFSN. International reserves have built up significantly since the start of the millennium, most notably in China and other fast-growing emerging economies in Asia and elsewhere (see chart 2). With peaks approaching \$ 13 trillion in mid-2014, international reserves constitute by far the largest component of the GFSN (see chart 1). Since reserve accumulation only gained traction following a string of severe emerging market financial crises, including in East Asia, Argentina and Brazil, it has traditionally been explained as a way of countries protecting themselves against similar crises and other shocks in the future. Because of the painful and largely unsuccessful structural adjustment programmes that several crisis-hit emerging market economies concluded with the IMF in the late 1990s and early 2000s, one could also see large reserve stocks as insurance against having to turn to the IMF for new support (Wyplosz, 2007). Indeed, the stigma that rests on IMF borrowing is believed to still live on today, especially in Asia and Latin America (Ito, 2012 and IEO, 2013).

As is evident from the above definition for international reserves, it would nevertheless be incorrect to attribute their global surge solely to countries’ self-insurance behaviour. Non-precautionary motives have mattered too. Part of the observed reserves accumulation is arguably a by-product of active exchange rate management under a ‘mercantilist’ growth strategy of export promotion (Dooley *et al.*, 2004) and/or related to intergenerational transfers of natural resource wealth, for example in oil-exporting countries<sup>(1)</sup>. Nonetheless, in spite of cross-country differences and changes in motives over time, self-insurance is still considered a key driver of reserve accumulation<sup>(2)</sup>.

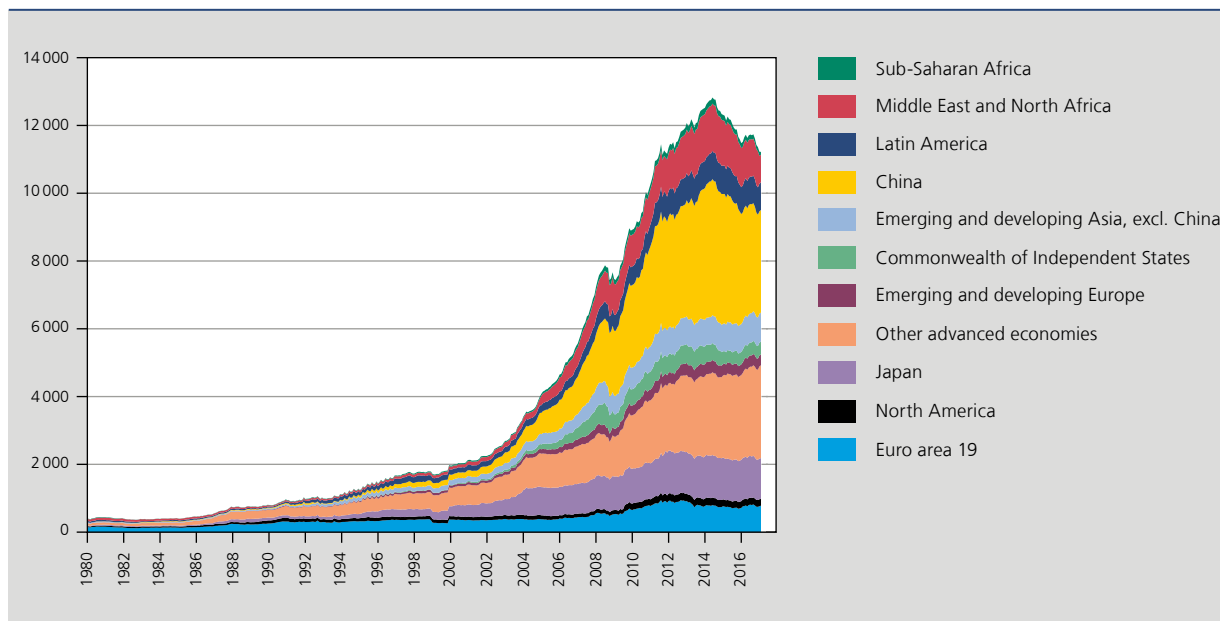
The alleged importance of precautionary demand for reserves is reflected in the rules of thumb traditionally used by policy-makers to assess the adequacy of reserve levels, such as an import cover of three months (as a buffer against current account shocks); 100 % of short-term external debt at remaining maturity (to ensure the roll-over of debt); and 20 % of broad money (to counter domestic capital flight). More recently, the IMF (2011) has devised a composite reserve adequacy metric for emerging economies, combining the two latter indicators with potential losses in export earnings and potential outflow of foreign capital from longer-term debt and equity

(1) The assets of sovereign wealth funds typically do not conform to the official (IMF) definition of international reserves, as they tend to be less liquid and are often outside the control of the monetary authorities (Dominguez *et al.*, 2012).

(2) See, for example, Aizenman and Lee (2007) and Ghosh *et al.* (2017) for empirical evidence, and Durdu *et al.* (2009) and Jeanne and Rancière (2011) for theoretical models of precautionary reserves.

**CHART 2** OFFICIAL RESERVE ASSETS ARE UNEQUALLY DISTRIBUTED OVER REGIONS<sup>(1)(2)</sup>

(in \$ billion)



Sources: IMF International Financial Statistics (IFS); ECB Statistical Data Warehouse.

(1) Country groupings based on the classification used by the IMF.

(2) Euro area data includes ECB reserves from December 1999 onwards.

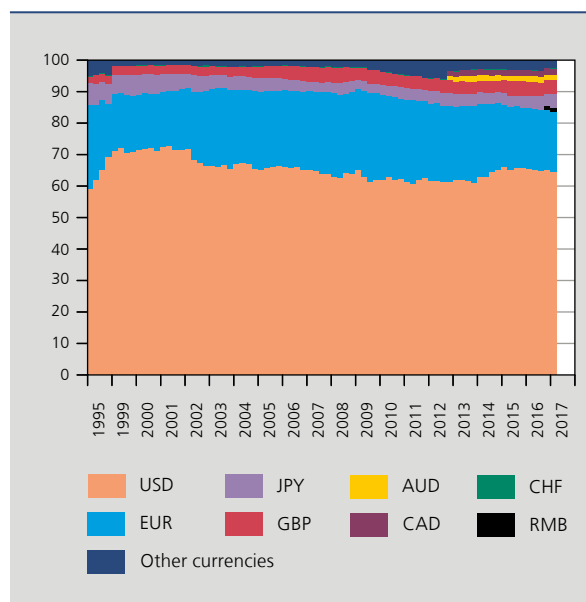
(3) The last observation is for February 2017.

investments, and weighting the different components based on actual outflows/reductions observed during past instances of exchange market pressure. According to this composite measure, some countries, including Ecuador, Egypt, Pakistan and Ukraine, were “under-insured” by their reserves (holding reserves well below 100 % of the IMF-devised metric), whereas others, such as Brazil, Peru, the Philippines, Russia and Thailand, were “over-insured” (holding reserves well in excess of 150 % of the metric) at end-2015 (see IMF, 2017a)<sup>(1)</sup>.

Beyond the volume of international reserves, it is also interesting to look into their composition. In most countries, the bulk of reserves are held in the form of (highly liquid) foreign currency securities and deposits. Other reserve assets include monetary gold, special drawing rights (SDRs) and countries’ reserve positions at the IMF (see section 4.2.1 for more on the two latter categories)<sup>(2)</sup>. Figures on currency composition from the

**CHART 3** US DOLLAR DOMINATES COMPOSITION OF FOREIGN EXCHANGE RESERVES<sup>(1)(2)</sup>

(in % of total)



Source: IMF Currency Composition of Foreign Exchange Reserves (COFER) database.

(1) The chart only shows foreign exchange reserves with known currency denomination. These constitute between 55 % and 80 % of total foreign exchange reserves in each period.

(2) Pre-1999 EUR is the sum of the Deutschmark, French franc, Dutch guilder and ECU.

(1) Judging by the IMF-devised composite metric, China’s reserves were excessive over the years 2005-2013, but no longer from 2014 onwards. However, if one adjusts the composite metric for the presence of restrictions on resident outflows (by assigning a lower weight to the broad money component of the metric), China was over-insured by its reserves over the whole 2005-2015 period. See IMF (2016b) for more details on reserve adequacy measures and on further differentiation of such measures along country characteristics.

(2) In advanced economies such as the US, the UK and euro area countries (but not Japan), these other, “non-currency” reserve assets make up much larger shares of total reserves.

IMF's COFER database, only available at the aggregate level, show that foreign exchange reserves are still predominantly denominated in US dollar (about 60-65%), followed at a clear distance by the euro (about 20%). Japanese yen, British pound, Canadian dollar and Australian dollar assets make up no more than 2-4% each of the foreign exchange reserves with known currency denomination (see chart 3). Anecdotal evidence suggests that at least 38 countries, in Asia and beyond, have added the Chinese renminbi to their reserve portfolios (Liao and McDowell, 2016 and Eichengreen and Lombardi, 2017). Nevertheless, again according to COFER, the identified share of the Chinese renminbi in foreign exchange reserves stood at a mere 1% at the end of the first quarter of 2017. Given the IMF's decision to add the renminbi to the basket of currencies constituting the SDR as from October 2016, widely considered a recognition of its potential as an international currency, a bigger role for the renminbi in countries' reserves can be expected in future.

## 1.2 Comparative (dis)advantages

Relative to the other layers of the GFSN, self-insurance through reserves has the important advantage of being highly "predictable", as the holder of the reserves can access and use the associated funds at its own discretion, without any conditionality. By definition, reserves can be activated (almost) immediately by the holder, whenever necessary (Denbee *et al.*, 2016 and IMF, 2016a). Empirical studies suggest that during the 2008-2009 global financial crisis, emerging market economies actively drew down part of their reserve stocks, and that has helped them to restore GDP growth (e.g., Dominguez *et al.*, 2012).

At the same time, however, several countries exhibited "fear of losing reserves" during the global financial crisis, i.e. reluctance to deplete reserves beyond certain levels, and preferred to adjust through large exchange rate depreciations (Aizenman and Sun, 2012). Such behaviour may be explained by countries' uncertainty about the duration of the crisis, by the concern that large declines

in reserves would trigger speculative attacks, and/or by their attempts to "keep up with the Joneses", i.e. the belief that investors judge the adequacy of countries' reserve positions against those of their regional peers (see Cheung and Qian, 2009). The volume of reserves that is *effectively* available to their holder to meet balance-of-payments needs is therefore (much) smaller than the whole reserve stock. Arguably, reserves are less reliable as a source of insurance against longer-lasting shocks (IMF, 2016a)<sup>(1)</sup>.

The benefits of holding own reserves are partly offset by the fact that it comes at a price to the holder. The cost of reserve accumulation can be expressed in various ways, but ultimately boils down to the wedge between the (typically low) returns earned on (typically low-risk) reserve assets and some (typically higher) borrowing or opportunity cost to the sovereign State (see IMF, 2013). In countries with international capital market access, one can approximate that borrowing cost by the yield on external sovereign bonds. If external market access is limited but a country has relatively developed domestic financial markets, it makes more sense to take the interest paid on domestic bonds, as central banks typically sterilise the extra liquidity created through reserves accumulation by issuing such bonds. And if countries have neither external market access nor developed domestic financial markets, the social opportunity cost of foregone public investment may be used as an alternative proxy (although it is harder to establish empirically). Whichever measure is applied, the general consensus is that the costs of reserve accumulation are significant in most countries (with the exception of reserve currency issuers, which have low borrowing costs)<sup>(2)</sup>. Exchange rate appreciation may further compound these costs by reducing the value of interest revenue from foreign currency assets and by causing capital losses on the outstanding reserve stock (IMF, 2016a).

