IMF POLICY PAPER

QUOTA FORMULA—DATA UPDATE AND FURTHER CONSIDERATIONS

July 23, 2013

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:

- **Staff Report** on *Quota Formula - Data update and Further Considerations* was prepared by IMF staff and completed on June 6, 2013 to brief the Executive Board on June 26, 2013.

- **Staff Supplement** on *Quota Formula - Data update and Further Considerations – Annexes.*

- **Staff Supplement** on *Quota Formula - Data update and Further Considerations – Statistical Appendix.*

The Executive Board met in an informal session, and no decisions were taken at this meeting.

The publication policy for staff reports and other documents allows for the deletion of market-sensitive information.

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QUOTA FORMULA—DATA UPDATE AND FURTHER CONSIDERATIONS

EXECUTIVE SUMMARY

The quota database has been updated by one year through 2011. The results continue the broad trends observed in previous data updates. In particular, the calculated quota share (CQS) of emerging market and developing countries (EMDCs) increases further by 1.3 percentage points (pps), reflecting gains in all quota variables. Compared with the data set used for the 14th Review, the aggregate CQS of EMDCs has risen by 3.5 pps (and by 9 pps since the 2008 reform, which used data through 2005). Asia accounts for more than half the increase, particularly China.

Following the outcome of the quota formula review (QFR), the paper examines the concerns that have been expressed about the openness variable, and explores possible approaches to addressing them. In this context, it takes stock of recent improvements in data availability and then explores the impact of various possible reforms, including use of a cap and a lower weight on the openness variable.

The paper also examines the possible links between variability and broader measures of balance of payments difficulties. This work extends that presented in previous papers, which focused on balance of payments difficulties involving use of Fund resources. The paper fails to identify any significant correlation between variability and these broader measures.

In addition, the paper presents a range of illustrative simulations involving possible reforms of the formula using the updated quota database. No proposals are presented at this stage, pending further feedback from Executive Directors.

Approved By
Andrew Tweedie

Prepared by the Finance Department (In consultation with the Statistics and other departments)

CONTENTS

INTRODUCTION[1]

1. **In January 2013, the Executive Board reported to the Board of Governors on the outcome of the quota formula review (QFR)**.[2] The report identified areas of common ground as well as areas where views differed among Board members and further discussions were needed. It was recognized that views on the key elements of the quota formula had evolved during the review and would continue to evolve as further work is undertaken and new data become available. The report noted that important progress has been made in identifying key elements that could form the basis for a final agreement on a new quota formula. It was agreed that achieving broad consensus on a new quota formula would best be done in the context of the 15th General Review of Quotas rather than on a standalone basis. This approach was subsequently endorsed by the IMFC and the G-20 Ministers and Governors at their April meetings.[3]

2. **This paper seeks to provide the basis for a further discussion of issues relating to the quota formula.** It first presents the results of updating the quota database by one year. After briefly reviewing the outcome of the QFR, it then discusses the results of further staff work on two existing quota variables: openness and variability. The following section presents some illustrative simulations of possible reforms of the quota formula using the new data. The paper then concludes and presents some issues for discussion. Individual country data and simulation results, as well as some additional technical material, are presented in the Statistical Appendix and Annexes (circulated separately).

UPDATED QUOTA DATABASE

3. **Staff has updated the quota database through 2011.** This advances by one year the data presented last June.[4] The update uses the same sources as in past updates (see Box 1, Annex I, and the Statistical Appendix). The results for country groups and individual members are shown in Tables 1 and A1. This update, like the previous ones, continues to be affected by the impact on quota variables of the global financial crisis.

[1] This paper was prepared by a staff team led by M.S. Kumar and S. Bassett, and comprising H. Treichel, C. Janada, R. Rozenov, R. Zhang, J. Wong, S. Khan, F. Bacall, and A. Perez. T. Krueger also contributed.

[2] See *Outcome of the Quota Formula Review—Report of the Executive Board to the Board of Governors* (1/31/13)

[3] *Communiqué of the Twenty-Seventh Meeting of the International Monetary and Financial Committee*, (4/20 2013) and *Communiqué of G20 Meeting of Finance Ministers and Central Bank Governors*, Washington DC, (4/ 19, 2013).

[4] *Quota Formula Review—Data Update and Further Considerations* (6/28/12).

Box 1. Data Sources and Methodology

The data sources and methodology remain broadly in line with past practice. The primary data source is the Fund's International Financial Statistics (IFS). Missing data were supplemented in the first instance by the World Economic Outlook (WEO) database. Remaining missing data were computed based on staff reports and, in very few instances, country desk data. As is customary, a cutoff date of January 31, 2013 for incorporating new data in the quota database was employed for IFS; consistent with this cutoff, the Fall 2012 publication was used for WEO data.

PPP GDP data were taken from the WEO database and were calculated by dividing a country's nominal GDP in its own currency by the PPP price level index. The WEO PPP price indexes are based on the data from the 2005 International Comparison Program (ICP) that were published in December 2007 and are extended through 2011 using WEO methodology. The results of the next 2011 ICP round are scheduled to be released in December 2013.

The only change in methodology reflects the introduction of BPM6, which affects the data for openness and variability. In August 2012, the IFS began publishing balance of payments and IIP data under BPM6 (Balance of Payments and International Investment Position Manual, sixth edition). Under this new methodology, the full value of goods for processing is no longer counted under the reported (gross) exports and imports (these are goods processed under contract for an explicit fee by a non-resident processing entity, where the goods being processed do not change ownership); rather only the fees from processing are recorded under services. As discussed in Annex I, the overall impact of this change is relatively modest.

