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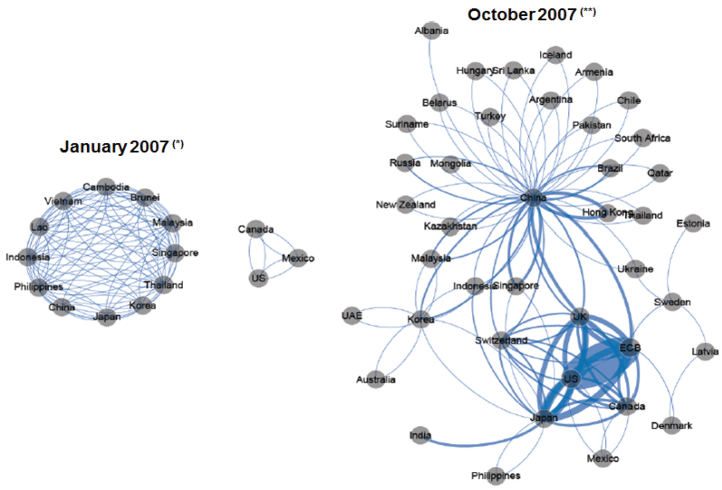
The global network of central bank swap lines

- Bilateral swap lines are *ex-ante* arrangements between central banks that provide protection from foreign currency liquidity risk. These lines are not subject to conditionality, and foreign central banks can draw on them under predefined terms. From an economic standpoint, the transaction can be likened to a foreign currency loan, backed by local currency collateral, with the borrower bearing the foreign exchange risk.
- During the 2008 financial crisis, the US Federal Reserve authorised temporary swap lines with 14 central banks of advanced and emerging countries. This was an urgent response to US dollar liquidity shortages that had appeared since August 2007, and was intended to avoid negative effects for the global economy and the United States. On 10 December 2008, the Fed's lending to other central banks via swap lines peaked at USD580bn, equal to almost one-quarter of total Fed assets and to 168% of the IMF's balance sheet at the time. This swap line programme was effective in restoring liquidity on the markets and was terminated in February 2010.
- In May 2010, fresh strains on short-term dollar funding markets prompted the Fed to reopen unlimited swap lines with five other central banks. These lines were converted into standing arrangements in late October 2013. In the absence of conditionality, a swap agreement requires mutual trust between the parties. Contrary to institutions such as the IMF, it does not rely on a multilateral agreement. In reality, the Fed authorised such agreements with major advanced economies only.
- In parallel, the People's Bank of China (PBoC) has set up renminbi (RMB) swap agreements. In just a few years, it has created a large network and become a leader in the international network of swap lines, with 33 agreements totalling USD460bn in 2017 (vs. USD25bn in 2008), mostly with central banks in emerging or developing countries.
- Thanks to these initiatives, China can aim to expand the RMB's role as an international currency even though its capital account is partially closed, thus widening its influence. In addition, the agreements that China signs with sometimes weak countries have less stringent apparent conditionality and less rigorous selectivity criteria than other forms of multilateral or bilateral aid. Thus, China is building its influence by competing with international institutions – but at the risk of undermining financial stability.

Development of the global network of bilateral swap agreements (to year end 2015)



Source: E. Denbee, C. Jung and F. Paterno (2016), Stitching Together the Global Financial Safety Net, Bank of England, Financial Stability Paper No. 36.

How to read this chart: (*) includes swap lines in the Chiang Mai Initiative. (**) does not include Chiang Mai Initiative swap lines, transformed into a regional financial arrangement. The amounts shown for unlimited swap lines between central banks of advanced countries are indicative.

1. Central bank swap lines are a rapidly-expanding component of the global financial safety net

Growing global commercial and financial integration has increased the risk of liquidity crunches, i.e. the risk that a government or central bank is unable to supply its domestic market with enough foreign currency to fulfil its commitments in these currencies.

To mitigate this risk, insurance instruments have been set up to supply foreign currency liquidity. These instruments foster a gradual economic adjustment in the event of shocks and curb the spread of crises. By generally making liquidity injections conditional on reforms, either during a crisis or preventively before a crisis occurs, these instruments act as incentives for adopting appropriate economic policies to limit the emergence of crises.

These instruments form the global financial safety net. They vary in nature and size, encompassing self-insurance via an accumulation of foreign exchange reserves, bilateral insurance in the form of central bank swap agreements, and multilateral insurance such as regional financial arrangements or resorting to the International Monetary Fund (IMF).

1.1 A swap line is a contract for central banks to exchange currencies under predefined terms (maturity, cost, etc.)

Swap lines between central banks are agreements that define the terms whereby these banks can swap liquidity in different currencies. A swap between two central banks A and B involves two transactions:

- When central bank B draws on the swap line, it sells a certain amount of its own currency to central bank A in exchange for liquidity in a foreign currency (often A's currency but sometimes another currency[1]) at the contractually-agreed exchange rate. At the same time, B agrees to buy back its currency from A on a specified future date at the same exchange rate. Therefore, central bank B bears the full foreign exchange risk.
- Then, using the money it has borrowed from A, central bank B makes loans to its domestic economic agents through commercial banks. B bears full responsibility for these loans, with the only constraint that it must buy back its own currency from A at the agreed date.
- On the specified date, barring default by B, a second transaction occurs to unwind the swap. B returns the borrowed currency, plus interest, to A.[2]

In practice, in addition to the exchange and interest rates, the swap agreement also stipulates the maximum amount that can be borrowed, the maturity, any collateral that must be given to A during the swap period, and any other clauses that the two central banks wish to include to govern their transactions.

