INTERNATIONAL MONETARY FUND

Statistics Department

Recording of Central Bank Swap Arrangements in Macroeconomic Statistics

Recording of Central Bank Swap Arrangements in Macroeconomic Statistics[1]

This note provides guidance on how to treat central bank swaps in macroeconomic statistics. Off-market central bank currency swap arrangements should be recorded as an exchange of deposits with maintenance of value. However, if the central banks conduct the transaction as a standard (market priced) currency swap, then it is recommended that the swap be recorded as an exchange of deposits with the simultaneous creation of a financial derivative, namely a forward contract.

1. **In the past few years, several central banks have entered reciprocal currency arrangements through the temporary exchange of deposits.** The exchange provides one or both of the central banks that are part of the contract with assets that can be used to meet the economy's balance of payments financing needs and/or to provide local markets with foreign exchange liquidity. Because typically these arrangements are not a standard currency swap operation,[2] they warrant mention in the *BPM6* (paras. 6.102–6.104) and the *MFSMCG* (para. 4.175).

2. **This note provides guidance on how to record central bank swaps in macroeconomic statistics, based on past statistical guidance and central banks' accounting practices.**[3] Annex 2 presents an example of the recording in monetary statistics and in the integrated international investment position statement of the recommended option A presented in this note. It also refers to the *MFSMCG*, Annex 5.3 on valuation of financial derivatives as per recommended option B.

Standard Currency Swap

3. **A foreign currency swap is a spot sale/purchase of currencies and a simultaneous forward purchase/sale of the same currencies** (*MFSMCG*, para. 4.171). In the case of a standard currency swap, the recommendation is to record the spot sale of the currencies and, simultaneously, record a forward contract (derivative) at its market value.

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[1] A previous version of this note (prepared by Jose Cartas, Financial Institutions Division, and Marcelo Dinenzon, Balance of Payments Division, both STA) was sent for comments to Committee members, through a process of written consultation. The detailed comments received from Committee members and STA feedback on them, including the proposed changes to the draft resulting from the consultation, were presented as a paper at the Thirtieth Meeting of the IMF Committee in October 2017 (see BOPCOM 17/10 at http://www.imf.org/external/pubs/ft/bop/2017/30.htm). Committee members agreed with the proposed changes to the draft and the subsequent submission for comments of the updated version of the note to the ISWGNA/AEG and to the GFSAC before posting the clarification note on the BOPCOM website and *BPM6* website. ISWGNA/AEG and GFSAC members largely agreed with the proposed recommended treatment.

[2] They do not usually follow standard market conditions (e.g., they are not priced based on exchange rates and market interest rates prevailing in the respective economies)

[3] The accounting treatment of these transactions in some central banks may differ from the statistical treatment that is being recommended in this note.

4. **If the forward contract is correctly priced based on the spot rate of the currencies and the interest rates in their respective economies, its value at inception will be zero.**[4] For example, if Bank A enters in a swap with Bank B to exchange 1,000,000 units of currency A against 1,200,000 units of currency B (spot exchange rate 1.0:1.2), with the commitment to revert the operation in one year, and the interest rates in countries A and B are 3 percent and 5 percent p.a., respectively, the forward exchange rate should be—according to the uncovered interest rate parity—**1.0:1.2233**.

5. **Over the contract's life, as time lapses, spot exchange rates fluctuate, and interest rates change, the value of the forward contract can be positive (asset) or negative (liability) to the parties involved.** If after six months the spot exchange rate and the interest rates remain unchanged, the value of this forward contract will be a liability of 9,520 (in currency A) for Bank A and a corresponding asset of 11,424 for Bank B (in currency B), reflecting the shorter discount time for the future cash flows.[5]

Central Bank Currency Swaps

6. **Swap arrangements between central banks do not typically conform fully to a standard currency swap between market participants.** Here, one central bank exchanges a certain amount of its currency with the partner central bank for the other country's currency at the spot exchange rate, with the commitment to unwind the operation on a future date, at an agreed exchange rate (normally, the spot rate of the date of the original transaction). The foreign currency so acquired is usually held in an account at the partner central bank. Depending on the contract, one central bank may pay an interest to the other central bank on the amount of foreign currency used under the general swap arrangement. Also, margin calls may be required to account for exchange rate fluctuations, which are to be credited to the partner's deposit account if certain thresholds are crossed or at certain frequency.

