Articles
The layers of the global financial safety net: taking stock

1 Introduction

The global financial safety net (GFSN) can be defined as a diverse set of institutions and mechanisms which can contribute to preventing and mitigating the effects of economic and financial crises. In debates about global financial stability, policymakers and academics often refer to the global financial safety net, understood as a set of institutions and mechanisms which provide financial support to prevent a crisis and financial support to countries hit by a crisis, both facilitating adjustment at the country level and preventing the crisis from spreading further. A crisis can be of domestic or external origin and it can take many different forms. A balance of payments crisis occurs when a nation is unable to pay for essential imports or service its external debt. In some cases, balance of payments problems can be compounded by a sharp exchange rate depreciation and a currency crisis. Financial crises stem from insolvent or illiquid financial institutions, and fiscal crises are caused by excessive fiscal deficits and debt levels. The GFSN can contribute to preventing and mitigating the effects of such crises. However, the GFSN has not been established in one single process and does not have a coherent design. The elements of the GFSN are diverse, have different origins, follow different rules and incentives, and help in addressing different types of crises. Foreign exchange reserves, central bank swap and repo lines, funding by regional financing arrangements (RFAs) and international financial institutions are considered the key elements of the GFSN.

An effective and efficient interaction of the different elements of the GFSN is a requirement for a well-functioning international monetary system. Owing to high levels of economic and financial interconnectedness, contagion is a regular characteristic of crisis episodes. Challenges in one country often do not stay confined within that country's borders, but tend to spread through various channels across countries. Therefore, by providing a country with "financial breathing space", the GFSN not only limits the economic slowdown and provides a window of opportunity to implement reforms needed for a quick return to economic stability and growth, but also limits spillovers to other economies and thereby contributes to global financial stability, in turn supporting financial integration and globalisation.[33]

[33] See, for example, Herrala, R., Scheubel, B. and Stracca, L., "What do we know about the global financial safety net? Rationale, data and possible evolution", *Occasional Paper Series*, ECB, forthcoming; "Adequacy of the global financial safety net", IMF Policy Paper, March 2016; and Denbee, E., Jung, C. and Paternó, F., "Stitching together the global financial safety net", Bank of England Financial Stability Paper No 36, February 2016.

The GFSN in its current form is the result of the historical accumulation and stratification of different forms of financial support provision. The design of some of its elements has been influenced by domestic or regional rather than global concerns and is, hence, not the result of an ex ante widely shared consensus at the international level.

With the growing financial and economic integration of emerging market economies (EMEs) into the global economy, the GFSN has become increasingly important. The global financial crisis has also highlighted the continued relevance of the GFSN for advanced economies. One of the most important challenges for both EMEs and advanced economies is capital flow volatility, which has remained elevated since the onset of the global financial crisis (IMF, 2016a[34]). At the same time, the GFSN had not kept up with financial globalisation and the increasing size of capital flows, and the expansion of its elements has not been even (IMF, 2016b[35]).

These developments have brought the size and coverage of the GFSN back onto the agenda of the G20 and the International Monetary Fund (IMF). Emerging markets remain concerned about persistent financial market volatility given that monetary policies in advanced economies may diverge for some time in the future.[36] While there is overall agreement on the need for sound domestic policies and frameworks as a first line of defence, views differ on the need for better coverage of the GFSN and the appropriate size of the GFSN both in terms of the types of instruments available to specific countries and in terms of the amount of resources available to address crises.

This article focuses on the role of domestic policies, the complementary support provided by the four key layers of the GFSN and the interaction between these layers. Section 2 of this article recalls the key role played by domestic policies, Section 3 then reviews the elements of the GFSN, Section 4 discusses the scope for interaction between them and the final section draws some conclusions.

2 The role of sound domestic policies

The history of economic and financial crises has highlighted that strong macroeconomic fundamentals and policy frameworks are of primary importance in limiting country vulnerabilities. Analysing effects of both real and financial shocks faced by IMF members, Becker et al. (2006) conclude that countries

34 *World Economic Outlook*, IMF, April 2016, Chapter 2.

35 "Adequacy of the Global Financial Safety Net", IMF Policy Paper, March 2016.

36 While some advanced economies' central banks have started the normalisation of their monetary policy, the interest rate path signalled by other advanced economies' central banks does not point to an imminent normalisation of their monetary policies. During previous episodes of such constellations of monetary policy, capital outflows from emerging markets increased (for example, when some advanced economies signalled an impending normalisation of monetary policy and later on embarked on a normalisation path, following a period of general loosening of monetary policy across advanced economies after the onset of the global financial crisis).

can self-insure against shocks through their own policies and institutions.[37] Kawai (2009) summarises the policy lessons from the Asian and global financial crises for preventing and reducing the risk of systemic crises as (i) establishing effective financial regulation and supervision to monitor and act on economy-wide systemic risk, (ii) adopting sound macroeconomic management (monetary, fiscal, exchange rate and public debt) and (iii) maintaining sustainable current account and capital account positions.[38] Similarly, Lane and Milesi-Ferretti (2011) find that the pre-crisis developments in the ratio of private credit to GDP, the current account deficit and the degree of openness to trade are helpful in understanding the intensity of the global financial crisis in 2008-09.[39] Such empirical findings are in line with the notion that crises stemming from the build-up of macroeconomic or financial imbalances can be avoided in the first place by maintaining strong fundamentals, that is by "keeping one's house in order".

Adequate domestic macroeconomic and financial policies, including structural reforms, coupled with strengthened macroeconomic and macroprudential surveillance, are the first line of defence in crisis prevention. For instance, during the recent global financial crisis, pre-existing domestic policy frameworks and subsequent actions by national authorities were key to mitigate adverse crisis effects. In particular, EMEs' resilience to the deterioration in external funding conditions was stronger than in previous crises. Owing to reforms including fiscal rules to promote countercyclical policies, central bank independence to underpin low and stable inflation, and better debt management to limit the impact of devaluations on government balance sheets, countries were able to display a more resilient macroeconomic environment. By loosening monetary and fiscal policies, they supported financial and economic stability. More flexible exchange rate regimes helped a number of countries to diminish the impact of external shocks on the domestic economy, while the resilience of financial sectors in some economies had been improved through better regulation. Countercyclical macroprudential measures applied in a few EMEs to limit credit growth also contributed to the containment of the negative externalities of the credit crunch.