Moreover, beyond the individual country level, large-scale reserve accumulation, especially by systemically important emerging market economies, is also intimately linked to "global imbalances", as net reserve asset purchases constitute net capital inflows into reserve currency countries and thereby increase the external indebtedness of the latter<sup>(3)</sup>. These imbalances may in turn lead to a build-up in systemic risk by stimulating over-borrowing and excessive investment in the reserve currency countries. When the situation unravels, it could lead to (or amplify) a financial crisis that affects both reserve-accumulating and non-accumulating countries (Steiner, 2014). According to some accounts, that is exactly what happened in 2008-2009 (Portes, 2009 and Obstfeld and Rogoff, 2010)<sup>(4)</sup>. Another, related source

(1) Lately, even China's massive war chest of reserves diminished steadily in the face of sustained capital outflows, from a peak of more than \$ 4 trillion in June 2014 to around \$ 3 trillion in January 2017, urging the Chinese government to tighten monetary policy and to introduce new restrictions on capital movement (see, e.g. Wildau, 2017).

(2) For example, adopting an approach similar to the first one mentioned above, Rodrik (2006) puts the total annual cost of holding foreign exchange reserves in non-industrial countries at roughly 1% of their combined GDP. He stresses that, although this is a large number by any standard, it may not be too high an insurance premium against costly financial crises.

(3) Global imbalances generally refer to a situation where large current account surpluses in some countries coincide with large deficits in other countries.

(4) The link between global imbalances and the 2008-2009 global financial crisis sketched here is no consensus view, however, and ignores the importance of gross rather than net capital flows (see Butzen *et al.*, 2014).

of systemic risk comes from the fact that assets supplied by a small set of highly creditworthy advanced economies with deep financial markets, first and foremost US government debt, are almost exclusively sought after as reserves (see chart 3). Given that output grows faster in emerging market economies than in advanced economies while the perceived lower creditworthiness of the first is very slow to change, the ultimate outcome is one where the demand for “safe” assets (say US Treasuries) outstrips what can be supplied without compromising the safety of those assets (Obstfeld, 2014)<sup>(1)</sup>.

Finally, since the accumulation and use of a country's own reserves does not entail any explicit conditionality, it provides little incentive for domestic policy reform. Unlike with the assistance available from RFAs or the IMF, there are no external actors involved that fulfil a monitoring role or that reform-minded country authorities can use as scapegoats to press through politically difficult policy measures.

In view of these drawbacks to large reserve accumulation, both from an individual country and multilateral perspective, policy-makers in various forums have tried to further develop the other layers of the GFSN, a topic to which we turn in the following sections. It is generally assumed, often implicitly, that larger and better-designed central bank swaps, RFAs and/or IMF lending will significantly reduce countries' demand for own reserves. Although plausible, there is in fact little concrete empirical support for this “substitutability” hypothesis. Indeed, because of the unparalleled discretion and flexibility that international reserves provide to their holders, it is likely that they will continue to dominate the GFSN over the foreseeable future.

## 2. Bilateral central bank swaps (“With a little help from my friends”)

### 2.1 The changing face and key features of the swap network

In a typical bilateral central bank swap arrangement, one central bank agrees to lend a certain maximum amount of its own (reserve) currency to another central bank in exchange for the latter's domestic currency (which serves as collateral) at the prevailing market exchange rate and for a short period only, usually ranging from overnight to three months. Again typically, the second central bank draws on such a swap line to on-lend/auction off the received liquidity to financial institutions in its own jurisdiction, while itself remaining responsible for returning the currency to the first central bank. At the end of the specified period, the swap of currencies is unwound at the same exchange rate as used in the initial drawing and the second central bank pays a small, market-based amount of interest to the first. Swap arrangements can be either unidirectional or reciprocal, meaning that both central banks can use the swap proceeds at their disposal<sup>(2)</sup>. There are some variations on this basic swap design, including arrangements where central banks provide and/or obtain third-party currencies in swap operations<sup>(3)</sup>.

The importance of bilateral central bank swaps has grown notably since the global financial crisis (see chart 1), putting central banks firmly on the map as major players in the GFSN<sup>(4)</sup>. The first impetus to a wider central bank swap line network originated from the US Federal Reserve. During the global financial crisis, banks' various sources of finance all but dried up. US dollar funding markets, on which European banks in particular had become increasingly reliant to finance their purchases of US mortgage-backed securities and other assets, came under significant strain as concerns about the quality of those assets and the wider US financial system escalated (McGuire and von Peter, 2009). Systemically important US banks and money market funds were, in turn, greatly exposed to potential default by dollar-starved European and other non-US banks. In order to protect its domestic financial sector from foreign default, the Federal Reserve took up the role of “international lender of last resort” (McDowell, 2012, 2017a)<sup>(5)</sup>. From December 2007 onwards, it extended and gradually stepped up temporary bilateral swaps to the central banks of the other main advanced (reserve currency) countries (ECB, Swiss National Bank, Bank of England, Bank of Japan and Bank of Canada) and smaller advanced economies (Sweden, Australia,

(1) These tensions resemble a modern-day version of the dilemma formulated by Triffin (1960) in the context of the gold convertibility of the US dollar under the Bretton Woods system (see Obstfeld, 2014).  
 (2) Charles Coombs, former Vice-President of the Federal Reserve Bank of New York, once stated that such reciprocal swaps create an increase in both central banks' international reserves “out of thin air” (quoted in McDowell, 2012, p. 163).  
 (3) As noted by Denbee *et al.* (2016), such swaps amount to central banks lending their own foreign exchange reserves to each other. Examples include the unilateral US dollar swaps that were extended by the Bank of Japan and the People's Bank of China to other Asian central banks, the euro swaps by the central banks of Sweden and Denmark to those of Iceland and Latvia, and the swaps extended by the Swiss National Bank to the central banks of Poland and Hungary, which provided Swiss francs in exchange for euros.  
 (4) Obstfeld *et al.* (2009, p. 483) have praised bilateral swaps as “one of the most notable examples of central bank cooperation in history”. Nevertheless, according to Weder di Mauro and Zettelmeyer (2017), the growing influence of central banks within the GFSN has gone relatively unnoticed, especially compared to the mediated establishment of new RFAs (see section 3).  
 (5) McDowell (2017a) argues that the Federal Reserve's supply of US dollars to foreign banks through swaps also contributed (together with measures taken by the Federal Reserve to inject liquidity in the US financial system itself) to bringing down the LIBOR, which had spiked following tensions in the interbank lending market. The LIBOR, over which the Federal Reserve has no direct control, was a popular index for adjustable-rate mortgages (ARMs). A continued rise in the LIBOR would bring about increases in monthly payments under such ARMs and hence more defaults by US homeowners (one of the key triggers of the global financial crisis). The logic went that supporting interbank lending with extra US dollar liquidity would lower the spread between the LIBOR and US Treasury rates (over which the Federal Reserve has more sway) and hence improve the transmission of the Federal Reserve's interest rate cuts to the real economy.

Norway, Denmark and New Zealand), with swap volumes ranging from \$ 4 billion to \$ 240 billion<sup>(1)(2)</sup>

On 13-14 October 2008, a month after the failure of Lehman Brothers, formal swap limits were abandoned for swaps with the ECB, Swiss National Bank, Bank of England and Bank of Japan, to accommodate the quantity of US dollars demanded by banks in their jurisdictions. In that same month, the Federal Reserve signed temporary swap line arrangements of \$ 30 billion each with four emerging market economies: South Korea, Mexico, Brazil and Singapore. Later, in April 2009, the Federal Reserve swap arrangements with the ECB, Swiss National Bank, Bank of England and Bank of Japan were made reciprocal, enabling the Fed (and, ultimately, US banks) to access foreign liquidity too, should the need arise (Goldberg *et al.*, 2011). Meanwhile, the ECB, Swiss National Bank and Bank of Japan also extended swap lines to countries where banks relied heavily on, respectively, euro (Switzerland, Denmark, Sweden), Swiss franc (Hungary, Poland) or yen funding (South Korea)<sup>(3)</sup>.

In February 2010, after the global financial crisis had reached its zenith, the swap arrangements between the Federal Reserve and other advanced and emerging market economy central banks were left to expire. But only a few months later (May 2010), when the euro area sovereign debt crisis started to gain traction, the Federal Reserve swaps with the ECB, Swiss National Bank, Bank of England, Bank of Japan and Bank of Canada were revived, again with no formal size limit specified. On 30 November 2011, these unidirectional Federal Reserve swaps were absorbed into a dense *network* of reciprocal swap lines, where each central bank could lend its own currency to the five others in unlimited amounts, at least in theory. This temporary network of uncapped swaps was transformed into a standing arrangement on 31 October 2013 and remains in place until further notice.

It is not just advanced economies that have taken the initiative to establish bilateral swap arrangements. Even long before the global financial crisis (and actually in response

to the Asian financial crisis of 1997-1998), ASEAN+3 central banks in 2000 set up the Chiang Mai Initiative (CMI). The CMI comprised a network of bilateral swap arrangements among the central banks of China, Japan, and South Korea; between each of these '+3' countries and the original five ASEAN members (Indonesia, Malaysia, Philippines, Singapore and Thailand); and among all ASEAN central banks themselves (these five plus Brunei, Cambodia, Laos, Myanmar and Vietnam) (Kawai, 2009). By March 2010, the CMI accounted for about \$ 235 billion worth of swap arrangements. On 24 March 2010, the CMI was multilateralised by consolidating the network of bilateral swap lines into a single swap contract. The so-called Chiang Mai Initiative Multilateralisation (CMIM) now operates as a fully-fledged RFA (see section 3).

China in particular has emerged as a key provider of central bank swaps over the past few years. Since December 2008, the People's Bank of China has negotiated reciprocal renminbi-local currency swaps with 37 countries for a total of about \$ 485 billion equivalent (at May 2017 exchange rates)<sup>(4)</sup>. Unlike the swaps signed by the Federal Reserve, the ECB and others, Chinese bilateral swaps have not been designed explicitly to address the liquidity needs of swap-receiving countries' banks, but rather for the purpose of promoting the international use of the renminbi. More specifically, the swaps are meant to promote bilateral trade and direct investment between China and current/potential partner countries, by facilitating cross-border settlement in renminbi<sup>(5)</sup>. In that sense, they complement efforts by China to support the role of the renminbi in financial markets through offshore hub Hong Kong. Bilateral swap arrangements enable China to (gradually) make renminbi available in partner economies while still maintaining a large degree of control over the currency's use outside its borders, thereby circumventing existing capital account restrictions (Liao and McDowell, 2015). Notwithstanding the mostly small swap amounts, China is seemingly trying to make a broad set of countries comfortable and familiar with renminbi-denominated financial facilities (Prasad, 2017)<sup>(6)</sup>. Even if, strictly speaking, the RMB is not freely convertible, renminbi-local currency swaps with the People's Bank of China allow central banks to save on their US dollar

(1) The idea of using central bank swaps to address money market dysfunction and financial instability more broadly stood in contrast with the goals of prior US swap arrangements with advanced countries, which since the 1960s had been used, above all, as tools of foreign exchange policy (see Bordo *et al.*, 2015 and McDowell, 2017a). In fact, in providing US dollars to banks during the crisis, the Federal Reserve's new swap lines closely resembled an international adjunct of its domestically focused Term Auction Facility (TAF) (Goldberg *et al.*, 2011). The TAF too was available to foreign banks, as long as they had US affiliates. In the end, foreign bank drawings accounted for the majority of the dollars provided through the TAF (McDowell, 2017a).

(2) The ECB, for example, was offered an initial swap line of \$ 20 billion by the Federal Reserve on 12 December 2007, which was later expanded to \$ 30 billion (11 March 2008), \$ 50 billion (2 May 2008), \$ 55 billion (30 July 2008), \$ 110 billion (18 September 2008), \$ 120 billion (26 September 2008) and \$ 240 billion (29 September 2008), before the swap limit was removed on 13 October 2008.

(3) In addition to these swaps, the ECB established repo facilities with the central banks of Hungary, Poland and Latvia in October-November 2008, disbursing euro currency against liquid euro-denominated assets as collateral.