7. **The *BPM6* (para. 6.102) and the *MFSMCG* (para. 4.175) describe such arrangements as an exchange of deposits (in foreign exchange) between the partner central banks.** The funds received can be considered as reserve assets, if they meet the general criteria of being denominated and settled in convertible foreign currencies, being readily available to and controlled by monetary authorities in the most unconditional form, etc. (*BPM6*, paras. 6.64–6.75). If the criteria are not met (e.g., if the use of the funds is subject to any authorization by the counterpart central bank), the funds would not conform to

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[4] The uncovered interest rate parity states that the forward rate in such contracts is set according to the formula Forward rate = Spot rate$*(1 + r_n)^t/(1+r_f)^t$, where r_n and r_f are the domestic and foreign interest rates, and t is time.

[5] The formula for calculating the value of a forward contract at a point of time during its life is

Fair Value = $FC*[F*(1+r_n)^{-t} – S*(1+r_f)^{-t}]$, where FC is the notional value of the forward contract, F the agreed forward exchange rate, and S the spot exchange rate at the time the contract is valued. In our example, for CBA this results in $1{,}223{,}301* [0.81746*(1+.03)^{-0.5} – 0.83333*(1+0.5)^{-0.5}] = -9{,}520$A;
0.81746 and 0.83333 are the forward and spot exchange rate of currency B expressed in units of currency A, and t = 0.5 because the contract is being valued at mid-term of its maturity.

the definition of reserve assets and the deposit should be recorded as "other investment" in external sector statistics.

8. **Swap arrangements with different purposes are conducted between central banks.** For example, the U.S. Federal Reserve has entered into agreements to establish dollar and foreign-currency liquidity swap lines with the European Central Bank (ECB) and a number of other foreign central banks (see https://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm). The People's Bank of China (PBC) has also entered in currency swap arrangements with other economies' central banks, in some cases to provide those central banks with foreign assets that can be used to meet balance of payment financing needs, to contribute to the internationalization of the Renminbi, and/or to facilitate trade with those economies. Other central banks have also entered into similar agreements.

9. **No transaction should be recorded until the money is put at the disposal of the respective central banks.**[6] Normally, central bank currency swaps take place under an umbrella/master agreement**.** Individual swap transactions are carried out for a fraction of the amount agreed in the master swap agreement, but the total principal amount outstanding cannot exceed in aggregate the maximum agreed in the master swap agreement. For accounting and statistical purposes, only the individual swap transactions should be recorded, since the remaining amount until the ceiling of the master agreement is reached is contingent upon the parties, and therefore outside the financial asset boundary. In other words, until the money is disbursed the swap is to be considered as a contingent asset (i.e., like an undrawn line of credit or a guarantee) and no financial asset should be recognized (*BPM6*, para. 5.10).

Recommended treatment

10. **In line with the *BPM6* and the *MFSMCG*, when these currency swaps do not have the characteristics of a standard (market priced) contract (as is usually the case between central banks) this note recommends recording the currency swap transactions as an exchange of deposits with maintenance of value.** Generally, the forward exchange rate is not priced based on the market interest rates prevailing in the economies entering in the contract.[7] Additionally, an interest is usually charged on the used portion of the deposit. The proposed treatment, described as *Option A*, involves the recording of two deposits with the commitment to unwind the operation on a future date at an agreed exchange rate.

[6] As mentioned in paragraph 7, once the swap is activated to be considered as reserve assets the funds must be readily available to and controlled by monetary authorities in the most unconditional form, i.e. the use of the funds should not be subject to any authorization by the counterpart central bank.

[7] In principle, if the conditions of the contract included an element of grant or concession, an adjustment should be made such that the transactions be recorded at market prices and the difference between the actual and the market price should be recorded as a transfer (*BPM6*, para. 3.79). Such a concessional element could also be shown through supplementary information (*BPM6*, para. 12.51).

11. **If these currency swaps had the characteristics of a standard (market priced) contract, the recommended treatment would be the recording of a financial derivative transaction, which implies the exchange of deposits as a spot operation and simultaneously entering in a forward contract.** This approach (*Option B*) properly records external assets and liabilities involved in the transaction. This requires that the forward contract be properly priced based on the market interest rates prevailing in the economies, and considering any interest charge on the used funds.