4. **The data update reflects several broad trends observed in previous updates.** Based on the current formula, the calculated quota share (CQS) of emerging market and developing countries (EMDCs) as a group increases by a further 1.3 pps to 45.3 percent (Table 1).[5] Within the EMDCs, the largest gains continue to be recorded by Asia while most other regions register modest increases. Among the advanced economies (AEs), over 80 percent of the reduction is accounted for by the largest economies—all countries in this group record a decline. The share of other advanced economies as a group falls modestly by 0.2 pps—compared to a decline of 0.5 pps in the previous update.

5. **Reflecting these trends, the aggregate CQS of EMDCs has risen by 3.5 pps since the 14th Review and by 9.1 pps since the 2008 Reform.** More than half of the overall increase for EMDCs is accounted for by Asia, particularly China, while most other regions registered more modest increases. The share of major advanced economies has declined by 8.1 pps since the 2008 reform, while the share of other advanced economies has fallen by 1.0 pps (Figure 1).

6. **The aggregate share of EMDCs increased across all quota variables** (Table 2 and Table 2.1). The largest increase is in shares of the GDP blend variable, reflecting a continued marked divergence in growth trends between AEs and EMDCs—see Figure 2. EMDCs now account for 43.4 percent of total shares based on the current GDP blend measure. EMDCs also gained share of

[5] The current formula includes four variables (GDP, openness, variability, and reserves), expressed in shares of global totals, with the variables assigned weights totaling to 1.0. The formula also includes a compression factor that reduces dispersion in calculated quota shares. The formula is CQS = (0.50*GDP + 0.30*Openness +0.15*Variability + 0.05*Reserves)^K. GDP is blended using 60 percent market and 40 percent PPP exchange rates; K is a compression factor of 0.95.

global openness and, to a lesser extent, variability, associated with the rebound in external flows in the wake of the financial crisis (Figure 3). The share of EMDCs in global reserves also increased to almost 77 percent, reversing the decline observed in the previous data update.

Table 1. Distribution of Quotas and Calculated Quotas
(In percent)

	Quota Shares		Calculated Quota Shares 1/			
	Post Second Round 2/	14th General Review 3/	2008 Reform 4/ (2005)	14th General Review (2008)	Previous (2010)	Current (2011)
Advanced economies	60.4	57.6	63.8	58.2	56.1	54.7
Major advanced economies	45.3	43.4	47.6	42.9	40.6	39.6
United States	17.7	17.4	19.0	17.0	15.8	15.6
Japan	6.6	6.5	8.0	6.5	6.2	6.1
Germany	6.1	5.6	6.2	5.7	5.7	5.4
France	4.5	4.2	4.0	3.8	3.6	3.5
United Kingdom	4.5	4.2	4.4	4.7	4.1	3.8
Italy	3.3	3.2	3.3	3.0	3.0	2.9
Canada	2.7	2.3	2.6	2.3	2.3	2.2
Other advanced economies	15.1	14.3	16.2	15.3	15.4	15.2
Spain	1.7	2.0	2.3	2.2	2.2	2.1
Netherlands	2.2	1.8	1.9	1.9	2.0	2.0
Australia	1.4	1.4	1.3	1.4	1.4	1.5
Belgium	1.9	1.3	1.5	1.3	1.3	1.3
Switzerland	1.5	1.2	1.2	1.2	1.2	1.3
Sweden	1.0	0.9	1.0	0.9	1.0	1.0
Austria	0.9	0.8	0.9	0.8	0.8	0.8
Norway	0.8	0.8	0.8	0.8	0.8	0.8
Ireland	0.5	0.7	1.2	1.1	0.9	0.8
Denmark	0.8	0.7	0.9	0.7	0.7	0.7
Emerging Market and Developing Countries 5/	39.6	42.4	36.2	41.8	43.9	45.3
Africa	5.0	4.4	2.8	3.1	3.3	3.4
South Africa	0.8	0.6	0.6	0.6	0.6	0.6
Nigeria	0.7	0.5	0.3	0.5	0.5	0.5
Asia	12.6	16.0	15.8	17.7	19.6	20.6
China 6/	4.0	6.4	6.4	7.9	9.4	10.1
India	2.4	2.7	2.0	2.4	2.6	2.8
Korea	1.4	1.8	2.2	2.1	2.0	2.0
Indonesia	0.9	1.0	0.9	0.9	1.0	1.1
Singapore	0.6	0.8	1.0	1.2	1.3	1.3
Malaysia	0.7	0.8	0.9	0.8	0.8	0.8
Thailand	0.6	0.7	0.8	0.8	0.9	0.9
Middle East, Malta & Turkey	7.2	6.7	4.8	6.2	6.2	6.4
Saudi Arabia	2.9	2.1	0.8	1.3	1.4	1.4
Turkey	0.6	1.0	1.0	1.1	1.1	1.1
Iran, Islamic Republic of	0.6	0.7	0.6	0.7	0.7	0.7
Western Hemisphere	7.7	7.9	6.6	7.0	7.1	7.3
Brazil	1.8	2.3	1.7	2.2	2.2	2.3
Mexico	1.5	1.9	2.0	1.8	1.7	1.7
Venezuela, República Bolivariana de	1.1	0.8	0.4	0.5	0.5	0.5
Argentina	0.9	0.7	0.6	0.6	0.6	0.6
Transition economies	7.1	7.2	6.2	7.7	7.7	7.6
Russian Federation	2.5	2.7	2.1	2.9	2.6	2.6
Poland	0.7	0.9	0.9	0.9	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Items:						
EU 27	31.9	30.2	32.9	31.3	30.9	29.7
LICs 7/	4.3	4.0	2.2	2.6	2.7	2.8

Source: Finance Department.