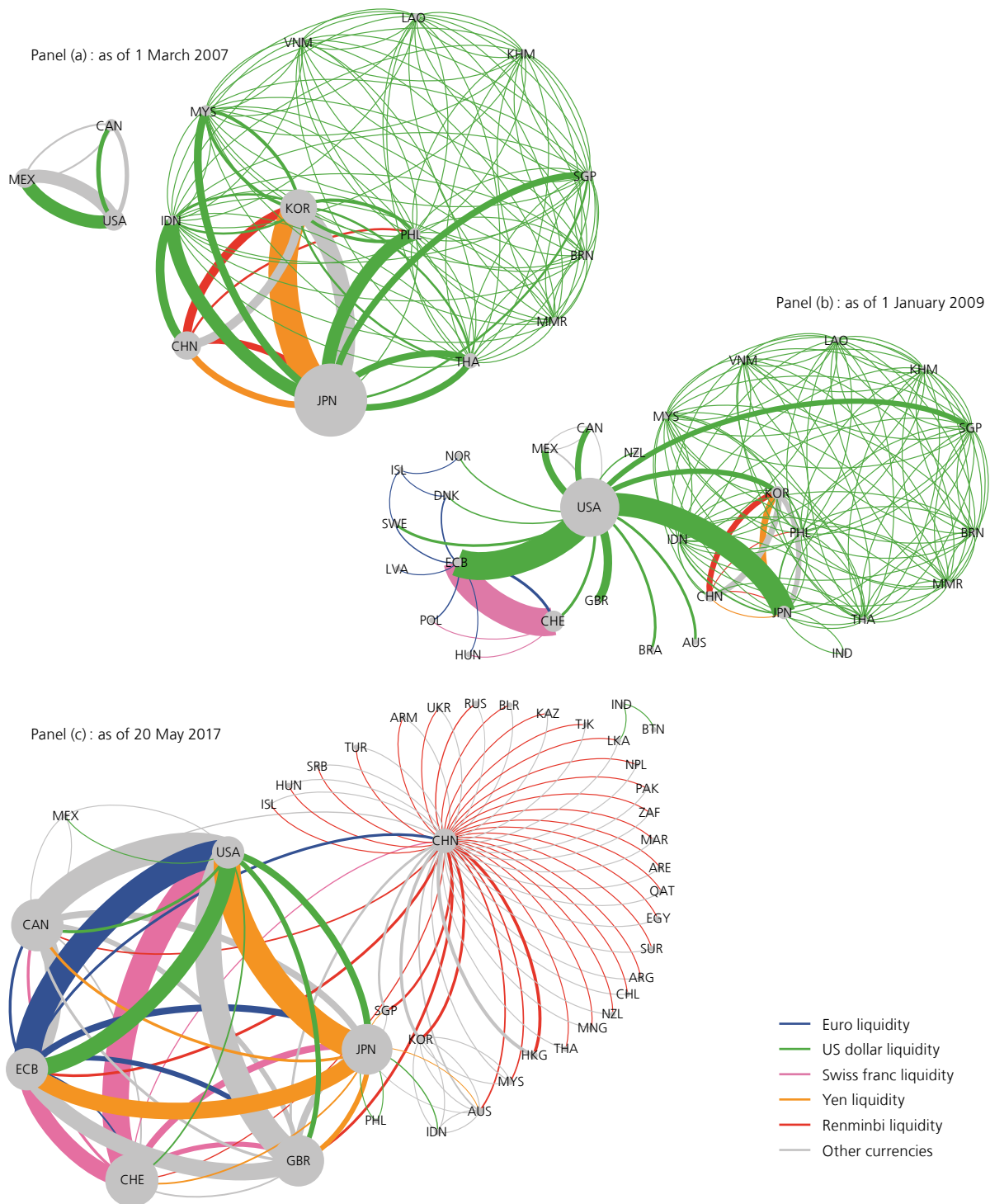
(4) These swaps come on top of its earlier swaps with Japan, South Korea and other CMI countries (the latter being unidirectional US dollar swaps).

(5) For example, the People's Bank of China press release on its November 2014 swap agreement with the central bank of Qatar reads "*The [China-Qatar swap arrangement] represent[s] fresh progress in China-Qatar financial cooperation and [is] expected to bring convenience to companies and financial institutions in the two countries to use RMB in the cross-border transactions and promote the facilitation of bilateral trade and investment for the benefit of regional financial stability*" (see <http://www.pbc.gov.cn/english/130721/2878673/index.html>). Most press releases on other swaps signed by the People's Bank of China use similar wording.

(6) The median volume of Chinese swaps concluded since December 2008 is below \$ 4 billion equivalent. The smallest swaps, with Uzbekistan, Armenia and Suriname, accounted for less than \$ 150 million equivalent each. China has signed only a few larger swaps, with Hong Kong, South Korea, the ECB and the UK, above \$ 50 billion equivalent each.

CHART 4

CHANGING NATURE OF THE BILATERAL CENTRAL BANK SWAP NETWORK SINCE 2007<sup>(1)(2)</sup>



Sources: Authors' own update of Denbee *et al.* (2016) swap database using central bank websites and media reports; Datastream.

(1) The direction of swaps is clockwise. Lines are proportional to the value of the swap and the size of nodes is proportional to the total value of outgoing swaps. Values of unlimited swaps between advanced economies are illustrative and based on maximum drawing from US Federal Reserve swaps in 2008. In cases where a central bank has not drawn on Federal Reserve swaps in the past, the value of the unlimited swap is calculated as the average of past drawings of other central banks relative to their 2008 GDP multiplied by the 2008 GDP of the country of the central bank in question.

(2) Panel (c) does not show CMI swap lines as these were multilateralised into the CMIM, which we classify as an RFA.

reserves because they enable countries to pay for their Chinese imports in local currency rather than the usual dollar (McDowell, 2017b).

The different panels in chart 4 clearly demonstrate the important transformations the global network of bilateral central bank swaps has undergone over the last decade. In March 2007, before the global financial crisis, only swap lines under the Asian CMI and the North American Framework Agreement (NAFA), a set of bilateral reciprocal swaps between the US, Canada and Mexico that has accompanied NAFTA since 1994 (Bordo *et al.*, 2015), were in place. The total value of swap arrangements stood at about \$ 98 billion equivalent if the amounts available under reciprocal swaps are double-counted. By January 2009, the total value had risen to \$ 513 billion, due to the temporary swap lines directed from the US Federal Reserve, the raising of existing swap lines between various Asian central banks and a new euro liquidity network based around the ECB. As of May 2017, the global swap network had expanded to over \$ 1 trillion<sup>(1)</sup>. The total network comprised no less than 121 bilateral swap arrangements (again double-counting reciprocal swaps) between 41 central banks. One observes the formation of two main clusters: first, the sub-network of advanced economy swaps in the main reserve currencies, which has no formal size limits; and second, the cluster centred around China, which dominates in terms of the *number* of swap lines signed but exists mostly of small-scale swaps.

## 2.2. Comparative (dis)advantages

Bilateral central bank swaps arguably provided a useful backstop to the global financial system during the global financial crisis. While the risks of sudden stops and capital flow reversals in emerging market economies were well known, the abrupt drying up of interbank and other funding markets during the crisis was a new phenomenon, to which the existing GFSN had no immediate answer (Weder di Mauro and Zettelmeyer, 2017). Goldberg *et al.* (2011) report how the ECB, Bank of England and Swiss National Bank were the first to draw on their swap lines with the US Federal Reserve through coordinated, fixed-rate

auctions of US dollars to European, UK and Swiss banks. The move to full-allotment, non-competitive auctioning from 13 October 2008 onwards led to a boom in Federal Reserve swap use, with an overall peak in the outstanding swap balance of \$ 586 billion in December 2008, largely accounted for by drawings by the ECB, Bank of Japan and Bank of England (Denbee *et al.*, 2016). The central banks of Denmark, Sweden, Norway, Australia, South Korea and Mexico also made use of their access to Federal Reserve swaps during the most acute phase of the global financial crisis. Meanwhile, the Federal Reserve itself did not draw on any of its reciprocal swap lines with other advanced country central banks (Goldberg *et al.*, 2011). Unfortunately, data on the actual use of other swap arrangements is not systematically available. Nevertheless, there is anecdotal evidence, among other examples, of the drawing by Poland and Hungary on their swaps with the Swiss National Bank (Andries *et al.*, 2017); by Hong Kong, Singapore and South Korea on their swaps with the People's Bank of China in October 2010 (Prasad, 2017); and by Pakistan and Argentina on their Chinese swaps during the severe exchange market pressures these countries experienced in 2013 and 2014, respectively (Li, 2015).

On the whole, empirical studies suggest that the Federal Reserve's key swap announcements and actual swap-financed dollar auctions had beneficial effects on country-specific measures of liquidity risk and helped to stem exchange rate volatility and excessive depreciations, especially in countries highly dependent on US dollar liquidity (Baba and Packer, 2009, Aizenman and Pasricha, 2010 and Rose and Spiegel, 2012)<sup>(2)</sup>. Ultimately, however, the exact effects of swaps remain difficult to quantify at individual country level, because of their typical short-term nature; spillover effects to other, non-swap countries; and concurrence with other changes in the GFSN at the time (Goldberg *et al.*, 2011).

One key advantage of bilateral central bank swaps is that, much more so than the IMF and RFAs, central banks have the balance sheet elasticity to quickly mobilise (in fact, create) funds to counter large-scale financial shocks<sup>(3)</sup>. Some commentators have gone as far as to argue that *only* reserve currency-issuing central banks have sufficiently deep pockets to credibly fulfil the role of international lender of last resort (see, in particular, Truman, 2013).

The relatively fast speed and low cost at which international liquidity can be accessed once a swap arrangement is in place are also beneficial factors. The timing of actual drawings on Federal Reserve swaps suggests that US dollars were made available only a few days after the signing of the respective swap line contracts. However, the speed of activation of a swap may depend on the approval

(1) The amounts mentioned are exclusive of the Federal Reserve's unlimited swap lines with the ECB, the Swiss National Bank, Bank of England and Bank of Japan (January 2009) and the unlimited standing swap agreement between the central banks of the main advanced economies. Denbee *et al.* (2016) estimate the potential capacity of these advanced economy swap arrangements at around \$ 1.2 trillion (as of October 2015), based on individual country maximum past drawings and extrapolations following GDP growth.

(2) More granular, bank-level evidence on the effect on bank stock prices of the swap lines the Swiss National Bank extended to Poland and Hungary indicates a positive price response, which was more pronounced for domestically owned, less-capitalised banks with higher foreign currency exposure and greater reliance on short-term funding (Andries *et al.*, 2017).

(3) This was clearly demonstrated during the crisis. The Federal Reserve and other central banks were very quick to set up large and even unlimited swap lines, whereas the IMF could not expand its core resource base, i.e. members' quota, equally fast and had to resort to bilateral borrowing arrangements with willing central banks and governments of its member states (see section 4.2.1).



procedures of the liquidity-providing central bank. And in the case of non-reserve currency swaps, currency conversion operations may be needed, possibly causing further delays (IMF, 2016a)<sup>(1)</sup>. With respect to borrowing costs, swaps do not entail commitment fees, and Federal Reserve swaps, for example, have been priced at small mark-ups (0-100 basis points) over reference interest rates such as LIBOR or OIS spreads (Goldberg *et al.*, 2011).

Another forte of swaps, at least from the perspective of the receiving central bank, is that these instruments typically do not impose any formal conditionality requirements, as most IMF and RFA programmes do, and hence carry no (or little) stigma. That said, one needs to bear in mind that central bank swaps constitute a rather specific form of liquidity. Unlike self-accumulated reserves, most swap proceeds cannot be spent freely but should be directed towards receiving countries' ailing domestic banking sectors, the purchase of imports from the swap-providing country, or other, narrowly defined purposes (Denbee *et al.*, 2016)<sup>(2)</sup>. There is typically no scope for general liquidity provision from central banks to governments through swap arrangements (ECB, 2016).

