



IMF POLICY PAPER

REVIEW OF THE METHOD OF VALUATION OF THE SDR

NOVEMBER 2015

IMF staff regularly produces papers proposing new IMF policies, exploring options for reform, or reviewing existing IMF policies and operations. The following documents have been released and are included in this package:

- The **Staff Report** prepared by IMF staff and completed on November 13, 2015 for the Executive Board's consideration on November 30, 2015.
- Two **Staff Supplements** titled *Review of the Method of Valuation of the SDR—Weighting Formula and SDR Interest Rate* and *Review of the Method of Valuation of the SDR—Revised Proposed Decision and Illustrative Currency Amounts*.

The following documents have been or will be separately released:

- A **Press Release** summarizing the views of the Executive Board as expressed during its November 30, 2015 consideration of the staff report.

The Executive Board, in its formal meeting on the review on November 30, 2015, adopted the revised proposed decisions contained in the supplement *Review of the Method of Valuation of the SDR—Revised Proposed Decision and Illustrative Currency Amounts*. These decisions will govern the weights of currencies in the SDR currency basket effective October 1, 2016.

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REVIEW OF THE METHOD OF VALUATION OF THE SDR

November 13, 2015

EXECUTIVE SUMMARY

This paper provides the basis for the quinquennial review of the method of valuation of the Special Drawing Right (SDR). The review considers the composition, size, and weighting of the SDR currency basket and the financial instruments used to determine the SDR interest rate.

The analysis in this paper is guided by the informal discussion of Executive Directors in July on initial considerations for the review. In light of Directors' preference, the two currency selection criteria for SDR inclusion are maintained. Since China continues to meet the export criterion, a key focus of this paper is on assessing whether the *renminbi* (RMB) could be determined to be a freely usable currency, which is the second criterion.

The paper documents the rising international use and trading of the RMB since the 2010 SDR valuation review. A range of indicators suggests that use of the RMB in international transactions has risen substantially, albeit from a low base. The paper also finds that the RMB has become far more actively traded in foreign exchange markets, with sufficient depth to support operations of the size Fund members might undertake without an appreciable change in the exchange rate.

The Chinese authorities have taken a broad set of measures to further facilitate RMB operations by the Fund and the membership, covering all areas identified by staff in July. These steps include the liberalization of access to the onshore fixed-income and foreign exchange markets for Fund members and agents acting on their behalf. Recent volatility in onshore and offshore markets has highlighted some operational challenges, but the resulting impact on members is mitigated by their ability to use whichever of these markets is most advantageous.

Staff proposes that the Executive Board determine the RMB to be a freely usable currency, and include it in the SDR basket. While the legal framework sets forth the criteria that must be satisfied for a currency to be determined freely usable, the application of these criteria in assessing specific currencies ultimately requires the exercise of policy judgment. In the judgment of staff, the RMB can be considered to be both widely used and widely traded within the meaning of the definition of a freely usable currency set forth in the Articles of Agreement. RMB markets are also sufficiently developed to provide market-determined exchange rates, a benchmark interest rate, and hedging instruments that meet the operational needs of the Fund, members, and other SDR users. While recognizing some operational challenges, staff is satisfied that these are manageable.

Staff proposes to expand the SDR basket to five currencies. Keeping the current four currencies (British pound, euro, Japanese yen, and U.S. dollar) and adding the RMB would preserve stability in the composition of the basket while increasing its representativeness of the currencies used in the global trade and financial system. The added complexity of moving to a five-currency basket is expected to be limited and manageable for the Fund, members, and other SDR users.

For the purpose of assessing the export selection criterion and currency weighting, staff proposes to extend to all currencies the currency-based approach applied to monetary unions. This proposal recognizes, given the purpose of the SDR (which is not synonymous with the purpose of the “freely usable currency” concept), that the economic variables used for currency selection (other than the freely usable criterion) and currency weighting should reflect the characteristics of currencies rather than members.

Staff also proposes to adjust the formula for determining the weights of the SDR basket currencies. The proposed weighting formula would address long-recognized shortcomings of the current formula, providing equal weights for trade and financial indicators, with the latter incorporating a broader range of financial variables.

Staff proposes to include the three-month benchmark yield for China Treasury bonds as the RMB-denominated interest rate instrument in the SDR interest rate basket. For the other currencies comprising the SDR basket, the instruments used to determine the SDR interest rate would continue to be based on the yields on three-month government securities.

Staff proposes October 1, 2016 for the effectiveness of the new SDR basket and the RMB as a freely usable currency. In August 2015, the Board already approved an extension of the current SDR basket through September 30, 2016. Setting a future date for the effectiveness of the freely usable decision will help provide sufficient lead time for the Fund, members, and other SDR users to adjust to these changes.

Finally, staff proposes that the SDR basket be established for five years, consistent with past practice. Accordingly, and following the Executive Board’s earlier extension of the current SDR basket through September 2016, the next review of the method of valuation of the SDR would take place by September 30, 2021, unless developments in the interim justify an earlier review.

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I. INTRODUCTION

1. This paper provides the basis for the quinquennial review of the method of valuation of the Special Drawing Right (SDR) currency basket.¹ It discusses the currency composition and weighting of the SDR basket. In accordance with past practice, the paper also reviews the financial instruments used to determine the SDR interest rate (the SDR interest rate basket). The Board has generally taken decisions on SDR valuation some time prior to the effective date in order to provide advance notice to interested parties and to complete any consultations that might be required. The current SDR currency basket will be in effect through September 30, 2016.²

2. The Executive Board conducted the last SDR valuation review in 2010 and revisited the currency selection criteria in 2011.³ The 2010 review concluded that four currencies (British pound, euro, Japanese yen, and U.S. dollar) would continue to comprise the SDR basket. At that point China met the export criterion but the *renminbi* (RMB) was not included in the SDR basket as it was not judged to be freely usable, the second selection criterion. In 2011, while some Directors were open to alternative currency selection criteria, Directors stressed that the bar for inclusion in the SDR basket should not be lowered and most supported maintaining the existing criteria. They broadly agreed on the indicators to inform the assessment of freely usable currencies, while emphasizing that these indicators should not be applied mechanistically and that the determination of free usability would need to rely importantly on judgment. Directors considered that the number of currencies in the basket should remain relatively small to avoid adding undue costs and complexity for SDR users, while agreeing not to prejudge the exact number.

3. The staff assessment and proposals in this paper are guided by the informal discussion of Executive Directors in July on initial considerations for the review.⁴ At the time, Directors' guidance was that the current SDR currency selection criteria remained appropriate and did not need to be revisited. Since China continued to meet the export criterion for SDR inclusion, Directors considered it appropriate to focus the review on whether the RMB could be determined a freely usable currency, which would allow its inclusion in the SDR basket under the current SDR valuation framework. For the freely usable assessment, Directors felt that complementary indicators proposed by staff should be considered alongside the indicators endorsed by the Board in 2011. Directors also called on staff to develop a proposal for changing the weighting formula to address methodological issues and better reflect the relative importance of financial transactions.

¹ The quinquennial review of the SDR currency basket is provided for under Decision No. 12281-(00/98) G/S adopted 10/11/00 (referred to hereafter in the text as "the 2000 Decision").

² See [IMF Executive Board Approves Extension of Current SDR Currency Basket Until September 30, 2016](#), Press Release No. 15/384 (9/19/2015).

³ See [IMF Executive Board Completes the 2010 Review of SDR Valuation](#), Public Information Notice No. 10/149; and [IMF Executive Board Discusses Criteria for Broadening the SDR Currency Basket](#), Public Information Notice No. 11/137.

⁴ See [Review of the Method of Valuation of the SDR—Initial Considerations](#) (7/16/2015). This is referred to hereafter in the text as "the July paper".

4. In August 2015, the Executive Board approved an extension of the current SDR basket from December 31, 2015 through September 30, 2016. This extension was granted to ensure continued smooth functioning of SDR operations, in response to concerns expressed previously by SDR users that introducing a new basket at the beginning of the year exposed them to increased risks and costs, and given the higher-than-usual level of uncertainty arising from the possibility of including a new currency in the basket.⁵

5. The paper is organized as follows. Section II discusses currency selection criteria and provides updated data on indicators and analysis relevant for the freely usable assessment. Section III discusses whether the RMB satisfies the requirements necessary to facilitate the smooth functioning of Fund operations. Section IV provides staff's assessment whether, taking into account the analysis in preceding sections, the RMB could be determined a freely usable currency and, therefore, included in the SDR basket. Section V discusses whether the RMB should replace an existing currency in the SDR basket or the basket should be expanded to five currencies. Section VI discusses modifications to the weighting formula, Section VII reviews the composition of the SDR interest rate basket, and Section VIII discusses issues related to the transition to a new basket. Section IX lists the proposed decisions and applicable majorities.

II. INDICATORS FOR CURRENCY SELECTION CRITERIA

6. This section presents updated information on the criteria for currency inclusion in the SDR basket. In light of the informal discussion of Executive Directors in July, staff proposes to maintain the exports criterion and the freely usable currency criterion as the two currency selection criteria for SDR basket valuation purposes (Box 1).

A. Export criterion

7. The ranking of the largest exporters remains broadly unchanged since the last review. The data in Table 1 and Figure 1, which reflect a shift to a currency-based approach for all countries when assessing the export criterion (see paragraph 8 below), confirm that the euro area and the United States remain the largest exporters.⁶ China continues to be the third-largest exporter, thus meeting the export criterion for SDR basket inclusion. Japan and the United Kingdom rank fourth and fifth, respectively, separated by a very narrow margin. The next-largest exporters follow at some distance in terms of export shares.

⁵ See [SDR Currency Basket—Proposed Extension of the Valuation of the SDR](#) (8/4/2015).

⁶ Staff proposes to amend the 2000 Decision to clarify that the criterion will be applied not only to exports of goods and services but also to income credits, aligning it with long-standing practice.

Box 1. Currency Selection Criteria for the SDR Basket ¹

Under the SDR valuation framework there are two SDR currency selection criteria: The SDR basket comprises the four currencies: (a) that are issued by Fund members (or by monetary unions that include Fund members) whose exports of goods and services during the five-year period ending 12 months before the effective date of the valuation decision had the largest value; and (b) which have been determined by the Fund to be freely usable currencies in accordance with Article XXX(f).

Exports have historically played a central role for SDR basket selection. This size-related criterion is meant to reflect countries' relative importance in global commerce, ensure an adequate capacity to supply reserve assets, and limit the number of currencies in the basket. Under the 2000 Decision, a currency can only be replaced in the basket by another currency if the value of exports of the member or monetary union whose currency is not included in the basket during the relevant period exceeds that of a member or monetary union whose currency is included in the basket by at least 1 percent.

The freely usable criterion aims at ensuring that the SDR basket contains those currencies that are most representative of use in the world trading and financial systems. It was introduced as the second criterion for currency selection in 2000 to consider a broad range of measures of the breadth and depth of financial markets. While financial variables had been used to broadly confirm the direction of currency weighting since 1985, they had not been a formal criterion under the SDR valuation method.

The term "freely usable currency" is defined under the Articles of Agreement. Article XXX(f) defines a freely usable currency as one that "the Fund determines (i) is, in fact, widely used to make payments for international transactions and (ii) is widely traded in the principal exchange markets". Both elements under this definition, "widely used" and "widely traded," have to be satisfied for a currency to be determined freely usable. The widely used element aims at ensuring that a currency may be directly used to meet a member's balance of payments need, while the widely traded element is designed to ensure that it may be indirectly used, i.e., that it can be exchanged in markets for another currency to meet a member's balance of payments need with reasonable assurances of no substantial adverse exchange rate effect. A freely usable currency would not necessarily need to be widely traded in all principal exchange markets, but it would need to be traded in more than one principal exchange market.

The Executive Board has relied on quantitative indicators as an input in assessing whether a currency is freely usable. At its 2011 discussion, Directors emphasized that the indicators should not be used mechanistically and that ultimately, the determination of free usability would need to rely importantly on judgment, framed by the definition of freely usable currency set out in the Articles. Directors broadly concurred that the shares of currencies in official reserve holdings, international banking liabilities, and international debt securities should be important factors for the assessment of wide use, and the volume of transactions (i.e., turnover) in foreign exchange markets for wide trade.² During the informal discussion in July 2015, Executive Directors generally felt that the complementary indicators presented by staff were appropriate. These included the shares of currencies in official holdings of foreign currency assets, issuance of international debt securities, and cross-border payments and trade finance.

The relevant international transactions for the assessment of the wide use of a member's currency are transactions between Fund members. Given that the objective of the freely usable concept is to ensure that a member purchasing another member's currency under a Fund arrangement will be able to use it, directly or indirectly, to meet its balance of payments need, the meaning of international transactions under Article XXX(f) has been interpreted as "transactions between members". As noted in the July paper, this would exclude transactions within the territory or between residents of the same member, while including transactions between different members of a monetary union. It was recognized, however, that some payments within the territory of a member may be attributable to transactions that are international.

¹ See the July paper for a detailed discussion of the legal framework for SDR valuation.

² See [Criteria for Broadening the SDR Currency Basket](#) (9/23/11); and [IMF Executive Board Discusses Criteria for Broadening the SDR Currency Basket](#), Public Information Notice No. 11/137 (11/4/11).

Table 1. Exports of Goods and Services
(Five-year averages; in percent of global total) 1/

	2005–09		2010–14	
	SDR bn	%	SDR bn	%
Euro area	2,146	19.9	2,662	18.3
United States	1,539	14.3	1,985	13.6
China, Mainland	833	7.7	1,533	10.5
United Kingdom	778	7.2	731	5.0
Japan	616	5.7	707	4.8
Canada	341	3.2	465	3.2
Korea	296	2.8	401	2.7
Singapore	269	2.5	395	2.7
Switzerland	269	2.5	388	2.7
Russia	268	2.5	388	2.7
<i>Memo Item:</i>				
China 2/	874	8.1	1,618	11.1

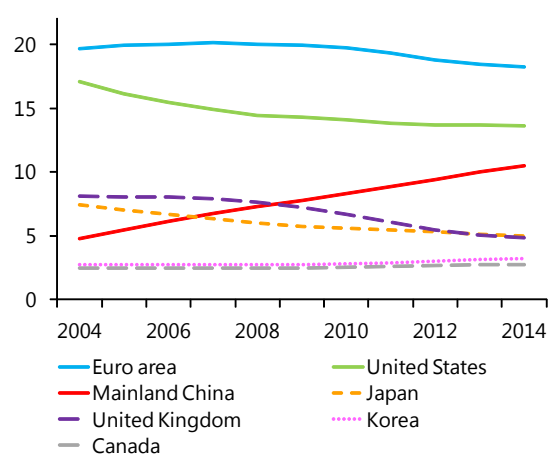
Sources: IMF, World Economic Outlook; IMF, Direction of Trade Statistics; Census and Statistics Department, Hong Kong SAR; and IMF staff calculations.

1/ Includes income credits. Intra-euro area exports are excluded.

2/ Includes Mainland China (CH), Hong Kong SAR (HK), and Macao SAR (MO).

Exports of goods between these three regions are excluded. Exports of services between CH and HK until 2013 are excluded. Income credits between CH and HK cannot be excluded for 2010–14 as no geographical breakdown is available after 2009. Exports of services and income credit between MO and other regions are not excluded due to lack of data.

Figure 1. Exports of Goods and Services
(Five-year averages; in percent of global total) 1/



Sources: IMF, World Economic Outlook; IMF, Direction of Trade Statistics; Census and Statistics Department, Hong Kong SAR; and IMF staff calculations.

1/ See notes to Table 1.

8. For the purpose of assessing the export selection criterion and determining currency weights, staff proposes to extend to all currencies the currency-based approach applied to monetary unions since 2000 (Box 2).⁷ In 2000, following the introduction of the euro, staff proposed moving to a currency-based approach for SDR valuation, so that the economic variables used for currency selection and weights reflect the characteristics of currencies rather than members.⁸ In line with this approach, the Board decision was amended to specify that, in the case of monetary unions, exports would be defined to exclude intra-monetary union trade, and currency holdings used to measure the composition of reserves in the weighting formula would refer to holdings of members other than those forming part of the monetary union. However, the case of a country using more than one currency in its territories was not explicitly discussed at the time and, outside of the case of monetary unions, the wording of the decision continued to refer to members. Considering that the demand for a currency as a reserve asset reflects principally the economic position of the area where a currency is issued, staff sees a case for applying the currency-based principle that has guided the approach to monetary unions also to the case of a country using more than one currency in its territories. For China, this suggests that exports should be assessed at the Mainland level, where the RMB is issued, and should exclude the exports of Hong Kong SAR, Macao

⁷ This change requires a modification of the 2000 Decision. The freely usable criterion continues to be assessed following a member-based approach (see Boxes 1 and 2).

⁸ See [Review of the Method of Valuation of the SDR](#) (10/12/2000).

SAR, and Taiwan Province of China, which issue their own currencies. As shown in the memo item of Table 1, this change has no impact on export rankings and therefore the RMB's qualification under the export criterion. The effect of the change on the determination of weights is discussed in Section VI below.

Box 2. SDR Valuation Framework: Currency-Based and Member-Based Approaches

While the legal definition of freely usable in Article XXX(f) mandates a member-based approach, the question arises whether to use a currency- or a member-based approach for the other elements of the SDR valuation framework. As noted in Box 1, the assessment of the freely usable criterion is undertaken at the level of the Fund member, consistent with the purpose of the freely usable concept, and with “international transactions” under Article XXX(f) meaning “transactions between members” (see also Box 1 of the July paper). However, for the other elements of the SDR valuation framework (i.e., the export selection criterion and the indicators used for the determination of weights), there is a need to decide whether to use a member-based or a currency-based approach as the SDR valuation framework does not prescribe a specific approach. This decision should be guided by the purpose for which the indicators are being used. Under a currency-based approach, the export criterion and the indicators for currency weighting would be assessed for the area for which the currency in question is legal tender.

Prior to 2000, the SDR valuation framework was member-based. The indicators used for the currency selection criterion (exports of goods and services) and the determination of currency weights (exports of goods and services and official reserves) were both assessed on a member basis.

Two main changes were introduced in the 2000 valuation decision. First, the criteria for currency selection were expanded to include a requirement that the currencies selected for inclusion in the SDR basket have been determined by the Executive Board to be “freely usable” in accordance with Article XXX(f). Second, staff proposed moving from a member-based to a currency-based approach for the export and reserve indicators used for currency selection and weights, against the background of the introduction of the euro. As discussed at the time, this approach best reflected the SDR's role as a reserve asset derived from the basket of its component currencies, where the demand for each of these currencies as a reserve asset reflects principally the economic position of the area where the currency is issued. Reflecting these considerations, it was agreed that for assessing the export criterion and for determining currency weights, exports of goods and services of a monetary union would exclude trade among members of the union. Similarly, for currency weights, the 2000 Decision specified that only holdings of the currency by monetary authorities outside the union would be used. The discussion of these issues in the 2000 staff paper focused on the treatment of monetary unions and did not explicitly discuss the case of a member (such as China) that has more than one currency. The 2000 Decision continued to specify a member-based approach for members that are not in monetary unions.¹

Against this background, staff proposes that a currency-based approach be used for all aspects of SDR currency selection and currency weighting (except for the freely usable assessment). This approach would be consistent with the rationale and general approach set out in 2000 under which the economic variables used for currency selection and weights should reflect the characteristics of currencies rather than members, and would align the treatment of members with more than one currency with that of monetary unions. Thus, a modification to the SDR valuation method is proposed to provide that a currency-based approach would be applied going forward for purposes of the export criterion for currency selection and the variables used for currency weights.

¹ In line with that decision, previous staff papers have generally presented data for China on a member basis. However, the staff paper for the 2000 valuation review also presented data for mainland China (excluding exports of the Hong Kong SAR, Macao SAR, and Taiwan Province of China) and noted that such coverage would be consistent with the currency-based approach adopted in 2000.

B. Freely usable criterion

9. This section presents information relevant for the freely usable assessment.

Quantitative indicators provide input for the assessment of both elements of the freely usable criterion, i.e., that a currency (i) is, in fact, widely used for payments in international transactions, and (ii) is widely traded in principal exchange markets (Box 1). However, the determination of freely usable currencies ultimately requires the exercise of policy judgment by the Executive Board against these criteria. The indicators presented below include those endorsed by the Board in 2011, as well as a number of complementary indicators and data sources presented in the July paper. The latter help broaden the currency coverage, capture flows in addition to stocks, provide more timely data for foreign exchange (FX) turnover, and reflect additional aspects of international currency use. Finally, the section on widely traded currencies includes analysis of high-frequency data on FX trading to assess market liquidity and resilience across currencies.

10. As noted in the July paper, while indicators are useful proxies to inform the assessment of the use of a currency for payments in international transactions and its trading in the principal exchange markets, they have some shortcomings that need to be taken into account. Ideally, an assessment of widely used would be informed by the currency composition of the balance of payments and international investment position, and an assessment of widely traded by a computation across a number of FX markets of a member's costs to convert the currency received in a Fund transaction and the reaction of market prices to such conversions. The indicators presented here serve as proxies, and caution must be exercised in their interpretation for several reasons: the methodology under the various indicators is not always aligned with the meaning of international transactions under Article XXX(f); the indicators only partially capture the relevant aspects of international currency use; and the financial indicators endorsed by the Board in 2011 for assessing wide use are all stocks outstanding, which tend to respond to changing trends in currency use with inertia.⁹

11. For purposes of Article XXX(f), international transactions are transactions between members, consistent with the objective of the freely usable concept (Box 1). Treating as international only transactions between members and not including transactions between residents of a member, even if a member has different currencies, is the best indication of the direct usability of a currency by Fund members to meet their balance of payments needs. At the same time, it has been recognized that the payment for some transactions that are international in nature can take place between residents of a member. Annex III of the July paper discussed factors that could lead RMB-denominated transactions to be conducted through and within Hong Kong SAR, Macao SAR, and Taiwan Province of China rather than between the rest of the world and China, and the impact

⁹ Indicators may include transactions that would not be considered international for the purpose of the definition of a widely used currency under Article XXX(f), and conversely they could exclude transactions that would be treated as international under that provision. For example, private non-resident holdings of domestic debt are not captured by the indicator on international debt securities (official sector holdings would largely be captured by the indicator on reserves). Among others, this excludes some \$2 trillion in U.S. Treasury Bonds held by private non-residents.

this could have on the assessment of the international use of the RMB. The July paper had also recognized that similar issues arise for other currencies in other international financial centers. Staff work subsequent to the July paper concluded that measuring the proportion of such domestic transactions that are linked to international transactions is not possible owing to data limitations. Regarding the indicators used to assess whether the RMB is freely usable, this paper provides the data, where available, both at the member level and (as a memo item) treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as international. The latter would represent an absolute upper bound for the international use of the RMB.

Widely used indicators

12. The four currencies currently in the SDR basket continue to account for a substantial proportion of international transactions according to the widely used indicators. As in the last review, the U.S. dollar dominates by far, and the euro also accounts for a sizable share across all indicators. The indicators for the other two freely usable currencies, the Japanese yen and the British pound, suggest that their degree of international use, while lower, is still substantial and in line with levels seen at the time of the last review.

13. A broad range of indicators shows increasing international use of the RMB, albeit from a low base, since the last SDR valuation review. Updated indicators present a broadly unchanged picture from the July paper, though some data gaps identified at that time have been filled.¹⁰

- **Official holders of foreign exchange have begun to accumulate some RMB-denominated assets.** Official reserves reflect reserve managers' preferences regarding currencies they hold as reserve assets, which can be used for intervention purposes. Since the RMB is not among the seven currencies separately identified in the IMF's *Currency Composition of Official Foreign Exchange Reserves* (COFER) survey (Table 2; Figure 2), staff conducted a survey of members' official foreign asset (OFA) holdings, which include both reserve assets and other foreign currency-denominated assets not included in reserves (see Annex I). The results closely mirrored COFER data for the currencies covered in both surveys. As for the RMB, 38 out of 130 respondents reported holding RMB, to the equivalent of SDR51 billion in RMB-denominated assets in 2014, up from the equivalent of SDR29 billion the previous year and comprising 1.1 percent of total OFA (Table 3).¹¹

¹⁰ The following data has become available since the July staff paper: official foreign exchange reserves (COFER), international debt securities (outstanding and issuance), SWIFT cross-border payments and trade finance, and international banking liabilities through 2015Q2; and foreign exchange turnover from regional committees for April 2015. Supplementary data has been provided by the BIS that staff has used to calculate RMB-denominated international banking liabilities and international debt securities treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as domestic. See Annex I for the concept captured by each indicator, data sources, coverage, timeliness, and other technical details.

¹¹ The survey was conducted on the same strictly confidential basis as the COFER survey, and any RMB holdings that might have been reported by the Hong Kong Monetary Authority or the Monetary Authority of Macao could not be excluded without revealing confidential information.

Table 2. Official Reserves
(shares in percent of allocated reserves)

2010:Q2			2015:Q2		
	SDR bn	%		SDR bn	%
USD	2,026	62.5	USD	3,022	63.8
EUR	850	26.2	EUR	972	20.5
GBP	135	4.2	GBP	222	4.7
JPY	103	3.2	JPY	182	3.8
CHF	4	0.1	CAD	91	1.9
AUD 1/		n.a.	AUD	90	1.9
CAD 1/		n.a.	CHF	14	0.3
Other	122	3.8	Other	147	3.1
Unallocated	2,454	43.1	Unallocated	3,408	41.8

Source: IMF, Currency Composition of Official Foreign Exchange Reserves survey.
1/ The Australian dollar and the Canadian dollar were not separately identified in COFER surveys until June 2012.

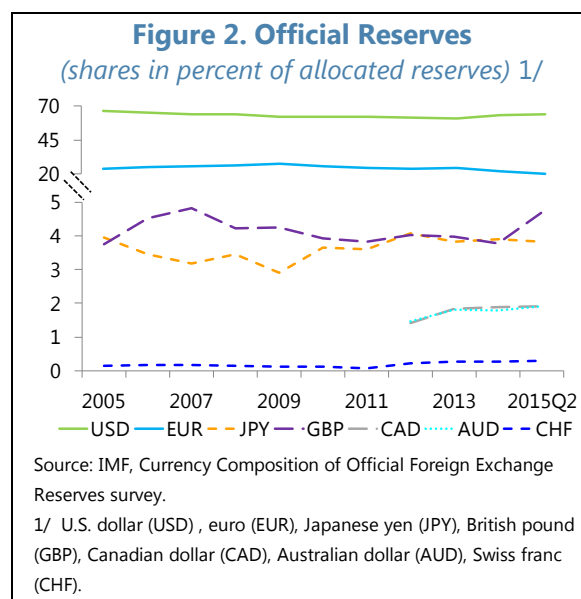


Table 3. Official Foreign Currency Assets
(shares in percent of global total)

2013				2014			
	SDR bn	%	Reporting countries		SDR bn	%	Reporting countries
USD	2,701	61.3	127	USD	2,961	63.7	127
EUR	1,041	23.7	109	EUR	978	21.0	108
GBP	187	4.2	108	GBP	190	4.1	109
JPY	147	3.3	87	JPY	160	3.4	88
AUD	98	2.2	79	AUD	98	2.1	78
CAD	87	2.0	84	CAD	92	2.0	85
RMB	29	0.7	27	RMB	51	1.1	38
NZD	11	0.2	27	CHF	11	0.2	69
CHF	10	0.2	73	NZD	11	0.2	29
NOK	9	0.2	45	SEK	9	0.2	40
Other	66	1.9		Other	73	1.9	

Source: IMF staff survey of members.