Swaps can cover commercial banks' one-off foreign currency liquidity needs that the central bank is unable to meet. In the absence of capital controls or sufficiently stringent prudential rules, such a situation may arise when commercial bank balance sheets show a currency mismatch. These mismatches can occur for various reasons: financing costs, opportunities, pressure from clients, a change in risk aversion, etc. Typically, commercial banks cover these liquidity needs by buying the necessary foreign currency on the market or from their central bank (which then dips into its foreign exchange reserves). Nevertheless, in some cases (especially during periods of financial market strain), certain commercial banks' needs may surpass the central bank's capacity or its ceiling on supplying foreign currency, or liquidity on the forex market may have dried up. In these cases, swap lines are a means to compensate for the foreign currency liquidity shortage.

Lastly, in addition to actually injecting foreign currency liquidity, a swap line can, by its own existence, act to ease financial tensions. If the signing of a swap agreement is made public, this information can send financial markets a positive signal that the risk of a currency shortage is lower and the central bank can offset any shortage by drawing on its swap line. In such a scenario, drawing on the swap line may never actually be necessary. The mere prospect of virtually unconditional access to foreign currency liquidity can curb the risk of a financial panic in which commercial banks, fearing that foreign currency liquidity may dry up in the future, would tap into the central bank's foreign exchange reserves immediately, thereby creating a liquidity shortage as a self-fulfilling prophecy.

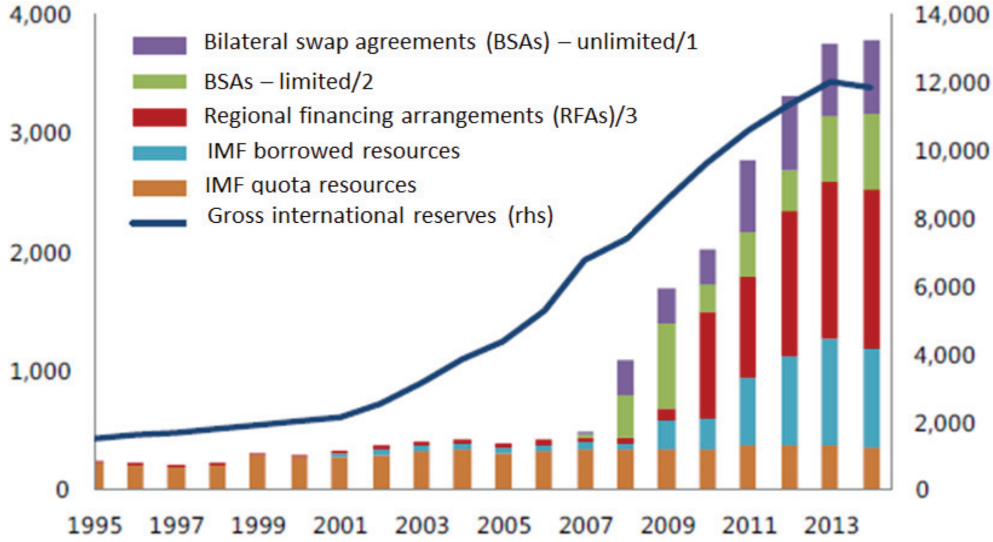
(1) In this case, bilateral swap lines provide liquidity by drawing on A's foreign exchange reserves.
(2) This interest is intended to compensate for A's unmade gains on its currency, also corresponding to the gains made by B on its loans. In practice, this interest is generally calculated using a market rate. For example, the Fed uses its key rate plus a spread for its dollar lending.

1.2 Post-crisis, central banks' larger role is the reason why swaps have taken on such importance in the global financial safety net

Since the 2000s, the rising importance of swap lines reflects central banks' larger role in the global financial safety net. Swap lines allow central banks to expand or contract their balance sheets very rapidly. These lines are advantageous in that: (i) they enable central banks to access larger amounts of foreign currency funding than from the IMF, and to do so very rapidly, in a single disbursement and without conditionality, and (ii) they provide a specific legal structure (resources committed without an *ex-ante* transfer of funds required by certain international organisations, e.g. for the IMF's quota resources, etc.). Swap lines are also different from other institutional schemes given their contractual nature, which gives rise to: *(i)* a decentralised framework determined through bilateral - often opaque - negotiations, *(ii)* coverage generally over a limited period of time, and *(iii)* either party being able to terminate the agreement more easily.