Nevertheless, sound domestic policies may not always be sufficient to fend off a crisis. Capital flow reversals may be difficult to weather by relying on flexible domestic frameworks, such as a flexible exchange rate, alone. In addition, sudden economic adjustments may have a negative effect on long-term growth or may affect some parts of the population disproportionately. The GFSN therefore provides countries with complementary support to address a crisis, while also helping to address crisis spillovers to other countries.

37 Becker, T., Jeanne, O., Mauro, P., Ostry, J. D. and Ranciere, R., "Country Insurance: The Role of Domestic Policies", IMF Discussion Paper, 2006.

38 Kawai, M., "Reform of the International Financial Architecture: An Asian Perspective", ADBI Working Paper No 167, 2009.

39 Lane, P. R. and Milesi-Ferretti, G. M., "The Cross-Country Incidence of the Global Crisis", *IMF Economic Review*, Vol. 59(1), April 2011, pp. 77-110.

3 The different layers of the global financial safety net

As each layer of the GFSN constitutes de facto a form of insurance, which may cause moral hazard similar to any other form of insurance provision, they need to be designed in such a way as to encourage sound domestic policies. First, the layers of the GFSN may induce ex ante moral hazard in that countries may invest less in good policymaking and creditors may lend imprudently to vulnerable countries (thereby increasing their own vulnerability), in the expectation that support will be provided in the event of a crisis. Second, the layers of the GFSN may promote ex post moral hazard in that they may induce crisis-hit countries to delay needed adjustment. Therefore, the GFSN needs to be designed in such a way as to encourage and support the implementation of sound domestic policies.

This section reviews each layer of the GFSN and how it addresses moral hazard to complement sound domestic policies. As the layers of the GFSN have developed independently and at different speeds, the extent of and approaches to limiting moral hazard in the provision of emergency liquidity differ among the elements of the GFSN, depending on their purpose and set-up. Hence, this section gives an overview of how the different elements of the GFSN address moral hazard. Moreover, it provides some evidence on their effectiveness.

3.1 International reserves

International reserves are readily available resources which are completely controlled by the national authorities and include mainly highly liquid assets. A country's international reserve position comprises official foreign currency and gold reserves as well as claims on international financial institutions that can be rapidly converted into foreign exchange reserves such as claims on the IMF or special drawing right (SDR) holdings. Foreign assets accumulated beyond a certain level can also be transferred to sovereign wealth funds and employed as reserve complements to meet external shocks.[40] Foreign currency reserves comprise external assets generally controlled by national monetary authorities and include foreign currency-denominated banknotes, deposits and marketable securities. With a total value of USD 11 trillion at end-2015, foreign exchange reserves constitute the largest component of the GFSN. The dominance of foreign exchange reserves is often attributed to the holder's independence in the usage of this source of foreign currency liquidity.

[40] Although they are not considered part of the GFSN, sovereign wealth funds are also domestic sources of reserves and play an important role in macroeconomic management and global financial stability. Lam and Rossi (2010) argue that sovereign wealth funds can facilitate a more efficient allocation of resources across countries, enhance market depth and liquidity, including at times of financial stress, and play a stabilising role in global financial markets, particularly because most of them are long-term investors with mainly unleveraged positions (see Lam, R. and Rossi, M., "Sovereign wealth funds: investment strategies and financial distress", *Journal of Derivatives & Hedge Funds*, Vol. 15(4), 2010). Moreover, sovereign wealth funds aim to provide insurance for the budget and the economy against commodity price volatility and external shocks. For a detailed discussion, see Al-Hassan, A., Papaioannou, M., Skancke, M. and Sung, C. C., "Sovereign Wealth Funds: Aspects of Governance Structures and Investment Management", IMF Working Paper WP/13/231, 2013.

Foreign currency reserves have been found to be a key element of the economic policy toolkit to address economic and financial crises, especially for non-reserve currency countries. Dominguez et al. (2013) find that countries with higher reserves experienced higher real GDP growth during the crisis years.[41] Obstfeld et al. (2009) note that international reserve demand can be rationalised by a central bank's desire to backstop the broad money supply to avert the possibility of an internal/external "double drain", i.e. a bank run combined with capital flight.[42] They show that a country's reserve holdings just before the global financial crisis relative to its predicted holdings based on financial motives can significantly predict exchange rate movements of both emerging and advanced economies in 2008. Adequate levels of international reserves are generally associated with a lower probability of sudden stops[43] and lower borrowing costs, most likely via the signalling channel. Fernandez-Arias and Levy-Yeyati (2012) find that during the Lehman Brothers episode a higher reserves-to-foreign debt ratio predicted a lower increase in sovereign bond spreads over a cross-section of emerging markets.[44] Hur and Kondo (2003)[45] confirm that international reserves are negatively associated with sudden stops in addition to debt default, banking crises and currency crises. Therefore, market participants closely monitor the level of reserves as an indicator of the soundness of an economy. These results indicate that during crisis episodes international reserves act as a buffer and help to reduce macroeconomic and financial volatility.

There are different reasons why countries accumulate reserves, which can be grouped into precautionary and non-precautionary motives. The former include maintaining confidence in the domestic currency, smoothing periods of extreme volatility through interventions in foreign exchange markets or addressing market dysfunctions. Non-precautionary motives include the support of monetary policy, the inter-generational transfer of national assets or the pursuit of export-led growth policies via a competitive exchange rate. Ghosh et al. (2012), investigating dominant drivers of reserve accumulation between 1980 and 2010, conclude that the relative importance of these determinants has shifted over time.[46] According to their results, insurance against capital account shocks and currency undervaluation with mercantilist motives have been predominant factors in reserve accumulation. By contrast, according to the IMF Survey of Reserve Managers[47] the main motives for building up international reserves are constituting buffers against liquidity needs and smoothing exchange rate volatility.

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41 Dominguez, K., Hashimoto, Y. and Ito, T., "International reserves and the global financial crisis", *Journal of International Economics*, Vol. 88(2), 2012, pp. 388-406.