- RMB-denominated international banking liabilities (IBL) have reached a substantial magnitude.** IBL can proxy for international currency use by banks and their clients, though they only capture the stock outstanding and therefore are subject to inertia, which can be an issue when usage of a currency is growing rapidly. BIS data on IBL only reports separately on the current four freely usable currencies and the Swiss franc. These currencies comprise the vast majority of total IBL, but IBL denominated in other currencies are rising and now amount to over 8 percent of the total (Table 4; Figure 3). Calculations by IMF staff based on additional data provided by the BIS, along with published data for Singapore and Taiwan Province of China, suggest RMB-denominated IBL are around \$479 billion, which is 1.8 percent of the total (see Annex I for details). The upper bound for RMB-denominated IBL, treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as international, would be around \$1,139 billion.

Table 4. International Banking Liabilities
(shares in percent of global total) 1/

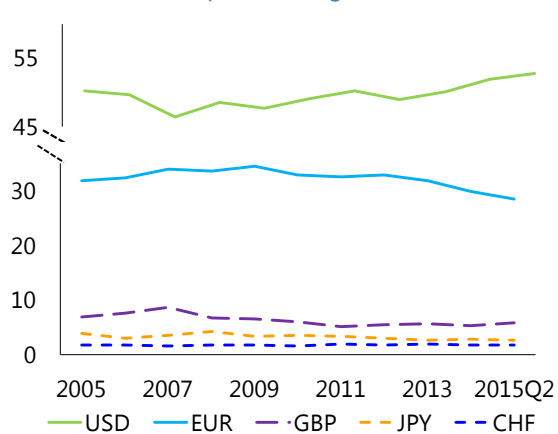
2010:Q2			2015:Q2		
	US\$ bn	%		US\$ bn	%
USD	13,064	48.7	USD	14,050	52.8
EUR	8,909	33.2	EUR	7,573	28.5
GBP	1,719	6.4	GBP	1,538	5.8
JPY	970	3.6	JPY	687	2.6
CHF	436	1.6	RMB	479	1.8
			CHF	474	1.8
Other	1,721	6.4	Other	1,814	6.8
			<i>Memo item:</i>		
			RMB 2/	1,139	

Sources: BIS Locational Banking Statistics; IMF staff calculations based on BIS data; Haver Analytics; and national sources.

1/ Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic.

2/ Amount for RMB if Hong Kong SAR, Macao SAR, and Taiwan Province of China were treated as international.

Figure 3. International Banking Liabilities
(shares in percent of global total)



Source: BIS Locational Banking Statistics.

- RMB-denominated international debt securities (IDS) have risen, albeit from a low base.** IDS proxy for currency use in international debt markets, with the advantage of a broader currency composition than IBL and the availability of statistics on issuance in addition to the stock outstanding. However, as with IBL, the IDS indicator does not capture all aspects of international currency use as envisaged under the freely usable concept.¹² The SDR currencies continue to account for over 90 percent of the outstanding stock of securities and of new issuance. RMB-denominated IDS outstanding accounted for 0.4 percent of the total in 2015H1 and issuance of RMB-denominated IDS for 1.0 percent of the total, rising from negligible amounts in 2010 (Table 5; Table 6; Figure 4). The upper bound for RMB-denominated IDS outstanding, treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as international, would be \$118 billion, while issuance by this measure would be \$33 billion.

¹² IDS do not capture cross-border investment arising from non-resident investment in securities issued locally, which is increasingly important as the link between cross-border issuance and investment has weakened in recent decades—especially for the reserve currencies, where locally-issued debt typically accounts for a large share of non-resident holdings. See Branimir Gruić and Philip Wooldridge, “Enhancements to the BIS Debt Securities Statistics,” *BIS Quarterly Review*, December 2012, pp. 63–76.

Table 5. International Debt Securities Outstanding
(shares in percent of global total) 1/

	2010:Q2		2015:Q2		
	US\$ bn	%	US\$ bn	%	
EUR	9,038	46.4	USD	9,177	42.6
USD	6,359	32.7	EUR	8,395	39.0
GBP	2,002	10.3	GBP	2,144	9.9
JPY	700	3.6	JPY	412	1.9
CHF	359	1.8	CHF	299	1.4
CAD	287	1.5	AUD	270	1.3
AUD	248	1.3	CAD	183	0.8
SEK	68	0.4	SEK	107	0.5
HKD	67	0.3	RMB	76	0.4
NOK	51	0.3	NOK	65	0.3
21st RMB	8	0.0			
Other	272	1.4	Other	422	2.0
<i>Memo item:</i>					
RMB 2/	12		RMB 2/	118	

Sources: BIS Quarterly Review; and IMF staff calculations based on BIS data.

1/ Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic (based on residency of issuers).

2/ Amount for RMB if Hong Kong SAR, Macao SAR, and Taiwan Province of China were treated as international.

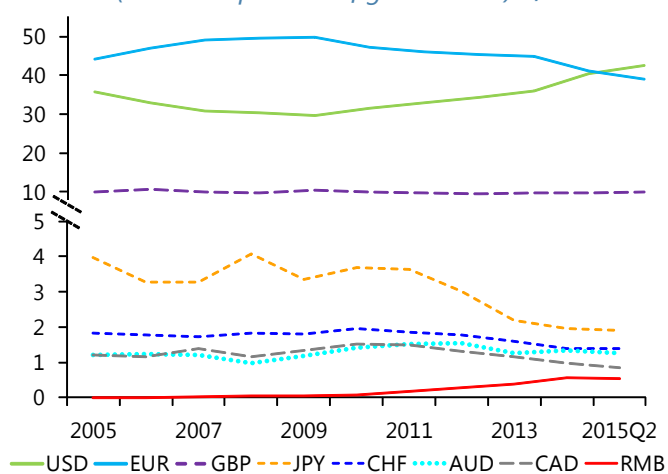
Table 6. Issuance of International Debt Securities
(shares in percent of global total) 1/

	2010: Jan-Jun		2015: Jan-Jun		
	US\$ bn	%	US\$ bn	%	
EUR	1,427	48.5	USD	1,331	45.3
USD	973	33.1	EUR	1,039	35.4
GBP	259	8.8	GBP	324	11.0
JPY	57	1.9	JPY	54	1.8
CHF	56	1.9	AUD	42	1.4
AUD	54	1.8	RMB	28	1.0
CAD	28	1.0	CHF	19	0.6
SEK	15	0.5	SEK	18	0.6
HKD	15	0.5	HKD	16	0.6
NOK	12	0.4	CAD	11	0.4
22nd RMB	0.7	0.0			
Other	45	1.5	Other	52	1.8
<i>Memo item:</i>					
RMB 2/	0.7		RMB 2/	33	

Sources: BIS Quarterly Review; and IMF staff calculations based on BIS data.

1/ Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic (based on residency of issuers).

2/ Amount for RMB if Hong Kong SAR, Macao SAR, and Taiwan Province of China were treated as international.

Figure 4. International Debt Securities Outstanding
(shares in percent of global total) 1/


Source: BIS quarterly review.

1/ See notes to Table 5.

- The use of the RMB in cross-border payments and trade finance is rapidly expanding.** The coverage of SWIFT is not universal, but the data provides a close proxy of the use of currencies in making payments for cross-border transactions, which aligns it well with the definition of an international transaction under the freely usable concept. The SDR currencies account for 86 percent of cross-border payments. The RMB's share has increased to 1.1 percent over the last four quarters (2014Q3 to 2015Q2; Table 7; Figure 5), compared to a 0.1 percent share in 2010–11. In the SWIFT data on letters of credit for trade finance, the U.S. dollar has a dominant share of 86 percent.¹³ RMB-denominated letters of credit accounted for 3.4 percent of the total in the year through 2015Q2, up from 1.1 percent in 2010–11 (Table 8; Figure 6). The upper bound for RMB-denominated payments and trade finance, treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as international, would be 1.3 percent and 8.1 percent, respectively, of the global totals for SWIFT cross-border payments and shares of trade finance.

Table 7. Cross-Border Payments
(shares in percent of global total) 1/

2010:Q4–2011:Q3		2014:Q3–2015:Q2	
EUR	43.3	USD	42.7
USD	33.8	EUR	35.4
CAD	5.4	GBP	4.1
GBP	3.6	JPY	3.4
JPY	3.5	CHF	2.5
CHF	2.0	CAD	2.3
AUD	2.0	AUD	1.8
SEK	0.8	RMB	1.1
DKK	0.7	HKD	1.0
RMB	0.1	SEK	0.6
Other	4.8	Other	5.0
<i>Memo item:</i>			
RMB 2/	0.1	RMB 2/	1.3

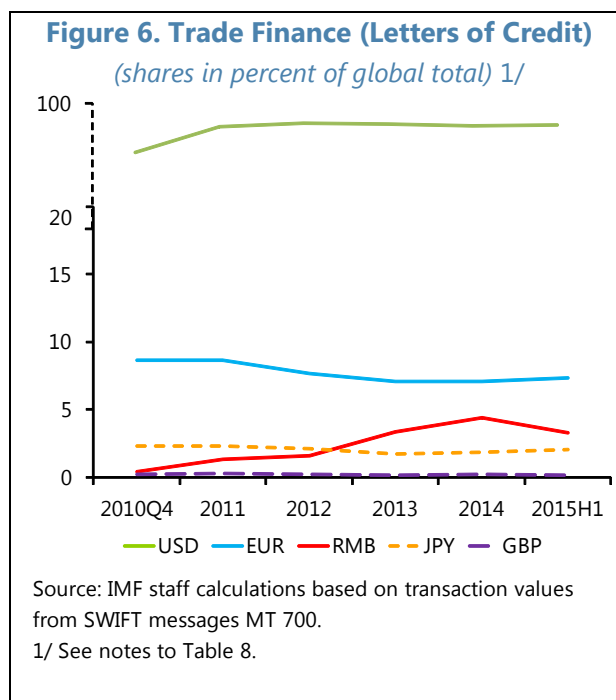
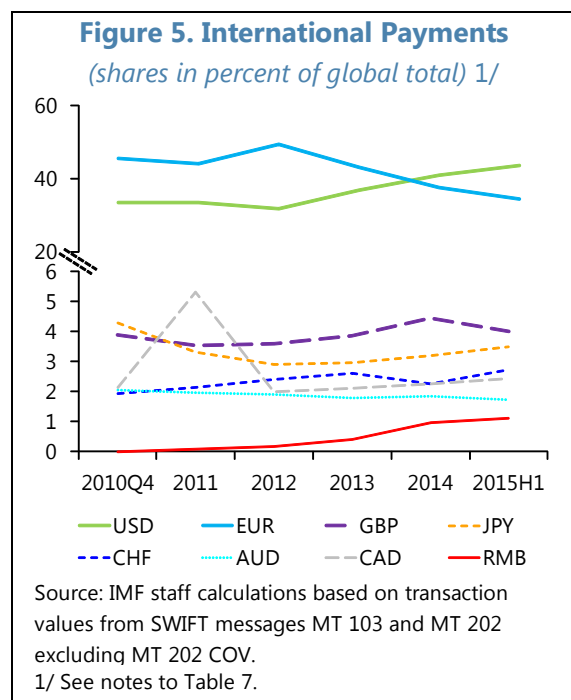
Source: IMF staff calculations based on transaction values from SWIFT messages MT 103 and MT 202 excluding MT 202 COV.
1/ For RMB, Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic.
2/ Share for RMB if Hong Kong SAR, Macao SAR, and Taiwan Province of China were treated as international.

Table 8. Trade Finance (Letters of Credit)
(shares in percent of global total) 1/

2010:Q4–2011:Q3		2014:Q3–2015:Q2	
USD	80.6	USD	86.0
EUR	8.8	EUR	7.1
AED	5.9	RMB	3.4
JPY	2.4	JPY	2.0
RMB	1.1	CHF	0.2
GBP	0.2	AED	0.2
CHF	0.2	GBP	0.2
KRW	0.2	INR	0.1
Other	0.7	Other	0.7
<i>Memo item:</i>			
RMB 2/	3.3	RMB 2/	8.1

Source: IMF staff calculations based on transaction values from SWIFT messages MT 700.
1/ Cross-border letters of credit are letters of credit between two different countries. For RMB, Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic.
2/ Share for RMB if Hong Kong SAR, Macao SAR, and Taiwan Province of China were treated as international.

¹³ As noted in the July paper, there are limitations to using letters of credit as a proxy of the currency composition of trade finance. They are more common among Asian countries, and the indicator does not include inter-firm trade credit, which is an important portion of trade finance and more prevalent among advanced economies. Nonetheless, the indicators published by SWIFT are recognized as a key source to assess the dynamics of this market segment (see Committee on the Global Financial System, 2014, "Trade finance: developments and issues," CGFS Papers No. 50).



Widely traded indicators

14. The April 2013 BIS Triennial Central Bank Survey showed that the current SDR currencies continue to account for the majority of global FX market turnover. The current SDR currencies continued to account for roughly 80 percent of total turnover, with the shares of the U.S. dollar and the Japanese yen rising since the last survey in 2010 and those of the euro and British pound falling (Table 9).

15. Updated regional and national surveys confirm that the RMB's share of global FX turnover has increased rapidly from its low base at the time of the last review. The 2013 BIS survey showed a considerable increase in the RMB's share of trading volumes since 2010 (Table 9), to 1.1 percent of total turnover (daily average turnover of \$120 billion) and 0.8 percent of spot turnover (\$34 billion), but given the pace of developments in RMB FX activity, this information is by now considerably outdated. However, it is possible to use regional and national survey data available through April 2015, with somewhat narrower coverage, to obtain a more updated picture. The data suggests that daily average RMB turnover was roughly \$250 billion on a net-gross basis in six regional trading centers that in the 2013 BIS Survey represented 90 percent of the global RMB market (Table 10).^{14, 15} While fully comparable data is not available for all currencies, this amount

¹⁴ Given the updated regional survey data, the global net-gross RMB turnover figure may be slightly higher than the previous \$250 billion staff estimate in the July paper. In the April 2013 BIS Triennial Survey, RMB turnover in the remaining reporting countries amounted to roughly \$16 billion.

¹⁵ Following the methodology of the BIS Triennial Survey, market-specific FX turnover figures are adjusted to avoid double-counting trades reported independently by two survey correspondents in the local market (net-gross basis). While broadly comparable, there are also methodological differences between the regional and BIS surveys. The

(continued)

would place global turnover in the RMB behind the four freely usable currencies and the Australian dollar, Canadian dollar, and Swiss franc.¹⁶ RMB spot market turnover in the major RMB trading centers was roughly \$80 billion on a net-gross basis, of which over \$50 billion was offshore. SWIFT data based on inter-bank messages used to confirm FX transactions shows an increase of 108 percent in total RMB turnover between the first quarter of 2013 and the second quarter of 2015.¹⁷

Table 9. Currency Composition of Global Foreign Exchange Market Turnover
(shares in percent of global total) 1/ 2/

	Spot				Total			
	2010		2013		2010		2013	
	US\$ bn	%	US\$ bn	%	US\$ bn	%	US\$ bn	%
USD	1,188	39.9	1,691	41.3	3,370	42.4	4,652	43.5
EUR	691	23.2	754	18.4	1,551	19.5	1,786	16.7
JPY	300	10.1	612	15.0	754	9.5	1,231	11.5
GBP	213	7.1	227	5.5	511	6.4	631	5.9
AUD	111	3.7	196	4.8	301	3.8	462	4.3
CHF	92	3.1	93	2.3	250	3.2	275	2.6
CAD	78	2.6	84	2.1	210	2.6	244	2.3
NZD	22	0.7	57	1.4	94	1.2	135	1.3
KRW	21	0.7	39	0.9	87	1.1	RMB 120	1.1
SEK	19	0.6	37	0.9	63	0.8	NZD 105	1.0
19th RMB	8	0.3	11th RMB	34	0.8	17th RMB	34	0.4
Other currencies	238	8.0	268	6.5	716	9.0	1,048	9.8

Source: BIS, Triennial Central Bank Survey.
1/ Nominal or notional daily average amounts in the month of April. Total includes spot transactions, outright forwards, foreign exchange swaps, currency swaps, options, and other products.
2/ Because each transaction involves two currencies, the nominal amounts by definition sum up to twice the total turnover for all currencies.

headline global FX turnover figures in the BIS survey are also adjusted to avoid double-counting cross-border trades between correspondents in different market locations (net-net basis), but this adjustment cannot be made on the regional survey data because trades are not matched across markets. The amounts reported in Table 10 are therefore not directly comparable with those in Table 9. In the April 2013 BIS Survey, the net-net adjustment reduced RMB turnover by 23 percent relative to the net-gross figure, which is broadly comparable to the effect of the net-net adjustment on the turnover of other major currencies.

¹⁶ According to the BIS survey the April 2013 net-gross turnover of the Canadian dollar, Swiss franc, and Australian dollar was \$304 billion, \$349 billion, and \$584 billion, respectively.

¹⁷ This monthly-frequency data is based on messages confirming details of FX transactions in SWIFT's FIN messaging service network (Message Type 300). Data coverage issues limit the scope for comprehensive cross-currency comparisons.

Table 10. RMB Daily Average Turnover in Regional Trading Centers, April 2015
(in billions of U.S. dollars)

Regional center 1/ 2/	Overall turnover (Total)	RMB turnover (Total)	RMB turnover (Total) %	Increase since April 2013 %	RMB turnover (Spot)
London 3/	2,481	44.7	0.9	83.9	14.5
New York 4/	881	n/a	n/a	n/a	n/a
Hong Kong 5/	385	93.0	12.1	88.0	18.9
Singapore 6/	381	51.0	6.7	207.0	17.4
Tokyo	363	2.2	0.3	218.0	0.9
Australia	136	n/a	n/a	n/a	n/a
China (on-shore) 7/	77	61.7	40.0	36.9	29.4
Canada 8/	75	0.2	0.2	424.0	n/a

Sources: Regional foreign exchange committees; national sources; and IMF staff calculations.

1/ Adjusted for local but not cross-border inter-dealer double-counting (net-gross basis). Because each foreign exchange transaction involves two currencies, the nominal turnover across all currencies adds up to twice the total FX turnover for each center. Turnover shares are expressed out of 100 percent.

2/ Unless otherwise stated, the increase in nominal RMB turnover is relative to BIS 2013 Triennial Survey net-gross figures.

3/ Nominal RMB turnover figure is an estimate based on published shares for RMB turnover. RMB turnover ranked 10th among currencies traded in London. Spot turnover is based on CNH/USD currency pair only. A separate Bank of England survey targeting U.K.-resident institutions known to be active in the RMB market shows daily average RMB turnover in Q2-2015 of \$54 billion and spot RMB turnover of \$20 billion (based on the average USD/GBP spot exchange rate over the sample period).

4/ RMB turnover in New York has not been considered substantial enough to be separated from other currencies.

5/ Based on an ad hoc survey conducted in mid-2015 covering 58 financial institutions. The results have been extrapolated to approximate the positions of all 60 institutions covered in the BIS April 2013 Triennial Survey.

6/ RMB turnover is based on a separate monthly survey with a larger sample size compared to the semiannual survey for total FX turnover. The increase in RMB turnover is based on unadjusted data (gross-gross basis) and is relative to July 2013 data. RMB spot turnover is based on unadjusted data (gross-gross basis).

7/ Turnover for China refers to a PBC survey covering all banks reporting in mainland China. The increase in RMB turnover is based on April 2013 figures for the PBC sample. July 2015 total RMB turnover was USD 72.9 billion, 41.3 percent of the overall USD 88 billion turnover.

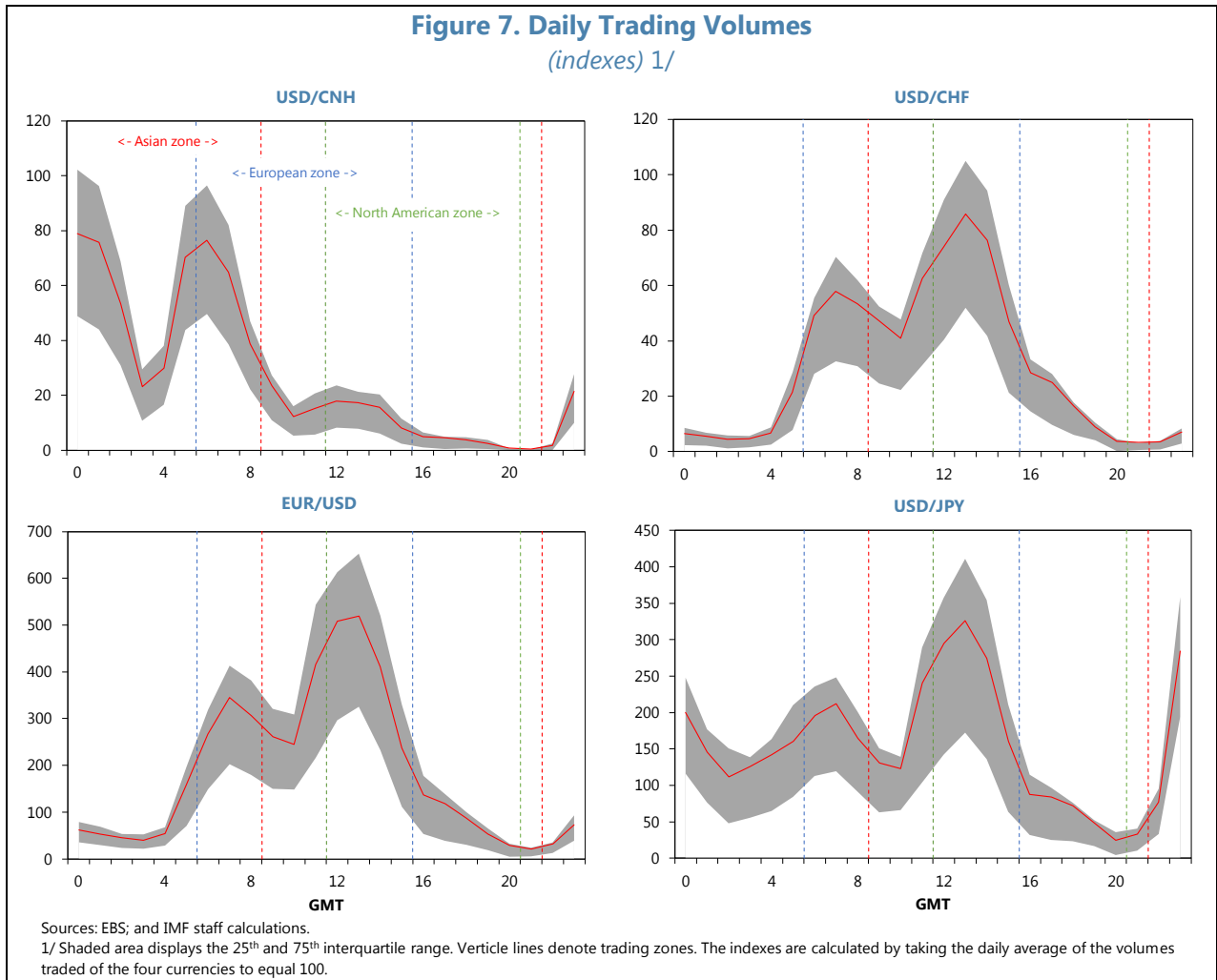
8/ Nominal RMB turnover figure is an estimate based on published shares for RMB turnover.

16. Information on FX market activity by region shows RMB trading is most common in Asia, constitutes a small but growing share in Europe, and is still thin in North America.

As explained in the July paper, in the presence of widespread electronic trading, the association between the location of the FX transaction and that of the underlying clients has weakened, as trades booked in a particular market could be executed on behalf of clients elsewhere. Thus, data on FX turnover by trading center is best analyzed by aggregating trading across the three broad time zones spanning the globe (Asia, Europe, and the Americas), and can give an indication as to the overall liquidity in these zones. The RMB is one of the most-traded currencies in Asia and staff estimates that Hong Kong SAR, Singapore, and Mainland China account for roughly three-quarters of global RMB turnover.¹⁸ RMB trading has also increased rapidly in London, and while it still accounts for less than 1 percent of the overall market, in absolute terms it now averages over

¹⁸ The staff estimate is based on the RMB turnover figures in Table 10 and, for the markets for which up-to-date RMB turnover data is not available, net-gross RMB turnover figures by country in the 2013 BIS Triennial Survey.

\$40 billion per day. Trading in North America remains very thin. Data on hourly FX transactions from the EBS platform confirms this trading profile, with a significant volume of RMB trading in the offshore (CNH) market during Asian market hours, which also overlap with the first hours of the European trading day (Figure 7). The profile of hourly turnover in CNH is similar to that of the Swiss franc against the U.S. dollar on the EBS platform. Turnover in the SDR currencies tends to remain at higher levels during off-peak hours, though even for those currencies turnover drops substantially from late in North American trading hours until Asian trading picks up.



17. Detailed trading data from one trading platform finds that CNH/dollar market liquidity is similar to that of other major currency pairs. To get an additional perspective on market liquidity, staff undertook additional analysis of a sample of currency pairs using the high-frequency data on FX transactions from the EBS matching platform described above and in

Annex II.¹⁹ Several indicators were constructed to capture the cost of executing trades (bid-offer spreads and effective trading costs) and measure market resilience to order flow (order-flow price impact and order-flow price return reversal). The costs of executing trades in the CNH/dollar currency pair are on average nearly as low as those for the dollar/yen and dollar/euro currency pairs, albeit with a wider distribution across transactions and more variation across time zones, while in this sample comparing favorably to a number of other currencies. Similarly, CNH/dollar market resilience was found to be among the strongest of the currency pairs under analysis. While exchange rates are affected by a variety of factors, the analysis found that the price impact and return reversal of the CNH/dollar currency pair were less sensitive to net buying/selling pressures than those of other major currencies. These results should be interpreted with caution, given that coverage of the data varies across currencies and the EBS platform is only representative of a portion of the global FX market.

III. OPERATIONAL ISSUES

18. As discussed in the July staff paper, the determination of a currency as freely usable and its inclusion in the SDR basket raise a number of important operational issues. These include (i) the need to ensure that Fund members, their agents, and other SDR users (hereafter these groups are referred to collectively as “SDR users”) have unimpeded access to RMB interest rate and exchange rate instruments for investment and hedging purposes, (ii) the need to identify market-determined exchange rates that can be used for SDR valuation purposes and in Fund operations, and (iii) the need to identify a suitable RMB instrument for inclusion in the SDR interest rate basket. This section provides an updated staff assessment of progress in meeting these requirements, focusing on developments since the July discussion.

A. Recent reforms to improve market access and data transparency

19. The Chinese authorities have taken a broad set of measures to further facilitate RMB operations by SDR users, covering all areas identified by staff in July. The reforms announced since July include improvements to market access for SDR users, making onshore interest rates more market-determined, and increasing data transparency (Box 3).