In 2016, the IMF[3] estimated that swap lines accounted for one-tenth of funding available within the global financial safety net (see Chart 1). While reserve accumulation is still the main source of insurance for liquidity crises (accounting for some 75% of available liquidity in the global financial safety net), swap lines are comparable in size to the IMF's regional financing arrangements (RFAs).

Chart 1: Trend in the global financial safety net, 1995-2014 (USD bn)



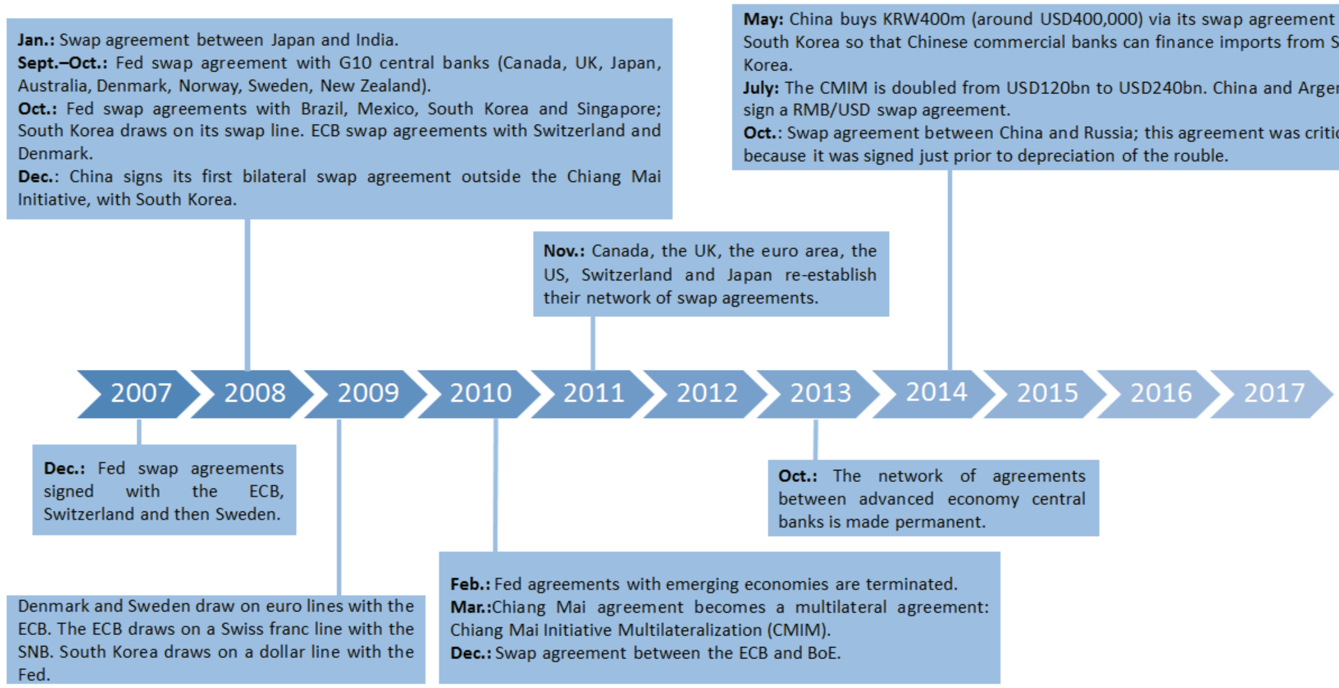
Sources: Adequacy of the Global Financial Safety Net, IMF Policy Papers, March 2016.
1/Estimated based on known past usage or, if undrawn, on average past maximum drawings of remaining central bank members in the network.
2/Includes all arrangements with an explicit value limit and excludes Chiang Mai Initiative Multilateralization (CMIM) arrangements and the North American Framework Agreement, which are included under RFAs.
3/Based on explicit lending capacity/limit where available, committed resources or estimated lending capacity based on country access limits and paid-in capital.

The network of swap agreements between central banks is now estimated to involve more than 40 central banks and some 100 agreements. Within this network, there are two main types of agreements: *(i)* standing bilateral swap agreements for unlimited amounts, between the main central banks of advanced economies (ECB, Fed, Bank of Canada, Bank of England, Bank of Japan and Swiss National Bank), and *(ii)* agreements that are limited in time and amount, with a notable level of Chinese involvement. China currently accounts for three-quarters of "limited" BSAs (85% in value terms); it has more than 30 temporary arrangements, with an average maturity of three years (renewable) and covering amounts ranging from hundreds of millions to hundreds of billions of dollars.

(3) Adequacy of the Global Financial Safety Net, IMF Policy Papers, March 2016. Total funding available through the global financial safety net stood at around USD11 trillion in 2016, with regional financial arrangements accounting for around 8% of this amount.

2. The role of swap lines has changed over time

Chart 2: Timeline of the main events involving central bank swap agreements since the financial crisis



Source: DG Trésor.