42 Obstfeld, M., Shambaugh, J. C. and Taylor, A. M., "Financial Instability, Reserves, and Central Bank Swap Lines in the Panic of 2008", *American Economic Review*, Vol. 99(2), 2009, pp. 480-486.

43 The term "sudden stop" refers to a large reduction in the inflow of international capital.

44 Fernàndez-Arias, E. and Levy-Yeyati, E., "Global financial safety nets: Where do we go from here?", IDB Working Paper No 231, 2010.

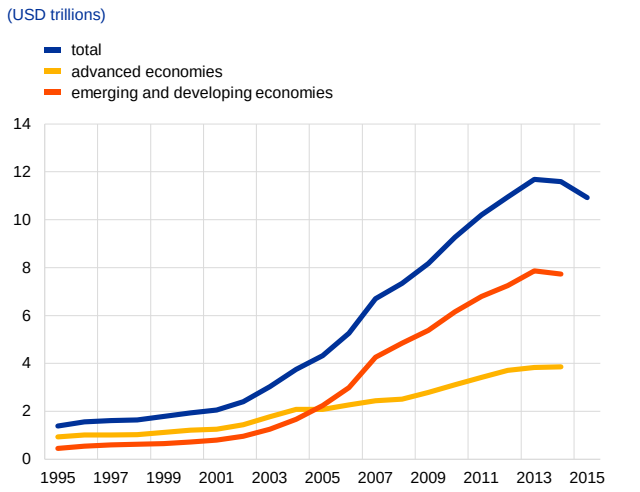
45 Hur, S. and Kondo, I. O., "A Theory of Rollover Risk, Sudden Stops, and Foreign Reserves", International Finance Discussion Paper No 1073, Board of Governors of the Federal Reserve System, 2013.

46 Ghosh, A. R., Ostry, J. D. and Tsangarides, C., "Shifting Motives: Explaining the Buildup in Official Reserves in Emerging Markets since the 1980s", IMF Working Paper WP/12/34, 2012.

47 "Assessing Reserve Adequacy", IMF Policy Paper, 2011.

Chart 1

International foreign exchange reserves



Sources: IMF International Financial Statistics and Haver Analytics.

Following the financial crises in the second half of the 1990s and at the beginning of the 2000s, the world's foreign exchange reserve accumulation displayed an upward trend. One of the main drivers of this trend was that EMEs recognised the self-insurance benefits of reserves in view of higher capital flow volatility. Aizenman and Marion (2003) identify such precautionary demand for reserves as a cause of increasing international reserves in East Asia following the Asian crisis.[48] Also Bastourre et al. (2009) confirm the significance of precautionary determinants of international reserve accumulation by EMEs.[49]

When external financial risks materialise, reserves can be used by national central banks to provide foreign exchange liquidity up to certain levels. Throughout the global financial crisis, many central banks took action against the collapse in cross-border funding and provided foreign currency to their domestic foreign exchange markets by drawing on reserves. However, the marginal benefit of using reserves declines as they are depleted. A swift fall or a continuous depletion of international reserves can send negative signals to the markets about the sustainability of domestic crisis mitigation policies. In fact, national authorities may not want to use their foreign exchange reserves beyond a certain level. Aizenman and Sun (2009) capture this concern about losing international reserves in their analysis of reserve usage by EMEs during the global financial crisis.[50] This concern can be explained by the motivation of EMEs to maintain similar reserve benchmark ratios to peer countries. A decline in reserve indicators beyond peer country averages might increase investors' risk aversion towards the country and also its vulnerability to deleveraging and sudden stops.

Besides the associated domestic social opportunity cost, which is the cost of using resources for reserve accumulation instead of supporting domestic investment and consumption, reserve accumulation entails financial costs. The financial costs arise as a result of the likely negative differential between the returns on the international reserves and the yields paid on domestic sterilisation instruments[51]. In addition, excessive reserve accumulation may entail inefficiencies

48 Aizenman, J. and Marion, N. P., "The High Demand for International Reserves in the Far East: What's Going On?", *Journal of the Japanese and International Economies*, Vol. 17(3), 2003.

49 Aizenman, J. and Lee, J., "International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence", *Open Economic Review*, Vol. 18, 2007.

Bastourre, D., Carrera, J. and Ibarlucia, J., "What is Driving Reserves Accumulation", *Review of International Economics*, Vol. 17, 2009.

50 Aizenman, J. and Sun, Y., "The financial crisis and sizable international reserves depletion: From 'fear of floating' to the 'fear of losing international reserves'?", NBER Working Paper No 15308, 2009.

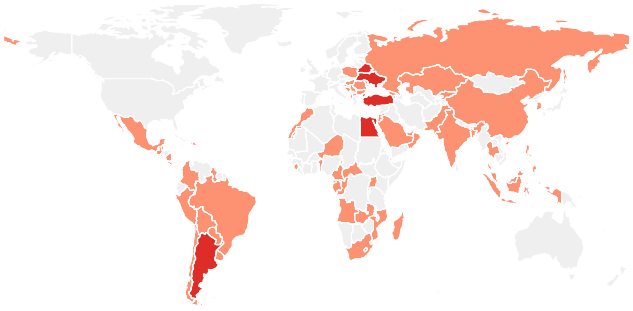
51 Central banks generally conduct sterilisation by selling assets from their domestic asset portfolios at repo auctions or by issuing domestic currency securities in their own name. The main aim is to drain the cash injected into the system via foreign reserve currency purchases and to stabilise the monetary base.

and distortions at the regional and global levels, e.g. via misaligned exchange rates and global imbalances[52].

Chart 2

Reserve adequacy

(index of reserve adequacy; dark red = less than 1; light red = greater than 1; grey = floating exchange rate regimes/no data)



Sources: IMF International Financial Statistics and World Economic Outlook and ECB.
Note: As at end-2015.