20. As discussed previously, SDR users need to have adequate access to onshore FX markets and RMB-denominated instruments for reserve management purposes, including the ability to hedge risks. The following steps represent important progress in this regard:

- **In July, the authorities liberalized access to onshore fixed-income markets for reserve managers of official institutions.** Foreign central banks, international financial institutions,

¹⁹ The EBS and Reuters Matching platforms accounted for about 15 percent of the global spot market according to the 2013 Triennial Survey. Due to network externalities, trading in specific currency pairs tends to concentrate on specific trading platforms. Of the currencies analyzed, the relative shares of trading in the Australian dollar, British pound, and Canadian dollar are lower on the EBS platform compared to the triennial BIS survey data.

Box 3. Recent Reforms to Capital Controls and Domestic Financial Markets in China

The Chinese authorities have implemented a number of policy reforms in recent months. The actions listed below are consistent with the authorities' broader policy reform agenda to both support the internationalization of the RMB and strengthen macro-financial stability, by taking gradual steps to develop functioning markets, move to market-determined prices and interest rates, and put in place sound policy frameworks.¹

Clearing banks' quotas for offshore entities to trade currency at onshore rates have been increased.

From August 18, offshore entities can access the onshore rates for services trade and direct investment transactions (previously limited to goods trade). The 90-day window for FX conversion of funds received in these transactions has also been removed.

Corporate cross-border cash pooling arrangements have been expanded. On September 5, the PBC relaxed the eligibility criteria and thresholds for participation in these arrangements (based on annual sales turnover and duration in operation), to allow a larger number of firms the option of streamlining intra-group cash transfers and liquidity management. This move permits greater ease of two-way cross-border flows by enabling closer integration of group treasury operations among connected parent-subsidiary firms.

The authorities have introduced reserve averaging to facilitate liquidity management. From September 15, compliance with reserve requirements is based on average ratios over a 10-day period. In addition, banks' reserves ratios will not be allowed to fall more than one percent below requirements on a daily basis. With the averaging period relatively short, this measure is unlikely to have much immediate effect on liquidity, but the period could be lengthened in the future.

On September 23, the PBC approved onshore issuance of RMB securities by foreign financial institutions in the China Interbank Bond Market.

Previously, only non-financial corporates were permitted to borrow onshore through the interbank bond market. The first two non-resident financial institutions permitted to issue onshore are the Hong Kong SAR-based units of HSBC Holdings PLC and Bank of China (Hong Kong) Ltd with amounts capped at RMB 1 billion and RMB 10 billion respectively.

A cross-border interbank payments system (CIPS) was launched in October. This new vehicle provides a streamlined platform for clearing and settling cross-border RMB payments, and will eventually also provide access to offshore participants.

The PBC has fully liberalized domestic deposit rates. Building on earlier moves, full liberalization was announced on October 23. In August, the ceiling on interest rates for time deposits greater than one year was removed. In June large banks were permitted to issue negotiable certificates of deposit (NCDs) to households and nonfinancial corporations at 'market rates', subject to an annual target balance quota, in maturities ranging from one month to five years, and at either fixed or floating rates. Previously (since 2013) NCDs could be issued only to financial institutions. Lending rates are already fully liberalized.

Access for reserve managers and their agents to domestic fixed-income and FX markets has been fully implemented.

- On July 14, the authorities announced that foreign central banks (as well as sovereign wealth funds and international financial institutions) registered with the PBC can choose their own size of investment in the onshore China Interbank Bond Market (CIBM), repos, bond lending, bond forwards, interest rate swaps, and forward rate agreements. The guidelines permit these overseas official institutions to select either the PBC or a settlement agent registered with the PBC to conduct trading and settlement on their behalf.
- On September 30, official sector reserve managers and their agents were allowed to participate in the onshore FX market through any of three channels, including entrusting the PBC as their agent, using inter-bank FX market members as their agents, or directly participating in the inter-bank FX market as foreign members. They can execute FX trades and hedge FX risk across all maturities, without prior requirement to hold an underlying RMB asset or demonstrate the need for using the instrument.

¹ See [People's Republic of China: Staff Report for the 2015 Article IV Consultation](#) (7/7/2015).

sovereign wealth funds, and agents acting on their behalf are no longer subject to investment quotas in the fixed-income market, can use fixed-income derivatives without restriction, and can select their own settlement agent (Box 3). Moreover, trades and confirmations can now be conducted electronically, and relevant processes for account, custodial, trading, and settlement services are being simplified and standardized. Taken together, these measures allow largely unimpeded access to the onshore fixed-income market for SDR users and should enable them to conduct their reserve management operations without restrictions.

- **In late September, similar access to the onshore FX market was granted to the same set of institutions.** These investors can now negotiate and conduct both spot and derivative FX trades at known rates and directly with onshore commercial counterparties. These institutions are also allowed to hedge FX risk across all maturities, without any requirement to hold an underlying RMB asset or demonstrate the need for using the instrument. As with reforms to the fixed-income market, effectively implemented, these measures should allow SDR users to engage in Fund-related transactions or other reserve management operations without impediments.

21. The authorities have also taken further steps to make onshore interest rates more market determined. In October, the PBC announced the full liberalization of interest rates on deposits (Box 3). In addition, the Ministry of Finance announced in September the initiation of weekly auctions of three-month securities according to a published calendar, with the first auction taking place in early October 2015.

22. Separately, the Chinese authorities have made notable strides in enhancing data disclosure. While not a formal criterion for a currency's inclusion in the SDR basket, issuers of these currencies generally meet high data transparency standards. The Chinese authorities have recently taken several steps in this area, including: (i) announcing their subscription to the IMF's Special Data Dissemination Standard; (ii) publishing the level of quarterly real GDP for the first time; (iii) joining the COFER survey, reporting for the first time on the currency composition of a representative portion of China's reserves, and committing to increase over time the share reported;²⁰ (iv) reporting data for the first time to the BIS on international banking liabilities, and also confirming their aim to join the BIS locational international banking statistics and the IMF Coordinated Portfolio Investment Survey by end-December 2015.

B. Exchange rate issues

- 23. The valuation of Fund members' currencies in terms of the SDR is a two-step process:**²¹
- The daily *value of the U.S. dollar in terms of the SDR* is first determined based on the fixed amounts of SDR basket currencies expressed in equivalents of the U.S. dollar, using

²⁰ A gradual increase to full coverage on a step-by-step basis within a period of around 2 to 3 years has been agreed.

²¹ For more details see Annex III.

exchange rates that are taken from the same source at the same time.²²

- ii. The *value of all other member currencies in terms of the SDR* is subsequently calculated using “representative” exchange rates of these currencies against the U.S. dollar and the value of the U.S. dollar in SDR terms calculated as explained above.²³

The resulting valuations of member currencies in terms of the SDR (i.e., SDR exchange rates) are used in determining members’ financial positions in the Fund and also the currency amounts that members receive or are requested to provide in Fund operations and transactions.²⁴ In particular, if the RMB were to be determined a freely usable currency, its representative exchange rate would determine the amount of RMB that borrowing members may receive in Fund purchases and the amount of RMB they may be required to secure in making repurchases. The use of these exchange rates is based on the “equal value” principle in Fund transactions, i.e., members should receive the same value in terms of the SDR, whichever currencies might be provided and whichever member provides those currencies.

24. Staff has confirmed that a market-based offshore RMB rate would be available for the purpose of valuing the SDR in terms of the U.S. dollar. Discussions with the Bank of England indicate that it would be possible to provide a market-based offshore exchange rate for the RMB against the U.S. dollar at noon London time on a comparable basis to those provided already for the current SDR basket currencies. Moreover, the Federal Reserve Bank of New York and the European Central Bank, who serve as backup providers to the Bank of England, have confirmed that they would also be able to provide an offshore rate for the RMB when needed.

25. Staff has also identified, in consultation with the Chinese authorities, a market-based onshore exchange rate that could replace the current representative rate for the RMB. The current representative rate for the RMB in terms of the U.S. dollar is the onshore fixing rate, i.e., the central parity rate announced daily by the China Foreign Exchange Trading System (CFETS) at 9:15 a.m. As noted in the July paper, this rate is not based on actual market trades. The CFETS calculates benchmark exchange rates for the CNY/U.S. dollar five times a day based on actual market trades and, in an important step to strengthen transparency, these rates have been

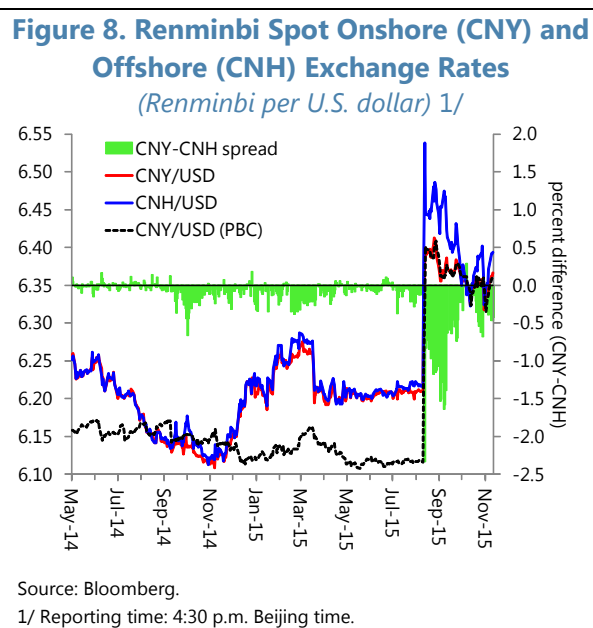
²² Rule O-2(a) of the Rules and Regulations, see Annex III. On most days, the exchange rates from the London noon market are used for this purpose.

²³ The representative rate for the euro is the 2:15 p.m. rate published by the European Central Bank and the rate for the yen is the one at which the largest volume of interbank trading has taken place during the day, determined by the Bank of Japan after the Tokyo market closes. The representative rate for the pound is the London noon rate used in the daily SDR valuation.

²⁴ For the euro and yen, differences between the London noon and representative exchange rates occur due to differences in the timing of when these rates are collected. This results in some divergences between the SDR exchange rates used in Fund operations and transactions for these currencies and the exchange rates for them that are embedded in the daily valuation of the SDR. Such differences for the euro and yen have averaged 0.1 and 0.2 percent, respectively, over the past 5 years. There is no difference for the British pound since the London noon rate is also the representative rate.

published since August 24, 2015.²⁵ Going forward, it is proposed to use the 4:00 p.m. (Beijing time) reference rate for the RMB against the U.S. dollar published daily by the CFETS as the representative rate, as this rate captures the time when the market is very liquid and, as such, the rate would tend to be representative of transactions that actually take place on a given trading day. This time is also relatively close to the London noon time when exchange rates are captured for determining the value of the SDR in terms of the U.S. dollar and would therefore tend to limit timing-related differences between these exchange rates. The Chinese authorities agree that this is an appropriate choice for the representative rate. A decision on the new representative rate is set out in Section IX.²⁶

26. Developments since July have highlighted the continued risk of significant deviations between the offshore (CNH) and onshore (CNY) RMB exchange rates.²⁷ Prior to the recent market turbulence, the offshore and onshore rates had been converging to the point that market participants considered the remaining differences to be small and not material. However, the spread between the offshore and onshore rate widened sharply following the announcement by the PBC of a new methodology for setting the RMB central parity on August 11, and amid considerable turbulence in equity markets and market concerns about growth prospects (Figure 8 and Box 4). A sizable spread persisted for about six weeks, (averaging about 0.9 percent compared with 0.1 percent in 2015 prior to the announcement), then narrowed briefly to earlier levels before fluctuating again in a somewhat wider range.



27. The reemergence of sizable CNY-CNH divergences in the future could make operations for SDR users more challenging, but the impact is mitigated by several factors. For example, Fund borrowers could potentially be disadvantaged compared with members receiving other basket currencies if they receive RMB at a significantly more appreciated onshore rate relative to the prevailing offshore rate. Significant volatility in the spread could also make it more difficult for SDR

²⁵ The CFETS now publishes the CNY/U.S. dollar reference rates at 10 a.m., 11 a.m., 2 p.m., 3 p.m., and 4 p.m. Prior to August 24, the reference rates were visible only to CFETS members.

²⁶ The adoption by the Executive Board of this decision would satisfy the requirement under Article XIX, Section 7(c) of the Articles of Agreement and Rule O-2(c) of the Fund's Rules and Regulations that the Fund consult a member on the procedures for determining the exchange rate of the member's currency.

²⁷ The spread between the offshore and onshore RMB rates reflects the existence of remaining capital account restrictions. The Chinese authorities have indicated that it is their intention to further liberalize the capital account over time.

Box 4. Exchange Rate Management in China: Volatility and Intervention

The de jure exchange rate regime in China is a managed float. The PBC is committed to maintaining the onshore CNY/U.S. dollar spot rate within a ± 2 percent band of the daily reference rate fixed by the CFETS.¹ The CFETS fixes this rate, in part, on the basis of a panel of quotes supplied by market makers. The procedures in effect until August 2015 allowed substantial discretion and often resulted in a central parity some distance from the rate at the closing of the market on the previous day. As such, while data on PBC intervention in the FX market is not available, market reports suggested that intervention was a common occurrence, and the CNY/U.S. dollar rate typically displayed a low level of volatility.

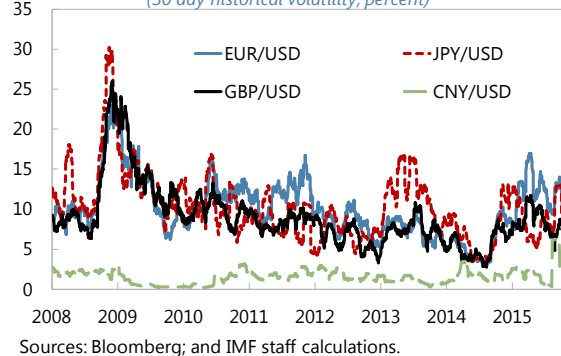
The current freely usable currencies operate under floating exchange rate regimes with infrequent intervention. Since the global financial crisis, the Japanese yen has been the only SDR currency that has been the subject of significant official FX intervention. During September 2010–November 2011, there were four episodes of intervention by the Japanese authorities to stem the appreciation of the yen, which had strengthened after the 2011 Tohoku earthquake. On each occasion intervention took place over at most a few days. There appeared to be no significant persistent impact on the volatility of the yen from these interventions.

However, it is not unusual even for these currencies to have periods of uncertainty and misalignment with fundamentals. The departure of the pound from the European Exchange Rate Mechanism in 1992 was accompanied by a period of high volatility as the pound moved toward a new level. The Louvre and Plaza accords of the 1980s were important cases of coordinated market intervention to counter what was seen as significant exchange rate misalignment. These periods of volatility and the policy responses did not have a long-term impact on the use of the currencies as reserve assets.

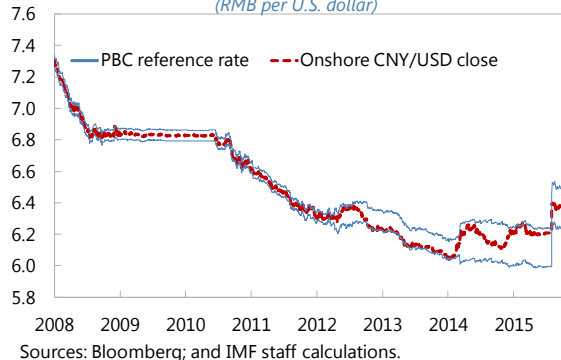
On August 11, 2015 the PBC announced a new mechanism to determine the daily reference rate. The new mechanism requires that the quotes from market makers reflect the previous closing CNY rate, supply and demand conditions in the market, and movements in other major currencies. However, the mechanism for calculating the daily reference rate itself has not been disclosed. Moreover, the extent to which the PBC intervenes to guide onshore exchange rates near market close will have implications for the volatility of both the reference rate and market rates. In late August, the authorities established a requirement for banks to hold 20 percent of their forward FX sales in unremunerated accounts with the PBC for one year. This measure could lead to higher costs for short-term than for longer-term transactions and liquidity in forward markets has declined substantially since the measures was introduced.

¹ The band was introduced on July 21, 2005, at which time its width was set at ± 0.3 percent. It has been subsequently widened on three occasions: to ± 0.5 percent on May 17, 2008, to ± 1 percent on April 14, 2012, and to ± 2 percent on March 17, 2014. The trading of the RMB floats within a ± 3 percent range of the current daily middle rates of the RMB against some other bilateral CNY exchange rates, including the euro, Japanese yen and British pound.

Volatility of CNY and SDR Currencies versus USD
(30 day historical volatility, percent)



CNY/USD Trading band and Onshore Exchange Rate
(RMB per U.S. dollar)



users to adequately hedge their SDR exposures. However, these challenges should be substantially mitigated by the recent reforms allowing SDR users unencumbered access to both onshore and offshore markets. This should enable them to transact in the market with the most favorable conditions, though it could imply a need to establish banking relationships and accounts in both the onshore and offshore markets, adding some operational complexity as well as transaction and administrative costs. As a member issuing a freely usable currency, China would be under the obligation to collaborate with the Fund and other members to exchange RMB into other freely usable currencies in the context of Fund-related transactions.²⁸ This obligation would be particularly relevant in circumstances of market stress. More generally, ongoing reforms that promote greater integration between the onshore and offshore markets should reduce the risk of spikes in the spread over time, though recent developments highlight the continued potential for setbacks. These developments also underline the importance of maintaining a well-communicated, gradual reform path, and avoiding policy reversals.

28. In light of the above and discussions with SDR users, staff views the operational challenges to be manageable. In staff's discussions with SDR users, they generally welcomed the authorities' recent measures to improve access to onshore FX market and RMB-denominated instruments. Moreover, those SDR users that are already active in the onshore markets noted the importance of the announced measures to simplify and standardize relevant processes for account, custodial, trading, and settlement services. Some SDR users indicated that divergences between the onshore and offshore markets pose potential challenges, but generally regarded them as manageable. With respect to hedging in the onshore market, some SDR users noted that the recent introduction of an unremunerated one-year reserve requirement on a range of FX derivatives has reduced the liquidity of the onshore derivatives markets (see Box 4).²⁹ SDR users that are currently not active in the onshore market or whose onshore operations are very limited indicated that expanding the scope of their activities in the onshore market would require considerable lead time.

C. Reference interest rate for SDR basket

29. The financial instruments included in the SDR interest rate basket are expected to meet certain long-established characteristics.³⁰ In particular, the Executive Board has agreed in previous reviews that such instruments should (i) be broadly representative of the range of financial instruments that are actually available to investors in a particular currency, and the interest rate on the instruments should be responsive to changes in underlying credit conditions in the corresponding money market; and (ii) have risk characteristics that are similar to the official standing of the SDR itself, i.e., have a credit risk profile of the highest quality, fully comparable to that of government paper available in the market or, in the absence of appropriate official paper,

²⁸ For the obligation to collaborate in purchase transactions, see Article V, Section 3(e)(ii).

²⁹ The authorities have underscored that the FX reserve requirements are intended to be temporary. In addition, the reserve requirements do not apply to official reserve managers.

³⁰ See [Review of the Method of Valuation of the SDR](#) (10/26/10).

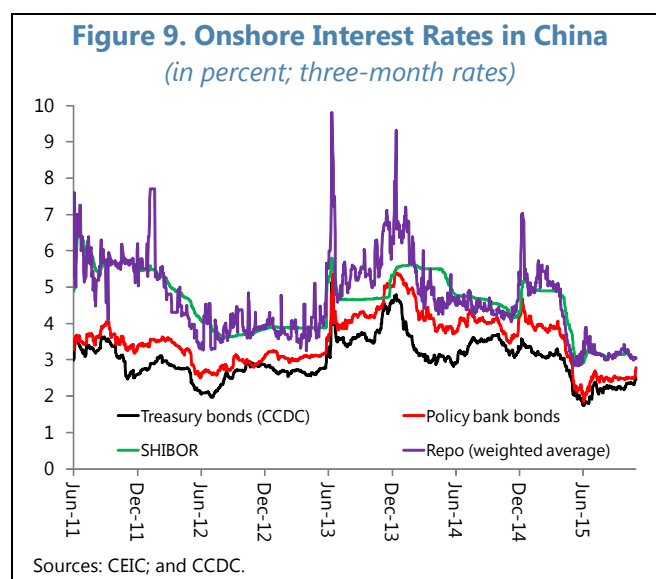
comparable to the credit risk on prime financial instruments. The instruments should also reflect the actual reserve asset choice of reserve managers, for example, as regards the form of the financial instrument, its liquidity, and maturity. In line with this guidance, all financial instruments in the current SDR interest rate basket are based on yields of three-month government securities (see Section VII).

30. Staff evaluated a range of RMB-denominated interest rate instruments for their suitability for possible inclusion in the SDR interest rate basket. These included the Shanghai interbank offered rate (SHIBOR); commercial bank certificates of deposit (CD) rates; interbank repo rates; and yields on PBC securities, policy bank bonds issued by the three largest state-owned development banks, and treasury securities issued by the Ministry of Finance (MoF). Staff found that SHIBOR, repo rates, and CD rates do not reflect sovereign credit risk and the latter two rates did not always move closely with underlying money market conditions. PBC bills have not been issued since 2013, precluding them as a viable candidate, and policy bank bonds, while widely considered to carry an implicit sovereign guarantee, typically carried a higher yield than treasury securities of comparable maturity.

31. Staff considers that the three-month benchmark yield for Treasury bonds is the most suitable rate for inclusion in the SDR interest rate basket. This rate is observable daily from the

yield curve for Treasury bonds published by China Central Depository and Clearing Co., Ltd (CCDC, see Annex IV). This sovereign yield is the most directly comparable in terms of risk characteristics to the other instruments in the SDR basket. Until recently, primary issuance by the MoF at the three-month tenor was infrequent, and trading volumes in short-term securities are lower than for longer-dated securities, as the market tends to be buy-and-hold in nature. However, market participants indicate that such assets are already available to interested investors, and the recent initiation of regular auctions of three-month securities should add to market liquidity in this tenor over time (Box 5

discusses additional measures that would help strengthen the T-bill market). Moreover, developments in the CCDC three-month benchmark Treasury yield in recent years suggest that it is broadly responsive to changes in underlying credit conditions in the onshore market (Figure 9). Against this backdrop, staff proposes that it be used as the relevant interest rate for the RMB in the SDR interest basket. The Chinese authorities agree with this assessment. In due course, once experience has been gained with regular, weekly issuance of three-month T-bills, consideration could be given to replacing the benchmark yield with direct market quotes for these securities.



Box 5. A Representative RMB Instrument for the 3-Month Interest Rate

The existing three-month benchmark yield for Treasury bonds appears to be a suitable rate for a possible SDR interest rate basket instrument. The CCDC publishes a daily yield for government securities at all relevant maturities. The data used to estimate these yields is from secondary market transactions on instruments across a range of maturities, as well as price quotes and estimates from market participants. The yields and the yield curve methodology, as well as the volume of trading, appear to be robust and are used by the market for the purposes of pricing transactions. The yield curve represents sovereign assets in which central banks can readily invest. While the market tends to be buy-and-hold in nature and trading data is not readily available, commercial bank intermediaries reported that it was not difficult to buy assets in the appropriate maturity range when customers requested.

More regular issuance of treasury bills will ensure the rate is robust. In recent years the MoF has only issued three-month bills in the last quarter of the year. Market participants noted that for longer-term securities there are new issues of central government bonds nearly every day, with competitive pricing. Weekly issuance of three- (and six-month) T-bills would help develop market liquidity at those tenors and align pricing in the secondary market, as well as support the ability of reserve managers and their agents to adjust the size of their positions according to their needs.

Additional calendar data would also be helpful. Calendars for annual issuance of important maturity bonds and quarterly issuance of bills of all maturities are already published. While volumes of bonds and bills to be sold at each auction are only announced five working days ahead of time, the amounts are relatively stable other than in exceptional circumstances, so that the market knows broadly what to expect. Additional calendar data on indicative overall volumes of securities to be sold each quarter and indicative maturity buckets would be helpful.

Further enhancements to short-term liquidity management and the monetary policy framework would help improve the functioning of the short-term money market. These could include enhancements to the recent reserve averaging framework; a shift from relying on required reserve ratios to open market operations to manage liquidity; and clearer guidance on the targeted short-term wholesale money market interest rate and the terms on which standing facilities can be accessed. With these elements in place, the three-month sovereign yield will be influenced by the open market operations, the expected future path of the targeted money market rate, and resulting portfolio adjustments. The recent removal of the loan-deposit ratio ceiling and the liberalization of deposit rates are welcome steps in this regard.

Other liquidity and trading measures could also help. The steepness of the very short-term yield curve (the spread between overnight and 14 day maturities can be 150 basis points) has in the past suggested considerable market uncertainty regarding reliable access to liquidity, though tighter market conditions have flattened the yield curve more recently. The use of a clear short-term monetary policy interest rate coupled with enhancements to the operational structure and liquidity management would help to anchor the money market yield curve, reducing some causes of interest rate volatility and promoting more trading. Implementation of reserves averaging and narrowing the interest rate corridor would also help improve money market functioning. In addition, the recent opening of the CFETS to central banks and their agents should facilitate transactions.

IV. ASSESSMENT OF THE RMB

32. This section assesses whether the RMB meets the criteria for inclusion in the SDR basket under the current SDR valuation method. Given that China meets the export criterion, the assessment focuses on whether the RMB can be determined to be a freely usable currency as defined under the Articles of Agreement (Box 1). This section also includes an assessment of the extent to which critical operational features are in place that would facilitate continued smooth financial operations by the Fund, members, and other SDR users if the RMB were to form part of the SDR basket as a freely usable currency.

33. A freely usable currency is one that the Board has determined to be “in fact, widely used to make payments for international transactions” and “widely traded in the principal exchange markets”.³¹ As discussed in the July paper, the assessment of staff, and ultimately the Executive Board is informed by a number of quantitative indicators that provide an input as to whether a currency can be considered to meet the definition of a freely usable currency. It is recognized that indicators cannot be applied mechanistically and that the freely usable determination ultimately requires judgment on the part of the Board.³² This is in essence a policy judgment that is made within the parameters of the legal framework and is guided by the objective and purpose of the freely usable concept in the context of Fund financial operations.³³ The exercise of such policy judgment is evident in the process that led to the first determination of freely usable currencies in 1978 when a number of currencies were considered to meet the freely usable criterion to varying degrees and views differed as to the tradeoffs between a longer and shorter list of freely usable currencies. The remainder of this section sets out the considerations that guide staff in its recommendation that the RMB be determined a freely usable currency by the Executive Board.

34. The use of the RMB for international transactions has increased substantially in recent years, from a low base. While this is the case across all indicators used to inform the assessment, usage of the RMB has been most pronounced in cross-border payments, supported by, among other factors, China’s significant share in global trade, although RMB-denominated international financial indicators have also risen and reached a significant magnitude. The degree of international use attained by the RMB implies that members are now increasingly able to use the currency directly to meet a balance of payments need. This notion is also supported by other contextual information such as the rising global network of RMB swap lines and the rapid growth in RMB payments between offshore clearing centers and Mainland China.³⁴

35. The RMB has also become far more actively traded in FX markets. Global spot market and FX derivatives turnover in RMB has ascended rapidly since 2010. Information from the major regional FX markets shows that the RMB is one of the most-traded currencies in the Asian time zone, and RMB trading is also reasonably deep during the first part of the trading day in the European time zone, while it remains very thin in the North American time zone. As noted in the July paper, while potential RMB conversions from Fund operations would amount to a somewhat higher

³¹ Article XXX(f) of the Articles of Agreement.