Arguably the biggest limitation to bilateral swap lines is the selectivity with which they are granted, especially to emerging market economies. As explained above and pointed out by McDowell (2017a, p. 140), while foreign banks and economies most probably benefited from the Federal Reserve's dollar liquidity provision during the crisis, *"their interests were not the target of the actions"*. Instead, the Federal Reserve acted in line with its own (unofficial) mandate of fostering domestic financial stability. Econometric analysis by McDowell (2017a) confirms that jurisdictions in which systemically important US banks and money market funds had more foreign claims were more likely to receive a swap line from the Federal Reserve. Likewise, Aizenman and Pasricha (2010) find that the Federal Reserve's choice to extend swap lines to emerging markets Brazil, Mexico, Singapore and South Korea is first and foremost explained by the exposure of US banks to these countries<sup>(3)</sup>. Empirical

studies on the People's Bank of China's renminbi-local currency swap lines show that they are more likely to be concluded with countries whose trade is interdependent with China's and which have previously signed preferential trade agreements and/or bilateral investment treaties with China (Liao and McDowell, 2015 and Garcia-Herrero and Xia, 2015). And the size of both US and Chinese swaps is positively correlated with the importance of swap recipients as export destinations (Aizenman *et al.*, 2011 and Yang and Han, 2013).

Moreover, the Federal Reserve and other swap providers have shown "constructive ambiguity" about their willingness to again extend swap lines to emerging market economies in the event of new crises, out of fear that (quasi-) permanent swap arrangements would contribute to moral hazard on the part of receiving central and private sector banks (Weder di Mauro and Zettelmeyer, 2017).

The foregoing implies that access to swap lines is heavily dependent on the domestic policy considerations of the swap-providing country and highly uncertain, except perhaps for reserve currency issuers<sup>(4)</sup>. Swap lines are therefore at best a very imperfect substitute for international reserves. Swaps' contractual and typically short-term nature and the non-transparent *ex-ante* qualification process that lies behind them make them arguably less predictable and reliable instruments of liquidity provision than alternative, more institutionalised arrangements, such as the IMF or long-standing RFAs (Destais, 2016 and Denbee *et al.*, 2016)<sup>(5)</sup>.

A final disadvantage of bilateral central bank swaps is that they add little to the GFSN in terms of risk-pooling and diversification. Instead, the typical swap involves "two-tier counterparty risks" (Destais, 2016). The first-tier risk, borne by the swap-receiving central bank, is that commercial banks fail to repay the international currency they obtain through auctions. The second risk, borne by the swap provider, is that the swap-receiving central bank does not settle the swap, i.e. return the international currency, as agreed<sup>(6)</sup>.

(1) For example, both Pakistan and Argentina converted the renminbi amounts they obtained through their swaps with the People's Bank of China into US dollar liquidity through the offshore renminbi market (Li, 2015).

(2) The four Federal Reserve swap arrangements with emerging market economies had additional safeguards (unlike the swap lines concluded with advanced economies). Drawings under the \$ 30 billion swap arrangements required the explicit approval of the Federal Reserve's Foreign Currency Subcommittee, to ensure that US dollar credit would be used in line with the swaps' original purposes, i.e., supplying liquidity to illiquid but solvent banks operating in foreign jurisdictions (McDowell, 2017a).

(3) Further evidence can be found in (later released) US Federal Open Market Committee (FOMC) transcripts, in which Dallas Federal Reserve Bank President Richard Fisher is quoted as saying *"Mexico is obvious. It's a national security risk. We're interlinked economically"* (see <https://www.federalreserve.gov/monetarypolicy/files/FOMC20081029meeting.pdf>). Other factors that are highlighted in these transcripts are the four emerging markets' economic and financial mass, their recent history of prudent policies, their likely reluctance to turn to the IMF, and their expression of interest in a swap line. In the financial press, it was widely reported that Indonesia was turned down by the Federal Reserve and therefore sought (and eventually secured) swap arrangements with China and Japan instead.

(4) On a more positive note, Moessner and Allen (2012) find significant positive correlations between countries' *ex-ante* currency-specific (dollar, euro, yen and Swiss franc) liquidity shortages and the probability of receiving a swap line in that currency, and between being a large international financial centre and receiving a swap line from any other country. This suggests that swaps are, in part, also allocated in accordance with liquidity needs.

(5) Some argue that, for advanced economy central banks, an extra incentive to sign swap agreements with the People's Bank of China may have been its "symbolic" value of signalling financial ties with China. The signing of such swaps could be interpreted as low-cost bets on the result of a fully convertible and more widely accepted renminbi and could prove helpful in countries' efforts of attracting more renminbi business to their financial centres (Prasad, 2017).

(6) To shield itself against that second risk, the Federal Reserve's October 2008 FOMC meeting considered the possibility of seizing some of the emerging market economies' reserve assets (held at the Federal Reserve Bank of New York) if they failed to honour their swap obligations. Eventually, such measures were not approved. See <https://www.federalreserve.gov/monetarypolicy/files/FOMC20081029meeting.pdf>.

### 3. Regional financing arrangements (“Better a good neighbour than a distant friend”)

#### 3.1 Definition and key features

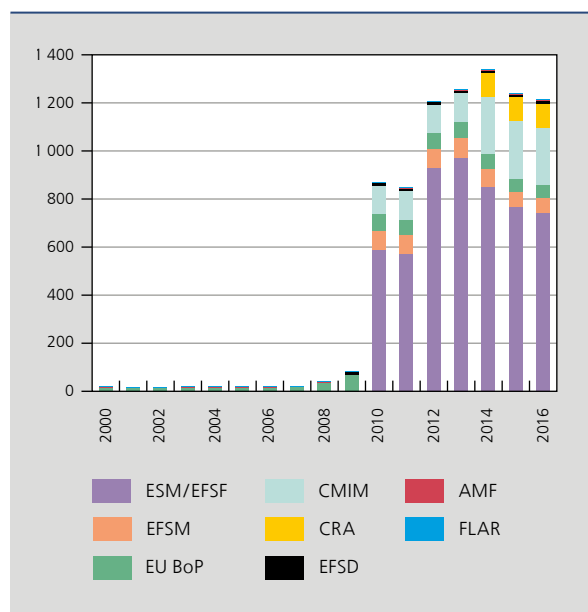
Regional financing arrangements (RFAs) can be broadly defined as financing mechanisms through which a group of countries, usually in the same region, provide liquidity or balance-of-payments support to its members. Accordingly, RFAs represent a middle ground between self-insurance through reserve accumulation and the multilateral assistance provided by the IMF (ECB, 2016). The regional layer of the GFSN has gained in importance over the last decades. More particularly, along with the increase in regional trade and financial interconnectedness, there has been growing awareness of the need for better insurance against shocks at this level. Similar to the large build-up in reserves however, a number of RFAs also have their origins in dissatisfaction with past IMF adjustment programmes or with countries’ representation in international financial institutions. The Asian Chiang Mai Initiative Multilateralisation (CMIM), for example, was established in the aftermath of the 1997-1998 Asian financial crisis out of dissatisfaction with the international community’s response at the time.

Some RFAs have existed for decades, such as the Arab Monetary Fund (AMF, since 1976) or the Latin American Reserve Fund (FLAR, originally the Andean Reserve Fund, since 1978). Others have been established more recently. Having laid bare the inadequacies of the GFSN, the global financial crisis marked the establishment of a wave of new RFAs, while existing arrangements were strengthened. The CMIM, for example, finds its origin in a network of bilateral swap agreements set up following the Asian financial crisis and consolidated into a single swap contract in 2010. Likewise, the Eurasian Fund for Stabilisation and Development (EFSD, since 2009) and the BRICS Contingent Reserve Arrangement (CRA, since 2014) were set up in response to the global financial crisis. Among the European financing arrangements, finally, the Balance of Payments (BoP) Assistance Facility may have existed since 1972<sup>(1)</sup>, but all the other European RFAs have been established in the wake of the crisis.

The EU’s BoP Assistance Facility is the oldest European financing arrangement. While it has been in use for

decades, financing under this facility surged in the aftermath of the global financial crisis, with loans to Hungary, Latvia and Romania, all in combination with IMF programmes. Against that background, the resources available under this facility were increased, from € 12 to 25 billion in December 2008. Shortly thereafter, in April 2009, in view of the intensity of the crisis, this amount was again doubled to € 50 billion. The facility is dedicated to non-euro area EU countries. As the crisis spread to the euro area however, the need arose for a financing mechanism to support euro area countries. In that context, a new mechanism for financial assistance, the European Financial Stabilisation Mechanism (EFSM), was set up in 2010, backed by the EU budget. The EFSM had a lending capacity of € 60 billion and has been used to provide loans, in parallel with an IMF (and EFSF, see below) programme, to Ireland and Portugal (as well as to Greece, under the form of a bridge loan). In addition, a temporary crisis resolution mechanism for euro area countries was established in 2010, the European Financial Stability Facility (EFSF), with a total lending capacity of € 440 billion, guaranteed by euro area Member States. It has been used to support Ireland, Portugal and Greece. While the EFSF remains in place to carry out existing programmes<sup>(2)</sup>, it was ultimately

**CHART 5** SINCE THE GLOBAL FINANCIAL CRISIS, RFAs HAVE GROWN IN NUMBER AND SIZE  
(in \$ billion)<sup>(1)</sup>



Sources: RFA websites, Datastream.

(1) Since 2012, the size of the European financing arrangements has remained constant when expressed in euro (ESM/EFSF: € 704.8 billion; EFSM: € 60 billion and EU BoP: € 50 billion); the variations seen in the chart are due to changes in the dollar/euro exchange rate.

(1) The EU Balance of Payments Assistance Facility was established in its current form in 2002, replacing an earlier facility providing medium-term financial assistance for members with balance-of-payments problems established in 1988. The latter facility actually merged medium-term financial assistance (set up in 1972) and a Community loan mechanism (set up in 1981) into a single facility.  
(2) The EFSM is also no longer used to provide financial assistance, except for providing bridge financing (such as to Greece in 2015). Both the EFSF and EFSM remain in place to deal with the repayments of outstanding loans.

**TABLE 1** WIDE VARIETY OF RFAs

RFA	Year of establishment	Members	Size (2016)		Funding	Instruments	IMF involvement	Prior use
			In \$ billion	In % of members' GDP				
<b>RFAs in the EU</b>								
– European Stability Mechanism (ESM) / European Financial Stability Facility (EFSF)	2012-2010	Euro area Member States	743.4	6.3	Member capital leveraged with capital market borrowing	Loans with a macroeconomic adjustment programme, primary and secondary market purchases, precautionary credit line, (in)direct recapitalisation of financial institutions	“A euro area Member State requesting financial assistance from the ESM is expected to address, wherever possible, a similar request to the IMF” in Spain (2012)	Loans to Ireland (2010), Portugal (2011), Greece (2012, 2015), Cyprus (2013); bank recapitalisation in Spain (2012)
– European Financial Stabilisation Mechanism (EFSM)	2010	EU Member States	63.3	0.4	Member capital leveraged with capital market borrowing	Loan or precautionary credit line	“Its activation will be in the context of a joint EU / International Monetary Fund (IMF) support”	Loans to Ireland (2011), Portugal (2011); bridge loan to Greece (2015)
– EU BoP Assistance Facility	1972	Non-euro area EU Member States	52.7	0.3	Member capital leveraged with capital market borrowing	Loan or precautionary financing facility	Not necessary, but post-2008 programmes were jointly with the IMF	Loans to Italy, Ireland, France and Greece in 1970-1990s; loans to Hungary (2008), Latvia (2008), Romania (2009)
<b>Chiang Mai Initiative Multilateralisation (CMIM)</b>	2010	Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, China, Hong Kong, Japan, South Korea	240	1.2	Foreign exchange reserves	Central bank swap lines (Stability Facility or Precautionary Line)	IMF involvement above 30% of maximum access	–
<b>BRICS Contingent Reserve Arrangement (CRA)</b>	2014	Brazil, China, India, Russia, South Africa	100	0.6	Foreign exchange reserves	Central bank swap lines (liquidity or precautionary instrument)	IMF involvement above 30% of maximum access	–
<b>Eurasian Fund for Stabilisation and Development (EFSD)</b>	2009	Armenia, Belarus, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan	8.5	0.6	Member capital	Financial credit, investment loan, subsidies for government programmes in the social sector	No	Different loans to 5 member states between 2010 and 2016
<b>Arab Monetary Fund (AMF)</b>	1976	Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, West Bank and Gaza, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen	3.6	0.1	Member capital leveraged with capital market borrowing	Automatic loan, ordinary loan, extended loan, compensatory loan, structural adjustment facility, trade reform facility, oil facility and short-term liquidity facility	No	Multitude of loans to 14 member states between 1978 and 2016
<b>Latin American Reserve Fund (FLAR)</b>	1978	Colombia, Bolivia, Costa Rica, Ecuador, Paraguay, Peru, Uruguay, Venezuela	3.9	0.4	Member capital leveraged with capital market borrowing	Balance of payments, central banks' external public debt restructuring, liquidity, contingency and Treasury credit lines	No	Multitude of loans to 6 member states between 1978 and 2016

Sources: RFA websites; IMF World Economic Outlook; Datastream.

superseded by the permanent European crisis fund, i.e., the European Stability Mechanism (ESM) in 2012, with a capital stock of more than € 700 billion. Spain was the first country to receive funds from the ESM to recapitalise its banking sector. Later, Cyprus was to have the first fully-fledged ESM programme. Finally, ESM funds were also used for Greece's third programme; it is currently the only ESM programme that is still active.