1/ Based on the current formula: CQS = (0.50*GDP + 0.30*Openness +0.15*Variability + 0.05*Reserves)^K. GDP blended using 60 percent market and 40 percent PPP exchange rates. K is a compression factor of 0.95. Years in parentheses indicate end period for the IFS data used in the calculations.

2/ The "post second round" reflects the ad hoc quota increases for 54 members under the 2008 reform, which became effective in March 2011. Includes South Sudan which became a member on April 18, 2012. For the two countries that have not yet consented to and paid for their quota increases, 11th Review proposed quotas are used.

3/ Includes South Sudan which became a member on April 18, 2012; reflects the proposed doubling of its quota after the 14th Review becomes effective.

4/ Reflects the impact of adjustments to current receipts and payments for re-exports, international banking interest, and non-monetary gold.

5/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.

6/ Including China, P.R., Hong Kong SAR, and Macao SAR.

7/ PRGT-eligible countries.

Table 2. Distribution of Quotas and Updated Quota Variables (in percent)

	14th General Review Quota Shares 1/	GDP Blend 4/		Openness		Variability 5/		Reserves	
		Current 2/	Previous 3/	Current 2/	Previous 3/	Current 2/	Previous 3/	Current 2/	Previous 3/
Advanced economies	57.6	56.6	58.2	60.7	62.2	57.0	57.9	23.2	23.9
Major advanced economies	43.4	46.1	47.4	40.7	41.8	37.8	38.7	16.3	17.3
United States	17.4	21.6	22.2	13.0	13.1	15.8	15.5	1.5	1.6
Japan	6.5	7.5	7.5	4.3	4.3	5.1	5.2	11.5	12.3
Germany	5.6	4.8	5.0	8.0	8.2	5.4	6.1	0.7	0.8
France	4.2	3.7	3.8	4.5	4.6	2.2	2.3	0.6	0.6
United Kingdom	4.2	3.4	3.6	5.1	5.6	4.4	4.5	0.8	0.7
Italy	3.2	3.0	3.1	3.2	3.4	2.8	3.0	0.5	0.6
Canada	2.3	2.2	2.2	2.6	2.6	2.1	2.1	0.6	0.7
Other advanced economies	14.3	10.5	10.8	20.0	20.4	19.2	19.2	6.9	6.7
Spain	2.0	2.1	2.2	2.4	2.5	2.1	2.1	0.2	0.2
Netherlands	1.8	1.1	1.2	3.1	3.2	2.9	2.9	0.2	0.2
Australia	1.4	1.6	1.6	1.4	1.3	1.4	1.5	0.4	0.4
Belgium	1.3	0.7	0.7	2.1	2.2	1.6	1.8	0.2	0.2
Switzerland	1.2	0.7	0.7	2.0	1.9	0.8	0.9	2.7	2.2
Sweden	0.9	0.6	0.6	1.3	1.3	1.6	1.5	0.5	0.5
Austria	0.8	0.6	0.6	1.1	1.2	0.9	0.9	0.1	0.1
Norway	0.8	0.5	0.6	0.9	0.9	1.5	1.3	0.5	0.6
Ireland	0.7	0.3	0.3	1.4	1.5	1.3	1.5	0.0	0.0
Denmark	0.7	0.4	0.4	0.9	0.9	0.7	0.7	0.9	0.9
Emerging Market and Developing Countries 6/	42.4	43.4	41.8	39.3	37.8	43.0	42.1	76.8	76.1
Africa	4.4	2.7	2.6	2.7	2.6	4.0	3.6	3.9	4.0
South Africa	0.6	0.6	0.6	0.5	0.5	0.3	0.3	0.4	0.4
Nigeria	0.5	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.5
Asia	16.0	21.4	20.0	18.9	17.9	15.4	14.9	46.2	44.5
China 7/	6.4	11.7	10.7	8.5	7.9	5.9	5.6	32.2	30.5
India	2.7	3.7	3.5	1.8	1.6	1.6	1.6	2.9	3.1
Korea	1.8	1.7	1.7	2.4	2.4	1.3	1.3	3.1	3.3
Indonesia	1.0	1.2	1.1	0.7	0.7	0.8	0.8	1.1	0.9
Singapore	0.8	0.4	0.3	2.1	2.1	2.3	2.2	2.4	2.4
Malaysia	0.8	0.5	0.4	1.0	1.0	0.9	0.9	1.3	1.1
Thailand	0.7	0.6	0.6	1.0	0.9	1.3	1.2	1.8	1.8
Middle East, Malta & Turkey	6.7	5.1	5.0	5.4	5.2	8.0	7.5	10.4	10.9
Saudi Arabia	2.1	0.8	0.8	1.1	1.1	2.7	2.8	5.0	5.0
Turkey	1.0	1.2	1.2	0.9	0.8	1.3	1.3	0.9	0.9
Iran, Islamic Republic of	0.7	0.9	0.8	0.4	0.4	0.3	0.3	0.9	0.9
Western Hemisphere	7.9	8.1	7.9	5.0	4.9	6.2	6.5	7.1	6.8
Brazil	2.3	3.1	3.0	1.1	1.1	1.5	1.6	3.4	3.1
Mexico	1.9	1.8	1.9	1.5	1.5	1.5	1.6	1.3	1.3
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.3	0.3	0.6	0.6	0.1	0.2
Argentina	0.7	0.7	0.7	0.4	0.4	0.6	0.5	0.5	0.6
Transition economies	7.2	6.1	6.2	7.2	7.1	9.4	9.6	9.2	9.8
Russian Federation	2.7	2.7	2.7	2.1	2.0	2.8	2.9	4.8	5.2
Poland	0.9	0.8	0.9	1.1	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Items:									
EU 27	30.2	24.1	25.3	39.6	41.1	33.2	34.7	7.6	8.1
LICs 8/	4.0	2.3	2.2	2.2	2.1	3.1	2.6	1.9	2.1