³² See [Criteria for Broadening the SDR Currency Basket](#), and [IMF Executive Board Discusses Criteria for Broadening the SDR Currency Basket](#), Public Information Notice No. 11/137.

³³ The freely usable concept aims at ensuring that a currency purchased from the Fund may be directly used to meet a member’s balance of payments need or indirectly used via a market exchange for another currency with reasonable assurances of no substantial adverse exchange rate effect. It also aims at ensuring that members whose currency is not freely usable, but who have to provide one if their currency is selected for a Fund transaction can provide a freely usable currency directly from their reserves or acquire it in FX markets without a disadvantage. See [Criteria for Broadening the SDR Currency Basket](#) (9/23/11).

³⁴ Offshore clearing centers are participants in China’s real-time gross settlement system and intermediate the exchange of RMB against foreign currencies, between offshore and onshore banks. See Annex IV of the July paper.

share of market turnover than for the four current freely usable currencies, they would still represent a limited fraction of a day's worth of trading. Moreover, complementary analysis of high-frequency data on FX transactions from an electronic trading platform, while subject to limitations of coverage, finds a relatively low cost of executing RMB trades and considerable market liquidity across two of the three principal time zones. Taken together, RMB markets have reached a depth that allows executing transactions of the size Fund members might undertake within a reasonable time frame, without an appreciable change in the exchange rate.

36. The steady increase in RMB internationalization has been supported by recent reforms and China's rising economic weight. The tendency for reserve currencies to be backed by large economies with substantial amounts of international trade suggests that RMB demand should persist over time. While conjunctural developments such as the recent stock market correction could affect the pace of RMB internationalization in the near term, China's expanding role in global trade and direct investment; the recognition among non-residents of the benefits of invoicing and paying in RMB; and ongoing steps to enhance market infrastructure provide fundamental support for greater cross-border use of the currency. Avoiding policy reversals and persisting in the gradual reform path toward a more market-based economy will be important to maintain and further expand RMB internationalization going forward. The authorities' recent actions in delivering on previous reform commitments despite significant market volatility are encouraging in this regard.

37. Freely usable currencies are also expected to satisfy a number of requirements necessary to facilitate the smooth functioning of Fund operations. While the operational issues discussed in Section III are not formal requirements under the definition of freely usable currencies or the SDR currency selection criteria, Directors have expressed an expectation in the past that these would be considered for any currency to be included in the SDR basket. Furthermore, shortcomings in this area could signal that the use or trading of a currency is not substantial enough for it to be determined freely usable, or that members seeking to transact in a particular currency would face significant costs. Specifically, the use and trading of a currency should be active enough to provide market-based exchange rates, an interest rate instrument suitable for the SDR interest rate basket, and deep and liquid markets for foreign exchange and interest rate hedging instruments.

38. The Chinese authorities have made important progress in addressing operational issues flagged in the July paper. Action has been taken in each of the areas identified by staff in July. Access to the onshore bond and FX markets has been fully liberalized for reserve managers of IMF members, international financial institutions, sovereign wealth funds, and agents acting on their behalf; and relevant account, trade, and settlement processes were simplified and standardized. As a result, SDR users now have sufficient access to onshore markets to perform Fund-related and reserve management transactions without substantial impediments. Weekly issuance of 3-month treasury bills should further enhance liquidity in this tenor and ensure that the secondary market yield is representative of conditions in the onshore money market, though additional steps outlined in Section III would help further improve money market functioning. Steps taken by the authorities in enhancing data disclosure will strengthen the ability of reserve managers and other investors to take more informed decisions regarding RMB exposures.

39. At the same time, recent developments highlight some remaining operational challenges although their impact on members is mitigated by a number of factors. As noted in the July paper, the existence of some capital account restrictions does not preclude a currency from being freely usable as long as the currency is “in fact widely used to make payments for international transactions” and “widely traded in the principal exchange markets.” Therefore, the existence of a spread between RMB onshore and offshore exchange rates is not an impediment *per se* for the assessment. However, sudden spikes in the spread, as recently experienced, create uncertainty for RMB users and, if persistent, could increase the complexity and costs associated with RMB transactions. Unencumbered access to both onshore and offshore markets should reduce financial risks to members by allowing them to transact in the market with the most favorable conditions, although the need to operate simultaneously in two separate markets for the RMB could imply some additional administrative burden and hedging could be more challenging and costly. China’s obligation to collaborate with the Fund and other members to enable the exchange of RMB for other freely usable currencies if the RMB is declared freely usable should also help to ensure that Fund-related transactions can be executed even in circumstances of market stress.

40. Based on the above considerations, staff concludes that there is a sufficient basis for the Board to determine that the RMB is a freely usable currency. The analysis suggests that the use of the RMB in international payments has risen substantially, reaching in staff’s view a critical mass such that it can now be considered “in fact, widely used to make payments for international transactions” under the freely usable currency definition. RMB activity in FX markets covering two of the three major trading time zones has also increased significantly and can accommodate transactions of the magnitude involved in Fund operations. The level of trading across multiple time zones provides, in the judgment of staff, a basis for the RMB can now be considered “widely traded in the principal exchange markets”. While recognizing some remaining operational challenges, staff views these as manageable. In light of these considerations, staff proposes that the Board add the RMB to the list of freely usable currencies and include it in the SDR basket.

41. The standard applied for purposes of determining the RMB to be freely usable would also apply to other currencies. As the RMB is being assessed in the context of an SDR review—rather than a general review of freely usable currencies—it is not necessary at this stage to conduct a comprehensive review of other currencies (as only the RMB meets the export criterion). As noted in the July paper, if the Board requested a more comprehensive review, the standard applied for purposes of determining whether the RMB is freely usable would also be applied to other currencies. Based on this standard, the indicators discussed in Section II suggest that there are additional currencies that could potentially be determined to be freely usable currencies.

V. SIZE OF THE SDR BASKET

42. This section discusses considerations regarding the number of currencies in the SDR basket. In reducing the number of currencies from sixteen to five in 1980, the Board weighed tradeoffs between the objectives of representativeness of the basket and stability of its composition.

A larger basket was considered more representative of global transactions. On the other hand, a small basket was considered more stable in its composition (as the ranking of currencies and the basket's composition is less likely to change) and easier to replicate (reducing the cost and complexity for SDR users). Also, aligning the valuation basket with the interest rate basket was deemed an important element to improve the attractiveness of the SDR as a reserve asset. In 2011 the Board revisited the issue and agreed that the number of currencies in the basket should remain relatively small as the SDR evolves, to avoid adding undue costs and complexity for users, while at the same time being sufficiently representative in terms of currencies' use in international transactions.³⁵

43. Staff proposes to expand the SDR basket if the Board concurs with the recommendation of staff to include the RMB in the basket. Retaining a four-currency basket would pose risks to the stability of the composition of the basket, as the export shares of the fourth- (Japan) and fifth-largest (United Kingdom) exporters are close and their relative rankings have switched over time. At the same time, the gap between them and the sixth-largest exporter (Korea) is substantial. Thus, mindful of the stability principle discussed above, staff would not see a case to differentiate between the fourth- and fifth-largest exporters at this time.

44. A five-currency basket would also be more representative than a four-currency basket. The indicators in Section II show that a five-currency basket would account for a larger share of international transactions. Past experience in operating with a five-currency basket also suggests that the administrative burden of expanding the basket by one currency should be limited and manageable. This provides a case for maintaining all four current currencies in the SDR basket and adding the RMB as the fifth currency, if the Board were to judge that it meets the freely usable criterion.

VI. WEIGHTING FORMULA

45. The Executive Board has called for a review of the method for determining currency weights in the SDR basket. Directors have long recognized the shortcomings of the current method, including a relatively low weight of the financial variable when considering the rise in international financial flows over time, the endogenous weighting of flows (exports) and stocks (reserves), and the absence in the formula of a variable that captures private financial activity. Staff papers have discussed these issues, including possible supplementary financial indicators, in the SDR reviews since 1985 (Box 6). At the conclusion of the 2010 review, Directors welcomed a work program that would include the relative roles of trade and financial indicators in determining currency weights in the SDR basket and the role of supplementary financial indicators.³⁶ Many

³⁵ See [IMF Executive Board Discusses Criteria for Broadening the SDR Currency Basket](#), Public Information Notice No. 11/137.

³⁶ [IMF Executive Board Completes the 2010 Review of SDR Valuation](#), Public Information Notice No. 10/149.

reiterated their call for a review of the weighting method at the informal discussion in July.

46. This section presents a proposal for a new weighting formula for Board consideration, building on staff work from previous reviews. The proposed alternative seeks to address the long-standing concerns regarding the current formula while maintaining a simple, transparent formula and broad stability in currency weights. Specifically, the proposal would expand the share and representativeness of the financial variable, and move away from the endogenous weights implied by the current formula. For the variables used in currency weighting, staff also proposes to extend the currency-based approach adopted for monetary unions in 2000 to all currencies, and to modify the 2000 Decision for the currency weighting formula to this effect.³⁷

A. Background

47. The current method for determining currency weights in the SDR basket was adopted in 1978. Under the formula, the weights are derived from adding the issuing member's exports and the amount of each currency held in other countries' reserves over the five years preceding the review.³⁸ Exports are meant to reflect the importance of a currency in the world's trading system and international reserves serve as a proxy for the importance in the financial system and also reflect the role of the SDR as a supplementary reserve asset. With the introduction of the euro, the 2000 Decision adopted a currency-based approach for monetary unions, under which the economic variables used for currency selection and the determination of currency weights seek to reflect the characteristics of currencies rather than members. On this basis, intra-euro area exports and reserve holdings have been netted out for purposes of currency selection and in calculating the euro's weight in the SDR basket.

48. As discussed in the July paper, the current formula's shortcomings have long been recognized:

- *Relative share of trade and financial variables.* The formula endogenously produces a high, albeit generally declining, share for exports, corresponding in 2010 to about a two-thirds/one-third split with reserves (Table 11). Previous staff papers have highlighted that this allocation is

³⁷ See paragraph 8 and Box 2.

³⁸ Decision No. 5718-(78/46) G/S, adopted 3/31/78. The formula was first implemented in 1980.

Box 6. Alternative Weighting Formula: History of Board Discussions

Directors have discussed alternative weighting formulas, including alternative financial variables, since the original discussion on the current formula in 1978. At that time, some Directors voiced concern that using reserves alone as the financial variable in the formula did not appropriately reflect currencies' importance in international financial transactions and international asset holdings, but recognized data limitations.

In the 1985, 1990, and 1995 Reviews of the Method of Valuation of the SDR, supplementary financial variables were used to gauge the relative importance of trade and financial variables.¹ Directors noted that adding up the levels of exports and reserves understated the relative importance of financial flows, and agreed that supplementary financial indicators should be reviewed in considering the weight on the financial sector relative to exports. At the same time, the financial variables tended to confirm the overall ranking of currencies based on exports and reserves alone. As these variables still had incomplete currency coverage, it was agreed that they could not be used directly in computing weights at that time.

In the 2000 review, supplementary financial variables were explicitly included in illustrative weighting scenarios. External bonds, notes, and outstanding stocks of external bank liabilities based on BIS data were used to construct a supplementary financial variable, which was included in illustrative formulas with fixed weights on trade, reserves, and this new composite financial sector variable. Two scenarios were considered:

- 50% Exports + 25% Reserves + 25% Supplementary Financial Variables
- 33.3% Exports + 33.3% Reserves + 33.3% Supplementary Financial Variables

Directors welcomed the discussion on supplementary financial variables, but also noted ongoing data shortcomings, including with respect to data for the newly formed euro area.

Staff expanded on the supplementary financial variables in the illustrative formulas presented in the 2005 review. In addition to the indicators used in the 2000 review, staff included amounts outstanding in over-the-counter (OTC) derivatives and FX market turnover. Two composite financial variables were used: a simple average of each currency's shares of IBL, IDS, and OTC derivatives (Indicator A); and each currency's share of FX market turnover (Indicator B). The following scenarios were presented:

	Exports	Reserves	Indicator A	Indicator B
Scenario I	50%	25%	25%	0%
Scenario II	33.3%	33.3%	33.3%	0%
Scenario III	50%	25%	0%	25%
Scenario IV	33.3%	33.3%	0%	33.3%

Many Directors found it useful to consider supplementary financial variables and noted that further work on a weighting scheme should also ensure continuity in currency weights.

In the 2010 review, staff again presented alternative formulas, building on work undertaken in previous reviews. Specifically, the paper introduced two financial indicators, each comprised by reserves, FX turnover, IBL, and IDS:

- Financial Indicator A: 50% Reserves + 25% FX turnover + 25% (IBL+IDS)
- Financial Indicator B: 33.3% Reserves + 33.3% FX turnover + 33.3% (IBL+IDS)

These indicators were presented in two alternative formulas that assigned them equal weights with exports. In concluding the review, Directors welcomed a work program on the method of determining currency weights, including the relative roles of trade and financial indicators and the scope for considering supplementary financial variables.

¹ The indicators considered included, among others, the turnover of currencies in the leading FX markets, the role of individual currencies in international capital markets, and the relative importance of currencies in the invoicing of international trade.

difficult to reconcile with the large and growing role of international financial flows (Table 12).³⁹ Directly comparing the two components of the balance of payments is difficult since exports are measured on a gross basis while financial account flows are measured on a net basis. Nonetheless, annual financial flows were about equivalent to annual exports in the two decades prior to the global financial crisis. Furthermore, the size of FX turnover—which reflects both sides of the balance of payments—suggests that financial transactions are several magnitudes larger than trade transactions (Table 12). Also, exports may not reflect the use of a currency in international trade transactions as they can be invoiced in other currencies.⁴⁰

- *Scope of financial variable.* The Board has noted that while using reserves as the financial variable captures the reserve asset nature of SDRs well, it does not take into account private financial flows, which have grown rapidly over the past decades (Table 12).⁴¹
- *Conceptual shortcomings.* The current formula determines the weights of exports and reserves endogenously by adding annual gross export *flows* and year-end reserves *stocks*. While this formula has resulted in relatively stable weights over time, it is difficult to rationalize conceptually. In addition, the weight of reserves is understated as a result of the only partial reporting of the currency coverage of reserves in existing data.

Table 11. Weights of Exports and Reserve Holdings in Past SDR Reviews
(in percent)

Review	Exports	Reserve Holdings
1974	100 1/	-
1978	100 2/	-
1980	77.2	22.8
1985	79.5	20.5
1990	78.3	21.7
1995	76.7	23.3
1998	74.0	26.0
2000 3/	70.2	29.8
2005	70.2	29.8
2010	66.8	33.2
<i>Memorandum Items:</i>		
Average (1980–2010)	74.1	25.9

Source: IMF staff calculations.

1/ The weight of the U.S. dollar was set at 33 percent, about 50 percent higher than its share of exports.

2/ The weight of the U.S. dollar was set at double its calculated weight to reflect its importance in world financial affairs. The difference between 100 percent and the weight of the U.S. dollar was allotted to the remaining currencies in proportion to countries' shares in exports.

3/ For the 2000 review, the relative weights are based on end-1999 reserves data and 1995–99 average exports data.

³⁹ See [Review of the Method of Valuation of the SDR](#) (10/12/2000) and [Review of the Method of Valuation of the SDR](#) (10/28/2005).

⁴⁰ While the use of currency denomination of trade invoicing has been considered in the past, this approach has not been pursued given data limitations (see [Review of the Method of Valuation of the SDR](#) (10/12/2000) and Annex III of [Review of the Method of Valuation of the SDR](#) (10/26/10)). Data limitations continue to preclude the use of currency invoicing or settlement for exports.

⁴¹ See [IMF Completes Review of SDR Valuation](#) (12/2/2005).

Table 12. Nominal Values of Global Trade and Financial Indicators
(in billions of SDR, period average)

	1990–94	1995–99	2000–04	2005–09	2010–14
Trade Indicator					
Exports 1/	1,969	3,655	6,225	10,760	14,587
Financial Flows from the BOP 2/	1,664	3,827	6,281	10,269	7,949
Financial Stocks					
International Banking Liabilities (BIS)	5,457	7,172	9,431	16,518	18,044
International Debt Securities (BIS)	1,349	2,519	5,117	9,714	12,726
International Reserves (COFER) - allocated	n/a	882	1,388	2,492	3,848
International Reserves (COFER) - allocated + unallocated	700	1,137	1,867	4,147	7,076
Estimated annual FX Market Turnover 3/	n/a	144,501	177,796	337,226	461,097

Sources: IMF, *International Financial Statistics*; BIS; IMF, Currency Composition of Official Foreign Exchange Reserves survey; and IMF staff calculations.

1/ Exports of goods and services, including income credits.

2/ Includes assets and liabilities for direct investment, portfolio investment, financial derivatives, and other investments.

3/ Daily FX market cross-border turnover annualized by multiplying the daily value by 250, the approximate number of working days in the U.S. calendar.

49. To address these shortcomings, previous reviews have discussed alternative weighting methodologies and explored a role for supplementary financial variables (Box 6).

Supplementary financial variables have included IBL, IDS, over-the-counter (OTC) derivatives, and FX market turnover. In past reviews, staff constructed financial variables drawing on these indicators and developed alternative formulas where the financial variable was combined with exports using fixed weights to both broaden the coverage of financial variables and shift the balance from trade to financial variables. In the 2010 review, staff focused on two alternative financial indicators, each comprised of reserves, FX turnover, IBL and IDS, with a fixed 50 percent weight. The proposed alternative weighting method presented below builds on this analysis.

B. Proposed weighting formula

50. Table 13 shows the currency weights implied by the current formula and aligned with the currency-based approach, based on updated data. Under the current 4-currency basket, the weight of the U.S. dollar would increase significantly compared with the 2010 review, reflecting its higher share in reserves, the endogenous weight for which has increased since the last review. The weights for the euro and the Japanese yen would be slightly lower, while the weight for the British pound would fall by about 2½ percentage points. If the RMB were included in the basket as proposed in this paper, it is also proposed that its weight be determined on a currency-based approach, whereby the variables used in the formulas are measured at the level of Mainland China, i.e., treating Hong Kong SAR, Macao SAR, and Taiwan Province of China as international (Box 2). On this basis, China's weight under the current formula would be 13.65 percent, and the weights of the other four currencies would be correspondingly reduced.⁴²

⁴² Under a member-based approach, where exports of Hong Kong SAR and Macao SAR are included, netting out intra-region exports, the weight of the RMB would be 14.30 percent.

Table 13. Currency Weights Based on Current Formula 1/

	2010 SDR Review weights	Four-currency basket Based on allocated reserves	Five-currency basket Based on allocated reserves 2/	Memo item: <i>Five-currency basket based on alloc. + unalloc. reserves 3/</i>
U.S. dollar	41.9	45.05	38.90	44.66
Euro	37.4	37.06	32.00	30.67
British pound	11.3	8.84	7.63	6.90
Japanese yen	9.4	9.06	7.82	7.02
Renminbi			13.65	10.75
Total	100.0	100.01	100.00	100.00
<i>Relative share of exports and reserves</i>				
<i>Exports</i>		62.7	67.8	53.4
<i>Reserves</i>		37.3	32.2	46.6

Sources: IMF, *International Financial Statistics*; and IMF staff calculations using data in Table A.3.
1/ Based on exports of goods and services and income credits, and official reserves held by monetary authorities outside the country or monetary union that issues the respective currency.
2/ RMB held in reserves is set at zero, since it is not identified in the COFER survey.
3/ Unallocated reserves are assumed to have the same currency composition as allocated reserves. RMB held in reserves is set to zero, since it is not identified in the COFER survey.

51. In previous reviews, the weighting formula used allocated reserves as reported in the COFER survey, which does not capture unallocated reserves and holdings of RMB. This understated the role of reserves by excluding unallocated reserves, which have grown to about 42 percent of total reserves as a result of rapid reserve accumulation by countries that do not participate in COFER (China's recent decision to participate in COFER and commitment to increase the reported share of reserves over time would be expected to reverse this trend in the future). As a result, under the current formula whereby the weights of exports and reserves are determined endogenously, the implicit weight on reserves is significantly lower than would be the case if the country coverage of COFER were more complete. The last column of Table 13 illustrates this impact—the implicit share of reserves is 32.2 percent under a five-currency basket (37.3 percent under a four-currency basket) compared with 46.6 percent if unallocated reserves were included. More complete COFER coverage of reserves would also affect the currency weights under the current formula. For example, on the simplifying assumption that the currency distribution of unallocated reserves broadly mirrors that for allocated reserves, the RMB share in the basket would decline from 13.65 to 10.75 percent.

52. Staff has explored ways to address the shortcomings identified with the current weighting formula, building on the analysis presented in the 2010 review.

- **Setting an equal weight between exports and the financial variable would better reflect the growing role of international financial flows (Table 12).** It would provide continuity with the current formula by preserving a sizable weight for exports. It would also avoid the current approach of adding a stock to a flow, and the weights on exports and the financial variable

would be chosen by the Board rather than determined endogenously by the relative size of the two variables.

- **Broadening the coverage of the financial variable beyond reserves would better capture different financial flows, using indicators used for the freely usable assessment.** Since reserves do not fully reflect the depth and breadth of currency use in financial transactions, in particular private transactions, they could be combined with other Board-endorsed indicators, i.e., IBL, IDS, and FX turnover, into a composite financial indicator. Staff proposes that the composite financial indicator be divided equally between an official sector measure (reserves) and a private sector measure using the above Board-endorsed indicators.

53. The results of such an approach are shown in Table 14. This approach, also discussed in the staff paper for the 2010 review, establishes a 50/50 split between exports and a financial variable and replaces reserves with a composite financial indicator, comprised of the freely usable indicators endorsed by the Board in 2011. Specifically, Table 14 shows the results where reserves maintain a relatively large weight (i.e., 50 percent of the financial sector weight, thus also ensuring continuity with the current formula). The remaining weight for the financial indicator would be split equally between FX turnover (used to measure the widely traded aspect of freely usable currencies) and an indicator of currency use in private international financial activity, comprised of the sum of IBL and IDS.⁴³

	Four-currency basket	Five-currency basket (with data gaps for RMB) 2/	Proposed approach: Five-currency basket (with estimates for RMB data gaps) 3/
U.S. dollar	46.46	43.09	42.72
Euro	35.38	30.94	30.75
British pound	8.96	7.78	7.74
Japanese yen	9.20	7.97	7.95
Renminbi		10.22	10.85
Total	100.00	100.00	100.01

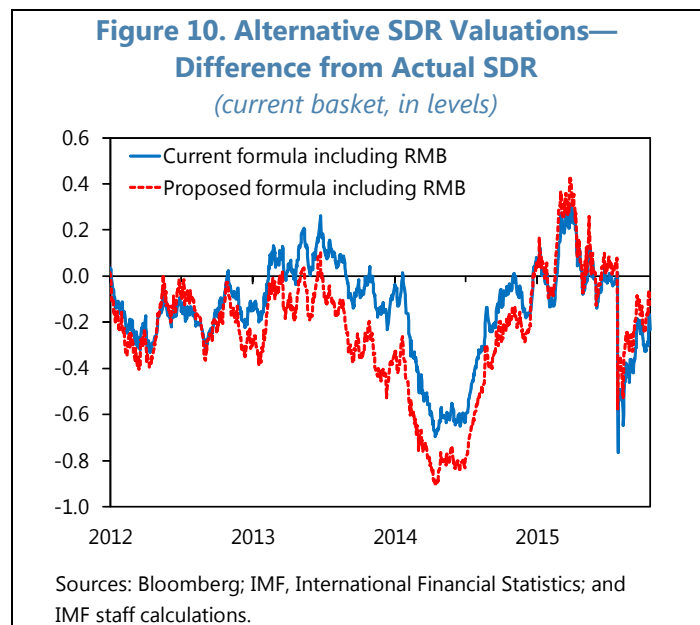
Source: IMF staff calculations using data in Table A.3.
 1/ Financial Indicator A assigns a 50 percent weight to shares in international reserves, 25 percent weight to shares in FX turnover and 25 percent weight to shares in international financial activity, defined as the sum of international banking liabilities and international debt securities.
 2/ RMB held in reserves and RMB-denominated IBL are set to zero, since the usual data sources do not include RMB.
 3/ OFA survey results are used to fill in data for RMB held in reserves. RMB-denominated IBL is a staff estimate based on national sources and BIS data. See Section II and Annex I for details.

⁴³ The indicator in Table 14 corresponds to Financial Indicator A (1/2 Reserves, 1/4 FXT, 1/4 (IBL+IDS)) of the 2010 staff paper.

54. Two variants of this approach are shown. As noted earlier, RMB held in reserves and RMB-denominated IBL are not currently available in the COFER and BIS databases, respectively, such that the share of the RMB in two of the five indicators would be zero if one were to rely only on COFER and the BIS to assess these indicators. The currency weights resulting from such an approach are presented in the middle column of Table 14. However, given that broadly comparable estimates for the RMB are available from the OFA survey in the case of reserves, and from staff estimates based on BIS data and data from national sources in the case of RMB-denominated IBL, staff proposes to use these estimates to supplement the data from the existing sources. This generates the results shown in the last column of Table 14.

55. Staff proposes to adopt the second variant of this approach (Table 14, last column). It would address the shortcomings with the weighting formula identified in previous reviews, increasing the weight of the financial variable to better reflect the role of financial flows (relative to exports) in international transactions; extending the scope of the financial variable to capture both official and private financial indicators; and setting ex ante weights of the variables in the formula rather than endogenously adding incongruous flows and stocks. It would also provide continuity with the current approach, by maintaining a relatively large weight for exports in the formula (50 percent) and a relatively large weight for reserves within the financial indicator (50 percent).⁴⁴ Furthermore, the proposal would use the best available data estimates, including alternative sources to fill data gaps for the RMB.⁴⁵ The formula would remain simple and transparent, and preserve broad stability in currency weights.

56. The proposed formula would have had little impact on the properties of the SDR. Back-testing simulations with the current SDR basket show that the value of the SDR in U.S. dollar terms would have been broadly similar under the proposed formula if applied since the last review (Figure 10). Its volatility would also have been largely unchanged. The results would have been similar if the RMB had been part of the basket, likely because all the currencies besides the RMB depreciated sharply against the U.S. dollar starting in 2013, while the RMB appreciated modestly



⁴⁴ The second financial indicator presented in the staff paper for the 2010 review assigned only 1/3 of the weight in the financial sector to reserves (and also 1/3 each to FX turnover and to the sum of IBL and IDS); see Box 6. Relative to the staff proposal, the effect of this alternative approach on relative currency weights would be moderate: in the five currency basket, weights would be 41.73 percent for the U.S. dollar, 30.93 percent for the euro, 8.09 percent for the British pound, 8.33 percent for the Japanese yen, and 10.92 percent for the RMB.

⁴⁵ See Annex I regarding the treatment of data gaps in the calculation of currency weights.

against the U.S. dollar. Going forward, the impact of RMB inclusion could be larger as the exchange rate moves toward a more market-determined regime.