2.1 Swap agreements played a major role during the 2008 financial crisis, compensating for an inadequate financial safety net

The start of the financial crisis in 2007 caused dollar trading on the interbank market to dry up. This in turn triggered a rapid spike in interbank rates and a sudden liquidity crunch, which was especially problematic for non-US banks whose dollar-denominated deposits are relatively low and which are therefore dependent on the US interbank market for dollar funding. In December 2007, the Fed launched its Term Auction Facility (TAF) to compensate for the dollar shortage suffered by US banks, with liquidity being injected directly by the Fed as lender of last resort. However, the TAF did not improve dollar liquidity in Europe as the interbank lending market was frozen. The Fed therefore had to implement other measures to stem the spread of the crisis.

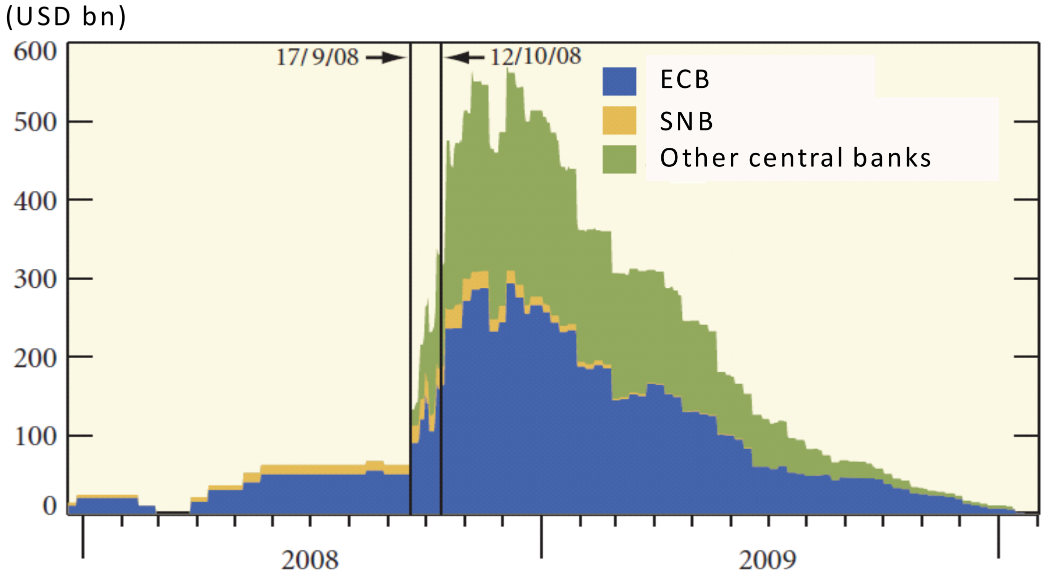
As such, in December 2007, the Fed set up swap agreements with the ECB and the Swiss National Bank (SNB), enabling euro area and Swiss banks to obtain dollar funding directly from their respective central banks. These agreements eased strains on the short-term funding markets by reassuring market participants and boosting visibility on foreign banks' dollar funding costs.

In a second phase, from December 2007 to February 2010, this swap network expanded, with the Fed setting up a series of temporary swap lines with up to 14 central banks in advanced and emerging countries. When drawing on these two lines for the first time (from 12 to 18 September 2008), the ECB and SNB used them as direct extensions of the TAF. However, at least for the ECB, the swap value limit was well below European commercial banks' actual demand for dollar funding. This demand grew even stronger after Lehman Brothers collapsed on 15 September, prompting the Fed to raise the limits on these swap lines. Between 18 September and 12 October 2008, it signed additional agreements with the central banks of Japan, the UK, Canada, Australia, Sweden, Norway, New Zealand and Denmark. These new operations led to a tenfold increase in dollar liquidity supplied by the Fed over this period (from USD67bn to USD620bn), with more than half (USD330bn) already used by 12 October 2008. As market conditions steadily deteriorated, the Fed expanded this swap programme again and eliminated value limits on its lines with the ECB, the Bank of England, the Swiss National Bank and the Bank of Japan. It also signed five new agreements with other central banks, especially in emerging economies (Brazil, Mexico, South Korea, New Zealand and Singapore). On 10 December 2008, central bank lending via swap lines peaked at USD580bn, i.e. nearly one-quarter of the Fed's total assets. This swap line programme was terminated on 1 February 2010.

This enthusiasm for bilateral swap lines between central banks reflects the fact that the range of multilateral institutional instruments was insufficient or deemed unsuitable for certain countries with highly developed financial markets. At the time of the 2008 crisis, regional arrangements were inexistent or were still too small to meet the needs of countries facing a liquidity shortage, whereas the IMF had no appropriate programme to supply liquidity to countries with sound fundamentals aside from aid programmes assorted with reform commitments. Later on, the IMF's introduction of the Precautionary and Liquidity Line (PLL) and the scaling up of regional funding arrangements (such as the European Stability Mechanism and the Chiang Mai Initiative Multilateralization) responded to these needs. However, these instruments would probably have proven insufficient given the magnitude of the crisis.

Thus, the Fed acted as lender of last resort for the global economy between 2007 and 2010 (see Chart 3). Whereas in the 1990s, several emerging economies had turned to the IMF to resolve their liquidity and currency crises,[4] this was not the case in 2008. In addition to accumulating foreign exchange reserves since 2000 and in some cases moving to more flexible exchange rate systems, some emerging economies have also been able to draw on swap lines, notably with the Fed in the case of Brazil, Mexico and South Korea.