Source: Finance Department.

1/ Includes South Sudan which became a member on April 18, 2012; reflects the proposed doubling of its quota after the 14th Review becomes effective.
2/ Based on IFS data through 2011.
3/ Based on IFS data through 2010.
4/ GDP blend using 60 percent market and 40 percent PPP exchange rates.
5/ Variability of current receipts minus (instead of plus) net capital flows due to change in sign convention in BPM6.
6/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
7/ Including China, P.R., Hong Kong SAR, and Macao SAR.
8/ PRGT- eligible countries.

Table 2.1. Updated GDP Blend Variable
(In percent)

	14th General Review Quota Shares 1/	Calculated Quota Shares 2/ 3/	GDP		PPP GDP 5/		GDP Blend 6/	
			Current 3/	Previous 4/	Current 3/	Previous 4/	Current 3/	Previous 4/
Advanced economies	57.6	54.7	62.3	64.2	48.0	49.3	56.6	58.2
Major advanced economies	43.4	39.5	50.4	51.9	39.7	40.7	46.1	47.4
United States	17.4	15.6	22.8	23.5	19.7	20.1	21.6	22.2
Japan	6.5	6.1	8.6	8.5	5.9	6.0	7.5	7.5
Germany	5.6	5.4	5.3	5.6	4.0	4.1	4.8	5.0
France	4.2	3.5	4.2	4.4	2.9	3.0	3.7	3.8
United Kingdom	4.2	3.8	3.6	3.9	3.0	3.1	3.4	3.6
Italy	3.2	2.9	3.3	3.6	2.4	2.5	3.0	3.1
Canada	2.3	2.2	2.4	2.4	1.8	1.8	2.2	2.2
Other advanced economies	14.3	15.2	12.0	12.3	8.4	8.6	10.5	10.8
Spain	2.0	2.1	2.3	2.4	1.9	1.9	2.1	2.2
Netherlands	1.8	2.0	1.3	1.3	0.9	1.0	1.1	1.2
Australia	1.4	1.5	1.9	1.8	1.2	1.2	1.6	1.6
Belgium	1.3	1.3	0.8	0.8	0.5	0.6	0.7	0.7
Switzerland	1.2	1.3	0.9	0.8	0.5	0.5	0.7	0.7
Sweden	0.9	1.0	0.7	0.7	0.5	0.5	0.6	0.6
Austria	0.8	0.8	0.6	0.6	0.5	0.5	0.6	0.6
Norway	0.8	0.8	0.7	0.7	0.3	0.4	0.5	0.6
Ireland	0.7	0.8	0.3	0.4	0.2	0.3	0.3	0.3
Denmark	0.7	0.7	0.5	0.5	0.3	0.3	0.4	0.4
Emerging Market and Developing Countries 7/	42.4	45.3	37.7	35.8	52.0	50.7	43.4	41.8
Africa	4.4	3.4	2.3	2.2	3.3	3.3	2.7	2.6
South Africa	0.6	0.6	0.6	0.5	0.7	0.7	0.6	0.6
Nigeria	0.5	0.5	0.3	0.3	0.5	0.5	0.4	0.4
Asia	16.0	20.6	17.5	16.0	27.1	26.0	21.4	20.0
China 8/	6.4	10.1	10.0	8.9	14.2	13.4	11.7	10.7
India	2.7	2.8	2.5	2.3	5.5	5.2	3.7	3.5
Korea	1.8	2.0	1.6	1.5	2.0	2.0	1.7	1.7
Indonesia	1.0	1.1	1.1	1.0	1.4	1.4	1.2	1.1
Singapore	0.8	1.3	0.4	0.3	0.4	0.4	0.4	0.3
Malaysia	0.8	0.8	0.4	0.4	0.6	0.6	0.5	0.4
Thailand	0.7	0.9	0.5	0.5	0.8	0.8	0.6	0.6
Middle East, Malta & Turkey	6.7	6.4	4.8	4.7	5.6	5.5	5.1	5.0
Saudi Arabia	2.1	1.4	0.7	0.7	0.9	0.8	0.8	0.8
Turkey	1.0	1.1	1.1	1.1	1.3	1.3	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.6	0.6	1.3	1.2	0.9	0.8
Western Hemisphere	7.9	7.3	7.7	7.3	8.7	8.7	8.1	7.9
Brazil	2.3	2.3	3.3	3.0	2.9	2.9	3.1	3.0
Mexico	1.9	1.7	1.6	1.7	2.1	2.2	1.8	1.9
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.6	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.6	0.6	0.9	0.8	0.7	0.7
Transition economies	7.2	7.6	5.4	5.5	7.2	7.3	6.1	6.2
Russian Federation	2.7	2.6	2.4	2.4	3.0	3.1	2.7	2.7
Poland	0.9	1.0	0.7	0.8	1.0	1.0	0.8	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Items:								
EU 27	30.2	29.6	26.3	28.0	20.7	21.3	24.1	25.3
LICs 9/	4.0	2.8	1.7	1.7	3.1	3.0	2.3	2.2

Source: Finance Department.