57. Under the 2000 Decision, the results of the formula are rounded to the nearest percentage point, or as may be convenient, to obtain currency weights. In the 2010 review, the flexibility provided in the current decision was used to round the results of the weighting formula to one decimal place rather than to the nearest whole percentage point, which avoided the need for adjustments, as had been required in previous reviews, for the weights to sum to one hundred percent. In this review staff proposes to round the weighting formula results to two decimal places. Staff proposes to make an adjustment that would have the least impact on the relative weights in the basket yet allow the weights to sum to one hundred percent.⁴⁶ This would result in a small downward adjustment to the weight of the U.S. dollar (from 42.72 to 42.71 percent; see Table 15). As a legal matter, and consistent with precedents, the proposed 0.01 percentage point downward adjustment to the weight of the U.S. dollar in the proposed approach constitutes a change to the method of valuation of the SDR, and requires a 70 percent majority of the total voting power. To avoid triggering the 70 percent majority requirements at future reviews for relatively minor rounding adjustments, staff proposes to amend the rounding regime in the SDR valuation decision to authorize downward or upward adjustments to ensure that the currency weights of all currencies in the basket sum to one hundred, in a manner that least affects currency weights.

Table 15. Currency Weights Under Proposed Approach

	Unadjusted	Adjusted 1/
U.S. dollar	42.72	42.71
Euro	30.75	30.75
British pound	7.74	7.74
Japanese yen	7.95	7.95
Renminbi	10.85	10.85
Total	100.01	100.00

Source: IMF staff calculations using data in Table A.3.
1/ The U.S. dollar's weight is adjusted down by 0.01 percentage point to ensure that weights sum to 100.00 percent.

VII. REVIEW OF SDR INTEREST RATE BASKET

58. The SDR interest rate plays a key role in Fund operations. The SDR interest rate provides the basis for calculating the interest charged to members on loans from the IMF's general resources, the interest paid to members on their remunerated creditor positions in the IMF, and the interest paid to members on their SDR holdings and charged on their SDR allocations. It is also used as the interest rate for a number of borrowing agreements to the Poverty Reduction and Growth Trust (PRGT). Finally, it is a benchmark for the Fund's invested resources in the Investment Account.

59. Two main changes have been made to the SDR interest rate basket since the last review. In October 2014, a floor of five basis points was established for the SDR interest rate to

⁴⁶ The currency weights would add up to 101 percent if rounded to the nearest percentage point and to 99.8 percent if rounded to the nearest tenth of a point.

ensure its consistency with the Articles of Agreement in a near-zero interest rate environment, and to address issues related to the functioning of the burden-sharing mechanism.⁴⁷ The floor has been largely binding since its inception (Figure 11). In addition, on January 1, 2015, the interest rate representing the euro was changed to the three-month spot rate for euro area central government bonds with a rating of AA and above, published by the European Central Bank (ECB).⁴⁸

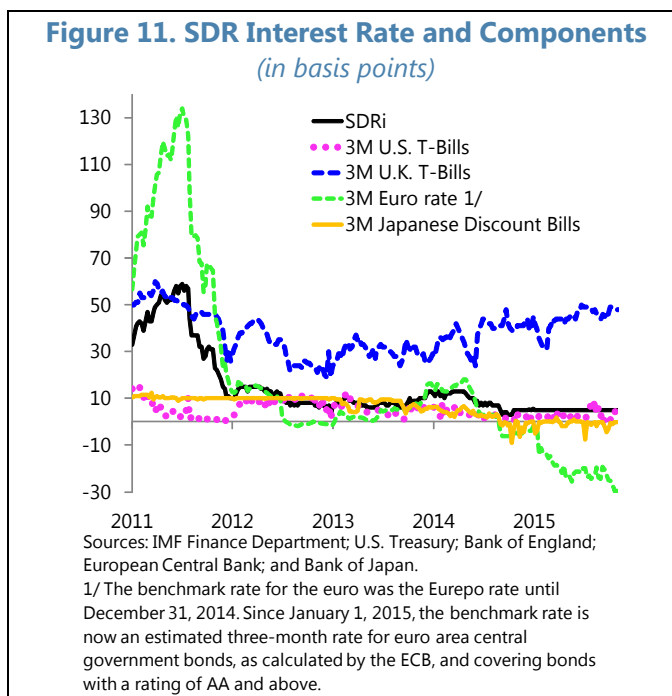
A. Review of current SDR interest rate instruments

60. As noted in Section III, the Executive Board has previously agreed that the financial instruments in the SDR interest rate basket should meet certain characteristics. With issues related to a possible RMB-denominated instrument discussed earlier, this section focuses on whether the instruments of the current SDR basket currencies continue to meet these characteristics.

61. The benchmark rates used as representative interest rates for the four current SDR basket currencies are as follows:

- U.S. dollar—Market yield for three-month U.S. Treasury bills;
- Euro—Three-month spot rate for euro area central government bonds with a rating of AA and above published by the ECB;
- Japanese yen—Market yield for three-month Japanese Treasury Discount Bills; and
- British pound—Market yield for three-month U.K. Treasury bills.

62. No changes are proposed to the instruments representing the current four SDR currencies in the interest rate basket. Staff has consulted with the authorities issuing the



⁴⁷ See [Recent Fall in the SDR Interest Rate—Implications and Proposed Amendments to Rule T-1](#) (10/16/2014)

⁴⁸ See [IMF Executive Board Modifies SDR Interest Rate Basket](#), Press Release No. 14/601 (12/23/2014) and [The SDR Interest Rate Basket—Proposed Change of the Representative Interest Rate for the Euro and Amendment to Rule T-1\(C\)](#), (12/12/2014). The ECB estimates a yield curve based on a modeling algorithm that minimizes the quadratic difference between the yields that can be computed from the curve and the yields measured based on actual trades and committed quotes. The model uses the parameters of the previous day as starting values of the optimization process and on rare occasions, following large movements in interest rates, the starting values have been adjusted to ensure a better fit of the yield curve.

currencies in the current SDR basket regarding the appropriate benchmark rates to use in the calculation of the SDR interest rate. Staff concurs with the authorities' views:

- The authorities of the United States consider that the three-month U.S. Treasury bill continues to be an appropriate instrument for the SDR interest rate basket.
- The ECB considers that the three-month spot rate for euro area central government bonds with a rating of AA and above continues to be the most appropriate rate for the euro in the SDR basket.
- The authorities of the United Kingdom confirm that the three-month UK Treasury bill remains the most appropriate instrument for the SDR basket given the criteria applied by the Executive Board.
- The Japanese authorities confirm that the three-month Japanese Treasury Discount Bill continues to meet the criteria for inclusion in the SDR interest rate basket and is the most appropriate instrument.

B. Possible RMB-denominated instrument for the SDR interest rate basket

63. As noted in Section III above, staff has identified the three-month benchmark yield for China Treasury bonds as published by the CCDC as the most suitable RMB-denominated instrument, should the RMB be added to the basket. The availability of an appropriate interest rate instrument is an important consideration when determining the currency composition of the SDR basket, as the currency and interest rate baskets have been aligned since 1980.⁴⁹ As discussed in Section III, the characteristics of the three-month sovereign yield align with those required of instruments in the interest rate basket. The Chinese authorities agree with this assessment.

C. Impact of potential RMB inclusion

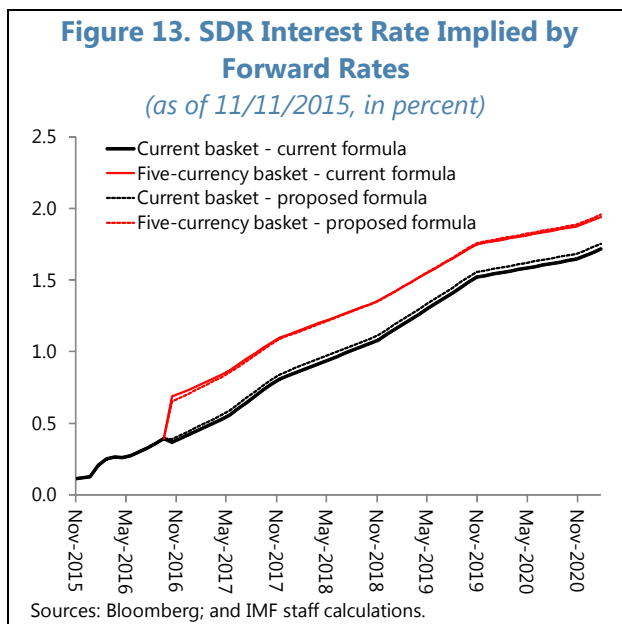
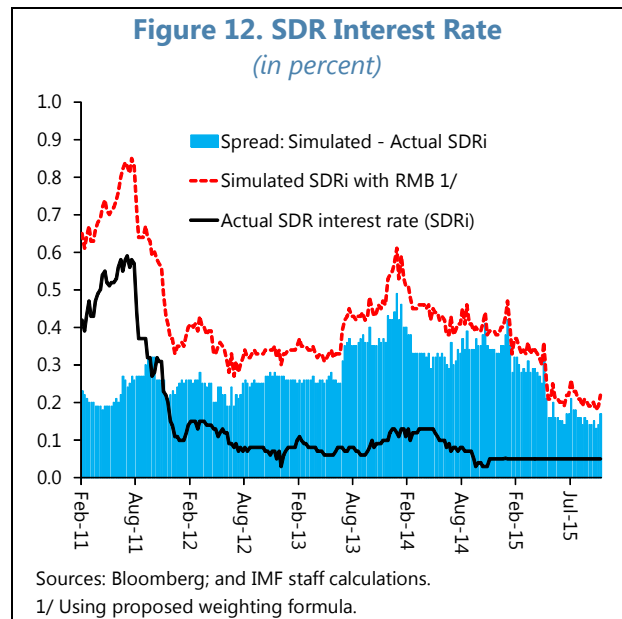
64. The potential impact of RMB inclusion is expected to be modest relative to the impact of interest rates normalizing for the current SDR basket currencies. While conjunctural interest rate settings have no direct bearing on the selection of currencies for the SDR basket, gauging the impact of potential RMB inclusion on the SDR interest rate could help Fund members and other SDR users prepare for the transition to a new basket. Had the yield on three-month China Treasury bonds been part of the basket since 2011, the SDR interest rate would have been on average about 28 basis points higher (Figure 12). Similarly, forward rates as of November 11, 2015 suggest that

⁴⁹ The lack of availability of appropriate interest rate instruments was an important motivation in 1980 for removing the 11 of the 16 currencies in the SDR valuation basket that had not been in the 5-currency SDR interest rate basket until then. In 2000, the freely usable criterion was preferred over alternative methods for currency selection in part because it was considered more likely to ensure the existence of an appropriate interest rate instrument. See [Review of the Method of Valuation of the SDR](#) (10/12/2000).

including the RMB in the basket under the proposed formula on October 1, 2016 would increase the SDR interest rate at that time by about 27 basis points, with the marginal impact declining slightly over a five-year horizon (Figure 13). Normalization of interest rates among issuers of the current SDR currencies, principally the United States, is expected to raise the SDR interest rate steadily over the next five years, eventually reaching levels last seen in 2011 (Figure 13). These results point to a modest impact on the SDR interest rate from potential RMB inclusion relative to developments in global interest rates.⁵⁰

D. Future work

65. As noted in the July paper, issues related to the maturity of instruments and the reset frequency of the SDR interest rate could be revisited at a later date. Since 1983, the SDR interest rate has been set weekly, based on instruments with a 3-month maturity. The 2010 review underlined that the reset frequency being different than instruments' maturity could make it difficult to replicate the SDR interest rate in the market since the remuneration of the SDR functions like a deposit rate that does not include capital gains and losses. Preliminary discussions with some reserve managers also suggested that a daily rather than weekly reset of the SDR interest rate would facilitate hedging, and that interest rate instruments with maturities longer than three months may better reflect assets in which reserve managers typically invest. Continuing with the current maturity structure and reset frequency for the time being does not appear to raise any pressing issues, and Directors at the informal discussion in July supported the approach of coming back to this issue at a later date.



⁵⁰ Simulations indicate that the proposed change to the weighting formula would have a negligible impact on the SDR interest rate. Forward rates as of November 11, 2015, suggest that including the RMB in the basket under the current weighting formula would increase the SDR interest rate on October 1, 2016 by about 32 basis points.

VIII. TRANSITION ISSUES

66. As discussed in Section III, the Executive Board’s determination of the RMB as a freely usable currency could have an immediate and significant impact on the Fund’s financial operations with its members. To the extent that demand for Fund resources continues at the current level, and assuming that China would elect to provide its own currency in purchases after the RMB is determined to be an FU currency, a significant amount of future Fund transactions would be conducted in RMB.⁵¹ More specifically, borrowing members would be required to accept RMB sold by the Fund in purchases and similarly would be required to repay in RMB if the RMB is selected for repurchases. China would no longer be under the obligation to convert RMB balances sold by the Fund into a freely usable currency, but rather under the obligation to *collaborate* with the Fund and other members to enable the exchange of RMB balances for other freely usable currencies if a purchasing or repurchasing member requested such an exchange.⁵²

A. Effectiveness of the freely usable determination

67. Delaying the effectiveness of the freely usable determination can help provide sufficient lead time for the Fund and its members to adjust to these changes. More precisely:

- As an issuer of a non-freely usable currency, China is currently obliged to exchange its currency for a freely usable currency of its choice (currently the U.S. dollar). If the RMB is determined to be freely usable and China elects to start conducting financial operations with the Fund and its members in RMB (instead of the U.S. dollar), its exchange arrangement with the Fund will need to be amended to reflect this change.⁵³ The scope of the arrangement would cover all GRA and SDR Department operations and would need to be communicated to the Fund’s membership. Other members may also decide to modify their current exchange arrangements and commit to exchanging their currencies for RMB. The amendment to China’s procedures for exchange of currency, and possible modifications to current procedures for exchange of currency of other members, would be put in place in due course.
- Fund members, their agents, and other SDR users may need to open RMB accounts and establish new banking relationships and procedures to transact in RMB. Typically SDR users keep such accounts with the central banks that issue the respective freely usable currency, though there are a few cases where commercial banks are used.⁵⁴ The Chinese authorities would need to

⁵¹ China’s current shares in FTP members’ quotas, NAB, and 2012 bilateral resources are 4.8 percent, 8.6 percent, and 10.3 percent, respectively. This volume would likely increase once the 14th Review quota increases become effective or if other creditor members also amend their exchange arrangements to provide RMB in lending operations.

⁵² Article V, Section 3(e)(ii) and Section 7(j)(ii).

⁵³ Under Rule O-4, all Fund members need to establish procedural arrangements, in consultation with the Fund, for the exchange of their currencies in connection with operations and transactions of the Fund.

⁵⁴ Although the Fund does not maintain records of members’ accounts, past experience shows that medium and smaller borrowing members typically have accounts in dollars and/or euro, but seldom in yen or pounds.

ensure that all SDR users are able to open RMB accounts with the PBC or other commercial banks without excessive administrative hurdles or costs.

- A number of borrowing agreements between bilateral lenders and the PRGT would require adjustments to reflect inclusion of the RMB in the SDR basket and the proposed addition of an RMB-denominated instrument to the SDR interest rate basket. Staff has prepared an action plan for affected PRGT loan agreements and if the RMB is included in the basket will contact existing loan providers in due course to discuss any amendments with a view to ensuring smooth implementation.
- Significant parts of the Fund's Investment Account are managed against SDR benchmarks. In particular, the Fund's Fixed-Income Subaccount includes SDR-denominated fixed-income investments, and is regularly rebalanced and hedged to mitigate any exchange rate risk for the General Resources Department for which the SDR is the unit of account.⁵⁵ The Trust Accounts that are managed by the Fund have followed a broadly similar investment approach. If the RMB were added to the SDR basket, the Fund's investment operations would need to be modified in several ways. Among others, the Fund's external custodian bank would need to open RMB accounts and ensure its local correspondent can support the Fund's investment activities. The Fund's external managers would also need to be able to operate on its behalf in the onshore market. Finally, the Fund and its external managers would need to establish new banking relationships and procedures to transact in RMB so that portfolios could be rebalanced to fixed-income benchmark indices and to the SDR currency basket, in line with the rules and regulations that govern these accounts.

68. Against this background, staff proposes that the determination of the RMB as a freely usable currency be made effective as of October 1, 2016. This would align with the RMB's entry into the SDR basket.

B. Currency amounts

69. With the inception of the new basket, new currency amounts would be calculated.

These amounts would be calculated consistent with the percentage weights for component currencies as determined by the Board (Annex III, part B). The calculation would be based on the last three months of exchange rates for the component currencies leading up to the inception of the new SDR basket on October 1, 2016, and be established at that time for the next five-yearly period. The transition from the present to the new basket will ensure that the new currency amounts yield the same transactions value for the SDR in terms of the U.S. dollar on the basis of the old and new currency amounts in the basket on the last business day before October 1, 2016, which is September

⁵⁵ The Board approved on August 31, 2015 a new investment strategy for the Fixed-Income Subaccount. This broadened investment strategy, which will be implemented over time, remains guided by SDR-based benchmarks and, among others, includes also some hedging requirements for non-SDR currency exposures.

30, 2016. Table 16 provides an illustrative calculation of the new currency amounts in the SDR basket for the proposed currency weights based on July 1–September 30, 2015 average exchange rates.

Table 16. Illustrative Currency Amounts 1/ 2/

Currency	Currency Weights	Currency Amounts
US dollar	42.71	0.599
Euro	30.75	0.387
British pound	7.74	0.0697
Japanese yen	7.95	13.6
Renminbi	10.85	0.962

Source: IMF staff calculations.

1/ For a given set of weights, the currency amounts shown are indicative amounts, which are likely to be different depending on (i) the average and end-period exchange rates of the base reference period to be used for revising the SDR basket's currency components, and (ii) the rounding procedures to be applied to the currency amounts themselves.

2/ Based on July 1 – September 30, 2015 average exchange rates.

IX. PROPOSED DECISIONS

70. The following decisions would be required to implement staff's proposals in this paper:

Decision 1—Determination of RMB as a Freely Usable Currency

71. This decision determines the RMB to be a freely usable currency, effective October 1, 2016. It may be adopted by a majority of the votes cast. Decision No. 11857-(98/130), adopted December 17, 1998, which determined the euro, Japanese yen, British pound, and U.S. dollar to be freely usable currencies continues to be in effect.

Decision 2—Method of SDR Valuation and Rule T-1(c) List of Yields and Rates⁵⁶

Method of SDR Valuation

72. This part of the decision adopts a new SDR valuation decision to reflect the changes to the SDR valuation method set forth in this paper, namely: (i) an expansion of the SDR currency basket from 4 to 5 currencies; (ii) revisions to the weighting formula to introduce new variables and establish fixed relative weights for the variables; (iii) for purposes of the export criterion for SDR currency selection and the variables used for currency weighting, extending to all currencies the currency-based approach currently applied to monetary unions; (iv) changing the regular start date for future SDR basket valuation periods to October 1; (v) modifying the rounding provision for currency weights to allow for adjustments to ensure that the rounded currency weights sum to one hundred percent, in a manner that has the least impact on relative weights; (vi) aligning the text of the Decision with the longstanding practice of SDR valuation reviews so that the export criterion for currency selection and currency weights, in addition to exports of goods and services, also includes

⁵⁶ If the RMB is found to be freely usable and included in the SDR basket, it would require identifying a suitable reference interest rate for the RMB and the amendment of the current Rule T-1(c). As the proposed changes to the method of SDR valuation and the amendment of Rule T-1(c) are both related to the 2015 SDR valuation review, they are proposed for approval in one decision.

income credits; and (vii) incorporating the current Guidelines for Calculation of Currency Amounts into the SDR valuation decision.⁵⁷

73. Under the Articles of Agreement, the method of valuation for the SDR is determined by a 70 percent majority of the total voting power, provided that an 85 percent majority of the total voting power is required for (a) a change in the principle of valuation, or (b) a fundamental change in the application of the principle in effect.⁵⁸ The Executive Board, by a decision adopted by a majority of the votes cast, has the authority to decide whether any one of the proposed changes (or all the proposed changes taken together) are such that they require an 85 percent majority of the total voting power. Decisions on the application of the majority provisions require the exercise of significant judgment by the Executive Board on the nature of the proposed changes.

74. In adopting SDR valuation decisions, the Executive Board has been guided over the years by a number of broad principles, whose aim is to enhance the attractiveness of the SDR as a reserve asset, and which consist of the following:⁵⁹

- The value of the SDR should be stable in terms of the major currencies.
- The currencies included in the basket should be representative of those used in international transactions.
- The relative weights of the currencies included in the basket should reflect their relative importance in the world's trading and financial system.
- The composition of the SDR basket should be stable in that it should not change easily from one review to the next.
- There should be continuity in the method of SDR valuation such that revisions in the method of valuation occur only as a result of major changes in the roles of currencies in the world economy.

75. As the July paper indicated, while these broad principles are not synonymous with the term "principle of valuation" under the Articles, a change in the SDR valuation method that would bring the method outside of these broad principles would prompt an assessment of whether they amount to a change in principle of valuation. As shown below, in the view of staff,

⁵⁷ Decision No. 8160 (85/186) G/S, 12/23/85, as amended. These guidelines cover the process for calculating SDR currency amounts in the context of SDR valuation reviews. They supplement the SDR valuation decision and are subject to the special majorities applicable to changes in the SDR valuation method.

⁵⁸ As described in the July paper, Article XV, Section 2 provides for these special majority requirements but the Articles provide no further guidance as to the type of change that would require an 85 percent majority, and the Executive Board has never developed a list of such changes (see paragraph 11 of the July paper). The issue of which majority is applicable was raised twice since the adoption of the Second Amendment. To date, all decisions that have changed the method of SDR valuation have been adopted by the Fund with a 70 percent majority of the total voting power.

⁵⁹ See [Criteria for Broadening the SDR Currency Basket](#), page 6.

the proposed changes are consistent with these broad principles and the majority analysis is consistent with precedent. Specifically:

- A change from a four-currency to a five-currency basket would not be a change in principle as the valuation method would continue to be based on the standard basket approach, i.e., an SDR value equal to that of a basket of currencies whose composition is determined by international trade and financial indicators. The selection of currencies would continue to be guided by the principle that the SDR basket currencies should be representative of the currencies used in international transactions, and the expected stability of the basket composition remains intact.⁶⁰
- Regarding currency weighting, under the current method the weights of the currencies are determined by statistical criteria incorporated in the SDR valuation decision, and these criteria aim to ensure that currency weights reflect the relative importance of currencies in the global trade and financial systems. The proposed changes continue to reflect these guiding principles. They aim at strengthening the representativeness of currencies by introducing a broader set of financial variables and ensuring an adequate role for these variables by establishing an equal share for the exports and financial variables.
- The proposed changes to the number of SDR basket currencies and the weighting formula would also not result in “fundamental changes in the application of the principle in effect”. In staff’s view, the addition of one currency to the basket is not a fundamental change in the application of the principle. Moreover, the relative share of the other currencies is broadly maintained under the new formula. Back-testing simulations of these changes as illustrated in Figure 10 also show that they would have had little impact on the properties of the SDR.
- Extending to all currencies the currency-based approach currently applied only to monetary unions, for the purposes of currency selection and currency weighting (except for the freely usable assessment), does not constitute a change in the principle of valuation, nor does it amount to a fundamental change in the application of the principle in effect. Rather, the currency-based approach aims to better reflect the role of the SDR as a reserve asset based on a basket of currencies, and align the treatment of members with more than one currency with that of monetary unions.⁶¹
- Moving the start date for a new SDR basket from January 1 to October 1 while maintaining the normal five-year periodicity for SDR valuation baskets (and the method for collecting data for the various indicators) is consistent with the principles of basket continuity and stability that have guided the normal five-year periodicity of SDR valuation decisions, while recognizing that earlier changes could take place if warranted. It would be difficult to demonstrate that such

⁶⁰ This view is consistent with the approach in 1980 (reduction of the size of the SDR basket from sixteen to five currencies) and 2000 (number of currencies in the SDR basket reduced from five to four) where the Executive Board did not find there was a fundamental change in the application of the SDR valuation principle in effect.

⁶¹ In 2000, when the SDR valuation framework shifted to a currency-based approach for monetary unions, it was neither considered a change in the principle of valuation nor a fundamental change in the application of the principle.

changes to the basket period that maintain the normal five-year periodicity would amount to a fundamental change in the application of the principle of valuation.

- The proposed changes to the rounding regime for currency weights and the clarification on the methodology used for the export criterion to align the decision with the longstanding practice regarding the treatment of income credits are of a technical nature that only marginally affect the determination of the variables used for currency selection and currency weighting and thus do not amount to a change in principle or a fundamental change in the application of the principle.

Rule T-1(c)'s List of Yields and Rates

76. This part of the decision proposes to add the three-month benchmark yield for China Treasury bonds published by China Central Depository and Clearing Co., Ltd to the list of representative interest rates under Rule T-1(c). The proposed change constitutes a change in the SDR interest rate, which requires a 70 percent majority of the total voting power in accordance with Article XX, Section 3 of the Articles of Agreement. In addition, as with any other amendment to the Fund's Rules and Regulations, it would be submitted to the Board of Governors for review at their next regular meeting (Section 16 of By-laws).

Decision 3—New Representative Rate for the Renminbi

77. Decision 3 proposes that the representative rate for the RMB for operations and transactions with the Fund be determined as the 4:00 p.m. (Beijing time) benchmark rate for the RMB against the U.S. dollar published daily by the China Foreign Exchange Trading System. This decision may be taken by a majority of votes cast, and upon adoption, concludes the consultation by the Executive Board on the new representative rate for the RMB. The change in the representative rate would become effective immediately.

Proposed Decisions

The following decisions are proposed for adoption by the Executive Board. Decisions 1 and 3 may each be adopted by a majority of votes cast. Decision 2 may be adopted by a 70 percent majority of the total voting power and is only proposed for adoption if Decision 1 is adopted by the Executive Board.

Decision 1

Pursuant to Article XXX(f), and after consultation with the People's Republic of China, the Fund determines that, effective October 1, 2016, and until further notice, the Chinese renminbi is a freely usable currency.

Decision 2

A. Method of SDR Valuation

1. The value of the special drawing right shall be determined on the basis of the five currencies issued by Fund members, or by monetary unions that include Fund members ("monetary unions"), whose exports of goods, services, and income credits ("Exports") had the largest value during the five-year period ending December 31, 2014, or for any subsequent revision, during the most recent five calendar-year period for which the required data under paragraphs 1 and 2 of this decision are readily available, and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX(f) of the Articles of Agreement. In the case of a monetary union, the determination of the value of Exports shall exclude trade among members that are part of the union. In the case of a member with more than one currency, the determination of the value of Exports shall be based, for each currency, on trade by the member's economic region for which the currency is legal tender.
2. The percentage weight of each currency selected in accordance with paragraph 1 above for the SDR basket composition shall be equal to the sum of:

(i) 50 percent of the share of the member or monetary union issuing that currency in the total Exports of the members or monetary unions issuing the currencies as calculated in accordance with paragraph 1 above; and

(ii) 25 percent of the share of that currency in the total value of balances of the currencies selected in accordance with paragraph 1 above, held by monetary authorities that are not issuers of the relevant currency, and in the case of the currency of a monetary union, by the monetary authorities of members other than those forming part of the monetary union, at the end of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above;

(iii) 12.5 percent of the share of that currency in the total value of foreign exchange market turnover of the currencies selected in accordance with paragraph 1 above, during the five-year period ending December 31, 2014, and thereafter during each relevant five-year period referred to in paragraph 1 above; and

(iv) 12.5 percent of the share of that currency in the total value of international banking liabilities and international debt securities denominated in the currencies selected in accordance with paragraph 1 above, at the end of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above. In the case of a monetary union, international banking liabilities and international debt securities shall be determined on the basis of the monetary union as one economic region. In the case of a member with more than one currency, these indicators shall be determined on the basis of the economic region of the member for which the currency in question is legal tender.