Chart 3: Trend in the Fed's bilateral foreign exchange swap lines between December 2007 and February 2010



Source: M.J. Fleming, N.J. Klagge (2010), The Federal Reserve's Foreign Exchange Swap Lines, Fed NY, Current Issues in Economics and Finance, Volume 16, Number 4.

2.2 Since the crisis, the advanced economies have made their network permanent, while emerging economies have developed a parallel network centred on China

In May 2010, not long after the swap lines opened during the crisis had been terminated, fresh strains on the short-term dollar funding markets prompted six central banks to re-establish a network of swap lines (Fed, ECB, Bank of England, Bank of Japan, Bank of Canada and SNB). On 31 October 2013, these agreements were transformed into standing arrangements. This network of advanced economies continues to exclude emerging economies even though some emerging countries have sought to sign swap agreements with the Fed. As grounds for excluding emerging economies, the central banks of advanced economies note that network requires a lasting relationship of trust amongst the contracting parties.

Meanwhile, in parallel with this network, emerging economies decided to implement or scale up regional monetary arrangements to pool their foreign exchange reserves. Certain arrangements already existed before the crisis, including the bilateral agreements under the Chiang Mai Initiative including Southeast Asia +3 (Japan, China and South Korea). However, these existing arrangements between emerging central banks were not used between 2007 and 2010. Nevertheless, emerging economies are seeking to establish or strengthen swap lines between their central banks, notably by revising the Chiang Mai Initiative and enlarging the list of countries involved, shifting from bilateral lines to a multilateral network, and substantially increasing the amount of funding available (from USD120bn to USD240bn in 2014).

(4) Notably Russia, on several occasions (1992, 1996 and 1998), as well as Mexico (1995), South Korea (1997) and Brazil (1998).

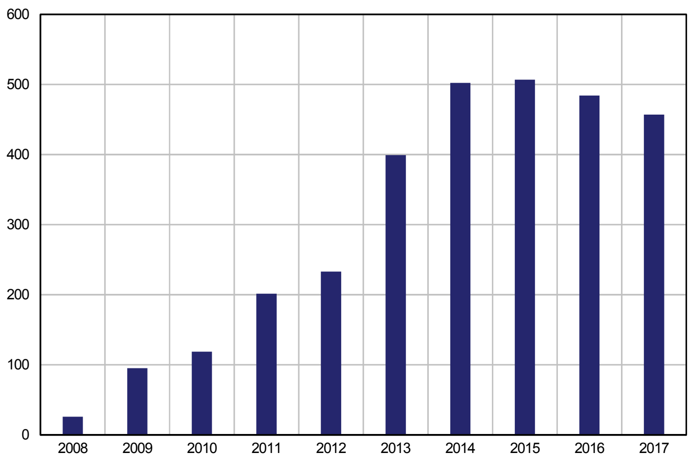
Table 1: Details on swap lines signed by the People's Bank of China (as at 30 June 2018)

Countries	1st agreement	2nd agreement	3rd agreement	4th agreement	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
					Amounts (RMB bn)												
Korea	12/2008	10/2011	10/2014	10/2017	180	180	180	360	360	360	360	360	360	360	360	360	
Hong Kong	01/2009	11/2011	11/2014	11/2017		200	200	400	400	400	400	400	400	400	400	400	
Malaisia	02/2009	02/2012	04/2015			80	80	80	180	180	180	180	180	180			
Argentina	03/2009	07/2014	07/2017			70	70	70			70	70	70	70	70	70	
Belarus	03/2009	05/2015				20	20	20				7	7	7			
Indonesia	03/2009	10/2013				100	100	100		100	100	100					
Iceland	06/2010	09/2013	12/2016				3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		
Singapore	07/2010	03/2013	05/2016				150	150	150	300	300	300	300	300	300		
New Zealand	04/2011	05/2014	05/2017					25	25	25	25	25	25	25	25	25	
Urbekistan	04/2011							0.7	0.7	0.7							
Mongolia	05/2011	08/2014	07/2017					5	5	5	10	10	10	15	15	15	
Kazakhstan	06/2011	12/2014						7	7	7		7	7	7			
Pakistan	12/2011	12/2014	05/2018					10	10	10	10	10	10	20	20	20	
Thailand	12/2011	12/2014	08/2018					70	70	70	70	70	70	70	70	70	
United Arab Emirates	01/2012	12/2015							35	35	35	35	35	35			
Turkey	02/2012	10/2015							10	10	10	12	12	12			
Australia	03/2012	04/2015	04/2018						200	200	200	200	200	200	200	200	200
Ukraine	06/2012	05/2015							15	15	15	15	15	15			
Brazil	03/2013									190	190	190	190	190	190		
United Kingdom	06/2013	10/2015	09/2015							200	200	200	350	350	350		
Albania	09/2013	04/2018								2	2	2			2	2	2
Hungary	09/2013	09/2016								10	10	10	10	10	10		
Eurozone	10/2013	10/2016								350	350	350	350	350	350		
Swiss	07/2014	07/2017									150	150	150	150	150	150	
Sri Lanka	09/2014										10	10	10				
Russia	10/2014										150	150	150				
Canada	11/2014	12/2017									200	200	200	200	200	200	
Qatar	11/2014	12/2017									35	35	35	35	35	35	
Armenia	03/2015											1	1	1			
Suriname	03/2015											1	1	1			
South Africa	04/2015	04/2018										30	30	30	30	30	30
Chile	05/2015											22	22	22			
Tajikistan	12/2015											0.5	0.5	0.5			
Morocco	05/2016												10	10	10		
Serbia	06/2016												1.5	1.5	1.5		
Egypt	12/2016												18	18	18		
Nigeria	05/2018														15	15	15
	Total authorised aumounts (RMB bn)				180	650	803.5	1301.2	1471.2	2473.2	3085.5	3156	3215.5	3088.5			
	Total authorised aumounts (USD bn)				25.9	95.1	118.7	201.4	233.1	399.2	502.3	506.8	484.3	456.9			
	No. of central banks				1	6	8	14	15	21	25	32	33	33			