1/ Includes South Sudan which became a member on April 18, 2012; reflects the proposed doubling of its quota after the 14th Review becomes effective.

2/ Based on the following formula: CQS = (0.50*GDP + 0.30*Openness +0.15*Variability + 0.05*Reserves)^K. GDP blended using 60 percent market and 40 percent PPP exchange rates. K is a compression factor of 0.95.

3/ Based on IFS data through 2011.

4/ Based on IFS data through 2010.

5/ Current PPP-GDP data were retrieved from the WEO database for 183 countries. For five countries with no WEO data PPP-GDP was estimated. PPP-GDP data reflect parity rates published by the International Comparison Program in December 2007.

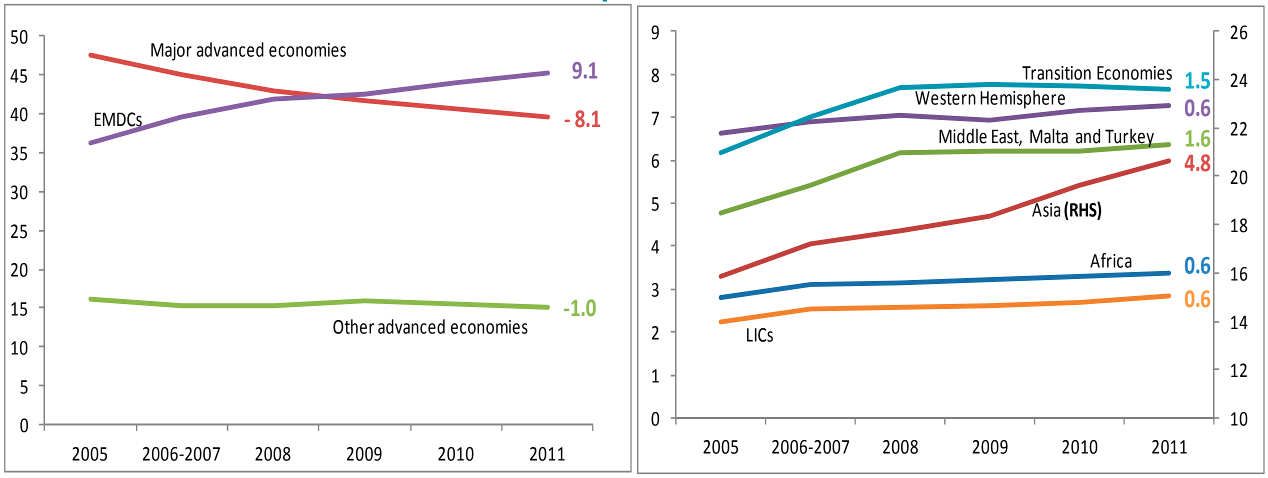
6/ GDP blended using 60 percent market and 40 percent purchasing power (PPP).

7/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.

8/ Including China, P.R., Hong Kong SAR, and Macao SAR.

9/ PRGT-eligible countries.

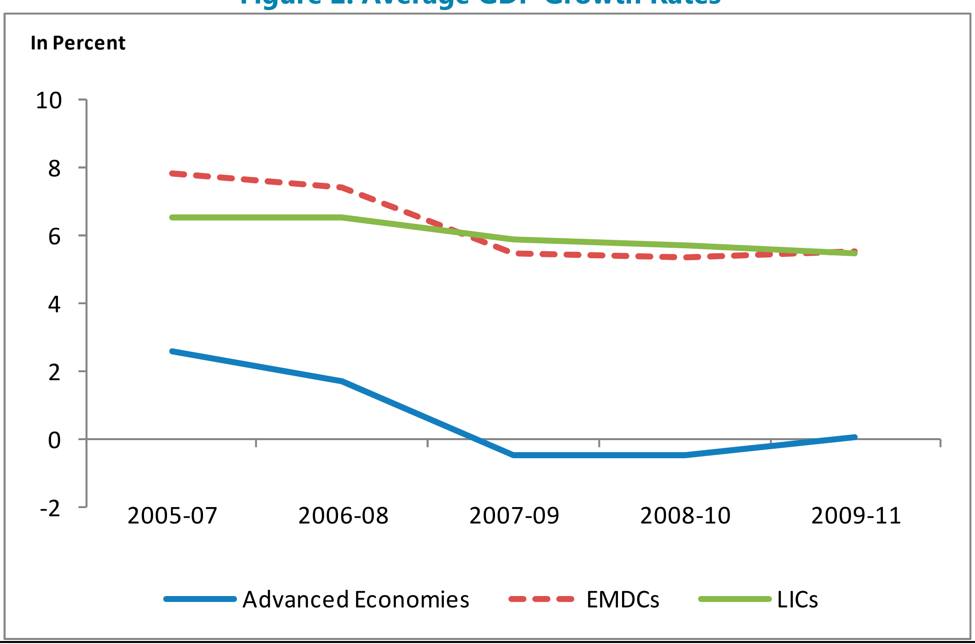
Figure 1. Evolution of CQS 2005 - 2011 1/
(In percent)



Source: Finance Department.