3. In accordance with the principles set forth in paragraphs 1 and 2 above, effective October 1, 2016, the value of one special drawing right shall be the sum of the values of specified amounts of the five currencies listed below. These amounts shall be determined on September 30, 2016 in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of each of the five currencies in the value of the special drawing right correspond to the weights specified below.

Currency Weight (in percent):

U.S. dollar 42.71

Euro 30.75

Chinese renminbi 10.85

Japanese yen 7.95

Pound Sterling 7.74

4. The list of the currencies that determine the value of the special drawing right, and the amounts of these currencies, shall be revised with effect on October 1, 2021 and thereafter on the first day of each subsequent period of five years in accordance with the following principles, unless the Fund decides otherwise in connection with a revision:

(a) The currencies determining the value of the special drawing right shall be determined in accordance with paragraph 1 above, provided that a currency shall not replace another currency included in the list at the time of the determination unless the value of Exports of the member or monetary union, whose currency is not included in the list, during the relevant period exceeds by at least one percent that of a member or a monetary union issuing a currency included in the list.

(b) The amount of the five currencies referred to in (a) above shall be determined on the last

working day preceding the effective date of the relevant revision in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of these currencies in the value of the special drawing right correspond to percentage weights for these currencies, which shall be established for each currency in accordance with (c) below.

(c) The percentage weights shall be established in accordance with paragraph 2 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient. Adjustments to currency weights resulting from the above formula shall be made, if necessary to ensure that the rounded currency weights sum to one hundred percent, in a manner that has the least impact on relative weights.

5. The determination of the amounts of the currencies under paragraphs 3 and 4 above shall be made in a manner that will ensure that the value of the special drawing right in terms of currencies on the last working day preceding the five-year period for which the determination is made will be the same under the valuation in effect before and after revision, and shall be calculated in accordance with the following guidelines:

(a) The currency amounts calculated for the new basket will be expressed in two significant digits provided that the deviation of the percentage share of each currency in the value of the special drawing right, resulting from the application of the average exchange rates for July–September, from the percentage weight as determined under paragraphs 3 and 4(c) above is the minimum on average and will not exceed one half percentage point for any currency.

(b) If a solution cannot be obtained by the application of the guidelines set forth in (a) above, the calculation shall be made applying the same guidelines but expressing the amount of each currency in three significant digits, and if no solution is found with three significant digits then the calculation shall be made applying the same guidelines but expressing the amount of each

currency in four significant digits.

(c) If more than one solution is found in the calculation at the level of two, three, or four significant digits, the solution that has the smallest average deviation will be employed.

B. Amendment of Rule T-1(c)

Effective October 1, 2016, Rule T-1(c) of the Fund's Rules and Regulations shall be amended by inserting

"Chinese renminbi Three-month benchmark yield for China Treasury bonds as published daily by the China Central Depository and Clearing Co., Ltd".

after

"Euro Three-month spot rate for euro area central government bonds with a rating of AA and above published by the European Central Bank"

Decision 3

The Fund determines, after consultation with the authorities of the People's Republic of China, that the representative exchange rate for the Chinese renminbi is the 4:00 p.m. (Beijing time) reference rate for the renminbi against the U.S. dollar published daily by the China Foreign Exchange Trading System.

Annex I. Data Issues

This annex discusses definitions, data sources, and methodological issues relating to indicators used in both the currency selection criteria and the calculation of the currency weights in the SDR basket. The first section describes the indicators used in the currency selection criteria, the second section describes the data required to calculate the currency weights, and the third section explains the treatment of data gaps.

A. Indicators used to assess the currency selection criteria

The exports criterion is assessed using the following data (Table 1, Figure 1, and Table A1):

- **Data on merchandise exports, services, and income credits (primary and secondary).** The data source is the WEO database, October 2015 vintage. Euro area exports (i.e., excluding intra-euro area exports, in line with the currency-based approach) are provided in the WEO database. China's exports are assessed at the level of the Mainland, in line with the currency-based approach, since Hong Kong SAR, Macao SAR, and Taiwan Province of China have their own currencies and monetary authorities. The memorandum item of Table 1 presents China's exports if a member-based approach were followed; i.e., including exports of Hong Kong SAR and Macao SAR but excluding exports of goods between these three regions. Official data on Taiwan Province of China exports is not available. Exports data between these three regions is sourced from the *Direction of Trade Statistics* (DOTS). Exports of services between Mainland China and Hong Kong SAR are excluded only until 2013 due to limited data availability. Income credits between Mainland China and Hong Kong SAR cannot be excluded for 2010–14 as no geographic breakdown is available after 2009. Exports of services and income credits between Macao SAR and other regions are not excluded as no data is available.

The freely usable criterion is assessed using the following data:

- **Official foreign exchange (FX) reserves (Table 2, Figure 2)** are taken from the IMF's *Currency Composition of Official Foreign Exchange Reserves (COFER)* survey, where they are defined as monetary authorities' claims on non-residents usable in the event of balance of payment needs. The reserve holdings data series in U.S. dollars were converted to SDRs using end-of-period exchange rates.
- **International banking liabilities (IBL; Table 4, Figure 3)** are defined by the BIS as liabilities to non-residents denominated in any currency (Locational Banking Statistics, Table 5A, external positions *vis-à-vis* all sectors) plus liabilities denominated in foreign currency to domestic residents (Locational Banking Statistics, Table 5D, local position in foreign currency *vis-à-vis* all sectors and *vis-à-vis* the non-bank sector). Following the member-based approach for the freely usable assessment, RMB-denominated IBL are assessed where Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic, excluding IBL between residents of these economies and between residents of these economies and residents of the Mainland. Since reporting RMB-denominated IBL to the BIS is not mandatory, staff estimated RMB-denominated IBL based on national sources, Haver Analytics, and BIS supplementary data. The estimate

includes data from the PBC on RMB-denominated cross-border IBL, RMB deposits in Taiwan Province of China from Haver Analytics, and RMB deposits in Singapore reported by the Monetary Authority of Singapore. Staff calculations using BIS supplementary data include data from eight jurisdictions that reported RMB-denominated liabilities to the BIS, and estimates made for other non-reporting jurisdictions. For the euro, the data includes intra-euro area positions, so is in line with the member-based approach.

- **International debt securities (IDS; Table 5, Figure 4)** outstanding are from the BIS and defined as bonds and notes and money market instruments issued in a market other than the local market of the country where the borrower resides (Securities Statistics, Tables 13A and 13B). More specifically, a security is defined as international if its registration domain, listing place, or governing law differs from the residence of the issuer. Following the member-based approach for the freely usable assessment, RMB-denominated IDS are assessed with staff calculations using BIS supplementary data, where Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic, excluding securities issued by residents of one of these locations or the Mainland if the registration domain, listing place, and governing law are all from one of these locations. For the euro, the data includes euro-denominated debt securities if registration domain, listing place, or governing law belongs to a euro-area country other than the residency of the issuer, and is therefore in line with the member-based approach.
- **Foreign exchange turnover (Table 9)** is defined as the gross value of all deals concluded during the month of April, and is measured in terms of the nominal or notional amount of the contracts based on the location of the sales desk. The BIS Triennial Central Bank Survey, last conducted in April 2013, is the only comprehensive and reliable data source for global FX market turnover. The survey compiles the nominal or notional amounts of executed spot and derivative FX transactions from about 1,300 reporting financial institutions from 53 jurisdictions. Data from regional FX committees is also presented (Table 10).

The following indicators for the freely usable assessment are newly proposed in this review:

- **Official foreign currency assets (OFA; Table 3):** holdings include reserve assets and other foreign currency-denominated assets of monetary authorities not included in reserves, such as claims on residents. The OFA survey, conducted by IMF staff in 2015, covered 16 currencies, including the RMB, and two data points; end-2013 and end-2014.
- **Gross issuance of IDS (Table 6),** from BIS, covers the same markets, instruments, and methodology as the stock outstanding of international debt securities.
- **Trade finance (Table 8)** comprises bank-intermediated transactions aimed at supporting international trade, involving credit, insurance or guarantees. SWIFT provides data on letters of credit underlying their interbank message code MT 700, which is estimated to account for about half of total trade finance. Following the member-based approach, RMB-denominated cross-border letters of credit are assessed where Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic, excluding letters of credit between these economies. For the euro, intra-euro area trade financing is included.

- **Cross-border payments (Table 7)** are from SWIFT, based on monthly data collected from the use of its standardized inter-bank messages, MT 103 and MT 202, for transfer of funds instructions. MT 103 covers payment instructions sent by or on behalf of the financial institution of the ordering customer to the financial institution of the beneficiary customer. MT 202 covers payments instructions sent by or on behalf of the ordering institutions directly or indirectly to the beneficiary financial institution. Following the member-based approach, RMB-denominated cross-border payments are assessed where Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as domestic, excluding payments between these economies. For the euro, intra-euro area payments are included.

All the data described above is converted to SDR terms, using period average exchange rates for flow variables and end-of-period exchange rates for stock variables.

B. Indicators used in the calculation of proposed currency weights

The proposed currency weights in Table 14 are calculated using the following data for 2010–14, in line with a currency-based approach (See Tables A2 and A3):

- **Exports** of goods services and income credits; same as above.
- **Official foreign exchange reserves** are used as the measure of the “total value of the balances of currencies held by monetary authorities” (paragraph 2 of the 2000 Decision) as in the past. The data source is COFER (see Section A). OFA data is used for the RMB in the absence of COFER data (see Section C).
- **Foreign exchange turnover** uses total turnover from the 2010 and 2013 BIS Triennial Central Bank Surveys.
- **International banking liabilities (IBL)**; same as above, except euro-denominated IBL exclude intra-euro area holdings, using data provided by the BIS. The end-2014 IBL estimate for the RMB is based on staff calculations using data from the PBC on RMB-denominated cross-border IBL, RMB deposits in Taiwan Province of China from Haver Analytics, RMB deposits in Singapore reported by the Monetary Authority of Singapore, and supplementary BIS data on RMB-denominated IBL from eight jurisdictions that reported to the BIS. Hong Kong SAR, Macao SAR and Taiwan Province of China are treated as international.
- **International debt securities (IDS)**; same as above, except euro-denominated IDS excludes debt securities issued by euro area residents if registration domain, listing place, and governing law belong to a euro area country. This adjustment excludes domestic issuance in the domestic market and adds on euro-denominated portfolio debt securities liabilities to non-residents, provided by the European Central Bank. For the RMB, Hong Kong SAR, Macao SAR, and Taiwan Province of China are treated as international.

C. Data gaps

Currency weights under the current formula, as well as the proposed one, are calculated using annual averages and year-end data over the past five years. However, annual data may not always be available for all currencies across all the variables used in the formulas. The data gaps in the current review are: i) lack of annual data on FX turnover on a comparable basis, ii) lack of data for RMB held in reserves, and iii) lack of data for RMB-denominated IBL from the sources that are used for the current SDR currencies.

The common practice and accepted statistical method to deal with data gaps is to use data that is available for the time period of interest, and take the average over the period with the data available. For example, in the 2000 review, end-1999 reserves were used instead of a five-year average in the currency weight calculations, since the euro was a new currency with only one year of observations at that time. Similarly, in quota calculations for some new members for whom long-term time series are not available, the available shorter time series are used instead.

For the data gaps described above, the calculations presented in Section VI follow this approach:

- **FX turnover.** The 2010–14 average is based on two data points, for 2010 and 2013, which are available from the BIS triennial survey. The average of these two data points is used instead as a five-year average for each currency (Table A3).
- **RMB held in reserves.** OFA survey results are used for the RMB, which has two data points for end-2013 and end-2014. The average of these two data points is used instead of a five-year average.
- **RMB-denominated IBL.** Staff's estimate for international banking liabilities denominated in RMB, based on various data sources described above, is for end-2014. This figure is used in place of a five-year average.

Table A.1. Variables Used in Currency Selection Criteria

Variable	Source/Vintage	Data Type	Coverage	Other Explanations
Exports	WEO, IMF/October 2015. DOTS, IMF/2015. Hong Kong Census and Statistics Department/ June 2015.	Flow. Annual exports are the sum of exports of goods and services and income credits as defined in BPM6. Billions of USD. Converted to SDR using average exchange rates for each year.	2005–14 Annual data is used. Five-year averages of amounts and shares are presented.	For the euro, “Euro Area” exports are used. For the RMB, Mainland China (CH) exports are used. As a memo item, Table 1 shows the sum of CH, Hong Kong SAR (HK), and Macao SAR (MO) exports. Exports of goods between these three regions are excluded (data from DOTS). Exports of services between CH and HK until 2013 are excluded (HK Census). Income credits between CH and HK cannot be excluded for 2010–14 as no geographical breakdown is available after 2009 (HK Census). Exports of services and income credits between MO and other regions are not excluded due to lack of data.
Reserves				
<i>USD, EUR, JPY, GBP</i>	COFER, IMF/September 2015.	Stock. Allocated official reserves. Billions of USD. Converted to SDR using end-of-year exchange rates.	2010:Q2 –2015:Q2 June data is used.	
<i>RMB</i>	OFA Survey, IMF/March, 2015.	Stock. Official Foreign Currency Assets. Billions of SDR.	2013–14 Dec. data is used.	These numbers were provided by the IMF Statistics Department.
International Banking Liabilities (IBL)				
<i>USD, EUR, JPY, GBP</i>	BIS, Locational Banking Statistics, Tables 5A and 5D/ October 2015.	Stock. Cross-border liabilities and local positions in foreign currency. Billions of USD. End-of-quarter data.	2010:Q2 and 2015:Q2 June data is used.	As of October 2015, the BIS no longer publishes IBL Tables 5A and 5D, and provided them to IMF staff upon request.
<i>RMB-denominated IBL of Taiwan, Province of China</i>	Haver Analytics	Stock. Domestic and Offshore Banking Units: RMB Deposits. Millions of RMB, end of quarter exchange rates are used to convert it to USD.	2015:Q2 June data is used.	For RMB, IBL from CH, HK, MO, and Taiwan Province of China (TW) are included and RMB-denominated IBL between them are excluded. From the total reported IBL for RMB (including RMB-denominated deposits in Singapore, TW, and other jurisdictions based on staff calculations using BIS supplementary data), RMB-denominated liabilities to residents in HK, MO and TW are subtracted. As a memo item, Table 4 shows the figures with HK, MO, and TW treated as international.
<i>RMB-denominated IBL of Singapore</i>	Monetary Authority of Singapore, www.mas.gov.sg	Stock. Level of RMB deposits in Singapore. Billions of RMB, end of quarter exchange rates are used to convert it to USD.	2015:Q2 June data is used.	
<i>RMB-denominated IBL of Mainland China</i>	PBC	Stock. Millions of USD.	2015:Q2 June data is used.	
International Debt Securities (IDS)— Amounts outstanding	BIS, Quarterly Review, Tables 13A and 13B/ Sept. 2015.	Stock. International Bonds, Notes and Money Market Instruments. End-of-quarter data is used. Billions of USD.	2010:Q2 and 2015:Q2. June data is used.	For RMB, IDS for CH, HK, MO, and TW are included; any IDS issued between them are excluded (with staff calculations using BIS supplementary data). Table 5 (memo) shows the published IDS which treats HK, MO, and TW as international.

International Debt Securities (IDS)— Issuance	BIS, Quarterly Review, Tables 13A and 13B/ Sept. 2015.	Flow. International Bonds, Notes and Money Market Instruments. Semiannual data is used. Billions of USD.	2010:H1 and 2015:H1. The sum from Jan. to June.	Same treatment for RMB as for IDS amounts outstanding.
Foreign Exchange Turnover (FXT)	BIS, Triennial Survey/ April 2013. Regional FX committees and monetary authorities.	Flow. Average of daily transactions in April are reported. Billions of USD. Both total and spot turnover are used.	2010 and 2013.	Regional FX committees and monetary authorities include London, New York, Hong Kong, Singapore, Tokyo, Australia, China, and Canada.
SWIFT Payments	SWIFT data codes 103 and 202	Flow. Monthly amounts for top 20 currencies converted to USD.	Oct/2010–Sep/2011 Jul/2014–Jun/2015	For RMB, TW, HK, and MO are treated as domestic; i.e., payments within these economies, and between these economies and CH are excluded.
SWIFT Trade Finance	SWIFT data code 700	Flow. Monthly amounts for top 20 currencies converted to USD.	Oct/2010–Sep/2011 Jul/2014–Jun/2015	For RMB, TW, HK, and MO are treated as domestic; i.e., trade finance within these economies, and between these economies and CH are excluded.

Table A.2. Variables Used for Currency Weights

Variable	Source/Vintage	Data Type	Coverage	Other Explanations
Exports	WEO, IMF/ October 2015.	Flow. Annual exports are the sum of goods, services and income as defined in BPM6. Billions of USD. Converted to SDR using average exchange rates for each year.	2010–14 Annual data is used.	For the euro, exports for “Euro Area” are used. For the RMB, exports for Mainland China are used.
Reserves	USD, EUR, JPY, GBP COFER, IMF/ September 2015.	Stock. Allocated official reserves. Billions of USD. Converted to SDR using end-of-year exchange rates.	2010–14. December data is used.	
	RMB OFA Survey, IMF/ March, 2015.	Stock. Official Foreign Currency Assets. Billions of SDR.	2013–14. December data is used.	These numbers were provided by the IMF Statistics Department.
International Banking Liabilities (IBL)				
<i>USD, EUR, JPY, GBP</i>	BIS, Locational Banking Statistics, Tables 5A and 5D/ October 2015. BIS supplementary data for EUR euro-area adjustment/ Oct.2015.	Stock. Cross-border liabilities and local positions in foreign currency. Billions of USD. End of year exchange rates are used to convert it into SDR.	2010–14 December data is used.	As of October 2015, the BIS no longer publishes IBL Tables 5A and 5D, and provided them to IMF staff upon request. For the euro, the “Domestic currency” part of Table 5A is replaced with supplementary data from the BIS where intra-euro area IBL are excluded from the euro area total.
<i>RMB-denominated IBL of Taiwan, Province of China</i>	Haver Analytics	Stock. Domestic and Offshore Banking Units: RMB Deposits. Millions of RMB, end of year exchange rates are used to convert it to USD and then to SDR.	2014 Fourth quarter data is used.	
<i>RMB-denominated IBL of Singapore</i>	Monetary Authority of Singapore, www.mas.gov.sg	Stock. The level of RMB deposits in Singapore Billions of RMB, end of year exchange rates are used to convert it to USD and then to SDR.	2014 December data is used.	
<i>RMB denominated IBL of Mainland China</i>	PBoC	Stock. Millions of USD. End of year exchange rates are used to convert it into SDR.	2014 Fourth quarter data is used.	
International Debt Securities (IDS)	BIS, Quarterly Review, Tables 13A and 13B/ September 2015.	Stock. International Bonds, Notes and Money Market Instruments. End-of-year data is used. Billions of USD. Converted to SDR using end-of-year exchange rates.	2010–14. December data is used.	For the euro, the ECB’s broad measure for international debt securities is used. This measure excludes all intra-euro area issuance.
<i>USD, JPY, GBP, RMB EUR</i>	ECB, International Role of the Euro, Table A4/ July 2015.			
Foreign Exchange Turnover (FXT)	BIS, Triennial Survey/ April 2013.	Flow. Average of daily transactions in April. Billions of USD. Amounts are converted to SDR using end-April exchange rates.	2010 and 2013.	

Table A.3. Data Used in the Proposed Currency Weights 1/
(in billion SDR)

A. Exports ^{2/}							
Currency	2010	2011	2012	2013	2014	Average 2010 - 2014	Share (in percent)
US dollar	1,724.3	1,892.4	2,022.6	2,106.5	2,176.7	1,984.5	26.1
Euro	2,319.8	2,613.6	2,664.9	2,798.7	2,914.1	2,662.2	34.9
Pound sterling	647.5	728.3	713.0	716.5	727.4	706.5	9.3
Japanese yen	709.2	746.7	755.6	710.1	733.2	730.9	9.6
Renminbi	1,200.5	1,399.1	1,562.5	1,706.0	1,797.1	1,533.1	20.1
Total						7,617.2	
B. Reserves ^{3/}							
US dollar	2,073.4	2,296.1	2,428.8	2,468.7	2,649.8	2,383.4	65.3
Euro	871.8	908.0	959.3	986.0	929.6	931.0	25.5
Pound sterling	131.9	141.2	160.0	161.1	159.2	150.7	4.1
Japanese yen	122.6	132.8	161.9	154.5	163.6	147.1	4.0
Renminbi				29.5	51.5	40.5	1.1
Total						3,652.6	
C. Foreign Exchange Turnover (FXT) ^{4/}							
US dollar	1,110.6			1,546.6		1,328.6	54.8
Euro	511.1			593.7		552.4	22.8
Pound sterling	168.6			209.8		189.2	7.8
Japanese yen	248.6			409.3		328.9	13.6
Renminbi	11.3			39.7		25.5	1.1
Total						2,424.6	
D. International Banking Liabilities (IBL) ^{5/}							
US dollar	8,990.9	9,362.6	8,790.5	9,183.8	9,874.8	9,240.5	59.2
Euro	4,048.0	4,081.2	4,058.7	3,981.9	3,841.4	4,002.3	25.7
Pound sterling	1,090.6	941.0	994.8	1,026.2	1,018.4	1,014.2	6.5
Japanese yen	655.3	624.0	538.5	479.0	531.1	565.6	3.6
Renminbi					776.0	776.0	5.0
Total						15,598.5	
E. International Debt Securities (IDS) ^{6/}							
US dollar	4,284.2	4,497.4	4,904.9	5,315.2	6,093.3	5,019.0	42.9
Euro	4,849.2	4,772.9	4,865.7	5,004.7	4,769.9	4,852.5	41.5
Pound sterling	1,347.8	1,314.3	1,345.6	1,432.9	1,452.5	1,378.6	11.8
Japanese yen	499.8	496.8	430.0	323.3	294.9	408.9	3.5
Renminbi	10.7	25.5	40.3	57.7	83.4	43.5	0.4
Total						11,702.6	

Sources: IMF, World Economic Outlook; IMF, COFER Survey; IMF, OFA Survey; BIS Locational Banking Statistics; BIS Quarterly Review; BIS Triennial Survey; People's Bank of China (PBC); Monetary Authority of Singapore; Haver Analytics; and IMF staff calculations.

1/ Based on the proposed weighting formula of 50 percent Exports and 50 percent Financial Indicator A ($\frac{1}{2}$ Reserves, $\frac{1}{4}$ FXT, $\frac{1}{4}$ (IBL+IDS)), as presented in Table 14. Exports and FXT are converted from USD to SDR at period average exchange rates. Reserves, IBL, and IDS are converted at end-of-period exchange rates.

2/ Last updated on September 30, 2015 from WEO database, includes data revisions from prior years. WEO provides aggregated euro area exports data which excludes trade between euro area member countries.

3/ Data is based on COFER for USD, EUR, GBP and JPY and OFA for RMB.

4/ April, 2010 and April, 2013 Triennial Central Bank Surveys.

5/ Intra-euro area positions are excluded based on BIS data received on October 2, 2015. BIS data is used for USD, EUR, GBP and JPY. For RMB, data include RMB-denominated cross-border IBL from PBC, BIS data on RMB-denominated IBL reported by eight countries, RMB deposits in Taiwan from Haver Analytics, and RMB deposits in Singapore reported by the Monetary Authority of Singapore.

6/ Last updated on September 15, 2015, includes data revisions from prior years. Intra-euro area positions are adjusted based on ECB data received on June 4, 2015.

Annex II. High-Frequency Currency Trading Data: An Analysis of Trading Volumes, Liquidity, and Market Resilience

High-frequency data on currency trading from the EBS platform for spot interdealer trading indicate that the RMB is relatively liquid during the Asian and early European trading hours.¹ Indicators of breadth, depth, and resilience suggest that large RMB transaction volumes would not have an unduly large impact on the exchange rate. However, these results need to be interpreted with caution as the EBS platform is only representative of a portion of the global FX market.

This annex provides complementary FX turnover data to help guide the assessment of whether the RMB is liquid enough that no appreciable changes in the exchange rate would occur as a result of sizable transactions in principal exchange markets. The analysis examines the liquidity of 7 currency pairs using quantity and price-based indicators, including trading volumes, bid-ask spreads, effective cost of trades, price impacts, and return reversals.² The analysis relies on high-frequency, intraday (one-second basis) spot market data from EBS between June 5, 2014 and June 5, 2015. It must be highlighted that while the 2013 BIS Triennial Survey identifies the EBS platform as a major player in electronic trading—along with Reuters—it is only representative of a portion of the global FX market and not all currency pairs are widely traded on this platform. Of the current freely usable currencies, especially the trading of the pound/dollar currency pair is more prevalent on other trading platforms (Box 1).

The analysis assesses the dynamics of intra-day transaction volumes to determine the relative breadth (i.e., existence of numerous and large orders in volume with minimal transaction price impact) of different currency pairs across various trading zones.³ It then compares liquidity indicators, bid-offer spreads, effective trading costs, order-flow price impact, and order-flow price return reversal for seven major currency pairs.⁴

¹ For the purpose of this annex we refer to the RMB or RMB/dollar as the currency pair traded offshore, i.e., the CNH or CNH/dollar.

² The “return reversal” is the reversal to the “fundamental value” of an exchange rate after a large transaction causes the exchange rate to deviate temporarily from its fundamental value.

³ Markets that are deep tend to foster breadth since large orders can be divided into several smaller orders to minimize the impact on transaction prices.

⁴ Order flow captures the net buy/selling pressure, but it is not synonymous to trading volume. Order flow refers to *signed* volume. Trades can be *signed* depending on whether the deal is initiated by the buyer or the seller. The dealer that posts the quote is the passive side of the trade. For example, a sale of 10 units by a trader acting on a dealer’s quotes is order flow of -10, while volume is 10.

Box 1. EBS Data

EBS is one of the leading platforms for spot interdealer trading for several of the currencies in our analysis. The 2013 BIS triennial Survey reported EBS and Reuters Matching as having 24 percent of the market share of the global spot FX electronic trading, and about 15 percent of total spot FX transactions. EBS operates globally, with a presence across six continents, 50 countries, and more than 100 cities. It executes more than 100,000 deals daily involving banks, professional trading firms (for example, hedge funds), and central banks.

The data employed in the analysis is provided by *EBS Data Mine*, which reports the best bid and ask quotes, volume indicators (expressed in base currency), deal prices, and the direction of trade (i.e. whether it is a buyer or seller initiated trade). The *best quoted prices* include the best bid price (i.e., highest bid price in the market) and best offer price (i.e., lowest offer price in the market at the time). The *dealt prices* are the highest buying deal (i.e. the highest paid) and the lowest selling deal price (lowest given) at the time. The data is created on a time-slice basis of one second. All quotes in the database are transactable—as opposed to indicative quotes which do not represent a binding commitment to trade at these prices—and therefore represent the prevalent spot exchange rate. Moreover, since all dealers on the platform are prescreened for credit and bilateral credit lines, and are monitored continuously by the system, counterparty risk is negligible when analyzing the dataset. These features allow an accurate estimation and analysis of liquidity in the FX market.

