



Thirtieth Meeting of the IMF Committee on Balance of Payments Statistics

Paris, France

BOPCOM—17/25a

October 24–26, 2017

The Treatment of Currency Swaps Between Central Banks: Egypt Experience

Discussion Paper on "the treatment of currency swaps between central banks"¹

Introduction;

Originally, currency swaps were done to get around exchange controls. As most developed countries have removed controls, they are done most commonly to hedge long-term investments and to change the interest rate exposure of the two parties. Historically, the World Bank first introduced currency swaps in 1981, with a tenor up to 10 years, to obtain German marks and Swiss francs.

When the financial crisis started in 2007, foreign banks, with a limited access to dollar funding, became highly reluctant to lend to one another, owing to fears about the true creditworthiness of counterparties. This pushed up the cost of borrowing, as lenders demanded higher interest rates to compensate for rising counterparty risk. Just to address such issue, central banks in developed countries agreed to provide swap lines to one another, given their ability to provide local currency to their domestic banks at a lower cost of borrowing and their limited capability of providing FX due to the limited amount of FX reserves they held.

In this context, the Federal Reserve established central bank dollar swaps: reciprocal currency arrangements with several foreign central banks that were designed to ameliorate dollar funding stresses overseas. In their study, Goldberg, Linda, Craig Kennedy, and Jason Miu (2011) conclude that the dollar swap facilities played an important role in minimizing systemic liquidity disruptions. In 2007 and 2008, a few bilateral measures were arranged across central banks to alleviate funding pressures in their domestic currencies. One such measure was the central bank network of swap lines. Consequently, the currency swap lines become one of other options available to developed and emerging market economies to use as reserve support and insurance against liquidity losses in the event of a liquidity disruption.

I. Currency Swap definition and Purpose;

When funding markets in one currency worsen, it becomes difficult for banks outside that currency area to fund their assets tied to this currency since they have no direct access to the foreign central bank that issues the currency. But if their home central bank has a swap line with the foreign central bank, the home central bank can provide its banks with the required liquidity in the foreign currency without using its foreign reserves².

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² During the financial crisis following the collapse of Lehman Brothers in September 2008, for example, funding markets dried up because of extreme risk aversion. Under these circumstances, it became difficult for euro area banks to obtain US dollars to fund their USD-denominated assets. To prevent disruptions, such as banks having to sell assets abruptly and thus provoking extreme price movements, the ECB and the Federal Reserve set up a currency swap line, allowing the ECB/Euro-system to provide US dollars to banks located in the euro area.

Thus, a currency swap line could be defined as an agreement between two central banks to exchange a cash flow in one currency against a cash flow in another currency according to predetermined terms and conditions. They allow a central bank to obtain foreign currency liquidity from the central bank that issues it – usually because they need to provide this to domestic commercial banks³. As for its common tenor, currency swap maturities are negotiable for short (Up to one year) to long term, ranging between 3-10 years, making them a very flexible method of foreign exchange. Currency swaps' interest rates can be fixed or floating and is usually expressed as inter-bank lending rate prevailing in two-party markets, such as “LIBOR” plus or minus a certain number of points, based on interest rate curves at inception and the credit risk of the two parties.

As a matter of fact, swap lines were initially used by central banks to fund certain market interventions. Afterwards and over the past 10 years, the swap lines have become an important tool for preserving financial stability, preventing market tension from affecting the real economy and avoiding excess levels of accumulated reserves especially when the cost of such accumulation is higher. Also, currency swap agreements are designed to protect both central banks involved in the swap from losses owing to fluctuations in currency values. But, there is still some risk that a central bank will refuse, or be unable, to honor the terms of the agreement. For this reason, lending through currency swaps is a meaningful sign of trust between governments⁴.

Another function for currency swap lines is to ensure, for the central bank, a high level of operational readiness. According to ECB currency agreements with the Fed, many of them act mainly as a safety net and have never been activated. In this context, the ECB regularly tests its monetary policy instruments and tools to make sure that they can be easily and safely deployed when needed. It is worth mentioning that the IMF's Flexible Credit Line is also designed for insurance purposes. But it needs a member country conditionality, while the currency swaps network does not. Also, the swap lines could be used with the intention to alleviate the upward pressure of the demand that might be placing on a particular currency⁵.

Although all types of swaps functions are in a similar fashion, there are some major fundamental qualities that make central banks currency swaps unique and thus slightly more complicated. The following part tries to illustrate in brief how it works and how central banks, commercial banks, domestic corporations can benefit from them.