It is difficult to determine an adequate level of reserves for a given country and there are a variety of adequacy measures. The traditional reserve adequacy benchmarks utilise import coverage, short-term external debt and the broad money stock in the economy.[53] In Chart 2, these three rules of thumb are translated into one simple indicator, which is the equally weighted average of all three. A reserve adequacy ratio higher than one indicates that the country's foreign exchange reserves are more than the average amount implied by the most commonly used benchmarks (i.e. three months of imports, 100% of short-term debt and 20% of M2).[54] There are also many model-based adequacy measures. Among them, the IMF's Assessing Reserve Adequacy (ARA) metric is designed to measure balance of payments-related vulnerabilities and is calibrated according to the relative frequency of different shocks as well as country characteristics such as the exchange rate regime and the existence of capital controls[55].In general, only countries with managed exchange rate regimes require sufficient levels of international reserves to manage the effects of capital outflows on their currencies.

To sum up, international reserves are generally the primary form of insurance chosen by countries against foreign exchange liquidity shocks. While excessive reserve accumulation can create negative externalities, adequate holdings of reserves for precautionary purposes are an essential element of a country's safety net. However, it would be inefficient and, from a global perspective, undesirable for each country to be fully self-insured against large external liquidity shocks by foreign exchange reserves only since this can lead to large social costs and the aforementioned imbalances and distortions. Therefore, other layers of the GFSN providing elements of joint insurance are useful complements, which can reduce the costs at the level of countries seeking insurance as well as distortions and side effects of excessive reserve accumulation.

52 The discussion about "global imbalances" refers to the notion that large current deficits in some parts of the world are funded by surplus countries with an undervalued exchange rate. This constellation may not be sustainable over the longer term, in particular as it may also lead to distortions in asset markets via purchases of safe assets by reserve-accumulating countries. Since their peak in 2006, global imbalances in terms of flows have narrowed, however (*World Economic Outlook*, IMF, 2014, Chapter 4).

53 Three months of imports and 100% short-term debt coverage are indicators of vulnerability against an external finance shortage. The M2 coverage ratio takes into account an internal drain on external financing which is driven by domestic investors. As a rule of thumb, 20% of domestic financial liabilities (M2) that could potentially be converted into foreign currency are used as a benchmark to assess the adequacy of the level of reserves in the event of a domestic sudden stop. See Jeanne, O., "International Reserves in Emerging Market Countries: Too Much of a Good Thing?", *Brookings Papers on Economic Activity*, Vol. 1, 2007, pp. 1-79.

54 An indicator below one does not necessarily imply that a country does not have a sufficient level of foreign exchange reserves.

55 "Assessing Reserve Adequacy – Further Considerations", IMF Policy Paper, November 2013.

3.2 Central bank swap and repo lines

Bilateral swap lines between central banks technically provide the receiving central bank with short-term access to foreign currency liquidity in exchange for its domestic currency. A central bank swap line is an arrangement between central banks which combines two transactions: a spot transaction between a central bank issuing one currency and a central bank issuing another currency for a fixed term and a reverse transaction at maturity applying the exchange rate used in the spot transaction. During the term between the transactions, the central bank that requested the activation of the swap (the receiving central bank) pays a fee to the liquidity-providing central bank and can use the foreign currency liquidity to lend it to its domestic financial sector. Although the conditions of swap agreements are designed to protect the balance sheets of both central banks involved, the risk that one of them may not be in a position to honour its commitment has to be taken into account. To mitigate this risk, the receiving central bank pledges its own currency or other assets as collateral to the liquidity-providing central bank.

While these kinds of arrangements have been part of the policy toolkit of central banks for a long time, their role in crisis prevention became more prominent during the global financial crisis. Throughout economic history, swap-type agreements between monetary authorities have been used for a multitude of purposes, such as supporting foreign exchange rate policies, managing assets and liabilities, promoting the international use of currencies, facilitating the functioning of financial markets and ensuring financial stability. In the course of the recent global financial crisis, central bank swap lines have been utilised with the aim of mitigating possible negative spillovers from a deterioration in international funding conditions to financial stability and the real economy within and across countries.

Swap lines have been found to be effective in addressing crises triggered by foreign currency mismatches. Goldberg et al. (2011)[56] find that the US dollar swap lines among central banks were effective in reducing US dollar funding pressures abroad and stress in money markets. They conclude that the US dollar central bank swap facilities are an important part of the toolbox for dealing with systemic liquidity disruptions. Coffey et al. (2009)[57] also conclude that Fed swap line announcements and actual operations are effective in reducing global institutions' US dollar funding liquidity risk. Overall, the effectiveness of a swap line depends on the credibility of the commitment to provide sufficient foreign currency liquidity in a timely manner and a pricing policy that hinders opportunistic bidding.

The use of bilateral central bank swap lines has been increasing rapidly during the recent years. After 2007 central banks in advanced economies set up swap lines in response to the international financial crisis both among themselves and with some emerging economies. In particular, US dollar liquidity provided by the Federal Reserve swap lines helped to restrain funding stress in major advanced financial

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56 Goldberg, L. S., Kennedy, C. and Miu, J, "Central Bank Dollar Swap Lines and Overseas Dollar Funding Costs", *Economic Policy Review*, Federal Reserve Bank of New York, May 2011.

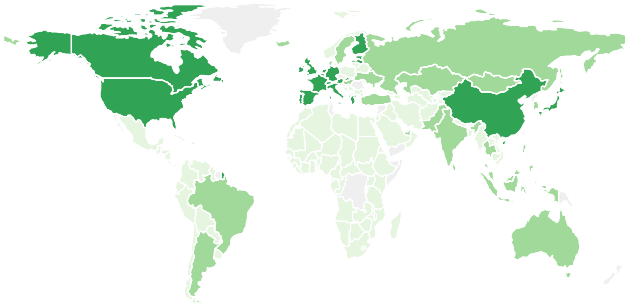
57 Coffey, N., Hrung, W. B. and Sarkar, A., "Capital Constraints, Counterparty Risk, and Deviations from Covered Interest Rate Parity", Federal Reserve Bank of New York Staff Report No 393, 2009.

markets at the peak of the crisis. While most of the short-term liquidity-providing lines established between advanced and emerging economies' central banks have expired or been terminated, the swap arrangements between the European Central Bank[58], the Federal Reserve, the Bank of England, the Bank of Canada, the Bank of Japan and the Swiss National Bank evolved into an unlimited and standing (i.e. open-ended) bilateral swap network. The rest of the existing swap lines have pre-set limits.

