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.

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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.

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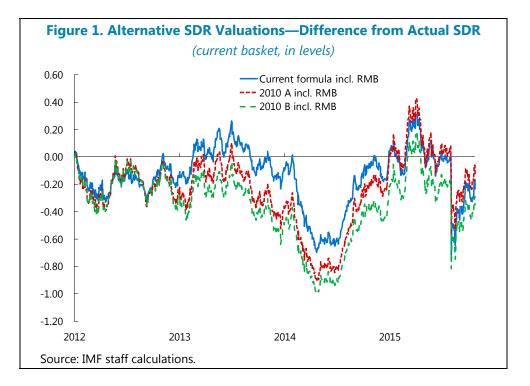
weighting formula. A revised Board decision to this effect will be circulated under separate cover to Executive Directors.

	(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

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

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.