Option A – Exchange of Deposits with Maintenance of Value

12. **When the currency swap does not have the characteristics of a standard (market priced) contract, the transaction will be treated as an exchange of deposits between the central banks, with the obligation to unwind the operation at a fixed exchange rate on a specified date.** Under this option, the deposit of central bank A (CBA) held with the counterpart central bank B (CBB) is a foreign asset of CBA, denominated in foreign currency and part of its international reserves if they meet the general criteria for being reserve assets. A similar treatment would be applied to the deposits of CBB held with CBA, as relevant.

13. **The deposit issued by CBA and held by CBB is a foreign liability of CBA denominated in domestic currency, but fully linked to a foreign currency.** This is so, because CBA has an obligation to buy-back the foreign currency at the agreed exchange rate paying the spot exchange rate prevailing on the delivery date. **Therefore, this account should be treated as being denominated in that foreign currency** (*BPM6*, para. 3.101). To accomplish this, periodic revaluation adjustments on the CBB's deposit account should be carried out to ensure the appropriate recording of the actual outstanding amount that is owed—the amount of foreign currency to be reimbursed in the simultaneous forward transaction at the end of the arrangement, including any interest payment. A similar recording will take place at CBB.

14. When a counterpart central bank (say, CBB) withdraws funds from the deposit account, there will be a decrease in the external liabilities (deposits) of CBA, which will then not fully reflect its obligation to repurchase the full amount in national currency of the original operation delivering foreign currency. However, CBB will need to replenish its deposit account with CBA before the contract is unwound.

Option B – Exchange of Deposits with a Simultaneous Forward Contract

15. **When the currency swap has the characteristics of a standard (market priced) contract, the recommendation is to treat the currency swap arrangement as a standard currency swap,** namely the purchase of foreign currency with local currency, and the simultaneous recognition of a forward contract for the obligation to unwind the operation at a certain date. The value of the forward will be determined by the agreed forward rate and the discounted spot exchange rate using the market interest rates in both economies, including

any interest charges to be paid when the central banks use the balances of their deposit accounts.

16. **When the transaction is initiated, it will be recorded as an increase in assets/deposits (in foreign currency) of each central bank, with the corresponding offsetting entry in liabilities, denominated in domestic currency. The arrangement will also involve the recording of a financial derivative (asset or liability), once the forward contract has some market value.**[8] The balances of the deposit accounts reflect the initial deposit *less* any withdrawal, and no maintenance of value is needed for the liability deposit account denominated in national currency. The financial derivative should be periodically revalued to reflect market conditions, and will be an asset or liability of the counterpart central banks, depending on the spot exchange rate, interest rate, and time to maturity.

17. **The liability deposit will reflect maintenance of value if the derivative contract is periodically settled through margin payments.** This is particularly important for the appropriate recording of the external debt of the central bank requesting the funds.

[8] The financial derivative should be recorded in external sector statistics as any other financial derivative contract.

Use of Fund Credit

The use of Fund Credit could be seen as similar to a central bank currency swap. However, the IMF credit is a "one-way" transaction with a predetermined debt-service payment schedule—where the IMF does not use the currency of the member—making it in practice similar to a loan.

"The provision of financial assistance by the IMF to its members through the General Resources Account (GRA) is not "lending" either technically or legally. IMF financial assistance provided through the GRA takes place by means of an exchange of monetary assets, similar to a swap. Nevertheless, this purchase and repurchase of currencies from the IMF, with interest charged on outstanding purchases, is functionally equivalent to a loan and its subsequent repayment." (International Monetary Fund, *IMF Financial Operations, 2015*, footnote 5, page 4)

In balance of payments statistics, use of fund credit (UFC) is classified in the category loans, whereas the sale of domestic currency to the *IMF Nº 1 Account* is not shown as a balance of payments transaction or in the international investment position (*BPM6*, paras. 5.51 and 7.79). In monetary statistics, the central bank's sectoral balance sheet includes purchases of the Fund's resources in exchange for domestic currency in the *IMF Nº Account*, which also records the payment of the domestic currency component of the IMF quota subscription (*MFSMCG*, para. 245). However, the central bank survey is presented on an analytical net basis, showing the *Reserve position in the Fund* as a reserve asset and the UFC as a loan liability, excluding in this presentation the balance of the *IMF Nº 1 Account*.