Chart 3

Availability of (un)limited swap lines

(dark green = unlimited; medium green = limited; light green = no swap line; grey = no data)



Sources: Bank of England, Bank of Japan, People's Bank of China, Federal Reserve and ECB.
Notes: Data from 2014. Only swap lines from the Bank of England, Bank of Japan, People's Bank of China, Federal Reserve and ECB are depicted.

Today's global swap network, when measured by the number of current arrangements, is dominated by the Chinese renminbi versus local currencies (see Chart 3). Since 2009 the People's Bank of China has rapidly expanded its swap line network and in February 2016 it had 31 active swap lines amounting to USD 500 billion.[59] Although a core motivation of the Chinese swap lines is often to support bilateral trade and investment with the countries that are part of its swap line network, they can also be used to address financial stability challenges and foreign exchange liquidity shortages. When renminbi swap lines are used to address reserve currency shortages, there are additional costs associated with the conversion of renminbi into the respective reserve currency.

When evaluating the role of central bank swap/repo lines in the GFSN, it is important to keep in mind that these instruments are based on the respective mandates of the central banks involved. Swap lines are not substitutes for other elements of the safety net. In fact, they are instruments designed to help address currency mismatch-related stress in financial markets rather than funds that can be used to finance balance of payments imbalances.

Overall, while the present network of central bank swap lines contributes both to crisis mitigation and global financial stability, the availability of funds is subject to their consistency with the policy mandates of the central banks involved. The central bank swap lines can in principle be unlimited in size and have no commitment costs at the initiation of the lines. As the experience during the global financial crisis suggests, swap lines can not only help to mitigate funding liquidity strains in the respective market segment, but can also contribute to global financial stability via the confidence channel. However, owing to the domestic mandates of the liquidity-providing central banks, the country coverage of swap lines is limited. In the case of the ECB and the Eurosystem, the provision of euro liquidity via swap or repo lines depends on: (i) the existence of exceptional circumstances characterised by significant euro liquidity needs as a result of serious market dysfunctions; (ii) the

58 A detailed discussion of the ECB's swap and repo arrangements can be found in the article entitled "Experience with foreign currency liquidity-providing central bank swaps", *Monthly Bulletin*, ECB, August 2014.

59 Volz, U., "Toward the Development of a Global Financial Safety Net or a Segmentation of the Global Financial Architecture?", 2016.

systemic relevance of the country requesting the swap line for the euro area; (iii) the presence of sound economic fundamentals; (iv) the financial risk for the Eurosystem; and (v) the consistency with any parallel support provided by the IMF (see ECB, 2014).

3.3 Financing by international financial institutions

In view of its global membership, mandate and expertise, the IMF is at the centre of the GFSN. With 189 member countries, the IMF is the most comprehensive and largest provider of liquidity insurance. Its special role with regard to the overall functioning of the GFSN is enshrined in its Articles of Agreement. The latter define its primary purpose as being to ensure the stability of the international monetary system. The IMF does this through various activities that help countries prevent and address crises, notably by: (i) advising countries in the context of surveillance and promoting sound policies as a first line of defence; (ii) warding off crises through the provision of access to liquidity resources under its lending policies, including via precautionary lines; (iii) providing financial assistance in a crisis subject to appropriate conditionality as necessary, to overcome balance of payments problems; and (iv) preventing moral hazard through appropriate access requirements and conditionality.[60]

With more than 60 years of experience in surveillance and lending, the IMF has a long track record of helping its members to address crises. First, IMF programmes help countries to stop a crisis from spreading further (e.g. Papi et al., 2015). Second, IMF programmes can act as a catalyst for re-attracting private investors (Bordo et al., 2005; Mody and Saravia, 2006; Morris and Shin, 2006).[61] Third, IMF programmes can also help to prevent future capital flow reversals and crises (e.g. Eichengreen et al., 2008).

The global financial crisis has highlighted that the IMF needs to maintain an adequate lending capacity in order to continue performing its function of preventing and addressing crises. Potential demand for IMF resources has risen with the growing integration of EMEs into the global economy and heightened risks of cross-border spillovers also among advanced economies, as was amply demonstrated during the global financial crisis. The global financial crisis led to increased resource needs among IMF members. To cope with its task, the IMF's resources were boosted (IMF, 2016*b*). In April 2009 the G20 agreed to increase the resources available to the IMF through expanded New Arrangements to Borrow

60 The resources available for the IMF's lending function currently amount to approximately USD 1 trillion, which makes the IMF the largest single provider of liquidity insurance (see IMF, 2016b), although in terms of actual disbursements the European Stability Mechanism (ESM) has topped the IMF in recent years. In addition, the IMF can allocate SDRs to supplement existing reserves in line with its Articles of Agreement.

61 Bordo, M. D., Mody, A. and Oomes, N., "Keeping capital flowing: the role of the IMF", *International Finance*, Vol. 7, 2004, pp. 421-450; Mody, A. and Saravia, D., "Catalysing private capital flows: do IMF programmes work as commitment devices?", *Economic Journal*, Vol. 116, 2006, pp. 843-867; Morris, S. and Shin, H. S., "Catalytic finance: When does it work?", *Journal of International Economics*, Vol. 70, 2006, pp. 161-177.

(NAB) by up to USD 500 billion as part of a global plan for recovery. In 2010 the membership agreed on a quota reform to double the IMF's paid-in resources permanently, which however only came into effect in January 2016. In the interim period, the IMF received pledges for bilateral loans of more than USD 400 billion from some of its members to temporarily supplement permanent resources. In addition, a new SDR allocation of USD 250 billion was agreed to provide the membership with liquidity to address the crisis.