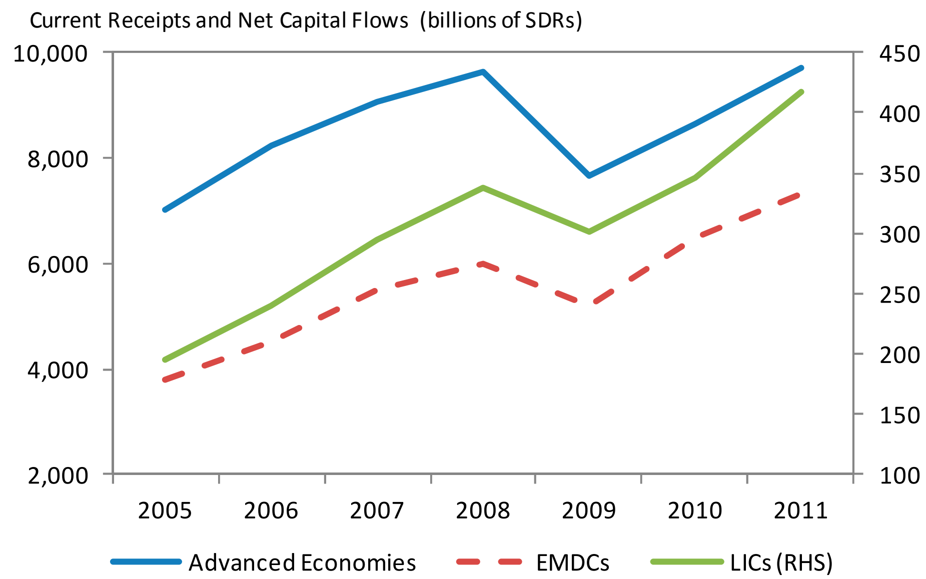
1/ Figures adjacent to each line denote the change in percentage points between the current CQS based on data through 2011, relative to the CQS based on data through 2005.

Figure 2. Average GDP Growth Rates



Source: World Economic Outlook

Figure 3. Developments in External Flows



Source: Finance Department.

7. **There were significant changes for some individual countries.** China again recorded the largest individual increase in CQS by a wide margin, registering increases in the share of all quota variables, particularly GDP and openness. India and Brazil also recorded significant increases. All of the 10 largest declines in CQS were recorded by AEs. Germany saw the largest decline, followed by the United States, United Kingdom, and Italy, with the declines mainly driven by losses in GDP and openness shares (Table 3).

8. **Out-of-lineness based on the current formula has increased compared to the last update.** Comparing CQS with 14th Review quota shares, at the aggregate level AEs are over-represented and EMDCs under-represented by 2.9 pps, compared with 1.6 pps in the previous update (Table 4). Total over- and under-representation also increased since the last update. The number of underrepresented members increased to 68 compared with 66 in the previous update, and these members are under-represented by 7.5 pps of total quota shares. Almost half of this shortfall is accounted for by China. Relative to the situation prior to the 14th Review, EMDCs are now slightly more under-represented as a group (2.9 versus 2.2 pps), but out-of-lineness at the individual country level is still significantly lower (7.5 versus 10.7 pps).

Table 3. Top 10 Positive and Negative Changes in Calculated Quota Shares
(In percentage points)

	Difference between Current and Previous Shares 1/	Contribution of Variables to Change in CQS 2/			
Top 10: Positive Change	Calculated Quota Share	GDP Blend 3/	Openness	Variability	Reserves
China 4/	0.706	0.486	0.186	0.042	0.086
India	0.134	0.104	0.049	0.002	-0.012
Brazil	0.109	0.088	0.026	-0.015	0.016
Indonesia	0.063	0.046	0.006	0.003	0.009
Australia	0.058	0.043	0.024	-0.006	-0.002
Switzerland	0.058	0.020	0.020	-0.003	0.022
Iraq	0.047	0.010	0.004	0.029	0.001
Congo, Dem. Republic of	0.044	0.000	0.002	0.035	0.000
Qatar	0.036	0.011	0.013	0.014	-0.004
Singapore	0.036	0.010	0.023	0.005	0.000
Top 10: Negative Change					
Germany	-0.255	-0.095	-0.083	-0.096	-0.003
United States	-0.255	-0.308	-0.025	0.047	-0.003
United Kingdom	-0.231	-0.098	-0.134	-0.018	0.003
Italy	-0.156	-0.084	-0.056	-0.021	-0.003
France	-0.117	-0.088	-0.010	-0.026	-0.001
Spain	-0.098	-0.069	-0.027	-0.007	0.000
Netherlands	-0.066	-0.030	-0.045	0.008	-0.001
Belgium	-0.061	-0.012	-0.022	-0.027	-0.001
Ireland	-0.057	-0.013	-0.018	-0.025	0.000
Japan	-0.054	0.011	-0.014	-0.016	-0.038

Source: Finance Department.