Summary

18. **This note recommends the statistical treatment of off-market central bank currency swaps as an exchange of deposits with maintenance of value (option A).** Following this approach, each central bank acquires a foreign asset in foreign currency, and creates a foreign liability in domestic currency. Since the liability deposit account in domestic currency is fully indexed to a foreign currency, a valuation adjustment account linked to the former should be created and its carrying balance periodically adjusted to reflect the total amount of domestic currency needed to buy the foreign currency to be delivered, including any interest payment.

19. **If the central banks conduct the transaction as a standard (market priced) currency swap, then it is recommended to record the swap as an exchange of deposits with the simultaneous creation of a financial derivative, namely a forward contract (Option B).** Both central banks will have an asset in foreign currency and a liability in domestic currency for the exchanged deposits, and a financial derivative whose value (asset or liability) will fluctuate depending on the spot exchange rate, interest rates agreed for the use of funds, prevailing market interest rates, and time to maturity at the moment of valuation. As in Option A, symmetric recording by both central banks should be ensured. To implement this option, both central banks should properly estimate the value of the financial derivative based on exchange rates and interest rates in both economies.

Annex 1. Implications of This Treatment for Fund Programs

20. The net international reserves (NIR) is among the variables included in the performance criteria and indicative targets set out in Fund programs. Operationally, the NIR is often defined to refer to the difference between the country's gross reserve assets and its reserve-related liabilities. This note clarifies that off-market central bank currency swap arrangements should be recorded as an exchange of deposits between two parties with maintenance of value, with the obligation to unwind the operation at a fixed exchange rate on a specified date (option A). However, if the central banks conduct the transaction as a standard (market priced) currency swap, then it is recommended that the swap be recorded as an exchange of deposits with the simultaneous creation of a financial derivative, namely a forward contract (option B). As noted below, implementation of a central bank currency swap will increase the gross international reserves (GIR), but not the NIR defined for Fund programs.[9]

21. Under the proposed treatment—both options, **deposits (in foreign exchange) acquired by the central bank initiating the arrangement can be treated as reserve assets if they meet the general criteria** of being denominated and settled in convertible foreign currencies, being readily available to and controlled by monetary authorities in the most unconditional form, etc. (*BPM6*, paras. 6.64–6.75). If the use of the funds is subject to any authorization by the counterpart central bank, the funds would not conform to the definition of reserve assets.

22. **Deposit liabilities arising from foreign currency swaps with other central banks should be considered as reserve-related liabilities.**[10] Reserve-related liabilities are defined as foreign currency liabilities of the monetary authorities that can be considered as direct claims by nonresidents on the reserve assets of an economy (*BPM6*, paras. 6.115–6.116). In option A, the deposit issued by the central bank initiating the arrangement is a foreign liability denominated in domestic currency, but fully linked to a foreign currency; therefore, this account should be treated as being denominated in that foreign currency.

23. **To ensure equal treatment under both recommended options, NIR should in both cases be adjusted to account for the deposit liability, even though it is denominated in domestic currency in option B.** In this case of market-priced currency swaps (i.e., to be recorded under option B), the reason is that the foreign currency required to settle the contract equals the value of the deposit liability in domestic currency plus the value of the financial derivative contract (i.e., the total value is fully linked to the evolution of the exchange rate as if denominated in foreign currency).

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[9] This conclusion is equally applicable to option A (exchange of deposits) as well as to option B (spot sale of currencies plus financial derivative).

[10] Of course, subject to the related assets conforming fully to the definition of reserve assets.

24. **The related liability would usually be recorded as exceptional financing (below the line).** In the analytic presentation of the balance of payments, the foreign deposit liability would be shown below the line, because the main motivation of the transaction is to provide those central banks with foreign assets that can be used to meet balance of payments financing needs. This is consistent with the standard definition of NIR used in Fund programs.

25. Regarding the maturity of the liability, **individual swap transactions are usually short-term transactions.**[11] They are normally carried out for a fraction of the maximum amount agreed in the umbrella contract. For accounting and statistical purposes, only the money disbursed (i.e., not the maximum amount of the contract) should be recorded. Until then, the agreement is to be considered as a contingent asset (like a credit line) (i.e., outside the financial asset boundary). In other words, no transaction should be recorded until the money is put at the disposal of the respective central banks.

[11] In which case, the liability should be recorded as predetermined short-term drains on reserves in the Data Template on International Reserves and Foreign Currency Liquidity (http://www.imf.org/external/np/sta/ir/IRProcessWeb/index.aspx).