One of the most striking features of this layer of the GFSN is its heterogeneity (see table 1). First of all, the various RFAs differ significantly in terms of size (see also chart 5). In this regard, the European RFAs stand out; with a combined size of more than \$ 850 billion, they dwarf other RFAs. Even though the CMIM and CRA, with a size of respectively \$ 240 and 100 billion are arguably also quite large, they remain small relative to their members' combined GDP. RFAs also differ greatly in terms of their funding and lending frameworks. Some RFAs, such as the CMIM and CRA, take the form of swap arrangements, whereby members commit to provide foreign exchange reserves when a request for assistance is made. Other RFAs provide loans from members' capital, usually leveraged by capital market borrowing. It is also worth noting that a number of RFAs have made (part of) their assistance conditional on members also requesting an IMF programme, even though some of them, especially in emerging and developing economies, have their origins in dissatisfaction with past IMF support. To receive support above 30% of their access limit, CMIM and CRA members, for example, also have to enter into an IMF programme. Less binding, the ESM Treaty states that *"a euro area Member State requesting financial assistance from the ESM is expected to address, wherever possible, a similar request to the IMF"*. Furthermore, even though EU countries requesting support under the BoP Assistance Facility are not obliged to enter into an IMF arrangement, all programmes under this facility concluded since the global financial crisis have been co-financed by the IMF.

While most RFAs were set up to provide liquidity and balance-of-payments support to their members, some also provide other forms of assistance (such as project financing, for example). The FLAR and AMF have a number of different lending tools at their disposal, depending on the kind of support sought by its members. The FLAR moreover seeks to contribute to the harmonisation of its members' monetary and financial policies, while the AMF and EFSF also pursue economic development and increased integration among their members. The ESM can participate in the recapitalisation of financial institutions, as it has done in Spain for example. Most RFAs also feature precautionary credit lines, for members with potential financing needs.

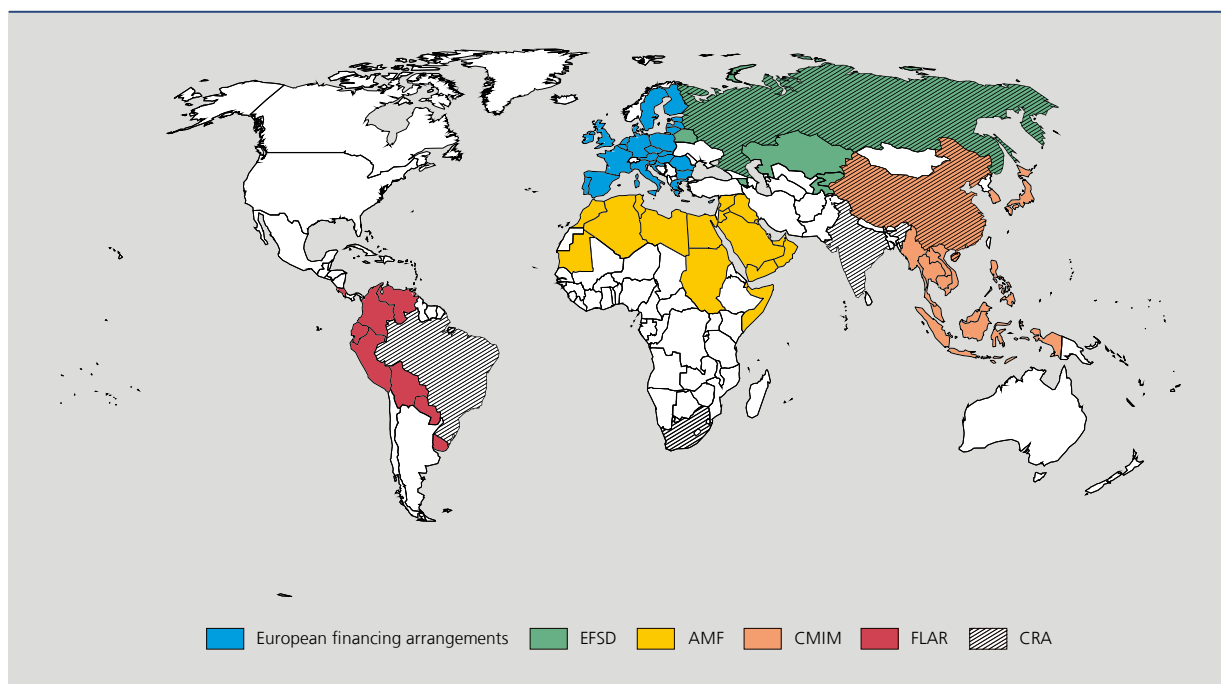
### 3.2 Comparative (dis)advantages

By pooling resources and, as such, creditworthiness, members of an RFA can access funds at a lower cost than they could individually, especially in times of stress. Moreover, RFA financing may enhance programme ownership and alleviate stigma concerns often associated with IMF assistance, thereby stimulating its members to ask for assistance early on in a crisis. In addition, RFAs are supposed to have a greater knowledge of regional specificities, including quicker access to data, given their proximity to member governments; and may be faster than the IMF in their lending decisions, due to the fewer parties involved and less formalised or rigid lending procedures. On the other hand, the lack of distance between lender and borrower may also create a situation where insufficient pressure is exerted on the borrower to implement needed reforms, thus increasing risks of moral hazard (McKay *et al.*, 2011). The fact that RFAs generally do not have an equally well-developed surveillance capacity and conditionality framework as the IMF adds to these risks. The European arrangements are an obvious exception, though other RFAs have recently been investing in their surveillance capacities too; the CMIM, for example, established its own macroeconomic surveillance unit AMRO (ASEAN+3 Macroeconomic Research Office) in 2011.

RFAs may also be ill-suited to deal with region-wide shocks. More particularly, along with the increasing trade and financial interconnectedness at the regional level, risks of multiple countries simultaneously suffering liquidity shortages or balance-of-payments difficulties have risen. Even larger RFAs might not be able to provide financing to several of its biggest members at the same time.

Finally, even though their number and size has increased significantly since the global financial crisis, coverage by RFAs remains very uneven. Many countries, such as in Sub-Saharan Africa and parts of Latin America, do not belong to any RFA at all, while other countries, such as Russia and China, belong to multiple RFAs (see chart 6). Moreover, resources among RFAs are very unequally distributed. Coverage for euro area countries under the ESM/EFSF amounted to 6.3% of their combined GDP at end-2016. The corresponding percentage was 1.2% for the CMIM and did not exceed 1% of regional GDP for the other RFAs (see table 1).

CHART 6 THE COVERAGE OF RFAs IS VERY UNEVEN



Sources: RFA websites.

## 4. The International Monetary Fund (“It’s a small world after all”)

### 4.1 Role within the GFSN, strengths and weaknesses

The IMF has a unique position within the GFSN, because of its global mandate, near-universal membership, long-term experience in crisis resolution, and pooling of funds. One of the key advantages of the IMF is that its global risk-sharing and long-time experience with surveillance and programme conditionality help to reduce moral hazard and encourage sound policies. On the other hand, in cases where experience with IMF conditionality was troubled, it has also given rise to political stigma. Asian and Latin American countries in particular, disappointed by the IMF’s handling of previous crises, have become reluctant to borrow from it, limiting the IMF’s effectiveness. Dissatisfaction with IMF governance and, especially, the perceived dominance of the developed countries in the institution’s decision-making, has added to the stigma associated with IMF lending. Moreover, the conditionality the IMF attaches to its lending instruments implies that access to funds from the IMF is more uncertain than own reserves or, arguably, (some) RFA resources. While financing is immediately available

for qualifying countries under the IMF’s precautionary instruments (currently the FCL and PLL, see below), the system of tranching lending involving periodic reviews of programme conditionality under the IMF’s standard facility (the Stand-By Arrangement or SBA) and other non-precautionary lending instruments introduces some degree of uncertainty about the availability of financing for the borrower.

### 4.2 IMF reform since the crisis

#### 4.2.1 Tripling the IMF’s resources

Before the global financial crisis, the IMF’s lending portfolio had contracted significantly, existing mostly of small loans to low-income countries. From end-2008 onwards however, IMF lending again surged to record highs. Against that background, at the G20 London Summit in April 2009, it was agreed to triple the IMF’s lending capacity, from \$ 250 to 750 billion. This was put into practice first by *ad hoc* bilateral borrowing from member countries to the IMF (in 2009-2010), which guaranteed the fastest way to boost IMF resources; then by incorporating these additional resources into an expanded New Arrangements to Borrow (NAB) (effective from March 2011); and, finally, by rolling over part of the amended NAB into the

IMF's quota resources<sup>(1)</sup>, which were doubled under the 14<sup>th</sup> General Quota Review (agreed by the IMF's Board of Governors in December 2010 but effective only from January 2016<sup>(2)</sup>). Against the backdrop of the deepening of the euro area crisis and the sluggishness of the global recovery more generally, a number of countries committed to increase the IMF's resources further through a second round of bilateral loans in 2012. After several extensions of their initial term of two years, borrowers have now committed to provide these loans until the end of 2019<sup>(3)</sup>. Consequently, the IMF's resources amounted to almost \$ 1.3 trillion in April 2017, compared to just over \$ 400 billion in 2008<sup>(4)</sup>. In addition to that, the IMF also injected liquidity into the global economic system by means of a general allocation of Special Drawing Rights (SDRs) in August 2009, for an amount of SDR 161.2 billion, the equivalent of \$ 250 billion<sup>(5)(6)</sup>. This directly added to recipient countries' reserves.

Chart 7 shows the evolution of the size and composition of the IMF's resources. While the size of the Fund has, over the past decades and especially since the global financial crisis, kept growing in absolute amounts, the IMF's resources have shrunk considerably when expressed as a percentage of global external liabilities. The increase in the IMF's resources after the crisis lifted the latter from 0.4 % in 2008 to 0.9 % in April 2017, but this is still significantly lower than the 2.4 % observed at the beginning of the 1980s. In terms of global GDP, the size of the IMF has fluctuated around 1 % in the decades before the crisis, peaked at almost 2 % in 2012 and then fell back again to around 1.5 % currently.

The significant drop in the IMF's funds in terms of global external liabilities has sparked an intense debate on the adequacy of the IMF's resources (and of the GFSN more generally) to deal with global shocks. While there is no unanimity on this, several studies point out that the GFSN would

be able to deal with most, except very extreme, shocks. According to Denbee *et al.* (2016, p. 26), "with the current temporary IMF resources in place, the GFSN appears capable of dealing with most severe, but plausible, crisis scenarios which could pose a threat to the international financial system"<sup>(7)</sup>. Furthermore, the IMF (2016a, p. 21) concluded that while "under a widespread shock and current access levels for the GFSN elements, financing gaps would arise [...] GFSN resources, however, would be just sufficient to cover the aggregate financing gap under very strong assumptions of full access to all GFSN elements"<sup>(8)</sup>.