1/ Current and previous calculations are based on data through 2011 and 2010 respectively, using the existing formula.
2/The difference between the current dataset through 2011 and the previous dataset through 2010, multiplied by the variable weight in the quota formula. The change in CQS also reflects the effect of compression.
3/ GDP blended using 60 percent market and 40 percent PPP exchange rates.
4/ Includes China, P.R., Hong Kong SAR and Macao SAR.

Table 4. Under- and Overrepresented Countries by Major Country Groups 1/
(In percentage points)

	14th General Review Quota Share 2/ (In percent)	Difference 3/		Number of Countries		Post Second Round Quota Share 6/ (In percent)	Difference 7/
		Current 4/	Previous 5/	Current	Previous		
Advanced economies	**57.6**	**-2.9**	**-1.6**	**26**	**26**	**60.5**	**-2.2**
Underrepresented	-	1.1	1.3	12	15	--	1.8
Overrepresented	-	-4.0	-2.9	14	11	--	-4.1
Emerging Market and Developing Countries	**42.4**	**2.9**	**1.6**	**162**	**162**	**39.5**	**2.2**
Underrepresented	-	6.4	5.4	56	51	--	8.9
Overrepresented	-	-3.5	-3.8	106	111	--	-6.7
Total Underrepresented Countries	**34.9**	**7.5**	**6.7**	**68**	**66**	**30.7**	**10.7**
Total Overrepresented Countries	**65.1**	**-7.5**	**-6.7**	**120**	**122**	**69.3**	**-10.7**
Memorandum Items:							
EU 27	30.2	-0.6	0.7	27	27	**31.9**	-0.5
Underrepresented	-	1.2	1.6	15	19	--	2.2
Overrepresented	-	-1.8	-0.9	12	8	--	-2.8
LICs 8/	4.0	-1.2	-1.4	72	72	**4.3**	-1.7
Underrepresented	-	0.1	0.1	10	11	--	0.1
Overrepresented	-	-1.4	-1.5	62	61	--	-1.8

Source: Finance Department.

1/ Under- and over-represented countries for the two datasets, respectively.
2/ Includes South Sudan which became a member on April 18, 2012; reflects the proposed doubling of its quota after the 14th Review becomes effective.
3/ Difference between calculated quota shares and 14th General Review quota shares.
4/ Based on IFS data through 2011.
5/ Based on IFS data through 2010.
6/ The "post second round" reflects the ad hoc quota increases for 54 members under the 2008 reform, which became effective in March 2011. For the two countries that have not yet consented to and paid for their quota increase 11th Review proposed quotas are used.
7/ Difference between calculated quota shares based on IFS data through 2008 and post second round quota shares.
8/ PRGT-eligible countries.

QUOTA FORMULA VARIABLES: FURTHER REFLECTIONS

A. Taking Stock

9. **The Board's deliberations under the QFR provided important building blocks for agreement on a new quota formula that better reflects members' relative positions in the world economy.**[6] It was agreed that the principles that underpinned the 2008 reform remained valid. Thus, the formula should be simple and transparent, consistent with the multiple roles of

[6] See *Outcome of the Quota Formula Review—Report of the Executive Board to the Board of Governors* (1/31/13).

quotas,[7] produce results that are broadly acceptable to the membership, and be feasible to implement statistically based on timely, high quality and widely available data. Other key results of the review were:

- Agreement that GDP should remain the most important variable, with the largest weight in the formula and scope to further increase its weight.
- Agreement that openness should continue to play an important role in the formula, and concerns regarding this variable need to be thoroughly examined and addressed.
- Considerable support for dropping variability from the formula, with some conditioning their support on other elements of the reform package, including how its weight is reallocated and the adequacy of measures to protect the poorest members.
- Considerable support for retaining reserves with its current weight.
- Consideration will be given to whether or not (i) the weight of PPP GDP in the GDP blend variable and (ii) the current level of compression should be adjusted.
- Consideration will be given to whether and how to take account of very significant voluntary financial contributions through ad hoc adjustments as part of the 15th Review.
- Agreement that measures should be taken to protect the voice and representation of the poorest members, with considerable support for addressing this issue as part of the 15th Review.

10. **Openness and variability were both discussed extensively in the QFR and during the 2008 Reform:**

- Views on openness have continued to diverge. Some stress that economic and financial openness is central to the Fund's mandate and as such should play a key role in the quota formula. They consider that openness captures inter-connectedness and external engagement through trade and capital flows, and that more open economies have a strong stake in international economic cooperation. In this regard, they also argue that openness is relevant to the multiple roles of quotas, including as a measure of potential vulnerabilities and countries' ability and willingness to contribute to the Fund's finances.[8] Others question the relevance of openness for a member's stake in global economic and financial stability,

[7] These include their key role in determining the Fund's financial resources, their role in decisions on members' access to Fund resources, their role in determining members' shares in a general allocation of SDRs, and their close link with members' voting rights.

[8] Empirically, previous staff work has found some link between openness and financial contributions, but has not identified any clear link between openness and demand for Fund resources. See *Quota Formula Review—Additional Considerations* (9/4/2013).

noting that it is more a reflection of economic size (smaller economies tend to be more open). They also argue that the current gross measure leads to double counting of cross-border flows which can exaggerate the importance of openness, and that intra-currency union flows should be excluded as they take place in a common domestic currency and may exaggerate a member's broader integration into the global economy.