Source: DG Trésor research (non-exhaustive).

How to read this chart: Agreements expire on their anniversary, generally three years after the signing date. For example, the third swap line signed with the Bank of Korea is slated to expire in October 2020. Some swap agreements that expired at the end of 2017 are still being renegotiated (notably those with Sri Lanka and Russia).

Chart 4: Trend in the People's Bank of China's amounts authorised under swap agreements (USD bn)



Source: DG Trésor.

How to read this chart: The decline in authorised amounts in 2016 and 2017 is partly due to a conversion effect, as the renminbi depreciated against the dollar on an average annual basis both those years.

The rapid development of RMB swap lines has resulted in the emergence of a large-scale network and a sharp increase in amounts authorised by the People's Bank of China (PBoC, China's central bank; see Chart 4). Since 2008, the Chinese authorities have built a network of RMB swap lines in parallel to their USD commitments under the Chiang Mai Initiative. The first RMB-denominated swap agreement was signed with South Korea in 2008 for RMB180bn[5] (later renewed for RMB360bn). Many other agreements have followed, primarily with central banks in emerging economies or Asia, even though some have been with the central banks of advanced economies (including the Reserve Bank of New Zealand, the Bank of England, the Monetary Authority of Singapore, the Bank of Australia and the ECB; see Table 1). In all, between 2008 and 2017, the number of RMB-denominated swap agreements signed by the PBoC grew rapidly to 33, with amounts authorised totalling almost RMB3,100bn in 2017 (equivalent to USD460bn, vs. USD25bn in 2008). These agreements are generally signed for renewable periods of three years. This trend now makes China a leading global player in central bank swap lines.

(5) Around USD23bn at the time.

Box 1: Emerging economies still rely chiefly on their foreign exchange reserves for access to dollar funding

A swap line between central banks requires a relationship of trust between the two central banks and a shared view of how the line should be used. While the terms for a swap line agreement are designed to protect both parties (insofar as either contracting party can draw on the line), there is a risk that one of the parties could refuse or be unable to fulfil its commitments. There is also a risk that one party could "misuse" a line, i.e. by drawing on it for reasons that do not contribute to financial stability.

Generally speaking, advanced economies view central bank swap lines as protection from a temporary shortage of foreign currency (notably dollars) in a country with sound fundamentals, not as a means to avoid the collapse of insolvent institutions or to resolve a balance of payments crisis. Conversely, some emerging economies regret their difficulties accessing liquidity in dollars (and to a lesser extent other major currencies such as the euro or the pound sterling) – difficulties that swap lines could alleviate. However, the central banks of advanced economies can be reluctant to sign swap agreements with emerging central banks as they generally regard emerging countries' economic fundamentals as not sound enough or due to sometimes diverging views of the purpose of such swaps.

The crises in Latin America and Asia undermined emerging economies' trust in the IMF's capacity and methods for preventing or correcting balance of payment crises. In response to this criticism, the IMF resorted more frequently to Stand-By Arrangements (SBAs, one of its basic financial aid programmes) for liquidity and precautionary purposes (25 SBAs between 2008 and 2011) and overhauled its intervention capacity by creating special instruments (such as the Flexible Credit Line, FCL, and the Precautionary and Liquidity Line, PLL). However, the main emerging economies continue to prefer accumulating foreign exchange reserves in order to avoid resorting to the IMF. The conditionalities for IMF assistance are deemed to be strict, accepting IMF aid can be a source of stigma, the amounts offered are too low or the available instruments are inadequate.

For emerging economies, the lender of last resort is therefore an open question, as the proper functioning of the international monetary system requires a global lender of last resort that is both able and willing to inject enough currency into the system in the event of a liquidity crunch. The Fed has shown that it does not wish to fulfil this role. While the IMF already partially fulfils this duty, especially for emerging economies, by constantly adjusting its instruments, it could further strengthen its actual role as lender of last resort. The IMF's past work on the role of Special Drawing Rights and its more recent work on new funding facilities (notably the Short-Term Liquidity Facility, SLF) could be a step in this direction.