Apart from their size, the IMF's resources have also changed significantly in terms of their composition. Whereas the IMF has traditionally relied on quotas as its primary source of financing, the share of borrowed resources in its income framework has increased significantly since the crisis. In particular, quotas still accounted for about 80 % of IMF resources in 2008, but this share had fallen to just 50 % in April 2017. Before the entry into force of the 14<sup>th</sup> General Review of Quotas, which included a roll-over of NAB into quota resources, borrowing even peaked at about three quarters of the IMF's resources. Besides the ongoing debate on the adequacy of the IMF's resources, discussions have also arisen on their optimal composition. Usually, and as also advocated by the IMF itself, it is argued that quotas, as the IMF's permanent resource base, should be large enough to deal with possible shocks in normal times, whereas the NAB and bilateral loans, as the IMF's second and third lines of defence, are meant to cover tail risks. Against that background, one could conclude that the IMF's borrowed resources should be maintained at their current size at least as long as the uncertainty in the global economy has not abated. It should be noted that, in the context of the 15<sup>th</sup> General Review of Quotas (see below), the IMF is currently working on an assessment of the appropriate size and composition of its resources.

(1) The IMF's resources come in two forms: quota and bilateral contributions. Quotas are the Fund's main and permanent resource base; when a country joins the IMF, it is assigned a quota, broadly based on its relative position in the world economy. A member country's quota determines its required financial contribution, voting power and access to IMF financing. To supplement its quota resources, the Fund can also borrow from its members; contributions through these arrangements do not affect members' voting rights. Borrowing has occurred mainly through bilateral loans with individual member countries and through the NAB, a set of credit arrangements between the IMF and 38 member countries. The General Arrangements to Borrow (GAB) is another multilateral borrowing arrangement between the IMF and a more limited number of countries (11). Private sector borrowing, finally, is not precluded by the IMF's Articles of Agreement, but this option has never been used.

(2) Any changes in quotas must be approved by an 85 % majority of members' total voting power and quotas change as members consent to and pay their quota increases. Entry into force of the 14<sup>th</sup> General Review of Quotas was delayed pending ratification of the proposal by the US, which has, with a 16.5 % voting share, a de facto veto power.

(3) The 2012 bilateral loans had an initial term of two years, but have been extended several times. Most recently, in 2016, the bilateral loans have been renewed, with borrowers committing to provide their loans until the end of 2019 (with a possible extension by one year). The renewal of the bilateral loans is part of a broader arrangement on IMF resources to maintain IMF borrowed resources (bilateral loans and the NAB) at least until agreement has been reached on the 15<sup>th</sup> Quota Review (scheduled to be completed by 2019).

(4) Only part of the IMF's resources is effectively loanable. In particular, the IMF sets aside 20 % of its funds as a prudential balance. Moreover, only resources from members with a sufficiently strong balance of payments and reserve position are used for financing of IMF programmes.

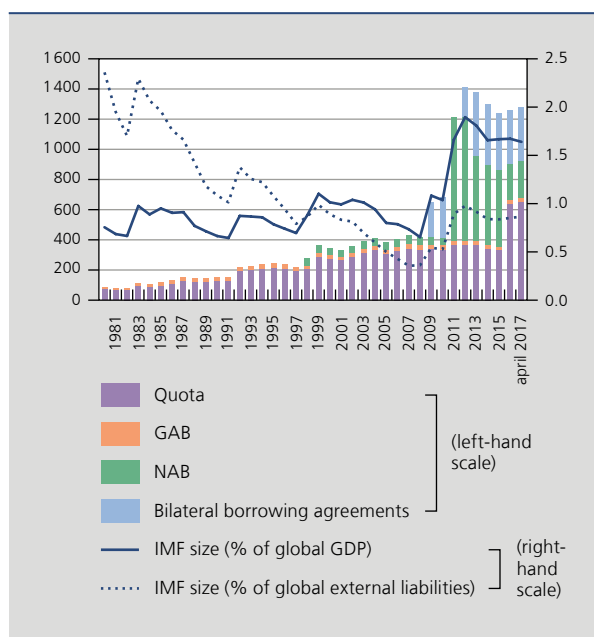
(5) The SDR, an international reserve asset created by the IMF, is a potential claim on the freely usable currencies of IMF members. Its value is determined by a basket of selected currencies that satisfy two criteria: first, being issued by the world's largest exporters; and second, being "freely usable", i.e., widely used for international payments and widely traded in the principal exchange markets (see IMF, 2015 for more details). Currently the SDR basket consists of the US dollar, the euro, the Japanese yen, the British pound and the Chinese renminbi. The inclusion of the renminbi dates from 1 October 2016, after the IMF's Executive Board labelled the renminbi as freely usable.

(6) Under a general SDR allocation, SDRs are allocated to IMF members in proportion to their quotas. At their April 2009 Summit, G20 leaders also urged rapid ratification of the special one-time allocation of SDRs, for an amount of SDR 21.5 billion, approved by the IMF's Board of Governors in 1997. The intent of this allocation was to enable all members of the IMF to participate in the SDR system on an equitable basis and correct for the fact that countries that joined the Fund after 1981 had never received an SDR allocation. The proposal finally became effective in September 2009 when the Fund certified that at least three-fifths of the IMF membership with 85 % of the total voting power had accepted it.

(7) Based on simulations of a balance of payments shock in emerging market economies and banking sector foreign currency liquidity and sovereign debt shocks in advanced economies.

(8) Including that: (i) resources are unlimited under the ESM, and used all the way up to the maximum access limits for the other RFAs; (ii) all active swap lines can be tapped, and all historical lines, especially those extended during the global financial crisis but discontinued after, can be renewed with the same amounts; and (iii) the entire lending capacity of the Fund is deployed (IMF, 2016a).

**CHART 7** THE IMF'S RESOURCES WERE INCREASED AFTER THE GLOBAL FINANCIAL CRISIS<sup>(1)(2)(3)</sup>  
(in \$ billion, unless otherwise indicated)



Sources: IMF Financial Data, IMF World Economic Outlook (WEO); Lane and Milesi-Ferretti (2017) External Wealth of Nations Mark II (EWN) database; Datastream.

- (1) GAB includes a SDR 1.5 billion credit arrangement with Saudi Arabia from 1983 onwards; bilateral borrowings include notes purchase agreements.
- (2) The dollar/SDR exchange rate is evaluated at end of year, except for April 2017; April 2017 world GDP is WEO forecast for end-2017.
- (3) Global external liabilities are assumed constant after 2015, which is the latest available data point in the EWN.

#### 4.2.2 Overhauling the IMF's lending toolkit

Ever since the IMF's inception, there have been debates on the main objectives of the Fund's financing. Some argue that IMF lending should focus on crisis *prevention*; i.e. the IMF should act as an "international lender of last resort", making large amounts of financing available, with no or minimal conditionality. Others believe the focus should be on crisis *resolution*, lending smaller amounts on a discretionary basis subject to policy conditionality (Reichmann and de Resende, 2014). While the "crisis resolution" view has generally prevailed – with IMF financing usually provided through its standard crisis resolution tool, the SBA –, recent years have seen more efforts to include precautionary instruments too. More particularly, the global financial crisis demonstrated for many that the IMF, and the GFSN more generally, lacked adequate crisis prevention tools.

In response to the crisis, the IMF therefore overhauled its lending toolkit, with arguably the most remarkable innovation the introduction of the Flexible Credit Line (FCL) in 2009, the IMF's first genuine precautionary lending instrument that allocates large amounts of resources

to countries with very strong fundamentals and solid policy track records (strict *ex-ante* conditionality) without requiring an adjustment programme (no *ex-post* conditionality). Further, a Precautionary Credit Line (PCL), combining FCL-like *ex-ante* qualification criteria with targeted *ex post* conditionality, was created in 2010 for countries with sound policies but remaining vulnerabilities, disqualifying them from the FCL. In 2011, the PCL was broadened in scope and re-baptised Precautionary and Liquidity Line (PLL).

Despite its seemingly attractive nature, only three countries have so far entered into FCL arrangements (Mexico, Colombia and Poland), and only two countries have used the PLL (Macedonia and Morocco). This notwithstanding, as of April 2017, the three FCL arrangements together accounted for about two-thirds of total committed IMF resources. Moreover, the first FCL with Mexico constituted the largest ever individual commitment of IMF resources in absolute terms<sup>(1)</sup>. The limited use of the IMF's existing precautionary instruments is most probably due to constraints on both the demand and supply side. With regard to the latter, reluctance of the IMF to extend large credit lines with no or limited conditionality has probably played a role. On the demand side – even though the FCL had specifically been created to alleviate stigma concerns, stimulating countries to apply for IMF financing early on – such concerns have probably held some potential candidates back from applying for it. Research however has shown that, as far as *economic* stigma is concerned, there seems to be no evidence of negative market reactions to countries accessing the FCL, at least not in terms of bond spreads or capital inflows (Essers and Ide, 2017). This notwithstanding, the authors also find that a higher share in US economic and political interests is associated with a greater likelihood of obtaining an FCL arrangement – an observation that is not conducive to overcoming *political* stigma concerns.

Against that background, the IMF is currently reviewing its precautionary instruments and looking into the possibility of a new short-term liquidity facility. As part of these discussions, it was decided in July 2017 to introduce a new non-financial instrument to provide monitoring of interested member states' policies and under which the country in question commits itself to a reform agenda. One of the objectives of this monitoring instrument is to unlock financing from other official creditors and/or private investors, including from RFAs,

(1) Mexico's first FCL arrangement (approved in April 2009) amounted to SDR 31.5 billion, or about \$ 47 billion. Access was subsequently raised in January 2011, to SDR 47.3 billion (\$ 72 billion) and then to SDR 62.4 billion (about \$ 88 billion) in May 2016. Poland currently has an FCL arrangement of SDR 6.5 billion (€ 8 billion); Colombia's FCL provides access to a potential amount of SDR 8.2 billion (\$ 11 billion). None of the three countries has ever drawn on its credit lines.

and to contribute to a better collaboration between the various layers of the GFSN (see above).

#### 4.2.3 IMF governance reform

Emerging market and developing economies have staged impressive growth rates over the past decades, raising their share in world GDP from less than 40 % at the beginning of the 1990s to almost 60 % today<sup>(1)</sup>. However, their representation at international financial institutions, such as the IMF, has generally not kept pace with this trend. Currently (i.e. since the 14<sup>th</sup> General Quota Review became effective) the quota shares of emerging market and developing economies in the IMF amount to 42.4 % of total quota shares.

While the global financial crisis created the momentum for boosting the IMF's resources and revamping its lending framework, governance reforms have somewhat lagged behind. Admittedly, the 2010 quota and governance reforms have contributed to shifting quota shares within the institution from advanced to emerging market and developing economies. More particularly, about 6 % of quota shares were shifted towards dynamic emerging market and developing countries and from over-represented to under-represented IMF members. Furthermore, the IMF's Executive Board became an all-elected Board<sup>(2)</sup> and advanced European countries committed to reduce their combined Board representation by two chairs. Nevertheless, it took five years for the 2010 quota and governance reforms to become effective (in January 2016), as the Board proposal had to be approved by 85 % of the Fund's membership, depending, as such, on the ratification by the US, which holds veto power over important decisions (see footnote 2 on p. 100). Moreover, while European members have effectively reduced their Board representation – including as a result of the agreement between the Netherlands and Belgium, which each initially had one seat in the Executive Board, to designate their Executive Directors on an alternating

basis – the shift still falls short of the committed two seats. Further governance reforms are being debated in the framework of the 15th General Review of Quotas, which also includes discussions on a new quota formula. In the context of this review, the International Monetary and Financial Committee (IMFC)<sup>(3)</sup> is committed to agreeing on “a realignment of quota shares to result in increased shares for dynamic economies in line with their relative positions in the world economy and hence likely in the share of emerging market and developing countries as a whole, while protecting the voice and representation of the poorest members”<sup>(4)</sup>. The initial schedule for concluding the discussions has already been significantly delayed however; currently, the IMF's intention is to complete the review by its Spring Meetings (and no later than its Annual Meetings) of 2019.