The analysis covers 7 currency pairs¹: Australian dollar/U.S. dollar, euro/U.S. dollar, U.S. dollar/Canadian dollar, U.S. dollar/Swiss franc, U.S. dollar/CNH, pound/U.S. dollar, and U.S. dollar/yen from June 5, 2014 to June 5, 2015. Since the information for each exchange rate is irregularly spaced and to ensure comparability across currencies, the data is processed to construct second-by-second data and volume series, and then aggregated into minute-by-minute data. For every minute, the transaction price of a deal is used to construct one-minute log-returns. Returns in turn are multiplied by 10,000 to obtain basis points as the unit of measurement. Observations between Friday 10 p.m. and Sunday 10 p.m. GMT are excluded, since only minimal activity is observed during these non-standard hours. The data is filtered to eliminate any observation that does not reflect the market activity from the ultra-high frequency data.²

¹ The currency pair is quoted as *base currency/local currency*. That is, it indicates how much local currency is required in exchange for one unit of the base currency.

² Observations whose prices exceeded three-standard deviations for the daily average are trimmed.

A. Trade volumes by currency

Intra-day trading volume patterns in the EBS platform suggest that trading activity of the offshore RMB (CNH) is highest in the first half of the trading day.⁵ The first half of the trading day covers the Asian trading zone, which also includes the first hours of European trading (Figure 1). This differs somewhat from the intra-day trading pattern for other major currencies whose trading peaks at the overlap of the European and North-American trading hours, when the overall trading volume in the global FX markets is the highest.

⁵ In the July paper, Staff argued that *Principal Exchange Markets* are best understood in terms of three broad time zones corresponding roughly to the Asian (GMT 1-9), European (GMT 6-16) and North American (GMT12-21) market hours.

Early trading day RMB/dollar volumes are among the highest of all currency pairs in the sample. Between 0 to 2 hours GMT, the RMB is the second most dealt currency on the EBS platform, only surpassed by the dollar/yen (Figure 2). More generally, between 0 to 9 hours GMT the RMB/dollar currency pair is the third most traded—only surpassed by the euro/dollar and the dollar/yen, the most traded currencies on the platform.

The analysis also reveals that volumes fluctuate significantly across the trading day. Even the most traded currency pair in the sample, the euro/dollar pair, experiences large fluctuations in volumes traded, especially during the second half of the North American and early Asian trading hours (Figure 2 and Annex Figures 1–3).

B. Liquidity indicators

Liquidity of the RMB is assessed using several indicators. These aim at capturing the costs of executing trades (i.e., *bid-ask spreads* and *effective trading costs*) and at gauging the resilience of a currency (i.e., *price impact* and *return reversal*) (Box 2).

Cost of executing trades in RMB

The cost of executing trades in RMB/dollar, as measured by *bid-offer spreads* and the *effective cost of transactions* is relatively low and comparable to that of other major currencies in the sample. The daily average spread for the RMB/dollar in the sample ranges from 0.6 to 4 bps for an average quoted transaction size of 2.9 million dollars (Figure 3).⁶ This is comparable to bid-ask spreads that range between 0.6–2.8 bps for the euro/dollar or between 0.8–2.6 for the dollar/yen, the most traded currency pairs on the EBS platform, although the upper range is somewhat wider. Effective trading costs of the RMB/dollar mirror to a large extent the qualitative behavior of bid-ask spreads.

The analysis also suggests that trading costs for the RMB/dollar are relatively stable across the first half of the trading day—i.e., the Asian and early European time zone. Nonetheless, these costs increase gradually in the day as trading becomes thinner in the North American time zone. The fluctuating trading cost pattern is not unique to the RMB. Major currency pairs tend to display relatively low trading costs throughout the day, but tend to peak in the period between the North American and Asian trading hours (Figure 4).

Resilience

The analysis suggests that the RMB would not be particularly sensitive to large net buying/selling pressure. The estimated price impact coefficient for the RMB is small, even if we take into account the return reversals. By contrast, the analysis shows that the EUR/dollar displays a

⁶ The bid-offer spreads are expressed relative to the mid-quote as explained in Box 2 and can vary with the exchange rate.

larger price impact of net transactions than other currencies (Figure 3). However, this result needs to be interpreted with caution as different factors may be influencing the analysis, including domestic exchange rate and capital account policies and regulations, and the higher volatility of global currencies in recent months.

Overall, the empirical analysis using quantity- and price-based indicators derived from the EBS platform, suggests that the RMB is relatively liquid, mainly during the Asian trading day and early European trading day. In addition, the breadth, depth and resilience of the RMB is comparable in most dimensions to that of the current freely usable currencies.

Box 2. Liquidity Indicators: Methodology¹

- **Price impact of a trade:** Measures how much the exchange rate changes in response to a given order flow. A greater price impact implies a larger impact on the exchange rate and therefore, is a signal of lower liquidity.

For each currency, let r_{t_i} , v_{b,t_i} , and v_{s,t_i} denote the log exchange rate return between t_{i-1} and t_i , the volume of buyer-initiated trades, and the volume of seller-initiated trades at time t_i during day t , respectively. Then, the price impact can be modeled as:

$$r_{t_i} = \vartheta_t + \varphi_t (v_{b,t_i} - v_{s,t_i}) + \sum_{k=1}^K \gamma_{t,k} (v_{b,t_i-k} - v_{s,t_i-k}) + \varepsilon_{t_i} \quad (0.1)$$

Estimating the parameter vector $\theta_t = [\vartheta_t \quad \varphi_t \quad \gamma_{t,1} \cdots \gamma_{t,K}]$ by ordinary least squares on each day allows computing the price impact and return reversal on a daily basis. Specifically, the price impact of a trade can

be defined as:

$$L^{(pi)} = \varphi_t \quad (0.2)$$

- **Return Reversal:** When the price impact is large (i.e., the currency is illiquid), the price impact is temporary, since net buying (selling) pressure leads to excessive appreciation (depreciation) of the currency, followed by a reversal to the fundamental value. Using equation (1.1) the overall return reversal can be calculated as:

$$L^{(rr)} = \sum_{k=1}^K \gamma_{t,k} \quad (0.3)$$

- **Trading cost:** Captures the cost aspect of executing a trade i.e. of illiquidity.

- **Bid-ask spread:** A market can be regarded as liquid if the proportional quoted bid-ask spread is low. Letting A,B, and M indicate the ask, bid, and mid-quotes, respectively, we can define the bid-ask spread as:

$$L^{(ba)} = (P^A - P^B) / P^M \quad (0.4)$$

where $P^M = (P^A + P^B) / 2$.

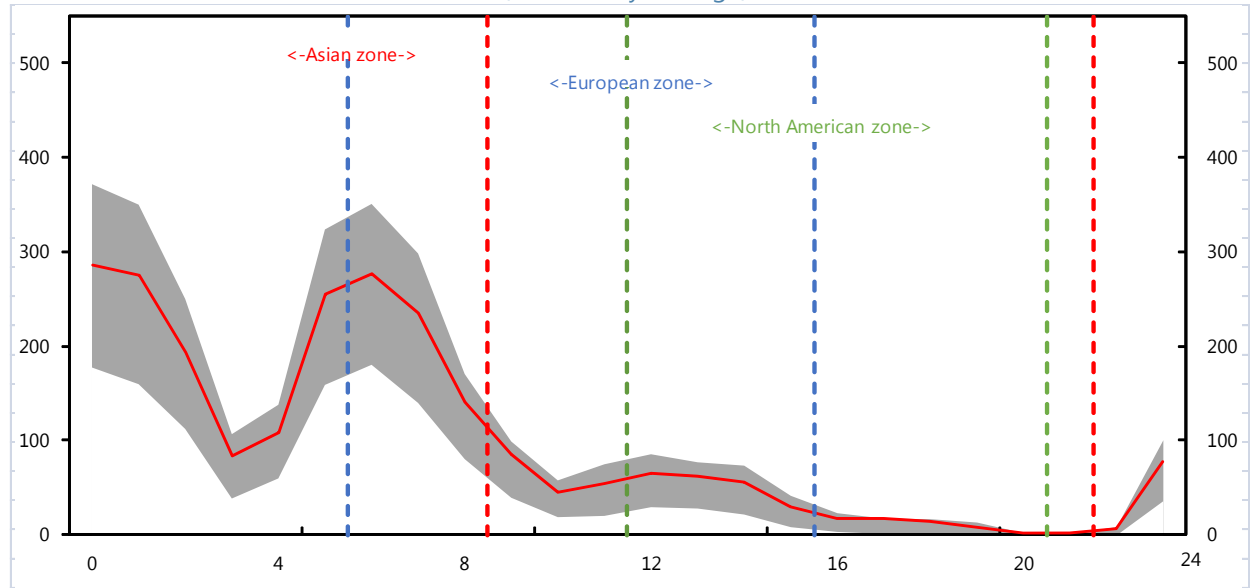
- **Effective cost of a trade:** trades are not always executed at the posted bid or ask quotes. On the contrary, deals are frequently transacted at better prices. The effective cost of a trade can then be calculated by comparing the prices with the quotes prevailing at the time of execution. Formally,

$$L^{(ec)} = \begin{cases} (P - P^M) / P^M, & \text{for buyer initiated trades.} \\ (P^M - P) / P^M, & \text{for seller initiated trades.} \end{cases} \quad (0.5)$$

where P denotes the transaction price. Daily estimates are obtained by averaging the effective cost of all trades that occurred on day t .

¹ See Mancini, L., A. Rinaldo, J. Wrampelmeyer, 2011, "Liquidity in the Foreign Exchange Market: Measurement, Commonality, and Risk Premiums", Mimeo, Swiss Finance Institute at EPFL and Swiss National Bank.

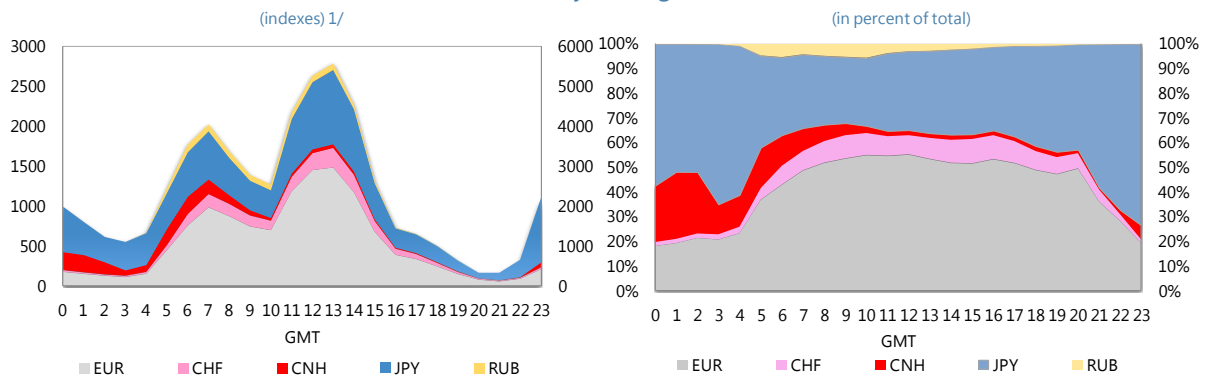
Figure 1. CNH Trading Volume Across Principal Exchange Markets
(index, daily average)



Sources: EBS; and IMF staff calculations.

Note: Shaded area displays the 25th and 75th interquartile range. Vertical lines denote trading zones.

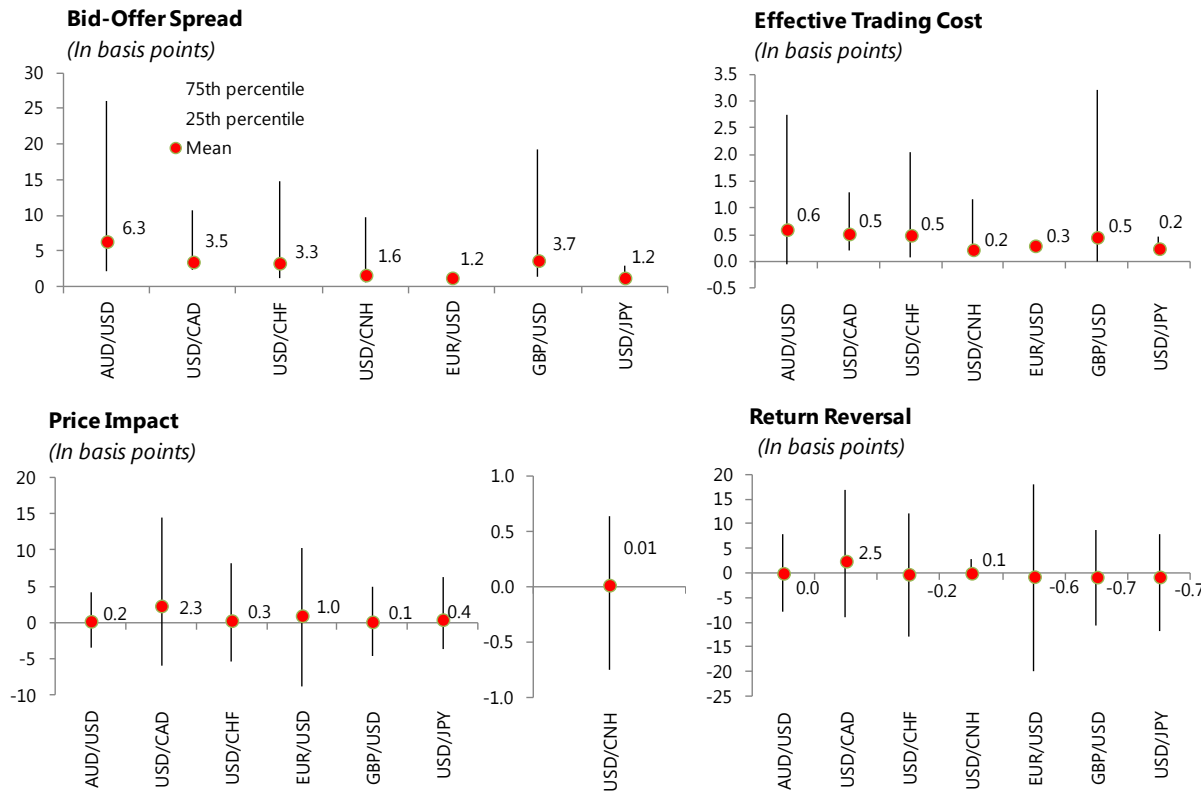
Figure 2. Traded Volumes by Currency and Principal Exchange Markets
(index, daily averages)



Sources: EBS; and IMF staff calculations.

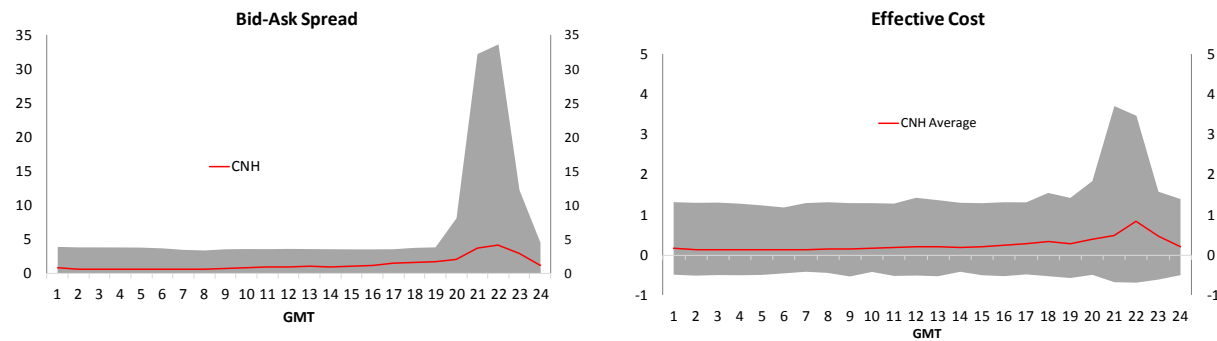
1/ The indexes are calculated by taking the daily average of the volumes traded across all currencies to equal 100.

Figure 3. Liquidity Indicators by Currency Pair
(daily averages)



Sources: EBS; and IMF staff calculations.

Figure 4. Bid-Ask Spread and Effective Cost of Transaction by Time Zone



Sources: EBS; and IMF Staff calculations.

Note: Shaded areas show the 10th and 90th percentile range for the following currencies AUD, CAD, CHF, EUR, GBP, and JPY. The red lines denotes the average for the CNH.

Annex III. Key Decisions on SDR Valuation and the SDR Interest Rate

This Annex contains key decisions and rules pertaining to freely usable currencies, SDR valuation, SDR interest rate, valuation of currencies in terms of the SDR, procedures for the exchange of currency, and the method of collecting exchange rates used for the valuation of the SDR.

A. Freely usable currencies

Rule O-3: Freely Usable Currency

- (a) The Fund shall determine the currencies that are freely usable in accordance with Article XXX(f).
- (b) The Fund shall consult a member before placing its currency on, or removing it from, the list of freely usable currencies.

1998 Board decision on List of Freely Usable Currencies

Pursuant to Article XXX(f), and after consultation with the members concerned, the Fund determines that, effective January 1, 1999 and until further notice, the euro, Japanese yen, pound sterling, and U.S. dollar are freely usable currencies. (EBS/98/219, 12/11/98)

*Decision No. 11857-(98/130),
adopted December 17, 1998*

B. SDR valuation

Method of Valuation

1. The value of the special drawing right shall be determined on the basis of the four currencies issued by Fund members, or by monetary unions that include Fund members ("monetary unions"), whose exports of goods and services during the five-year period ending 12 months before the effective date of this decision or any subsequent revision had the largest value, and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX(f) of the Fund's Articles of Agreement. In the case of a monetary union, the determination of the values of exports of goods and services of the union shall exclude the trade of goods and services among members that are part of the union.
2. The percentage weights of each of the currencies selected in accordance with paragraph 1 above shall reflect (i) the value of the balances of that currency held at the end of 1999, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above, by the monetary authorities of other members or, in the case of the currency of a monetary union, by the

monetary authorities of members other than those forming part of the monetary union, and (ii) the value of exports of goods and services, as defined in paragraph 1 above, of the members or monetary unions issuing the currencies over the relevant five-year period referred to in paragraph 1 above.

3. In accordance with the principles set forth in paragraphs 1 and 2 above, effective January 1, 2001, the value of one special drawing right shall be the sum of the values of specified amounts of the four currencies listed below. These amounts shall be determined on December 29, 2000 in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of each of the four currencies in the value of the special drawing right correspond to the weights specified below.

Currency	Weight (in percent)
U.S. dollar	45
Euro	29
Japanese yen	15
Pound sterling	11

4. The list of the currencies that determine the value of the special drawing right, and the amounts of these currencies, shall be revised with effect on January 1, 2006 and on the first day of each subsequent period of five years in accordance with the following principles, unless the Fund decides otherwise in connection with a revision:

(a) The currencies determining the value of the special drawing right shall be determined in accordance with paragraph 1 above, provided that a currency shall not replace another currency included in the list at the time of the determination unless the value of the exports of goods and services of the member or of members of a monetary union, whose currency is not included in the list, during the relevant period exceeds that of the member or the monetary union issuing the currency included in the list by at least 1 percent.

(b) The amount of the four currencies referred to in (a) above shall be determined on the last working day preceding the effective date of the relevant revision in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of these currencies in the value of the special drawing right correspond to percentage weights for these currencies, which shall be established for each currency in accordance with (c) below.

(c) The percentage weights shall be established in accordance with the principles set forth in paragraph 2 above, in a manner that would maintain broadly the relative significance of the factors that underlie the percentage weights in paragraph 3 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient.

5. The determination of the amounts of the currencies in accordance with 3 and 4 above shall be made in a manner that will ensure that the value of the special drawing right in terms of currencies

on the last working day preceding the five year period for which the determination is made will be the same under the valuation in effect before and after revision.

*Decision No. 12281-(00/98) G/S, adopted
October 11, 2000*

The Executive Board, having reviewed the list and the weights of the currencies that determine the value of the special drawing right (SDR) in accordance with Decision No. 12281-(00/98) G/S, adopted October 11, 2000, decides that, with effect from January 1, 2011, the list of the currencies in the SDR valuation basket shall remain the same, and the weight of each of these currencies to be used to calculate the amount of each of these currencies in the basket will be as follows:

Currency	Weight (in percent)
U.S. dollar	41.9
Euro	37.4
Japanese yen	9.4
Pound sterling	11.3

*Decision No. 14769-(10/110) G/S, adopted
November 15, 2010*

Extension of the Valuation of the SDR

Notwithstanding Paragraphs 2 and 4 of Executive Board Decision No. 12281-(00/98), adopted October 11, 2000, the SDR valuation basket determined under Executive Board Decisions No. 14769-(10/110) G/S, adopted November 15, 2010 and No. 14821-(11/1), adopted December 30, 2010, shall remain effective through September 30, 2016.

*Decision No. 15854-(15/80), adopted
August 11, 2015*

Guidelines for the Calculation of Currency Amounts

1. Under all circumstances, the currency units will be determined in a manner which would ensure that the value of the SDR calculated on December 31 on the basis of the new basket will be the same as that actually prevailing on that day.
2. The currency amounts calculated for the new basket will be expressed in two significant digits provided that the deviation of the percentage share of each currency in the value of the SDR, resulting from the application of the average exchange rates for October–December, from the percentage weight as determined under paragraph 4(c) of Executive Board Decision No. 12281-

(00/98) G/S, adopted October 11, 2000 is the minimum on average and will not exceed one half percentage point for any currency.

3. If a solution cannot be obtained by the application of the principles set forth in (2) above, the calculation shall be made applying the same principles but expressing the amount of each currency in three significant digits, and if no solution is found with three significant digits then the calculation shall be made applying the same principles but expressing the amount of each currency in four significant digits.
4. If more than one solution is found in the calculation at the level of two, three, or four significant digits, the solution that has the smallest average deviation will be employed.

*Decision No. 8160-(85/186) G/S, adopted December 23, 1985,
as amended by Decision No. 12283-(00/98) G/S, adopted October 11, 2000*

Rule O-1: Valuation of the SDR

The value of the SDR shall be the sum of the values of the following amounts of the following currencies:

U.S. dollar	0.660
Euro	0.423
Japanese yen	12.1
Pound sterling	0.111

C. SDR interest rate

Rule T-1(c): SDR Interest Rate

The combined market interest rate shall be the sum, rounded to the two nearest decimal places, of the products that result from multiplying each yield or rate listed below, expressed as an equivalent annual bond yield, for the preceding Friday by the value in terms of the SDR on that Friday of the amount of the corresponding currency specified in Rule O-1, as determined pursuant to Rule O-2(b). If a yield or rate is not available for a particular Friday, the calculation shall be made on the basis of the latest available yield or rate.

U.S. dollar	Market yield for three-month U.S. Treasury bills
Euro	Three-month spot rate for euro area central government bonds with a rating of AA and above published by the European Central Bank
Japanese yen	Three-Month Japanese Treasury Discount Bills

Pound sterling Market yield for three-month U.K. Treasury bills

D. Valuation of currencies in terms of the SDR

Rule O-2: Valuation of Currencies in Terms of the SDR

- (a) The value of the United States dollar in terms of the SDR shall be equal to the reciprocal of the sum of the equivalents in United States dollars of the amounts of the currencies specified in Rule O-1, calculated on the basis of exchange rates established in accordance with procedures decided from time to time by the Fund.
- (b) The value of a currency other than the United States dollar in terms of the SDR shall be determined on the basis of the value of the United States dollar in terms of the SDR in accordance with (a) above and an exchange rate for that other currency determined as follows:
 - (i) for the currency of a member having an exchange market in which the Fund finds that a representative spot rate for the United States dollar can be readily ascertained, that representative rate;
 - (ii) for the currency of a member having an exchange market in which the Fund finds that a representative spot rate for the United States dollar cannot be readily ascertained but in which a representative spot rate can be readily ascertained for a currency as described in (i), the rate calculated by reference to the representative spot rate for that currency and the rate ascertained pursuant to (i) above for the United States dollar in terms of that currency;
 - (iii) for the currency of any other member, a rate determined by the Fund.
- (c) Procedures to establish exchange rates under (b) above shall be determined by the Fund in consultation with members.

E. Procedures for exchange of currency

Rule O-4: Procedures for Exchange of Currency

- (a) The Fund shall consult all members with respect to procedures for the prompt exchange of currency, or to facilitate such exchange, in connection with
 - (i) the operations and transactions of the Fund conducted through the General Resources Account, and
 - (ii) transactions with designation conducted through the Special Drawing Rights Department.

- (b) On the request of any member, an Executive Director, or the Managing Director, the Executive Board shall decide whether procedures under (a) above for the exchange of currency are in accordance with the obligations of members.
- (c) The Fund shall inform all members of the procedures for the exchange of each freely usable currency.

F. Method of Collecting Exchange Rates for the Calculation of the Value of the SDR for the Purposes of Rule O-2(a)

1. For the purpose of determining the value of the United States dollar in terms of the special drawing right pursuant to Rule O-2(a), the equivalents in United States dollars of the amounts of currencies specified in Rule O-1 shall be based on spot exchange rates against the United States dollar. For each currency the exchange rate shall be the middle rate between the buying and selling rates at noon in the London exchange market as determined by the Bank of England.
2. If the exchange rate for any currency cannot be obtained from the London exchange market, the rate shall be the middle rate at noon in the New York exchange market determined by the Fund on the basis of the buying and selling rates communicated by the Federal Reserve Bank of New York or, if not available there, the middle rate determined by the Fund on the basis of the euro reference rates of the European System of Central Banks communicated by the European Central Bank. If the rate for any currency against the United States dollar cannot be obtained directly in any of these markets, the rate shall be calculated indirectly by use of a cross rate against another currency specified in Rule O-1.
3. If on any day the exchange rate for a currency cannot be obtained in accordance with 1 or 2 above, the rate for that day shall be the latest rate determined in accordance with 1 or 2 above, provided that after the second business day the Fund shall determine the rate.

*Decision No. 6709-(80/189) S, December 19, 1980,
as amended by Decision No. 12157-(00/24) S, March 9, 2000*

Annex IV. CCDC Yield Curve Methodology for China Treasury Bonds

This annex discusses the methodology employed by China Central Depository and Clearing Co., Ltd. (CCDC) to estimate benchmark yields for sovereign securities, including for the three-month China Treasury bonds that staff considers a suitable RMB-denominated interest rate for inclusion in the SDR interest rate basket.

The yield curve for onshore sovereign RMB securities is published at about 5:30 p.m. every trading day through the Chinabond platform and authorized data vendors. The yield curve from Chinabond is estimated using the Hermite model.¹ The standard data sources for constructing the yield curves are transaction data in the interbank bond market and exchange-traded bond market, and bilateral bid-ask quotes in the interbank bond market and bond counters. If there is no price for a given maturity or market prices are not deemed to provide a reasonable estimate, the sample point is based on the estimates of market participants or CCDC staff.