While the IMF's lending capacity remains essential, there are concerns that countries may be reluctant to approach the IMF for financial support since the IMF provides its loans conditional on the implementation of specified policies. The IMF's Articles of Agreement emphasise the need to adopt policies on the use of its general resources that will help members to solve their balance of payments problems in a manner consistent with the IMF's provisions and the need to safeguard IMF resources. Therefore, the IMF provides loans only conditional on good policies which also ensure the repayment capacity of the borrower. [62] While conditionality has been helpful to address members' balance of payments problems and to prevent moral hazard (e.g. Jeanne and Zettelmeyer, 2001[63]), some countries also experienced social unrest or adverse financial market reactions related to the specific conditionality of the programme (e.g. Vreeland, 2007[64]). There have been concerns that due to these experiences some countries may be reluctant to approach the IMF for support.

Countries' reluctance to ask for IMF support could potentially have negative consequences for global financial stability (e.g. Vreeland, 2007). If a country delays asking the IMF for assistance, its mounting problems may lead to contagion to other countries, the need for a larger resource envelope when it finally does approach the IMF (making a greater demand on IMF resources) and the need for a greater reform effort by the country (increasing the likelihood of a political backlash). Moreover, reluctance to rely on the IMF as the global layer of the GFSN may lead to an inefficient stockpiling of national foreign exchange reserves.

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62 The need to ensure that the IMF is repaid is enshrined in Article 1(v) of its Articles of Agreement. IMF resources are typically safeguarded by ensuring the repayment capacity of a member through setting conditions either for the qualification to obtain a loan (ex ante conditionality) or the release of tranches against evidence of compliance with an agreed set of conditions (ex post conditionality). In other words, loans are provided only to conditionally solvent countries. Conditions are jointly agreed between a member and the IMF upon the request from the member to access a loan and prior to the IMF Executive Board's approval.

63 Jeanne and Zettelmeyer provide a broad interpretation of moral hazard as being not only taking risks with the money of the global taxpayer (hence IMF lending needs to be paid back), but also with that of the domestic taxpayer, who can eventually foot the bill for bad policies. See Jeanne, O. and Zettelmeyer, J., "International Bailouts, Moral Hazard, and Conditionality", *Economic Policy*, Vol. 33, 2001, pp. 409-432.

64 Vreeland, J. R., *The International Monetary Fund: Politics of Conditional Lending*, Routledge: New York, 2007. During the Asian crisis, IMF programme countries experienced large capital outflows when recommended policies were not as effective as originally intended. For example, in Indonesia, the IMF recommended a free floating exchange rate regime, which led to a depreciation of the currency. The bank restructuring without deposit guarantees led to bank runs and capital outflows. See, for example, Ito, T., "Can Asia Overcome the IMF Stigma", *American Economic Review*, Vol. 201, 2012, pp. 198-202.

Over the years the IMF has reacted to these concerns, inter alia by strengthening its precautionary lending (e.g. IMF, 2009; 2014a; 2014b[65]). The enhanced Flexible Credit Line (FCL) and the Precautionary and Liquidity Line (PLL) have been designed to shield countries with sound fundamentals from liquidity crises caused by external contagion.[66] Both facilities require the fulfilment of certain pre-qualification criteria (ex ante conditionality) and entail no (FCL) or streamlined (PLL) ex post conditionality. As they can be requested (and used) in the absence of actual balance of payments pressures and only entail an IMF commitment to provide financing if the member so requires (not necessarily actual disbursements), they should be less costly in political terms than the IMF's standard programmes with elaborate conditionality requirements in terms of prior actions and performance criteria. However, the precautionary facilities have to date only been used by five countries.

However, the reluctance to ask the IMF for support may not only be related to the IMF's strict conditionality framework, but also to its governance structure. In the view of many EMEs, the IMF's governance structure is overly influenced by advanced country considerations, even after the 2010 quota review (IMF, 2015).

To retain its role at the centre of the GFSN, the IMF will need to better understand the main causes behind the reluctance to borrow from the IMF. EMEs may be tempted to rely also on financing provided by other international financial institutions which may be perceived as imposing less stringent conditions. In addition to the traditional project-driven support by the World Bank (mainly to developing and emerging economies), regional development banks provide funding for structural purposes, particularly infrastructure development, including the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB) and, most recently, the New Development Bank (NDB) of the BRICS countries (Brazil, Russia, India, China and South Africa) and the Asian Infrastructure Investment Bank (AIIB). The BRICS countries have also set up their own Contingent Reserve Arrangement (CRA) for mutual financial support.[67] These new institutions might be perceived by many EMEs as being more in tune with the concerns of emerging market countries.

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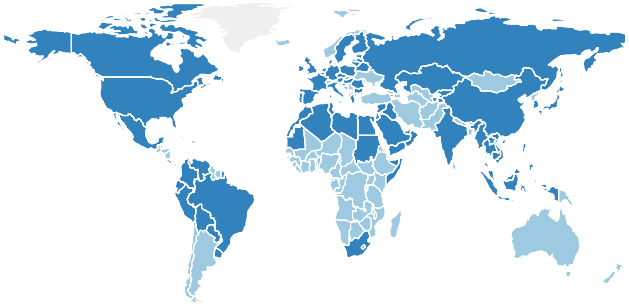
65 "The Flexible Credit Line – Guidance on Operational Issues", IMF Staff Paper, November 2009; "Review of the Flexible Credit Line, the Precautionary and Liquidity Line, and the Rapid Financing Instrument", IMF Policy Paper, January 2014; and "Review of the Flexible Credit Line, the Precautionary and Liquidity Line, and the Rapid Financing Instrument", IMF Policy Paper, April 2014.

66 The FCL is reserved for countries with very strong economic fundamentals, policies and institutional policy frameworks. These countries should satisfy five groups of eligibility criteria, related to their external position and market access, fiscal policy, monetary policy, financial sector soundness and supervision, and data adequacy. Access to the FCL is uncapped. The PLL has been designed for countries which have sound economic fundamentals, policies and institutional policy frameworks and moderate vulnerabilities. The limit on PLL access is 250% of quota for the first year, with a total limit of 500% of quota.

67 Still, the CRA conditions 70% of the resources available to a member on having in place an IMF precautionary programme.