## 5. Proposed reforms to the GFSN

### 5.1 Towards a more balanced global reserve system

#### 5.1.1 A wider role for the SDR

Many policy-makers and commentators have taken issue with the dominance of the US dollar in international reserves (see chart 3) and, more broadly, the international monetary system (IMS)<sup>(5)</sup>, often by invoking the systemic risks this poses (see section 1.2). In a now famous speech from March 2009, People's Bank of China Governor Zhou Xiaochuan argued for the creation of “an international reserve currency that is disconnected from individual nations and is able to remain stable in the long run, thus removing the inherent deficiencies caused by using credit-based national currencies” (Zhou, 2009, p. 2). In his plea for a “super-sovereign” reserve currency, he referred to Keynes's “bancor” proposal, an international currency unit based on the value of 30 representative commodities, and pointed to the potential of the SDR to fulfil a similar role<sup>(6)</sup>. What Zhou (2009) advocated was a (partial) centralisation of international reserves by the IMF, which would set up an open-ended SDR-denominated fund permitting voluntary subscription and redemption in the existing reserve currencies.

In fact, similar discussions about the exchange of US dollar assets for a reserve unit issued by the IMF already took place under the Bretton Woods system and led to the creation of the SDR in 1969. As explained by McCauley and Schenk (2015), the original set-up of the SDR marked a triumph of ambiguity and compromise over clarity of purpose, undermining its later role in the IMS. The SDR

(1) Based on Purchasing Power Parity GDP data from the IMF World Economic Outlook database.

(2) Before the entry into force of the 2010 quota and governance reforms, IMF members with the five largest quota shares appointed an Executive Director.

(3) The IMFC advises and reports to the IMF Board of Governors on the supervision and management of the international monetary and financial system.

(4) See i.a. the communiqué of the Thirty-Fifth Meeting of the International Monetary and Financial Committee (IMFC), April 22, 2017.

(5) The IMS, of which the GFSN is only a part, can broadly be described as the “set of arrangements and institutions that facilitate international trade and the allocation of investment capital across nations” (Bush et al., 2011, p. 4; see also IMF, 2016c).

(6) It is worth stressing again that the SDR is not a currency, but rather a potential claim on the holdings of freely usable national currencies of IMF members (i.e., currencies that are widely used and traded in practice). SDRs can be exchanged by their holders for such currencies through voluntary trading arrangements between countries or, if voluntary exchange does not suffice, by the IMF designating countries with strong external positions to purchase SDRs from countries with weak external positions. A key difference with other international reserve assets is that SDRs are “allocated”, according to IMF quotas, rather than accumulated by running balance of payment surpluses (IMF, 2016d).



was designed not as a vehicle to transform existing reserve asset *stocks* but rather to coordinate multilaterally the *flow* of future reserve creation. Ultimately, official SDR creation has remained limited; since 1969 there have been only three general allocations and one special allocation of SDRs by the IMF, with a cumulative amount of SDR 204 billion or about \$ 285 billion (see section 4.2.1. and footnote 6 on p. 100). The SDR has therefore not contributed significantly in supplementing global reserves, let alone in reducing the role of the US dollar therein<sup>(1)</sup>. More ambitious proposals for an IMF-housed “substitution account”, enabling central banks to replace a sizeable portion of their US dollar reserves by SDRs, were floated in the 1970s and 1980s but ran against technical, financial and political obstacles (McCauley and Schenk, 2015). In the wake of the global financial crisis, the concept of a substitution account was revived by, among others, Zhou (2009), Ocampo (2010, 2015) and the IMF (2011b) itself, although without practical consequences so far<sup>(2)</sup>. The IMF (2016d) is looking to further explore whether any specific reform options to increase the clout of the SDR as an official reserve asset should and could be pursued<sup>(3)</sup>.

The foregoing proposals, however, do not directly address a second important concern with global reserves, i.e., their very unequal distribution over countries (see chart 2). Indeed, some countries appear to be holding too much reserves, while others hold too little. Such problem could be tackled, to some extent, by changing the way SDRs are allocated. The current practice of allocating SDRs in accordance with countries’ IMF quota implies that large advanced economies, including reserve currency issuers, receive the majority of allocated SDRs. One could attempt to better match the supply of SDRs with countries’ actual need for reserves. Williamson (2010), for example, proposes to divide the SDRs to be allocated over two groups, advanced economies and

emerging and developing economies, proportionally to the observed increase in reserves in each group over a certain reference period prior to the SDR allocation. Williamson (2010) argues that this increase can be taken as a crude proxy for reserve demand, and finds that it has been much larger in the group of emerging and developing countries. Within both groups, SDR allocations would still be made according to individual countries’ quota. While such an SDR allocation rule would shift reserves away from advanced towards emerging and developing countries, it would not ameliorate the unbalanced distribution of reserves *within* the latter group. A direct way to do so would be to suspend countries’ right to receive SDR allocations if they already hold excessive reserves (Ocampo, 2010), where ‘excessive’ could be defined with reference to the IMF’s reserve adequacy measures (see section 1.1). To be sure, in order for any changes to SDR allocations to have a noticeable impact, such allocations would need to be made more regularly than is currently the case (IMF, 2011b).

### 5.1.2 A multi-currency global reserve system

Of course, one could argue that, even under a *laissez-faire* approach and without an enhanced role for the SDR, the state of global reserves will gradually evolve towards a multi-currency system. Features of such a system are of course already present, although the US dollar’s status in the IMS, and more so in global reserves, remains unrivalled<sup>(4)</sup>. Whereas an increased role for the euro, renminbi and/or other currencies would not address the tensions inherent in a global reserve system based on national currencies, it would at least facilitate the diversification of foreign exchange reserves by their holders and mitigate the risk of large valuation losses (Ocampo, 2010; see section 1.2).

Although it is virtually impossible to predict how the current constellation of reserve currencies will evolve over the years and decades to come, currently there seem to be no indications that the US dollar will relinquish its leading position any time soon<sup>(5)</sup>. On the contrary, when US financial markets nearly collapsed in 2008, foreign investors, including reserve managers, paradoxically sought the “safe haven” of the US dollar, buying large amounts of US Treasuries and contributing to the appreciation of the dollar. Part of the explanation for the US dollar’s safe-haven status lies in the fact that the US still boasts the world’s deepest and most liquid financial markets, implying that US Treasuries can easily be sold on when desired. Other trumps are the US political system’s checks and balances and the sizeable share of US federal debt that is held by US retirees, pension and insurance funds, financial institutions and other domestic investors, whose political weight provides some

(1) In other words, the SDR currently falls far short of its objective of becoming “*the principle reserve asset in the international monetary system*”, included in the IMF’s Articles of Agreement (Article VIII, section 7).

(2) Part of the IMF’s 2009/2010 round of ad hoc bilateral borrowing (see section 4.2.1) was fulfilled by the issuance of SDR-denominated notes. More specifically, China, India and Brazil signed note purchase agreements with the IMF, in which they committed to buy notes up to a pre-defined amount in case the IMF would need supplementary resources (in a similar fashion as the direct bilateral loans provided by other member countries to the IMF in 2009/2010). Since these note purchase agreements, once activated, result in countries exchanging a portion of their (dollar) reserves for SDR-based assets, Ocampo (2010) sees this as a (small) step in the direction of a genuine substitution account. Also in its 2012 and 2016 rounds of bilateral borrowing the IMF concluded note purchase agreements with large emerging economies.

(3) A more indirect, “bottom-up” approach to expanding the role of the SDR in the IMS is through increased engagement of the private sector with SDRs. Private market participants have experimented with SDR-denominated financial instruments (so-called M-SDRs, as opposed to official SDRs or O-SDRs), but after some initial momentum in the 1970s and early 1980s, issuance has been dormant. Besides the availability of other instruments offering similar hedging/diversification qualities, also the lack of market infrastructure, such as clearing and settlement systems and a liquid yield curve, is holding back the development of markets for M-SDRs (IMF, 2016d).

(4) According to data assembled by the ECB (2017), at end-2016, the US dollar represented around 64% of global foreign exchange reserves, 63% and 59% of outstanding international debt securities and loans, respectively, 44% of foreign exchange turnover, and 42% of global international payments.

(5) For alternative perspectives, see e.g. Eichengreen (2011) and Subramanian (2011).

assurance to foreigners that their US investments will be protected from high inflation and outright default (Prasad, 2014)<sup>(1)</sup>. And there may be an incumbency advantage for the dollar in future too.

Whereas China has taken several measures to promote the international use of its currency, including bilateral swap arrangements, and a growing number of countries are indeed diversifying some of their reserve holdings into renminbi (see section 1.1)<sup>(2)</sup>, the renminbi's ascendance to becoming an important global reserve currency is stymied by the country's stop-and-go approach to financial sector and capital account liberalisation. *A fortiori*, it is unlikely that the renminbi will enjoy dollar-like safe-haven status as long as the Chinese authorities retain a heavy hand in steering the currency's exchange rate (Prasad, 2017).

The euro, on the other hand, has quickly occupied and confirmed a clear second place in the IMS, including in global reserves (see chart 3)<sup>(3)</sup>. Using the IMF's COFER data and econometric forecasting techniques, Chinn and Frankel (2008) projected that the euro could overtake the US dollar as the world's leading reserve currency by as early as 2015. The fact that such predictions did not materialise (not even nearly) may have been due, in part, to the severe financial difficulties the euro area has experienced in recent years and the institutional weaknesses it exposed. In fact, the euro's share of foreign exchange reserves identified in COFER declined from above 27% in the first quarter of 2010, just before concerns about a European sovereign debt crisis intensified, to below 20% at end-2016. Other candidate-constraining factors include the absence of a single euro area-wide safe asset and imperfect financial market integration between euro Member States, which reduces market size and liquidity. Although euro internationalisation is not among its policy objectives, the ECB (2017) contends that a completion of the EU banking union and move towards an EU capital market union could boost financial market depth and liquidity in the euro area and thereby, indirectly, the international role of the euro.

## 5.2 Coordination of bilateral swap lines

Recent years have seen several proposals to better coordinate bilateral central bank swaps (beyond the current

standing swap agreement between reserve currency central banks), with options ranging from a loose common framework within which bilateral swaps would continue to be negotiated independently, to a multilateral model that involves collective decision-making, risk-sharing and/or maintains a link with IMF financing. Proponents of a common framework for central bank swaps argue that, especially if such a framework were to be made public, it would lead to reduce ex-ante uncertainty about swap availability, one of the main drawbacks to swaps for potential beneficiaries (see section 2.2), and would send a strong signal to financial markets that central banks stand ready to cooperate. Critics, however, point to the increase in moral hazard of swap recipients and banks a (public) common swap framework could bring; the potential for greater credit risk exposures for central banks; and a clash with central banks' independence and domestic mandates (which played a key role in the allocation of bilateral swaps). They also claim that during the global financial crisis and thereafter, and without any coordinating framework, central banks have already shown to be able to step in and provide swap liquidity at very short notice.

Arguably the loudest voice in this debate is Truman (2011, 2013), which puts forward an institutionalised swap network in which the IMF would come to play an important, double role (see also Henning, 2015 and Weder di Mauro and Zettelmeyer, 2017). First, the IMF would call a general need for global liquidity, based on objective criteria, and would recommend central banks to provide that liquidity. Second, the IMF would assist key swap-providing central banks in selecting potential swap recipients by subjecting its membership to pre-qualification tests. For example, the presumption could be that countries satisfying the IMF's FCL criteria would qualify for central bank swaps as well. Central banks would come under pressure to follow up on the IMF's recommendations, but would retain ultimate decision-making authority. They would also keep the possibility to enter into swap arrangements outside of the coordination framework. According to Truman (2011, 2013), Henning (2015) and Weder di Mauro and Zettelmeyer (2017), such an approach would have various benefits. For deserving swap recipients, it would mean lower "constructive ambiguity" (see section 2.2) and access to more liquidity than under either a stand-alone FCL or central bank swap. This in turn could help the IMF to leverage its resources and lower the stigma associated with approaching the IMF. Swap-providing central banks would be able to free-ride on the IMF's surveillance and analytical capacity and could be shielded from credit risk if short-term swap lines would be backstopped by a medium-term FCL.

(1) The high credibility of the Federal Reserve's price stability mandate also helps to stem inflation fears.

(2) This process may be bolstered by the renminbi's recent inclusion in the SDR basket of currencies. See section 1.1 and footnote 5 on p. 100.