II. How Bilateral Currency Swap Agreements Work

Despite central banks currency swap lines can be done in several ways, their mechanism is approximately the same worldwide as long they imply exchanging currencies on cash basis. According to real-world experience and BPM6 articles, it is possible to identify

³ For example, the swap line with the Fed System enables the ECB and all the national central banks in the euro area to receive US dollars from the Fed in exchange for an equivalent amount of euro provided to the Fed. Also, the swaps signed by the ECB in favor of other Euro-countries in 2007 were geared towards providing FX liquidity to domestic banks.

⁴ It can also be a sensitive domestic political issue. However; legislators in the United States, and even public commentators in China, have expressed concerns about the level of risk their respective central banks are taking in extending swap lines to certain nations.

⁵ In his book; “International Liquidity and the Financial Crisis”, William Allen stated that the Fed swap lines to emerging economies, like those to developed economies, helped fill these dollar gaps and lowered dollar interest rates. Also, according to swaps established by the ECB, they were intended to alleviate the upward pressure this demand was placing on euro and Swiss franc interest rates.

the following types of currency swaps: 1) Exchange cash for cash vs cash for securities (BPM6 article 6.103)⁶; 2) Exchange conditional vs unconditional swaps; 3) Exchange reserve currencies on both sides; 4) Exchange reserve currency for non-reserve currency; and 5) Exchange non-reserve currencies on both sides.

Under the assumption of having two reserve currency exchanged, the mechanism of working such swap agreement would be under normal circumstances, if a bank in the euro area needs US dollars, for example because it needs to provide a US dollar loan to a client, the bank turns to the market. But if US dollar funding costs are too high or if the market is disrupted, the bank can go to its national central bank. In this case, the ECB can get dollars thanks to the currency agreement with the Fed. As a matter of fact, the ECB currently runs weekly auctions, in which euro area banks can say how many dollars they want to borrow at a predefined interest rate. In return for the dollars, they must provide the ECB with high-quality collateral, the value of which is determined by current market prices (“mark to market”) minus an appropriate deduction (referred to as a “haircut”).

In a currency swap, the parties agree in advance whether or not they will exchange the principal amounts of the two currencies at the beginning of the transaction (put it under the disposal of the two parties). The two principal amounts create an implied exchange rate. For example, if a swap involves exchanging €10 million vs \$12.5 million, that creates an implied EUR/USD exchange rate of 1.25. At maturity, the same two principal amounts must be exchanged, which creates exchange rate risk as the market may have moved far from 1.25 in the intervening years. Many swaps use simply notional principal amounts, which means that the principal amounts are used to calculate the interest due and payable each period but is not exchanged.

In order to collect or pay any overnight interest due on these foreign balances, at the end of every day institutions will close out any foreign balances and re-institute them for the following day. To do this they typically use "tom-next" swaps, buying (or selling) a foreign amount settling tomorrow, and then doing the opposite, selling (or buying) it back settling the day after. The interest collected or paid every night is referred to as the cost of carry. As currency traders know roughly how much holding a currency position will make or cost on a daily basis, specific trades are put on based on this; these are referred to as carry trades. Once a foreign exchange transaction settles,

⁶ BPM6 (6.103) states that Reciprocal currency arrangements between central banks may also take the form of a securities repurchase agreement. In this case, one central bank transfers securities (sometimes denominated in its domestic currency) to another central bank in exchange for foreign currency, with the transactions later reversed, typically three months in the future. Such transactions should be treated as collateralized loans, with the central bank that initiated the transaction paying corresponding interest on the foreign currency received. The cash-taking central bank can therefore include the foreign currency received in its reserve assets if the criteria for reserve assets are met. The cash-providing central bank should not include the securities received as collateral in its reserve assets as the securities are treated as not having changed economic ownership (see paragraph 5.54). See also paragraph 6.90 on securities lending or borrowing transactions in reserve assets.

the holder is left with a positive (or "long") position in one currency, and a negative (or "short") position in another⁷.

Additionally, most swaps involve a net payment. In a total return swap, for example, the return on an index can be swapped for the return on a specified stock. Every settlement date, the return of one party is netted against the return of the other and only one payment is made. Contrastingly, because the periodic payments associated with currency swaps are not denominated in the same currency, payments are not netted. Every settlement period, both parties are obligated to make payments to the counterparty.