Annex 2. Numerical Examples for Recording Central Bank Currency Swaps

This annex provides (a) a numerical example on the way to record central bank currency swaps in monetary and external sector (IIP statement) statistics, according to the recommended option A described in the note, and (b) a reference to the *MFSMCG* on the general approach on valuation of financial derivatives according to the recommended option B of this note.

A. Treatment of Off-Market Central Bank Currency Swaps as an Exchange of Deposits with Maintenance of Value (Option A)

On **November 30, 2016**, Central Bank A (CBA) and Central Bank B (CBB) sign an agreement to establish a bilateral currency swap arrangement for up to $A 10 billion. Under this agreement, one central bank (the "requesting" party) can request from the other central bank (the "providing" party) to purchase a certain amount of the other country's currency in exchange for its own currency, with the commitment to repurchase its own currency with the other country's currency at a future date. The total amount drawn through successive requests cannot exceed $A 10 billion. The currencies will be credited in a non-interest-bearing deposit account of the counterpart central bank at the other central bank. Interest must be paid on any amount withdrawn from these accounts, based on the market interest rate of the country's used currency (to be paid at maturity).

On **January 2, 2017:** CBB requests from CBA to buy $A 1 billion in exchange of $B 1.2 billion (spot exchange rate: $A 1.00 = $B 1.20), with a commitment to unwind the transaction on December 31, 2017. Interest rates in country A and country B are 5 percent and 10 percent p.a., respectively, and do not change during the year.

On **March 31, 2017:** the currency of country B devalues to $A 1.00 = $B 1.40. Exchange rates do not change until the end of the year.

On **June 30, 2017:** CBB transfers $A 500 million from its account at CBA to a current account in euros at its correspondent bank in Frankfurt (the exchange rate is $A 1.00 = EUR 1.00 and does not change until the end of the year). To pay for the transaction, CBA transfers the amount from its current account at the same bank.

On **September 30, 2017:** CBA uses $B 280 million from its account at CBB to pay for imports from country B received in previous periods.

On **December 31, 2017:** the currency swap is unwound.

November 30, 2016

No transactions recorded. (same for all other cases)

January 2, 2017

Assets	**CBA (mill. $A)**		**Liabilities**
Deposit Account at CBB, FC	1,000	CBB's Deposit Account, NC	1,000

Assets	**CBB (mill. $B)**		**Liabilities**
Deposit Account at CBA, FC	1,200	CBA's Deposit Account, NC	1,200

March 31, 2017

Assets	**CBA (mill. $A)**		**Liabilities**
Deposit Account at CBB, FC	857	CBB's Deposit Account, NC	1,000
Maintenance of Value, CBB's Account CBB	143		

Assets	**CBB (mill. $B)**		**Liabilities**
Deposit Account at CBA, FC	1,400	CBA's Deposit Account, NC	1,200
		Maintenance of Value, CBA's Account	200
Loss			**Profit**
Valuation Adj., CBA's Account	200	Valuation Adj., Account at CBA	200

Alternatively, if the valuation adjustment is credited to the CBA's deposit account, the recording will be:

Assets	**CBA (mill. $A)**		**Liabilities**
Deposit Account at CBB, FC	1,000	CBB's Deposit Account, NC	1,000

Assets	**CBB (mill. $B)**		**Liabilities**
Deposit Account at CBA, FC	1,400	CBA's Deposit Account, NC	1,400
Loss			**Profit**
Valuation Adj. CBA's Account	200	Valuation Adj. Account at CBA	200

June 30, 2017

Assets	**CBA (mill. $A)**		**Liabilities**
Deposit Account at CBB, FC	1,000	CBB's Deposit Account, NC	500
Correspondent Account German Bank, FC	-500		

Assets	**CBB (mill. $B)**		**Liabilities**
Deposit Account at CBA, FC	700	CBA's Deposit Account, NC	1,400
Correspondent Account German Bank, FC	700		

September 30, 2017

Assets	CBA (mill. $A)		Liabilities
Deposit Account at CBB, FC	800	CBB's Deposit Account, NC	500
Accrued Interest, CBB's Account	6.14	Accounts Payable (Exporter Country B)	-200
Loss			**Profit**
		Accrued Interest, CBB's Account	6.14

Assets	CBB (mill. $B)		Liabilities
Deposit Account at CBA, FC	700	CBA's Deposit Account, NC	1,120
		Resident Bank (Exporter's), NC	280
		Accrued Interest, Account at CBA	8.59
Loss			**Profit**
Accrued Interest, Use of Account at CBA	8.59		