Chart 4
Membership in RFAs

(dark blue = member of an RFA; light blue = not a member of an RFA; grey = no data)



Sources: RFA websites and ECB.
Notes: The chart includes membership in the following RFAs: the Latin American Reserve Fund (FLAR), the Arab Monetary Fund (AMF), the Chiang Mai Initiative Multilateralisation (CMIM), the Contingent Reserve Arrangement (CRA), the European Stability Mechanism (ESM), the European Financial Stabilisation Mechanism (EFSM), the European Financial Stability Facility (EFSF), the Eurasian Fund for Stabilisation and Development (EFSD), the North American Framework Agreement (NAFA) and EU balance of payments assistance.

Within the GFSN, regional financing arrangements (RFAs) represent a middle ground between self-insurance and the multilateral assistance offered by the IMF to its membership. RFAs exist in many, though not all, regions of the world (see Chart 4). Some RFAs have been in place for a long time, while others have been established only more recently in response to the global financial crisis. The "older" RFAs, such as the Arab Monetary Fund (AMF),[68] founded in 1976, and the Latin American Reserve Fund (FLAR),[69] which emerged in 1989, have more than three decades of lending experience. The Chiang Mai Initiative (CMI), an agreement to provide bilateral swap lines, was set up in response to East Asia's perceived need to develop a regional mechanism after the 1997-98 financial crisis (see Sussangkarn, 2011[70]). The CMI's successor, the Chiang Mai Initiative Multilateralisation (CMIM) Agreement,[71] and the European facilities (the temporary European Financial Stabilisation Mechanism, EFSM, and European Financial Stability Facility, EFSF, and the permanent European Stability Mechanism, ESM) have been set up more recently to boost resources for crisis prevention and resolution. The lending capacities of RFAs differ substantially. For example, smaller RFAs have a lending capacity below USD 10 billion, while the second largest RFA, the CMIM, and the largest RFA to date, the ESM, have total lending capacities of USD 240 billion and EUR 500 billion respectively.

RFAs differ with respect to their purpose and set-up, their surveillance capacity and the conditions under which they disburse financing. Regarding their purpose and set-up, most RFAs provide financial resources to members with balance of payments problems to address economic crises and prevent regional contagion. Some, but not all RFAs set conditions for macroeconomic adjustment before disbursing financing, such as the ordinary loan facility and the extended loan facility of the AMF or the loans provided by FLAR. Some RFAs link their assistance to conditions for IMF financial support.[72]

68 The Arab Monetary Fund's aim is to assist its non-OPEC members. Members include Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates and Yemen.

69 FLAR was established as an extension of FAR (the Andean Reserve Fund), which was set up in 1988. Members include Bolivia, Colombia, the Dominican Republic, Peru, Uruguay and Venezuela. See also Ocampo and Titelman (2009) for more details.

70 Sussangkarn, C., "Chiang Mai Initiative Multilateralization: Origin, Development, and Outlook", *Asian Economic Policy Review*, Vol. 6, 2011, pp. 203-220.

71 The CMIM is an East Asian regional financing arrangement covering Brunei Darussalam, Cambodia, China, Hong Kong, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam (see also Sussangkarn, 2011), which succeeded and extended the Chiang Mai Initiative.

72 The CMIM raised the unconditional share from 20% to 30% on 17 July 2014. It is currently reviewing the specific modalities of its cooperation with the IMF.

As RFAs are geographically closer to their members than the IMF, they can provide targeted support based on deeper local knowledge to implement policies to help a member overcome a crisis (e.g. Ocampo and Titelman, 2009)[73]. In addition, the limited number of RFA members can be an aid to quick decision-making, which facilitates the timely disbursement of funds during a crisis.

However, some RFAs may become overburdened on account of limited resources. The resources of several RFAs are limited, which constrains the duration, magnitude and number of loans that the RFA can offer at any one time. Also, countries with a lower willingness to adjust or with larger adjustment needs as well as countries which perceive IMF support as politically costly may prefer RFA support. As a consequence, RFAs may become overburdened in a regional or protracted shock. To support RFAs in their vital role of providing regional crisis support, there is a strong case for strengthening them (e.g. Kawai, 2015[74]).

Enhanced cooperation between RFAs and the IMF may promote their use, while reducing incentives for "facility shopping". In view of the existing links between some RFAs and the IMF, there seems to be scope for cooperation that provides support to RFAs, while avoiding "facility shopping" and an overburdening of RFAs. In 2011 the G20 endorsed six principles for cooperation between the IMF and RFAs (see Box 1) which help to guide this process.

Box 1

G20 Principles for Cooperation Between the IMF and Regional Financing Arrangements (15 October 2011)

In November 2010 the G20 Leaders requested that the G20 Finance Ministers and Central Bank Governors explore "ways to improve collaboration between RFAs and the IMF across all possible areas". Based on contributions by the EU and the ASEAN+3 countries that are members of the G20, the following non-binding broad principles for cooperation were agreed. Also, collaboration with the IMF should be tailored to each RFA in a flexible manner in order to take account of region-specific circumstances and the characteristics of RFAs.

1. An enhanced cooperation between RFAs and the IMF would be a step forward toward better crisis prevention, more effective crisis resolution, and would reduce moral hazard. Cooperation between RFAs and the IMF should foster rigorous and even-handed surveillance and promote the common goals of regional and global financial and monetary stability.

2. Cooperation should respect the roles, independence and decision-making processes of each institution, taking into account regional specificities in a flexible manner.

3. While cooperation between RFAs and the IMF may be triggered by a crisis, ongoing collaboration should be promoted as a way to build regional capacity for crisis prevention.

[73] Ocampo, J. A. and Titelman, D., "Subregional financial cooperation: the South American experience", *Journal of Post Keynesian Economics*, Vol. 32, 2009, pp. 249-268.

[74] Kawai, M., "From the Chiang Mai Initiative to an Asian Monetary Fund", ADBI Working Paper No 527, 2015.

4. Cooperation should commence as early as possible and include open sharing of information and joint missions where necessary. It is clear that each institution has comparative advantages and would benefit from the expertise of the other. Specifically, RFAs have better understanding of regional circumstances and the IMF has a greater global surveillance capacity.