(3) Again according to the ECB (2017), at end-2016 the euro accounted for about 20% of global foreign exchange reserves, 22% and 21% of outstanding international debt securities and loans, 16% of foreign exchange turnover, and 31% of global payments. In all these domains, the euro outperforms, by a wide margin, the yen and the renminbi.

Truman's proposal does not seem to address, in a sufficient manner, central banks' rightful concerns about their independence and domestic mandates. Perhaps a more realistic approach would be to come up with a minimum common framework, agreed among central banks and preferably supported by the IMF, BIS, G20 and/or other multilateral bodies. Destais (2016) suggests this could include the creation of an inventory of central bank swaps, say at the IMF or BIS, and provisions aimed at guaranteeing a minimum degree of stability over time, preventing "unfair" exclusion of swap recipients, and incentivising swap beneficiaries to adhere to international financial standards. To this, one could add the sharing of information, best practices and swap assessments between central banks.

### 5.3 IMF-RFA cooperation

#### 5.3.1 The case for enhanced collaboration

Some commentators have argued that the current GFSN has become too fragmented and that, consequently, there is a need for better cooperation between the different layers. One of the main arguments for closer engagement is that it enables the resources of the different layers of the GFSN to be used more efficiently, thus lowering the required size of each of its individual components<sup>(1)</sup>. A specific case in point is IMF-RFA cooperation, an issue which has attracted increased attention with the rise in the number of RFAs since the global financial crisis. An important argument in favour of enhanced cooperation between these two layers of the safety net is to prevent the possibility of arbitrage or "facility-shopping", where a country would seek for assistance with the weakest conditionality but which would not offer the most sustainable solution to its problems. At the same time, sharing regional and global surveillance and expertise among RFAs and the IMF might contribute to better crisis prevention. Also, introducing a more structured approach to collaboration between the IMF and RFAs would enhance the predictability of IMF-RFA co-financing and, as such, increase the effectiveness of crisis fighting. Thus, while there certainly seems to be a case for strengthening cooperation between the IMF and RFAs, collaboration might not be so straightforward, as both are guided by their own mandates, policies and procedures. Moreover, it is not clear which form such collaboration should take given the large heterogeneity among RFAs (see table 1).

(1) It can be observed that countries often rely on different layers of the GFSN simultaneously. For concrete examples, see e.g. Villard Duran (2015).

(2) See <http://www.g20.utoronto.ca/2011/2011-finance-principles-111015-en.pdf>.

#### 5.3.2 Possible avenues for more formal cooperation

Attempts have already been made to formalise cooperation between the IMF and RFAs; in 2011, the G20 endorsed a set of non-binding guiding principles<sup>(2)</sup>. In short, these principles state that cooperation should be tailored to each RFA in a flexible manner, based on the comparative advantages of each institution, while respecting each institution's role, independence and decision-making process. Moreover, collaboration should be sought early on and lending conditions should be as consistent as possible to prevent arbitrage and facility shopping. Finally, the principles require that RFAs respect the preferred creditor status of the IMF.

However, these principles are arguably too general to be useful. Nevertheless, a one-size-fits-all approach towards IMF-RFA cooperation may neither be feasible nor desirable, in view of the diverse geometries of RFAs. One could therefore envisage structuring collaboration along different possible models of engagement, from which an RFA could choose, depending on the degree of cooperation desired or needed. These are also the lines along which the IMF is currently working; depending on each institution's mandate and capacity, the proposed arrangements for cooperation would range from collaboration in the areas of capacity development or surveillance, to actual joint lending.

At very least, one could argue that regular *information-sharing* between the IMF and RFAs, outside crisis times, would be useful, as also acknowledged by the G20 principles. Such regular dialogue and exchange of information would enable leveraging of both institutions' surveillance capabilities; RFAs could benefit from the IMF's global expertise while Fund surveillance would be enriched by RFAs' regional knowledge. By contributing to a timely detection of risks and spillovers, this form of cooperation could considerably enhance global crisis prevention capacities. All in all, strengthening collaboration outside crisis times would already significantly benefit the chances of an adequate and rapid response when a shock eventually hits.

In addition, depending on the level of involvement sought by the RFA, cooperation could be extended to the IMF offering *technical assistance or policy monitoring*, but without providing financial assistance. IMF policy monitoring has been used in the context of ESM support to Spain's banking sector. There have also been cases with the IMF providing technical assistance to RFAs; in the context of the Arab Debt Market Development Initiative for example, launched in 2009, to strengthen the public and corporate debt market in AMF countries.

Another example is the participation of EU and FLAR delegates in IMF training programmes.

IMF-RFA *co-financing* is the most contentious issue. With different mandates, policies and procedures, co-operation in crisis times entails an intense coordination process and not all RFAs may be able or willing to take collaboration to this level. In a joint programme, the terms of the financial assistance programme (maturity, timing of programme reviews, charges, etc.) would need to be aligned as much as possible. Moreover, the conditionality applied by the two institutions needs to be consistent and would ideally be based on each institution's areas of comparative advantage. In cases where the RFA has its own surveillance capacity, overlaps between institutions' areas of expertise can give rise to coordination problems.

Given that collaboration between the IMF and the European RFAs is already well developed, this experience could be used as an input for developing operational guidance on IMF-RFA cooperation. While engagement between the IMF and the European institutions has been positive overall, it has been a learning-by-doing process and, as the IMF (2013b) itself recognises, will continue to be challenging, given the differences of view that arise from fundamentally different institutional mandates and priorities.

Collaboration between the IMF and the European financing arrangements has evolved over time from an ad-hoc, less structured engagement in the earlier cases, towards a more structured cooperation process, with programme negotiations based on the Troika framework, consisting of IMF, European Commission and ECB staff in the case of financing arrangements for euro area countries (IMF, 2013b). While conditionality is set jointly by the three institutions and disbursements are coordinated, borrowing countries enter into separate financing arrangements with the IMF and the ESM (or EFSF before it), each with their different terms (maturity, repayment schedule, charges, etc.). In cases of co-financing of non-euro area EU Member States, programme discussions are conducted on a trilateral basis between the national authorities, the EC, and the IMF. Burden-sharing has differed greatly between the various cases, with the IMF providing only 10% of the financing for Cyprus, whereas the IMF was responsible for more than 60% of the funds under the Hungarian and Romanian programmes.

Apart from the IMF's engagement with European institutions, co-lending between the IMF and RFAs has been

much more limited. The other larger RFAs, the CMIM and CRA, have never been activated to date. In both cases, co-financing with the IMF is envisaged whenever access exceeds 30% of a member's maximum access. It has often been argued (e.g. Kawai and Lombardi, 2012) that the IMF's involvement above that threshold – and the associated stigma concerns – is exactly the reason why these RFAs have never been activated to date. While financing from smaller RFAs has often occurred in parallel with drawings from the IMF, this has not always happened in the context of an actual co-financed programme.

Nevertheless, there are signs that cooperation between the IMF and other RFAs is strengthening too. In 2016 for example, the IMF and CMIM participated in a "test run" of a hypothetical co-financed IMF-CMIM programme. The test revealed some key differences between the Fund and CMIM with respect to policies and procedures that would need to be addressed in order to ensure efficient coordination in a real-life case (IMF, 2017b). Furthermore, representatives of AMRO, the ESM and FLAR met in October 2016 to discuss the role of RFAs in the GFSN and, more specifically, cooperation with the IMF. They agreed that there is great potential for further cooperation in the areas of economic surveillance, crisis management, research, capacity-building and technical assistance and decided to convene annually from then on<sup>(1)</sup>. The IMF Executive Board also decided, as part of a debate on IMF-RFA cooperation in July 2017, that the Fund should maintain a permanent dialogue with the RFAs.

## Concluding remarks

This article has discussed recent evolutions in and the current state of the GFSN, i.e. the set of institutions and financing mechanisms aimed at preventing and resolving crises, which, ideally, should facilitate necessary adjustments and encourage sound policies at the country level and multilaterally. We have shown how the GFSN has grown significantly in size and, especially since the global financial crisis, in scope too. While international reserves remain the first and principal layer of the GFSN and the IMF still functions as an important final backstop, bilateral currency swaps between central banks and RFAs have gained in relative importance.

The multi-layered character of the GFSN can be seen as an asset rather than a source of fragmentation *per se*. Although there is ample room for more and better cooperation between the different layers, we believe full integration of the GFSN is neither feasible nor desirable. Different elements of the safety net have their own strengths and weaknesses and often serve distinct objectives and groups

(1) See <http://www.flar.net/files/large/cb0bf656ae3258b>.

of countries. Hence, they are not necessarily good substitutes but, more often, complements.

Self-insurance through international reserves enables quick and flexible access to liquidity, but comes at a relatively high cost to the holder and, on an aggregate level, may increase systemic risk for the world economy. Self-accumulated reserves are also less suited to deal with prolonged crises. Bilateral central bank swaps are a powerful instrument to make available large funds at short notice and bear limited financial and political costs for the beneficiary. However, swaps have been granted very selectively, above all to serve the domestic policy considerations of the providing central bank, and for narrowly defined purposes and short periods only. Their contractual nature makes future access to swaps highly uncertain for all but a few (reserve currency) countries. Although RFAs are very heterogeneous, they all engage in some sort of pooling of resources to lower the cost of crisis financing and, compared to the IMF, tend to have higher ownership and greater region-specific knowledge. On the downside, RFAs typically have less-developed surveillance and monitoring capacities than the IMF, are ill-suited to dealing with regional crises and, by definition, cater to members' needs only. Finally, the IMF is the only GFSN mechanism that engages in truly global risk-sharing. Its global mandate, near-universal membership and long-time experience with surveillance and programme conditionality imply that the IMF is well-placed to rein in moral hazard and encourage good and multilaterally consistent policies. At the same time, dissatisfaction with the IMF's handling of previous crises, its governance and conditional lending procedures has tainted the institution with stigma and is believed to have been an important force in the development of the other layers of the safety net.

This article has also reviewed a number of reforms that have been proposed to address the GFSN's remaining flaws. First, we have looked at the prospects for the SDR and multi-currency arrangements in moving towards a more balanced global reserve system. Arguably, only more ambitious reforms to SDR allocations and/or SDR exchange mechanisms can be expected to have a real impact on the state of global reserves. Such reforms might be worth pursuing, but more in-depth research on the feasibility of their implementation is needed. Predictions about the emergence of a truly multi-currency

global reserve system are hard to make, but we expect the US dollar to continue its role as the world's prime reserve and safe haven currency over the near future. The euro is already an important runner-up to the US dollar in the IMS, and the renminbi may become one too, under the condition that the Chinese financial sector and capital account are further liberalised in due time.

Second, we have assessed proposals to improve coordination of bilateral central bank swaps. While it could be useful to establish a loose, mutually agreed common framework between central banks to facilitate the sharing of information and harmonisation of swap terms, we have major reservations about reforms that would bring together central bank swaps under the umbrella of the IMF, or any other multilateral organisation. In particular, the IMF cannot and should not try to replace or dictate the liquidity provided by reserve currency and other central banks, something which seems very difficult to reconcile with the latter's independence and domestic mandates.

A third area of reforms we have considered is the collaboration between the IMF and RFAs, the enhancement of which would allow for better use and leverage of the available resources, streamlining of conditionality, and the prevention of facility-shopping by prospective borrowers. A promising approach that goes beyond the G20's overly general guiding principles but still acknowledges RFA heterogeneity is that of structuring IMF-RFA collaboration along different models of engagement, ranging from information-sharing, over technical assistance and/or policy monitoring, to co-financing. The idea would be to let each RFA decide on the desired areas and degrees of cooperation with the IMF and then take this as a starting point to work out a more detailed bilateral agreement on the practical implementation of IMF-RFA collaboration.

On the whole, it seems that important steps have already been taken in making the GFSN more effective. Today's safety net is a much different and clearly improved version of the GFSN before the global financial crisis. Recent achievements should be no reason for complacency, however. Much more remains to be done to improve cooperation between the GFSN's different layers and fully exploit its current potential. We expect the reforms we have highlighted in this article and other proposals to be further discussed and researched in the years to come.

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