December 31, 2017

Before the currency swap is unwound, reflecting that the central banks need to replenish their deposit accounts with the counterpart central bank:

Assets	CBA (mill. $A)		Liabilities
Deposit Account at CBB, FC	1,000	CBB's Deposit Account, NC	1,000
Accrued Interest, CBB's Account	12.35	Accrued Interest, Account at CBB	4.82
Correspondent Account (buying of $B)	-204.82		
Loss			**Profit**
Accrued Interest, Use of Account at CBB	4.82	Accrued Interest, CBB's Account	12.35

Assets	CBB (mill. $B)		Liabilities
Deposit Account at CBA, FC	1,400	CBA's Deposit Account, NC	1,400
Accrued Interest, CBA's Account	6.75	Accrued Interest, Account at CBA	17.29
Correspondent Account (buying of $A)	-717.29		
Loss			**Profit**
Accrued Interest, Use of Account at CBA	17.29	Accrued Interest, CBA's Account	6.75

Unwinding of the currency swap:

Assets	CBA (mill. $A)		Liabilities
Deposit Account at CBB, FC	-1,000	CBB's Deposit Acc., NC	-1,000
Accrued Interest, CBB's Account	-12.35	Accrued Interest, Use of Account at CBB	-4.82

Assets	CBB (mill. $B)		Liabilities
Deposit Account at CBA, FC	-1,400	CBA's Deposit Account, NC	-1,400
Accrued Interest, CBA's Account	-6.75	Accrued Interest, Account at CBA	-17.29

Recording on the IIP Statement

It is further assumed for compiling the IIP statement that:

- Country A-initial deposit at German Bank (G Bank) (reserve assets of country A): Euro million 900 ($A million 900);
- Initial trade credit and advances liability of country A to country B: $A million 200;
- Country B's deposit account at CBA is classified as reserve assets; country A's deposit account at CBB is classified as other investment.

	Position	Transactions	Exchange rate changes	Other price changes	Position
	Nov-30-16				Jan-2-17
Country A ($A million)	700				700
Assets	900				1900
Other investment, currency and deposits (at CBB)	0	1000			1000
Reserve assets, currency and deposits (at G Bank)	900				900
Liabilities	200				1200
Other investment, currency and deposits (CBB's deposit)	0	1000			1000
Other investment, trade credit and advances (Country B)	200				200
Country B ($B million)	240				240
Assets	240				1440
Reserve assets, currency and deposits (at CBA)	0	1200			1200
Reserve assets, currency and deposits (at G Bank)	0				0
Other investment, trade credit and advances (Country A)	240				240
Liabilities	0				1200
Other investment, currency and deposits (CBA's deposit)	0	1200			1200

	Position	Transactions	Exchange rate changes	Other price changes	Position
	Jan-2-17				Mar-31-17
Country A ($A million)	700				700
Assets	1900				1900
Other investment, currency and deposits (at CBB)	1000		-143		857
Other investment, c&d maintenance of value (at CBB)	0		143		143
Reserve assets, currency and deposits (at G Bank)	900				900
Liabilities	1200				1200
Other investment, currency and deposits (CBB's deposit)	1000				1000
Other investment, trade credit and advances (Country B)	200				200
Country B ($B million)	240				280
Assets	1440				1680
Reserve assets, currency and deposits (at CBA)	1200		200		1400
Reserve assets, currency and deposits (at G Bank)	0				0
Other investment, trade credit and advances (Country A)	240		40		280
Liabilities	1200				1400
Other investment, currency and deposits (CBA's deposit)	1200				1200
Other investment, c&d maintenance of value CBA (CBA's deposit)	0		200		200

Alternatively, if the valuation adjustment is credited to the CBA's deposit account, the recording will be:

	Position	Transactions	Exchange rate changes	Other price changes	Position
	Mar-31-17				Apr-1-17
Country A ($A million)	700				700
Assets	1900				1900
Other investment, currency and deposits (at CBB)	857	143			1000
Other investment, c&d maintenance of value (at CBB)	143	-143			0
Reserve assets, currency and deposits (at G Bank)	900				900
Liabilities	1200				1200
Other investment, currency and deposits (CBB's deposit)	1000				1000
Other investment, trade credit and advances (Country B)	200				200
Country B ($B million)	240				280
Assets	1440				1680
Reserve assets, currency and deposits (at CBA)	1200		200		1400
Reserve assets, currency and deposits (at G Bank)	0				0
Other investment, trade credit and advances (Country A)	240		40		280
Liabilities	1200				1400
Other investment, currency and deposits (CBA's deposit)	1200	200			1400
Other investment, c&d maintenance of value CBA (CBA's deposit)	200	-200			0