The CCDC employs procedures to eliminate abnormal prices. The CCDC holds two meetings every day, which are open to market participants, to eliminate abnormal prices from traded prices and defensive quotes by analyzing market trends and interpreting related news and policies:

- Daily traded prices are compared with the yield curve from the previous trading day. If some large differences cannot be explained by changes in policies—for instance PBC’s monetary policy stance—or financial market developments the prices may be deemed abnormal. The trading information is further analyzed and abnormal traded prices from bond outright repos or market making are excluded as well.
- The traded prices associated with historically abnormal trading volume (extremely high or extremely low) or abnormal trading frequency (extremely high) are also eliminated.
- Under usual circumstances, bilateral bid-ask quotes are a reliable source of data. However, there are sometimes defensive quotes, which are further analyzed:
 - To see whether the bilateral bid-ask quotes are continuous, if a bilateral bid-ask quote appears for the first time on a certain day, especially if the number of quotes becomes less towards maturity, then the quotes may become less reliable.
 - To look into the differences for bid-ask quotes and yields, if the yield difference is large (the bid-ask spread can exceed 40 basis points), then the quotes become less reliable.

If deemed unreliable these quotes are eliminated from the sample.

¹ CCDC applies the Hermite interpolation model, which has proven to be smooth, flexible, and stable. Specifically, given securities $x_1 < \dots < x_n$, and the corresponding yields, (x_i, y_i) (x_{i+1}, y_{i+1}) , where $i \in [1, n]$, we can find the corresponding yield $y(x)$ for any $x_1 \leq x \leq x_n$ using Hermite Polynomial interpolation as $y(x) = y_i H_1 + y_{i+1} H_2 + d_i H_3 + d_{i+1} H_4$; where x is the term, y the yield and d the slope. H_1, H_2, H_3 and H_4 are Hermite basis functions. The Hermite methodology is a fairly common approach to estimate yield curves; for example, since 2006 the U.S. Department of the Treasury has applied Hermite interpolation to derive the U.S. Treasury’s yield curve.



November 21, 2015

REVIEW OF THE METHOD OF VALUATION OF THE SDR— WEIGHTING FORMULA AND SDR INTEREST RATE

EXECUTIVE SUMMARY

This supplement to *Review of the Method of Valuation of the SDR* (11/13/2015) provides background on the rationale for the weighting formula proposed by staff; an explanation of the effects on currency weights of 1) new data, 2) changing the weighting formula, and 3) inclusion of the renminbi; and more detail on the similarities and differences between the formula proposed by staff and the formula provided in footnote 47 of the Board paper. The supplement also provides historical information on changes in the SDR interest rate following previous reviews of the SDR basket.

The supplement concludes that both weighting variants would address long-standing shortcomings of the current formula and be consistent with the principles guiding the SDR valuation method. The staff's proposal reflected a preference for the continuity provided with respect to the weight of reserves. However, given the broad similarities between both variants of the formula, and in light of the view expressed by Executive Directors in the informal Board briefing on November 19 that the formula provided in footnote 47 better enhances the attractiveness of the SDR as a reserve asset, staff proposes that the latter be adopted as the new weighting formula. A revised Board decision to this effect will be circulated under separate cover to Executive Directors.

Approved By
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Siddharth Tiwari, and
Andrew Tweedie

Prepared by the Finance; Legal; and Strategy, Policy, and Review
 Departments.

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WEIGHTING FORMULA

A. Weights—Background

1. In the Board paper, staff proposed for adoption by the Executive Board one of the weighting formulas presented in the 2010 review (hereafter referred to as 2010 A).¹ Following the issuance of the paper, several Executive Directors have requested further analysis of the impact of the proposed formula on currency weights, as well as a comparison with the alternative formula described in footnote 47 (hereafter referred to as 2010 B).

2. Both variants presented in the paper address long-standing shortcomings of the current formula.

- *They better reflect the growing role of international financial flows* by giving equal shares to exports and the financial indicator and by broadening the financial indicator to include private financial variables. The equal split between exports and financial variables is also a principled approach given that there are two currency selection criteria for the SDR basket.
- *In both variants, the Board would establish ex ante fixed weights* for each variable in the formula, contrasting with the current formula where the weights are determined endogenously by summing a flow (exports) and a stock (reserves) variable.
- *The only difference between these variants is the composition of the financial indicator:* while the indicator in 2010 A assigns a 50 percent weight to reserves, a 25 percent weight to foreign exchange turnover, and a 25 percent weight to the sum of International Banking Liabilities (IBL) and International Debt Securities (IDS), the indicator in 2010 B assigns each of these variables a weight of one third.

B. Explanation of the Effects on Currency Weights

3. The change in weights can be broken down into three components. These result from new data, a change in the formula, and the inclusion of the *renminbi* (RMB).

New data

4. For the current four-currency basket, the new data would increase the weight in the existing formula of the U.S. dollar by three percentage points compared with the 2010 review (see columns 1 and 2 in Table 1). This owes to two factors. First, for the period under review reserves increased more quickly than exports, raising the weight of the dollar because of its high share in reserves (Table 2). Second, U.S. export growth was higher than that of the euro area, Japan, and the United Kingdom. The weight of the British pound would fall by 2½ percentage points due to negative export growth, while the weights of the euro and the yen would decline marginally.

¹ [Review of the Method of Valuation of the SDR](#) (10/26/10).

Table 1. Currency Weights under Current and Proposed Formulas

	(1) 2010 review	(2) Current formula 1/	(3) Staff proposal (2010 A) 2/	(4)
		4-currency basket	4-currency basket	5-currency basket
U.S. dollar	41.9	45.05	46.46	42.71
Euro	37.4	37.06	35.38	30.75
British pound	11.3	8.84	8.96	7.74
Japanese yen	9.4	9.06	9.20	7.95
Renminbi		-	-	10.85

Sources: IMF, *International Financial Statistics*; and IMF staff calculations using data in Table A.3 of SM/15/278.

1/ As shown in Table 13 of SM/15/278.

2/ As shown in Tables 14 and 15 of SM/15/278. In the 5-currency basket, missing data for RMB held in reserves is supplemented with OFA survey results and missing data for RMB-denominated IBL is supplemented with staff calculations based on national sources and BIS supplementary data. A 0.01 ppt downward adjustment is made to the USD weight to ensure that weights sum to one hundred percent while minimizing the impact on relative weights.

Table 2. Exports and Reserves*(in billions of SDR, period average)*

	Exports			Reserves	
	2005–09 1/	2010–14		2005–09 1/	2010–14
United States	1,539	1,985	U.S. dollar	1,597	2,383
Euro area	2,146	2,662	Euro	647	931
United Kingdom	778	707	British pound	108	151
Japan	616	731	Japanese yen	84	147
China		1,533	Renminbi	-	40

Sources: IMF, World Economic Outlook; IMF, Currency Composition of Official Foreign Exchange Reserves survey; and IMF staff calculations.

1/ Data as shown in Table 4 of SM/10/292.

New formula

5. The formula proposed by staff would increase the weight of the financial variable, resulting in a shift of weight from the euro, principally to the U.S. dollar (see columns 2 and 3 of Table 1). Since the share of the euro is generally lower for financial indicators than for exports and the share of the dollar in financial indicators is higher, the weight of the euro would decline by 1.68 percentage points relative to the current formula (under the existing four-currency basket), with a 1.41 percentage point increase in the weight of the dollar and smaller increases in the weight of the British pound and the Japanese yen.

RMB inclusion

6. Inclusion of the RMB under the proposed formula would affect the current SDR currencies primarily by diluting their shares of exports. The RMB has a relatively low share in the financial variables, so most of its weight in the SDR basket would be derived from China's standing as the third-largest exporter. Since the euro derives a relatively large proportion of its weight from exports, RMB inclusion would lower the weight of the euro by 4.63 percentage points compared to 3.75 percentage points for the U.S. dollar (Table 1, column 4). The euro, Japanese yen, and British pound would each experience a decline of between 13 and 14 percent of their weight as a result of RMB inclusion, compared to a decline of 8 percent for the dollar. The impact of RMB inclusion would be broadly similar under either of the weighting formulas described in the staff paper. Notwithstanding this change, the dollar and the euro would continue to account for the bulk of the weight in the SDR basket.

C. Comparison with the Alternative Weighting Formula (2010 B)

7. The proposed formula (2010 A) is closer to the current formula in terms of the share of reserves. In the current formula, exports and reserves would have a 68/32 split if the RMB is added as the fifth currency. Reserves effectively have a one-fourth share in 2010 A, while in 2010 B, reserves account for one sixth of the formula. Thus, 2010 A would provide more continuity with respect to the weight of reserves than 2010 B.

8. On the other hand, 2010 B has the merit of simplicity and produces weights that are closer to the current SDR basket weights. As shown in Table 3, in a five-currency basket including the RMB, this formula produces weights that are closer to the 2010 weights, providing somewhat greater stability in the composition of the SDR basket in terms of the continuity with current weights. In addition, as staff pointed out in the 2010 SDR Review paper, the formula is somewhat simpler than 2010 A, using equal shares on the variables within the financial indicator. This also provides greater balance in the financial indicator between the variables capturing wide use and wide trade by assigning a higher weight to foreign exchange turnover.

9. Neither variant would have had a significant impact on the properties of the SDR. Back-testing of the 2010 A and B formulas shows that if either one had been in place over the last five years, the SDR would have had similar stability properties; its value (in U.S. dollar terms) and volatility would have been broadly the same (Figure 1).

10. Both variants would be consistent with the principles guiding the SDR valuation method. Both 2010 A and 2010 B would allow the relative weights of the currencies in the basket to broadly reflect their relative importance in the world's trading and financial system. While staff had a preference for 2010 A because of the continuity provided with respect to the weight of reserves, given the broad similarities between both variants of the formula, and in light of the view expressed by Executive Directors in the informal Board briefing on November 19 that 2010 B better enhances the attractiveness of the SDR as a reserve asset, staff proposes that 2010 B be adopted as the new

weighting formula. A revised Board decision to this effect will be circulated under separate cover to Executive Directors.

Table 3. Currency Weights under Proposed and "2010 B" Formulas

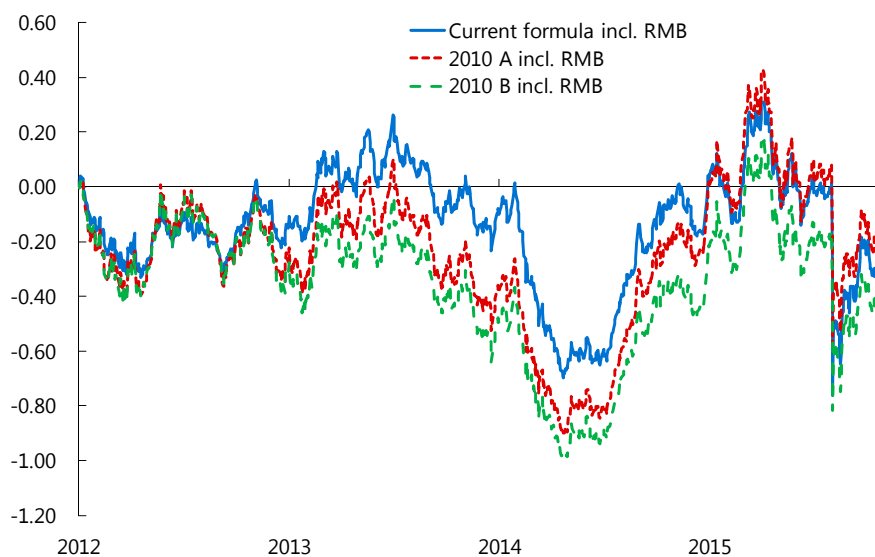
	(1) 2010 review	(2) Staff proposal (2010 A) 1/ 2/	(3) 2010 B 2/
		5-currency basket	5-currency basket
U.S. dollar	41.9	42.71	41.73
Euro	37.4	30.75	30.93
British pound	11.3	7.74	8.09
Japanese yen	9.4	7.95	8.33
Renminbi		10.85	10.92

Sources: IMF, *International Financial Statistics*; and IMF staff calculations using data in Table A.3 of SM/15/278.

1/ As shown in Table 15 of SM/15/278.

2/ Missing data for RMB held in reserves is supplemented with OFA survey results and missing data for RMB-denominated IBL is supplemented with staff calculations based on national sources and BIS supplementary data. A 0.01 ppt downward adjustment is made to the USD weight to ensure that weights sum to one hundred percent while minimizing impact on relative weights.

Figure 1. Alternative SDR Valuations—Difference from Actual SDR
(current basket, in levels)



Source: IMF staff calculations.

SDR INTEREST RATE

11. As noted in the Board paper, RMB inclusion in the basket is likely to lead to an increase in the SDR interest rate. Executive Directors have asked about the historical experience with changes in the basket and stressed the importance of carefully considering the various effects of an increase in the SDR interest rate on Fund creditors and borrowers and on the Fund's income position, before the new basket comes into effect on October 1, 2016.

12. It is normal that changes in the basket at periodic reviews lead to changes in the SDR interest rate. As long as interest rates differ among the basket currencies, changes in the currency composition and weights would be expected to lead to a change in the SDR interest rate. Staff has reviewed the historical experience following previous basket reviews. Over the past six reviews, there have been four instances where the SDR rate has increased, and two where the SDR rate has declined. The resulting changes in the SDR rate range from a decline of 34 basis points to an increase of 18 basis points (Table 4).

13. Staff plans to present a comprehensive discussion of this issue in the context of the next review of the Fund's income position, which is scheduled for April 2016. This will allow the Executive Board to carefully assess all implications of a likely higher SDR interest rate and reflect them appropriately in the relevant policy decisions that will be taken well in advance of the effectiveness of the new basket.

Table 4. Change in SDR Interest Rate in Past Reviews 1/

	SDR interest rate (in percent)	Change (in basis points)
1985 Review	7.49	
	7.61	12
1990 Review	8.97	
	8.63	-34
1995 Review	3.97	
	4.15	18
2000 Review	4.60	
	4.42	-18
2005 Review	3.06	
	3.17	11
2010 Review	0.31	
	0.33	2

Source: IMF staff calculations.

1/ For each review, the table shows the last weekly SDR interest rate calculated with the old basket and the first SDR interest rate calculated with the new basket.



November 25, 2015

REVIEW OF THE METHOD OF VALUATION OF THE SDR— REVISED PROPOSED DECISION AND ILLUSTRATIVE CURRENCY AMOUNTS

EXECUTIVE SUMMARY

This supplement to *Review of the Method of Valuation of the SDR* (11/13/2015) includes revisions to Decision 2.A that reflect the revised proposal for the currency weighting formula presented as “2010 B” in *Review of the Method of Valuation of the SDR*, Supplement 1 (11/21/15), corresponding currency weights and illustrative currency amounts based on July 1–September 30, 2015 average exchange rates. It also includes a revision to paragraph 1 of Decision 2.A to clarify that the availability of data on financial variables is not a precondition for assessing the export criterion.

Approved By
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Prepared by the Finance; Legal; and Strategy, Policy, and Review
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REVISIONS TO A PROPOSED DECISION

1. **This supplement describes revisions to Decision 2.A in *Review of the Method of Valuation of the SDR on the weighting formula and currency weights to reflect the revised proposal in Supplement 1*.** Specifically, the proposed formula, as set out in the revised paragraph 2 of Decision 2.A, reflects an equal weight among the three financial variables (reserves, foreign exchange turnover, and the sum of international banking liabilities and international debt securities) that comprise the financial indicator. Further, proposed weights for the five currencies under the new formula would also change, as reflected in the revised paragraph 3 of Decision 2.A.
2. **There are a few other changes to Decision 2.** Paragraph 1 of Decision 2.A is revised to clarify that the availability of data on financial variables is not a precondition for assessing the export criterion. In addition, revisions are also made to subparagraph numbering in paragraph 2 to be consistent with the numbering in other paragraphs of Decision 2.A.
3. **The proposed decisions set forth in *Review of the Method of Valuation of the SDR, with these revisions to Decision 2.A*, are set forth below.** For the convenience of Executive Directors, the redlined text showing the revisions to Decision 2.A is included in the Appendix.

ILLUSTRATIVE CURRENCY AMOUNTS BASED ON PROPOSED WEIGHTS

4. **Illustrative currency amounts based on the new proposed weights are presented in Table 1.** As discussed in *Review of the Method of Valuation of the SDR* (paragraph 69), with the inception of the new basket, new currency amounts would be calculated based on the last three months of exchange rates for the component currencies leading up to the inception of the new SDR basket on October 1, 2016. Table 1 provides an illustrative calculation of the new currency amounts in the SDR basket for the weights based on the proposed formula in Supplement 1 (“2010 B”), using July 1–September 30, 2015 average exchange rates. As in previous reviews, staff would publish updated illustrative currency amounts in the weeks leading up to October 1, 2016.

Table 1. Illustrative Currency Amounts Based on Proposed Weights^{1/}

Currency	Currency Weights	Currency Amounts
US Dollar	41.73	0.584
Euro	30.93	0.390
Pound Sterling	8.09	0.0731
Japanese Yen	8.33	14.3
Renminbi	10.92	0.966

Source: IMF staff calculations.

^{1/} For the given set of weights, the currency amounts shown are indicative amounts based on July 1 – September 30, 2015 average exchange rates. Final currency amounts would be set on September 30, 2016, and would likely be different depending on (i) the average and end-period exchange rates of the base reference period to be used for revising the SDR basket's currency components, and (ii) the rounding procedures to be applied to the currency amounts themselves.

Proposed Decisions

The following decisions are proposed for adoption by the Executive Board. Decisions 1 and 3 may each be adopted by a majority of votes cast. Decision 2 may be adopted by a 70 percent majority of the total voting power and is only proposed for adoption if Decision 1 is adopted by the Executive Board.

Decision 1

Pursuant to Article XXX(f), and after consultation with the People’s Republic of China, the Fund determines that, effective October 1, 2016, and until further notice, the Chinese renminbi is a freely usable currency.

Decision 2

A. Method of SDR Valuation

1. The value of the special drawing right shall be determined on the basis of the five currencies issued by Fund members, or by monetary unions that include Fund members (“monetary unions”), whose exports of goods, services, and income credits (“Exports”) had the largest value during the five-year period ending December 31, 2014, or for any subsequent revision, during the most recent five calendar-year period for which the required Exports data are readily available, and which have

been determined by the Fund to be freely usable currencies in accordance with Article XXX(f) of the Articles of Agreement. In the case of a monetary union, the determination of the value of Exports shall exclude trade among members that are part of the union. In the case of a member with more than one currency, the determination of the value of Exports shall be based, for each currency, on trade by the member's economic region for which the currency is legal tender.

2. The percentage weight of each currency selected in accordance with paragraph 1 above for the SDR basket composition shall be equal to the sum of:

(a) One half of the share of the member or monetary union issuing that currency in the total Exports of the members or monetary unions issuing the currencies as calculated in accordance with paragraph 1 above; and

(b) One sixth of the share of that currency in the total value of balances of the currencies selected in accordance with paragraph 1 above, held by monetary authorities that are not issuers of the relevant currency, and in the case of the currency of a monetary union, by the monetary authorities of members other than those forming part of the monetary union, at the end of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the

relevant five-year period referred to in paragraph 1 above;

(c) One sixth of the share of that currency in the total value of foreign exchange market turnover of the currencies selected in accordance with paragraph 1 above, during the five-year period ending December 31, 2014, and thereafter during each relevant five-year period referred to in paragraph 1 above; and

(d) One sixth of the share of that currency in the total value of international banking liabilities and international debt securities denominated in the currencies selected in accordance with paragraph 1 above, at the end of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above.

In the case of a monetary union, international banking liabilities and international debt securities shall be determined on the basis of the monetary union as one economic region. In the case of a member with more than one currency, these indicators shall be determined on the basis of the economic region of the member for which the currency in question is legal tender.

3. In accordance with the principles set forth in paragraphs 1 and 2 above, effective October 1, 2016, the value of one special drawing right shall be the sum of the values of specified amounts of

the five currencies listed below. These amounts shall be determined on September 30, 2016 in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of each of the five currencies in the value of the special drawing right correspond to the weights specified below.

Currency Weight (in percent):

U.S. dollar 41.73

Euro 30.93

Chinese renminbi 10.92

Japanese yen 8.33

Pound Sterling 8.09

4. The list of the currencies that determine the value of the special drawing right, and the amounts of these currencies, shall be revised with effect on October 1, 2021 and thereafter on the first day of each subsequent period of five years in accordance with the following principles, unless the Fund decides otherwise in connection with a revision:

(a) The currencies determining the value of the special drawing right shall be determined in accordance with paragraph 1 above, provided that a currency shall not replace another currency included in the list at the time of the determination unless the value of Exports of the member or monetary union, whose currency is not included in the list, during the relevant period exceeds by at least one percent that of a member or a monetary union issuing a currency included in the list.

(b) The amount of the five currencies referred to in (a) above shall be determined on the last working day preceding the effective date of the relevant revision in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of these currencies in the value of the special drawing right correspond to percentage weights for these currencies, which shall be established for each currency in accordance with (c) below.

(c) The percentage weights shall be established in accordance with paragraph 2 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient. Adjustments to currency weights resulting from the above formula shall be made, if necessary to ensure that the rounded currency weights sum to one hundred percent, in a manner that has the least impact on relative weights.

5. The determination of the amounts of the currencies under paragraphs 3 and 4 above shall be made in a manner that will ensure that the value of the special drawing right in terms of currencies on the last working day preceding the five-year period for which the determination is made will be the same under the valuation in effect before and after revision, and shall be calculated in accordance with the following guidelines:

(a) The currency amounts calculated for the new basket will be expressed in two significant digits provided that the deviation of the percentage share of each currency in the value of the special drawing right, resulting from the application of the average exchange rates for July–September, from the percentage weight as determined under paragraphs 3 and 4(c) above is the minimum on average and will not exceed one half percentage point for any currency.

(b) If a solution cannot be obtained by the application of the guidelines set forth in (a) above, the calculation shall be made applying the same guidelines but expressing the amount of each currency in three significant digits, and if no solution is found with three significant digits then the calculation shall be made applying the same guidelines but expressing the amount of each currency in four significant digits.

(c) If more than one solution is found in the calculation at the level of two, three, or four significant digits, the solution that has the smallest average deviation will be employed.

B. Amendment of Rule T-1(c)

Effective October 1, 2016, Rule T-1(c) of the Fund’s Rules and Regulations shall be amended by

inserting

“Chinese renminbi Three-month benchmark yield for China Treasury bonds as published daily by the China Central Depository and Clearing Co., Ltd”.

after

“Euro Three-month spot rate for euro area central government bonds with a rating of AA and above published by the ECB”

Decision 3

The Fund determines, after consultation with the authorities of the People’s Republic of China, that the representative exchange rate for the Chinese renminbi is the 4:00 p.m. (Beijing time) reference rate for the renminbi against the U.S. dollar published daily by the China Foreign Exchange Trading System.

Appendix

Redlined Changes to Proposed Decision 2.A

A. Method of SDR Valuation

1. The value of the special drawing right shall be determined on the basis of the five currencies issued by Fund members, or by monetary unions that include Fund members (“monetary unions”), whose exports of goods, services, and income credits (“Exports”) had the largest value during the five-year period ending December 31, 2014, or for any subsequent revision, during the most recent five calendar-year period for which the required ~~data under paragraphs 1 and 2 of this decision~~ Exports data are readily available, and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX(f) of the Articles of Agreement. In the case of a monetary union, the determination of the value of Exports shall exclude trade among members that are part of the union. In the case of a member with more than one currency, the determination of the value of Exports shall be based, for each currency, on trade by the member’s economic region for which the currency is legal tender.

2. The percentage weight of each currency selected in accordance with paragraph 1 above for the SDR basket composition shall be equal to the sum of:

~~(i) 50 percent (a)~~ One half of the share of the member or monetary union issuing that currency in the total Exports of the members or monetary unions issuing the currencies as calculated in accordance with paragraph 1 above; and

~~(ii) 25 percent (b)~~ One sixth of the share of that currency in the total value of balances of the currencies selected in accordance with paragraph 1 above, held by monetary authorities that are not issuers of the relevant currency, and in the case of the currency of a monetary union, by the monetary authorities of members other than those forming part of the monetary union, at the end

of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above;

~~(iii) 12.5 percent~~(c) One sixth of the share of that currency in the total value of foreign exchange market turnover of the currencies selected in accordance with paragraph 1 above, during the five-year period ending December 31, 2014, and thereafter during each relevant five-year period referred to in paragraph 1 above; and

~~(iv) 12.5 percent~~(d) One sixth of the share of that currency in the total value of international banking liabilities and international debt securities denominated in the currencies selected in accordance with paragraph 1 above, at the end of each year of the five-year period ending December 31, 2014, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above. In the case of a monetary union, international banking liabilities and international debt securities shall be determined on the basis of the monetary union as one economic region. In the case of a member with more than one currency, these indicators shall be determined on the basis of the economic region of the member for which the currency in question is legal tender.

3. In accordance with the principles set forth in paragraphs 1 and 2 above, effective October 1, 2016, the value of one special drawing right shall be the sum of the values of specified amounts of the five currencies listed below. These amounts shall be determined on September 30, 2016 in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of each of the five currencies in the value of the special drawing right correspond to the weights specified below.

Currency Weight (in percent):

U.S. dollar ~~42.71~~41.73

Euro ~~30.75~~30.93

Chinese renminbi ~~10.85~~10.92

Japanese yen ~~7.95~~8.33

Pound Sterling ~~7.74~~8.09

4. The list of the currencies that determine the value of the special drawing right, and the amounts of these currencies, shall be revised with effect on October 1, 2021 and thereafter on the first day of each subsequent period of five years in accordance with the following principles, unless the Fund decides otherwise in connection with a revision:

(a) The currencies determining the value of the special drawing right shall be determined in accordance with paragraph 1 above, provided that a currency shall not replace another currency included in the list at the time of the determination unless the value of Exports of the member or monetary union, whose currency is not included in the list, during the relevant period exceeds by at least one percent that of a member or a monetary union issuing a currency included in the list.

(b) The amount of the five currencies referred to in (a) above shall be determined on the last working day preceding the effective date of the relevant revision in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of these currencies in the value of the special drawing right correspond to percentage weights for these currencies, which shall be established for each currency in accordance with (c) below.

(c) The percentage weights shall be established in accordance with paragraph 2 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient. Adjustments

to currency weights resulting from the above formula shall be made, if necessary to ensure that the rounded currency weights sum to one hundred percent, in a manner that has the least impact on relative weights.

5. The determination of the amounts of the currencies under paragraphs 3 and 4 above shall be made in a manner that will ensure that the value of the special drawing right in terms of currencies on the last working day preceding the five-year period for which the determination is made will be the same under the valuation in effect before and after revision, and shall be calculated in accordance with the following guidelines:

(a) The currency amounts calculated for the new basket will be expressed in two significant digits provided that the deviation of the percentage share of each currency in the value of the special drawing right, resulting from the application of the average exchange rates for July–September, from the percentage weight as determined under paragraphs 3 and 4(c) above is the minimum on average and will not exceed one half percentage point for any currency.

(b) If a solution cannot be obtained by the application of the guidelines set forth in (a) above, the calculation shall be made applying the same guidelines but expressing the amount of each currency in three significant digits, and if no solution is found with three significant digits then the calculation shall be made applying the same guidelines but expressing the amount of each currency in four significant digits.

(c) If more than one solution is found in the calculation at the level of two, three, or four significant digits, the solution that has the smallest average deviation will be employed.