5. Consistency of lending conditions should be sought to the extent possible, in order to prevent arbitrage and facility shopping, in particular as concerns policy conditions and facility pricing. However, some flexibility would be needed as regards adjustments to conditionality, if necessary, and on the timing of the reviews. In addition, definitive decisions about financial assistance within a joint program should be taken by the respective institutions participating in the program.

6. RFAs must respect the preferred creditor status of the IMF.

Sources: G20 and IMF.

3.4 Interaction between the layers of the global financial safety net

Better understanding the interaction between the different layers of the GFSN would help to avoid an overburdening of one of the elements and promote a complementary use of some of the different elements more generally. The interaction between the safety net's different layers needs to be based on their various purposes and operating features and the role which each element could and should fulfil. This section reviews these interactions.

Currently, coordination between layers is limited. As the global financial safety net has developed increasingly outside the IMF, partly through countries' self-insurance activities and partly through the provision of financing by other bilateral or regional arrangements or institutions, the coordination ties within and between layers are limited. Especially since the global financial crisis, the GFSN has become more multi-layered and more diversified in part owing to differing objectives and set-ups of the different elements. Hence, the coverage of the GFSN is not the same for each country. At the same time, different purposes and rules also imply that there is only limited scope for substitutability between the layers of the GFSN.

The question arises as to whether the various layers of the GFSN could be better aligned to ensure greater complementary use and better country coverage so as to boost the overall insurance capabilities of the GFSN as a whole. To avoid overburdening a single layer, the complementary use of certain other layers of the GFSN could be further explored. Attention should be paid to the ability of each element of the GFSN to achieve its general objectives, to its specific characteristics and to the ability of countries to access each of these GFSN elements. In this context, it should be borne in mind that at the regional level there is not only a growing number and size of RFAs, but also an increase in the size and number of regional development banks that have the potential to offer complementary financial support.

At the global level, an adequately resourced and quota-based IMF should be at the core of the GFSN, providing support in relation to potential or actual balance of payments crises. Effective crisis prevention is well served by the IMF through appropriate macroeconomic, financial and macroprudential policy surveillance. It is therefore essential that the incentive structure built into the qualification criteria of precautionary facilities supports strong policies, thereby giving traction to surveillance. Effective crisis resolution relies on the adequacy and efficient use of the IMF's resources. Maintaining a sufficient level of resources and utilising them in a judicious manner, including for precautionary purposes, is therefore essential for the IMF in fulfilling its stabilising role as the truly global layer of the GFSN. This stabilising role of the IMF would be enhanced by a deeper understanding and a reduction of the political cost for some countries associated with seeking the IMF's assistance.

At the national level, sound macroeconomic policies and frameworks remain the first line of defence. This does not contradict the observation that the accumulation of precautionary reserves as a means of self-insurance has served many countries well during crisis times. However, excessive reserve accumulation carries a cost and risks creating imbalances and systemic inefficiency. The cost of precautionary reserve accumulation varies across countries and needs to be weighed against the cost of having insufficient own reserves. Greater transparency with regard to the availability and cost of reserve accumulation by individual countries could play a useful role in this respect.

Bilateral central bank swap and repo lines constitute a very specific form of short-term liquidity provision to address liquidity constraints in the domestic banking sector. Their establishment is a decision for central banks in line with their respective mandates. In particular, there is no scope for liquidity provision from central banks to governments. Another consequence of the mandate-based provision of these lines is that it is not possible for one entity – not even the IMF – to serve as coordinator of the provision of central bank swap lines.

Cooperation between the IMF and RFAs deserves to be pursued further. Some RFAs are now closer to being operational than prior to the global financial crisis, but as several infrastructures remain untested and may be overburdened in the event of a regional shock, closer cooperation between the IMF and RFAs, also outside crisis episodes, would be worth developing. RFAs are at very different stages of development and they vary widely in terms of their size, focus, and frequency and nature of lending. In addition, surveillance tools are still under development for many RFAs. Given the IMF's broad expertise in both surveillance and lending, closer cooperation between the IMF and RFAs deserves to be pursued, in particular through advice and technical assistance to those RFAs which have not yet been tested. The G20 principles (see Box 1) are an adequate instrument to guide cooperation between the IMF and RFAs. The diversity of RFAs underscores the case for a tailored approach. The European experience of crisis resolution shows that there are also substantial benefits to be derived from the involvement of an RFA in stabilising a country and that RFAs may be complementary to IMF support.

4 Conclusion

The layers of the global financial safety net – comprising international reserves, regional financing arrangements, funding provided by international financial institutions and central bank swap/repo lines – are essential components of a well-functioning international monetary system. The various elements of the GFSN have been shaped by historical developments and they are all conceived to make a contribution to the maintenance of economic and financial stability by providing insurance and by supplying finance in crisis situations, as discussed in the previous sections.

The IMF is at the centre of the GFSN. It has a long experience in promoting sound economic policies and in addressing crises with its well-diversified toolkit. However, the stabilising role of the IMF could be further enhanced by making the use of its facilities more timely and effective and by a continued evolution of its governance. While central bank swap/repo lines have been highly successful in mitigating foreign exchange funding tensions, it should be emphasised that their usage has to be decided by central banks, in line with their respective mandates, and they are hence not suited to coordination under a global umbrella such as the one offered by the IMF. The other elements of the GFSN also have their objectives and limitations. Given their considerable growth in the wake of the global financial crisis, a more heterogeneous landscape has emerged for the GFSN. One promising avenue to pursue is the strengthening of those RFAs that have not yet been tested, through advice and technical cooperation.

A global stocktaking focusing on the role of the IMF as the truly global hub of the GFSN is warranted. To prevent the evolving GFSN from developing in sub-optimal directions, either because part of the resources are not available to certain countries or regions, or because the availability of resources creates greater room for moral hazard behaviour, a global stocktaking is warranted in the current post-global financial crisis environment. Such a review should focus primarily on how to strengthen the role of the IMF as the truly global hub of the GFSN, given its universal membership. This stocktaking should not be conducted in isolation. Reforms which aim at containing demand for financial safety net resources should also be analysed more thoroughly. Recent efforts to strengthen global financial regulation and the sovereign debt restructuring framework, as well as the option to mobilise private sector liquidity support in a crisis, are important elements in this regard.