	Position	Transactions	Exchange rate changes	Other price changes	Position
	Apr-1-17				Jun-30-17
Country A ($A million)	700				700
Assets	1900				1400
Other investment, currency and deposits (at CBB)	1000				1000
Reserve assets, currency and deposits (at G Bank)	900	-500			400
Liabilities	1200				700
Other investment, currency and deposits (CBB's deposit)	1000	-500			500
Other investment, trade credit and advances (Country B)	200				200
Country B ($B million)	280				280
Assets	1680				1680
Reserve assets, currency and deposits (at CBA)	1400	-700			700
Reserve assets, currency and deposits (at G Bank)	0	700			700
Other investment, trade credit and advances (Country A)	280				280
Liabilities	1400				1400
Other investment, currency and deposits (CBA's deposit)	1400				1400

	Position	Transactions	Exchange rate changes	Other price changes	Position
	Jun-30-17				Sept-30-17
Country A ($A million)	700				706
Assets	1400				1206
Other investment, currency and deposits (at CBB)	1000	-200+6.14			806
Reserve assets, currency and deposits (at G Bank)	400				400
Liabilities	700				500
Other investment, currency and deposits (CBB's deposit)	500				500
Other investment, trade credit and advances (Country B)	200	-200			0
Country B ($B million)	280				271
Assets	1680				1400
Reserve assets, currency and deposits (at CBA)	700				700
Reserve assets, currency and deposits (at G Bank)	700				700
Other investment, trade credit and advances (Country A)	280	-280			0
Liabilities	1400				1129
Other investment, currency and deposits (CBA's deposit)	1400	-280+8.59			1129

Before the currency swap is unwound, the central banks need to replenish their deposit accounts with the counterpart central bank – replenished funds are deposited at G Bank accordingly	Position	Transactions	Exchange rate changes	Other price changes	Position
	Sept-30-17				Dec-31-17
Country A ($A million)	706				708
Assets	1206				1712
Other investment, currency and deposits (at CBB)	806	200+6.21			1012
Reserve assets, currency and deposits (at G Bank)	400	-200+500			700
Liabilities	500				1005
Other investment, currency and deposits (CBB's deposit)	500	500+4.82			1005
Other investment, trade credit and advances (Country B)	0				0
Country B ($B million)	271				269
Assets	1400				1687
Reserve assets, currency and deposits (at CBA)	700	700+6.75			1407
Reserve assets, currency and deposits (at G Bank)	700	280-700			280
Other investment, trade credit and advances (Country A)	0				0
Liabilities	1129				1417
Other investment, currency and deposits (CBA's deposit)	1129	280+8.69			1417

After the currency swap is unwound	Position	Transactions	Exchange rate changes	Other price changes	Position
	Dec-31-17				Dec-31-17
Country A ($A million)	708				708
Assets	1712				708
Other investment, currency and deposits (at CBB)	1012	-1012			0.0
Reserve assets, currency and deposits (at G Bank)	700	12.35-4.82			708
Liabilities	1005				0.0
Other investment, currency and deposits (CBB's deposit)	1005	-1005			0.0
Other investment, trade credit and advances (Country B)	0				0.0
Country B ($B million)	269				269
Assets	1687				269
Reserve assets, currency and deposits (at CBA)	1407	-1407			0.0
Reserve assets, currency and deposits (at G Bank)	280	6.75-17.29			269
Other investment, trade credit and advances (Country A)	0				0.0
Liabilities	1417				0.0
Other investment, currency and deposits (CBA's deposit)	1417	-1417			0.0

B. Treatment of Standard (Market Priced) Currency Swap as an Exchange of Deposits with a Simultaneous Forward

If the central banks conduct the transaction as a standard (market priced) currency swap, then it is recommended to record the swap as an exchange of deposits with the simultaneous creation of a financial derivative, namely a forward contract (Option B).

Annex 5.3 of the *MFSMCG* discusses valuation of financial derivatives with a numerical example for forward contracts.