III. Treatment and Recording of Bilateral Currency Swap Agreements in the Reserve Data Template, Balance of Payments estimates and International Investment Position (of which; External Debt):

Central bank swap lines could be reserves or near-reserves. While they have reserve-like features as they can play the role of reserves in time of stress, they could be a part of reserves when activated and put in place in full amount of arrangement, available to use and controllable by central banks⁸.

As reserves play a role of critical liquidity buffer for most countries, bilateral swap lines are also external buffers, for most countries as they could be part of reserves and/or act as a complement to their official reserves. Both enable authorities to prevent crisis as well as giving them space to mitigate crisis. For the purpose of this paper, our focus will be solely on the statistical treatment of the following types:

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Pricing

Main article: Interest rate parity

The relationship between spot and forward is known as the interest rate parity, which states that

$$F = S \left(\frac{1 + r_d T}{1 + r_f T} \right),$$

where

- F = forward rate
- S = spot rate
- r_d = simple interest rate of the term currency
- r_f = simple interest rate of the base currency
- T = tenor (calculated according to the appropriate day count convention)

The forward points or swap points are quoted as the difference between forward and spot, $F - S$, and is expressed as the following:

$$F - S = S \left(\frac{1 + r_d T}{1 + r_f T} - 1 \right) = \frac{S(r_d - r_f)T}{1 + r_f T} \approx S(r_d - r_f)T,$$

if $r_f T$ $\left\{ \text{displaystyle } r_{\{f\}T} \right\}$ is small. Thus, the value of the swap points is roughly proportional to the interest rate differential.

⁸ During the global financial crisis, temporary USD swap lines were put in place promptly by the US Federal Reserve and provided an important external liquidity backstop for a number of emerging and advanced economies (Chapter 4 of the supplement). However, while these lines have remained a relatively constant part of the toolkit for some major central banks—ECB, SNB, BOJ, BOE, and BOC—for other central banks in mature and emerging markets.

1) Exchange reserve currencies on both sides; 2) exchange non-reserve currencies on both sides; and 3) Exchange reserve currency for non-reserve currency.

As central Banks currency swap lines can be done in several ways, their statistical treatment into macro statistics also differ. First, the treatment depends upon whether or not its mutual principals are fully exchanged when the deal is initiated. If there is a full exchange of principal, the exchange is reversed at the maturity date. Accordingly, if the two-party currency is convertible, then the full amount should be added to reserve assets for the two party, and in the same time must be added as a reserve related liability. If this is not the case, no entries would be required in this stage until one party asks for using an amount to finance imports from the other party's country.

As for the currency swap line **exchanging reserve currencies on both sides**, the most common one is the Federal Reserve's foreign exchange swaps program that allowed some countries to address disruptions to US dollar funding markets for local institutions rather than deploy their foreign exchange reserves (see Goldberg, Kennedy, and Miu [2011]). In short, the main methodological advice related to currency swaps between central banks is that, according to BPM6, they are treated as deposits and not as financial derivatives. Para 5.91 of BPM6 states that "Other types of arrangements also called swaps but not meeting the definition above [financial derivatives swap contracts] include gold swaps, central bank swap arrangements ..."

When it comes to the currency swap that **exchanging non-reserve currencies on both sides**, the most common one is Chinese agreement **signed before October 2016**⁹. Since 2009, China has signed bilateral currency swap agreements with thirty-two counterparties. The stated intention of these swaps is to support trade and investment and to promote the international use of renminbi (RMB). In addition to using the swaps to facilitate trade in renminbi, China is also using the swap lines to provide liquidity to Argentina as well as Pakistan in order to bolster the country's foreign exchange reserves. For the State bank of Pakistan (SBP), the deposit in RMB is an asset that should be recorded as other external assets denominated in RMB in the balance sheet of the SBP. It cannot be recorded as official reserves, although it is an external asset of the SBP.

The contra entry of these assets is the liabilities in PKR that are China's claims in the SBP. This should be recorded as well in the balance sheet of the SBP.