3. Issues related to the rise in China's swap lines

The amounts authorised under the PBoC's swap agreements have grown significantly over the recent period, but the related risks are hard to assess due to the limited information available on the amounts activated. These swap lines mainly involve central banks in emerging and developing countries, some of which are facing very poor economic conditions. The public information on agreements signed by the PBoC is quite succinct, indicating only the maximum authorised amount, the maturity and possibly a few details on the reasons behind the agreements. The PBoC no longer publishes the amounts actually activated, but in 2011,[6] it reported that RMB30bn had been activated in 2010 out of total authorised amounts of RMB803.5bn. It is public knowledge that Argentina drew on its RMB swap line regularly in 2015, then converting the proceeds into dollars (probably through the PBoC directly) to pump up its foreign exchange reserves (not for commercial transactions). In late August 2015, Argentina's central bank had already drawn USD10.2bn of the USD11bn forecast for the full year. Generally speaking, a lack of information on the existence and actual use of swap lines makes it harder to measure China's real exposure and to assess risk for countries whose commitments may be partially concealed. As agreements are secret, the countries signing them are unable to benefit from a positive market signal associated with access to foreign currency funding.

(6) See PBoC's annual report.

3.1 A network that broadens the use of the RMB

The PBOC's development of swap lines is part of a long-term strategy to make the RMB an international currency. RMB internationalisation is a priority for the Chinese authorities.[7] This strategy began to take tangible shape in 2009 with current account convertibility,[8] initially on a restricted basis through pilot programmes. International use of the RMB, while rising, is currently limited to transactions in Asia or directly involving Chinese economic agents. In 2012, the PBoC officially declared that its swap agreements were part of its RMB internationalisation policy, [9]thus diverging from previous swap agreements signed by central banks in developed countries.

Swap lines underpin the RMB's internationalisation by guaranteeing the liquidity of offshore RMB holdings and circumventing the constraints related to the China's relatively closed capital account, which limits RMB liquidity for non-residents and is an obstacle to internationalisation of the currency. Indeed, a non-resident importer must be sure to have access to RMB liquidity (via the forex market and trade credits) before signing RMB-denominated contracts, and a Chinese economic agent cannot pay for imports in RMB unless the foreign counterparty agrees. To guarantee this access, the Chinese authorities have implemented measures to increase RMB availability and recognition, for example via offshore RMB markets. Swap lines strengthen this strategy by providing an institutional framework should RMB liquidity on offshore markets dry up. The Hong Kong Monetary Authority (HKMA), for instance, drew RMB20bn on its swap line in October 2010 to prevent RMB liquidity from drying up on the Hong Kong offshore market, thus boosting non-resident investors' confidence in the Chinese currency. This institutional framework has also developed with the opening of clearing houses and direct convertibility between the RMB and various other currencies.[10]

3.2 The absence of conditionalities and the targeting of weak countries raise risks for financial stability

Some PBoC swap lines compete with the instruments of international institutions and could increase China's international influence and market share (see Box 2). China has signed swap agreements with countries whose economic fundamentals are very poor (e.g. in May 2015 the PBoC renewed its agreement with Ukraine), which sometimes no longer have access to international markets or are in conflict with the IMF (e.g. Argentina under the Kirchner administration). In other cases, the PBoC's swap lines may have been used to meet temporary funding needs alongside an IMF programme, for example in Mongolia. Guaranteed access to RMB liquidity could prompt some countries to orient their foreign trade more towards China - especially countries with limited access to dollar liquidity. Furthermore, the lack of transparency in these agreements raises questions about the underlying commercial, political or financial terms accepted in exchange for these RMB swap lines in negotiations that may be unequal, especially for the weakest economies. Some countries may choose to use these swap lines rather than traditional institutional instruments that come with stricter conditions (e.g. IMF programme disbursements are conditional on carrying out structural reforms that are monitored throughout the programme). This risk is exacerbated by the fact that traditional instruments are sometimes seen as a source of stigma for beneficiary countries, and some countries may be hostile to the policies advocated by international institutions.

Attempts by some countries – especially those with the weakest economies – to conceal downturns by drawing on swap lines could ultimately paper over or worsen certain risks on an international scale, all the more as these agreements can be terminated unilaterally. Given their contractual nature, swap lines are more flexible but also more fragile than traditional funding instruments. In addition, a country can draw on a swap line without being subject to a supervisory mechanism or conditionalities on its policies. While this kind of virtually unconditional arrangement can cover a country's short-term liquidity needs, it may also carry risks for global financial stability, whereas a multilateral institution is more directly focused on defending this stability.

(7) See notably the Five-Year Plan (2016-2020).
(8) Current account convertibility means that residents have access to foreign currencies (chiefly the dollar) to carry out commercial transactions and can freely convert foreign currencies into the local currency as part of these transactions.
(9) See PBoC's annual report.
(10) Clearing houses were opened in London and Hong Kong to coincide with the signing of swap agreements with the respective central banks.