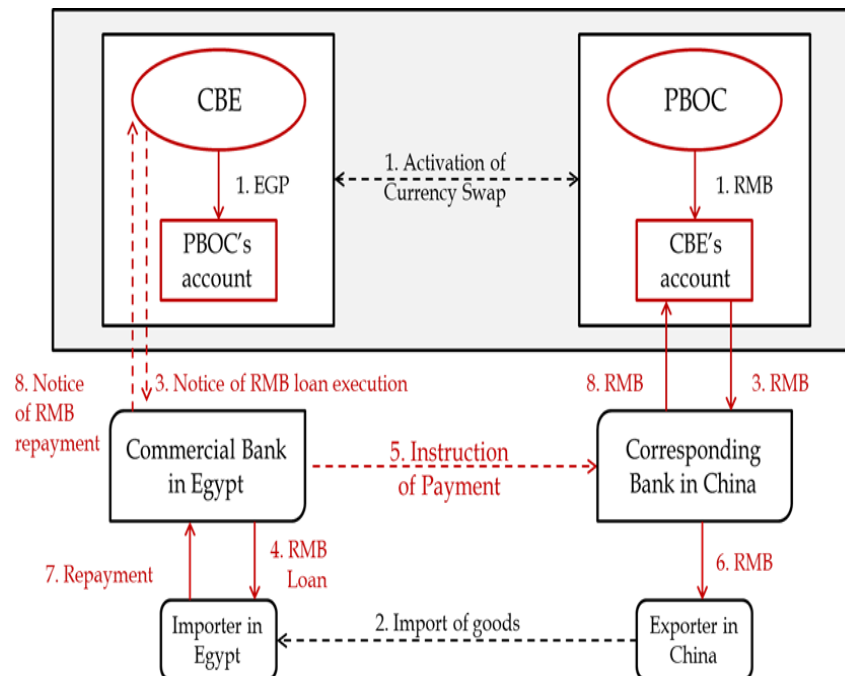
At the time of the exchange of currencies, it should be recorded as an increase in assets and an increase in liabilities of the monetary authorities in the balance of payments estimates. This transaction is to be recorded in "Other investment/currency and deposits" (recorded both in Assets and liabilities) of the monetary authorities, that is the SBP. These assets denominated in RMB in the SBP should be recorded in the IIP as other external assets of Pakistan. Then, the IIP of Pakistan will show an increase in assets (other external assets of the monetary authority) and an increase of liabilities for the same amount. If external debt is derived from the IIP table, it should record an increase of liabilities as well of the SBP during the period of the exchange of currencies. Each time an Importer in Pakistan purchases Chinese goods with RMB it should be recorded as an import with a contra entry that will record less assets in RMB (because Pakistan is paying in RMB). If a Chinese importer makes imports from Pakistan, the recording is an export of Pakistan with a contra entry recording less liabilities vis-à-vis China in PKR.

⁹ Note that, effective October 1, 2016, the Chinese renminbi is included in the SDR basket.

Another important notice should be made in the Argentinean case. It was allowed for the central bank of Argentina to exchange the renminbi received through the swap into other currencies. Given the difficulty that Argentina had in borrowing dollars on international markets due to its debt crisis and the resultant shortages it faced on a range of imported goods from, swapping renminbi into dollars enabled domestic companies to import from abroad including China. This special feature shifts and switches the such type from just exchanging non-reserve currency into the type of exchange reserve currency for non-reserve currency. Thus, this case's statistical treatment in different macro statistics might be changed accordingly.

As for the currency swap line which **exchanging reserve currency for non-reserve currency**, one example of such bilateral agreement is the agreement signed on December 6th, 2016 between the Central Bank of Egypt (CBE) and the People's Bank of China (PBoC). The PBOC credited 18 Billion RMB to CBE's account held with PBOC, at the same time CBE credited PBOC's account held with CBE with the equivalent USD 2.6 billion or EGP 49,249,800,000, based on an exchange rate of RMB/EGP 2.7361. The main purpose of such agreement is to enable companies in Egypt to settle renminbi trade with the mainland. On the maturity date, PBOC & CBE will simultaneously return the amounts that were credited to their accounts. This swap line is a 3-year agreement, with withdrawal and utilization period of up to one year and can be renewed. The mechanism of drawing and repayment on the amount of the currency swap line could be better understood, when described from a perspective of Egyptian importer who settles trades in RMB, as follows:

China FX currency swap agreement Illustration from an Importer perspective in Egypt



1. The CBE and the PBOC activate the currency swap in advance, after which each party puts its local currency swap fund at the account within itself and under the name of the counterpart (CBE deposits in EGP, PBOC in RMB). i.e the (CBE)

provides to China, Egyptian pounds (EGP). It opens an account on behalf of China in EGP within the central bank, and the (PBOC) provides in exchange Chinese Renminbi (RMB) for the same amount. It opens an account in the PBOC on behalf of the CBE.

2. A domestic importer who imports goods from China applies for an RMB loan to a domestic bank.
3. The domestic bank applies to the CBE for an RMB loan. After the review process, the CBE notifies the domestic bank of the approval for the RMB loan. Subsequently, the CBE requests the PBOC to transfer RMB fund from the CBE's account within the PBOC into the domestic bank's account with an corresponding bank in China.
4. The domestic bank directs the corresponding bank in China to transfer RMB funds into a Chinese exporter's account, and the corresponding bank in China provides RMB funds to the Chinese exporter. Egypt-China Currency Swap-Financed Trade Settlement Facility.
5. The domestic importer repays RMB loan at its maturity date. The domestic bank notifies the CBE of the repayment and transfers RMB into the CBE's account within the PBOC through the corresponding bank in China.

For the CBE, the deposit in RMB is an asset that should be recorded as official reserve assets denominated in RMB in the balance sheet of the CBE.

The contra entry of these assets is the liabilities in EGP that are China's claims in the CBE. This should be recorded as well in the balance sheet of the CBE.

At the time of the exchange of currencies, it should be recorded as an increase in assets and an increase in liabilities of the monetary authorities in the balance of payments. This transaction is to be recorded in "Overall balance" as an increase in official reserve and as an increase in reserve related liabilities under the title "Other investment/currency and deposits" of the monetary authorities, that is the CBE.

1. International Reserve and Foreign Currency Liquidity Data Template:

(a) The amount in RMB received by the CBE (credited by PBOC) should be included in reserve assets, Section I.A, line I.A.(1).(b).(i) other national central banks, BIS, and IMF.

(b) In Section II, line II.1 – outflows (-) Principal, column "More than 3 months and up to 1 year" should show the same amount as in (a). When the money is used, the amount in Section I.A will decrease by the used amount, however the one in Section II will stay the same.

2. Balance of Payments:

BPM6 (para 6.102) stipulates that FX deposits acquired by the central bank initiating currency swap arrangements are treated as reserve assets, as they provide the central bank with assets to meet the economy's balance of payments financing needs and other related purposes. Also, reciprocal deposits acquired by the partner central bank are treated in the same manner as long they have the reserve assets' criteria, if they are denominated and settled in a convertible currency. In contrast, BPM6 (para 6.105) states that "Lines of credit that could be drawn and foreign exchange resources that could be obtained under swap agreements are not reserve assets because they do not constitute existing claims".

3. International Investment position and External Debt:

From an external debt perspective, the FX swap will be recorded as an external liability in domestic currency i.e. in Egyptian pounds. It should be included in the external debt data (a) a deposit asset in FX (RMB) equal to the amount credited by the PBOC and (b) a deposit liability in domestic currency equal to the credited by CBE to the PBOC account with the CBE.

Conclusion:

Apart from its disadvantages that are not related to statistical issues, (such as moral hazard problem, banking system currency mismatches ..etc), spreading central bank swap lines, to a large extent among developed economies and to a lesser extent between developed and emerging economies, might lead to enlargement of the gross international reserves on a global level. Given the ability of governments to print their domestic currencies, the matter becomes more complicated and causes many concerns. Even if these swap lines, as mentioned earlier, have never actually been used, this does not mean that they are not counted as reserve assets. The central bank swap lines which encompass the exchanging of a convertible currency (reserve currency) with both parties holding these reserve assets readily available to be used will inflate the global international reserves which could be reverted to the ability of the government to print money to be exchanged in these contracts. In the above explained swap agreements (reserve and non-reserve) countries can deploy the power of issuing money in signing more agreements that will add-up to their international reserves. If the stated situation above is true, that would mean offering countries the opportunity to window-dressing their early warning indices (debt/reserve by remaining maturity, M2 to reserves , and imports cover ratio) rather than fixing their structural fundamentals. In accordance, Article 6.75 states that "An existing asset that is committed for a future use but not encumbered can be included provided that the asset is readily available to meet a balance of payments financing need (and other related purposes stated in paragraph 6.64). An asset should not be denied as a reserve asset simply because the use to which the asset is to be put is a foreseeable one"

One important recommendation that came out of such discussion is the necessity of going back to apply the concept of "NIR" that is disseminating international reserves by individual country on a net basis. It means "reserve assets excluding the reserve related liabilities. Note that, this is in line with information reported in the Reserves Data Template as well in BPM6 memorandum data on reserve-related liabilities

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