Box 2: China's selection criteria for signing swap agreements

As at 2017, the list of countries that had signed bilateral swap agreements with the PBoC was very diverse, including a majority of emerging and developing countries, some facing very challenging economic or geopolitical situations, along with a few advanced economies. This raises the question of China's selection criteria.

Garcia-Herrero and Xia (2013)[a] have attempted to define these criteria. Their study covers 18 of the 19 economies that had signed an RMB swap agreement with the PBoC in 2013 (excluding Uzbekistan due to a lack of data), as well as the economies with direct RMB convertibility (Japan) or a clearing house (Taiwan and the UK; Macao was excluded due to a lack of data).

The researchers picked five major criteria that explain why the PBoC selected a country: its force of attraction (distance from China and country size); the importance of commercial ties with China (volume of exports to China and whether or not there is a free trade agreement); the country's financial openness (degree of openness of the capital account and FDI in China); the macroeconomic situation (inflation and number of sovereign defaults); and quality of institutions (government quality index and corruption index, in absolute terms and relative to China).

The findings suggest that the primary factors for a swap with the PBoC are the country's force of attraction (especially its geographic proximity to China) and trade-related reasons, whereas the degree to which the capital account is closed is viewed as a factor favouring an agreement but is not decisive. Many agreements have been signed as part of a broader context of strengthening bilateral cooperation, especially in the financial field (this is notably the case for Qatar and Morocco). The intensity of bilateral trade flows was also cited as a decisive factor by Eichengreen and Lombardi (2017).[b] In fact, countries signing bilateral swap agreements often mention facilitating payments for bilateral commercial transactions as a decisive factor, even in cases where bilateral trade is not especially developed, as recently with Egypt and Nigeria. In these circumstances, signing a swap agreement is a means to promote bilateral trade with China.

Conversely, a sound macroeconomic situation does not appear to be a selection criterion. Even more surprising, Garcia-Herrero and Xia's estimates (2013) show that the countries that have experienced sovereign defaults in the past have a greater chance of signing a swap agreement with China. This is the case for Russia, Ukraine and Argentina. In such cases, the swap agreement can be viewed as a precautionary instrument, along the lines of the IMF's instruments. Argentina is a noteworthy example. After signing a precautionary credit line with the IMF in June 2018 to contend with a decline in its foreign exchange reserves following a sharp depreciation in its currency, Argentina stated that it was in talks with China to increase the amount of its swap line (without giving details on the amount negotiated). Another example is Pakistan, which announced a twofold increase in its swap line with the PBoC just as its currency was depreciating sharply in 2018. Furthermore, the countries that show an institutional proximity with China are not necessarily the most likely to sign a swap agreement with the PBoC.

These apparent selection criteria of the PBoC for signing swap agreements are strikingly different from the criteria of central banks in advanced countries, especially the Fed. Indeed, Aizenman and Pasricha (2010)[c] identified the following main factors for the Fed's selection of emerging economies between 2008 and 2009: *(i)* the importance of trade and financial ties, *(ii)* a high degree of capital account openness, as well as *(iii)* no sovereign default instances.

a. Alicia García-Herrero and Le Xia, China's RMB Bilateral Swap Agreements: What Explains the Choice of Countries? (2013). *BOFIT Discussion Paper* No. 12/2013. Available at SSRN: https://ssrn.com/abstract=2686552

b. B. Eichengreen and D. Lombardi (2017), "RMBI or RMBR? Is the Renminbi Destined to Become a Global or Regional Currency?" *Asian Economic Papers*, MIT Press, vol. 16(1), pp 35-59, Winter/Spring.

c. J. Aizenman and G. Kaur Pasricha (2010), "Selective Swap Arrangements and the Global Financial Crisis: Analysis and Interpretation", *International Review of Economics & Finance*, vol. 19, no. 3, pp 353-365.

4. While the usefulness of swap lines is undisputed, their lack of transparency is problematic and could lead to risky behaviour

The rapid expansion in the number of swap agreements and their size raises the question of their positioning alongside existing regional or multilateral arrangements. The decision to sign a bilateral swap agreement, along with the related terms, is at the discretion of central banks acting within the scope of their mandate. Central banks refer to their mandate to justify their actions and generally do not give detailed information for their choice of partners or certain conditions (maximum amounts, maturities, etc.). The Fed has stated that decisions to draw on swap lines are based on the internal decision-making processes of each central bank, and each party may terminate an agreement unilaterally. For some central banks, notably the Fed, this substantial freedom is coupled with transparency (e.g. the content of swap agreements or the amounts activated), but this approach is not mandatory.

Given the specific circumstances for setting up swap lines, they are not subject to extensive multilateral talks between central banks and third parties, notably because certain central banks are very reluctant to accept constraints on their actions. Therefore, it might be desirable both to increase transparency on these lines, for instance by agreeing to principles for publishing the main characteristics of swap lines, and to discuss these topics within the multilateral fora involving central banks.

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