- The rationale for including variability in the formula relates to the role of quotas in determining members' potential access to Fund resources. As such, it is more amenable to empirical testing than openness, where issues such as stake and engagement in promoting global economic and financial stability are more difficult to capture. Extensive staff work has so far failed to identify any clear linkages between variability and demand for Fund resources or a superior alternative measure, and has also highlighted some technical difficulties with the current variability measure. As noted, in light of this work, there is considerable support for dropping variability from the formula, though some see it having a continued role and a few Directors asked staff to explore the links between variability and balance of payments difficulties that do not necessarily lead to use of Fund resources.

11. **The remainder of this section focuses on these two variables.** It begins with a discussion of openness in light of the outcome of the QFR, and then reports on the results of further staff work on variability responding to the above request.

B. Openness

Characteristics of the Current Openness Variable

12. **Several characteristics of the openness variable are worth highlighting:**

- **Openness benefits many smaller economies.** Relative to shares of the GDP blend, 130 members (about 70 percent of the membership) have larger shares in openness, while 140 members have larger shares in variability (Table 5). The number of countries that benefit from openness is inversely related to size (28 out of 47 members in the top quartile benefit from openness, compared with 37 out of 47 for the bottom quartile). Thus, openness tends to boost the CQS of smaller economies and reduce the role of size in the formula.

- **At the aggregate level, smaller advanced economies are the largest beneficiaries of openness.** For this group, shares in openness are almost double their shares in the GDP blend (Figure 4). Smaller EMDCs also gain but to a much lesser extent (though some individual EMDCs are among the largest gainers), while LICs as a whole do not gain from openness. This pattern is also reflected in the distribution of gainers by per capita income (Table 5, middle panel), which shows that 44 out of 47 countries in the top income quartile gain from openness compared with only 21 out of 47 in the bottom quartile. Also, 23 out of 26 AEs gain from openness (compared with 107 out of 162 EMDCs), and they also gain to a larger extent on average relative to GDP.

- **The highly skewed distribution of shares in openness relative to GDP means that some countries receive a very large benefit from openness.** The distribution of openness ratios across the membership is highly skewed, both the absolute ratio of openness to market GDP and the ratio of openness shares to GDP blend shares. While the median ratio of openness to market GDP for the membership as a whole is close to 1, 13 members have ratios greater than 2 (the highest being above 9) and 37 members have ratios greater than 1.5 (Figure 5a). Similarly, 29 members have openness shares that are more than double their shares in the GDP blend (the highest ratio is more than 15 times) (Figure 5b).

- **Openness is also highly correlated with variability.** Excluding the 10 largest economies in terms of GDP, the correlation between openness and variability for the other 178 members is 92 percent, well above the correlations for all other variables (Table 6). The distribution of shares in openness and variability across major country groups is also very similar (Figure 6). AEs account for 61 percent of openness and 57 percent of total variability; within this group, other advanced economies account for 20 percent of openness and 19 percent of variability. Given the high correlation between openness and variability, many of the countries that benefit most from openness also benefit substantially from variability. For example, 12 of the 15 countries with the highest ratio of openness to GDP blend shares also have variability to GDP blend ratios that are at least 75 percent of the openness ratio (Figure 7).

Table 5. Countries who benefit from Openness and Variability, by quartile of market GDP and GDP per capita

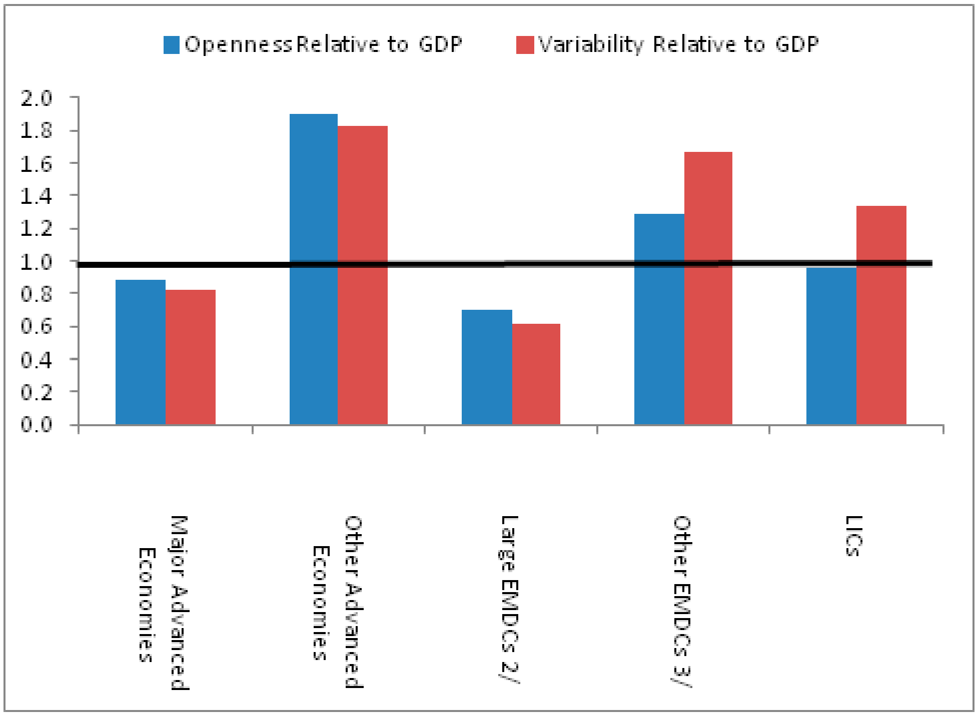
	By Size (Market GDP) 1/				By Income (GDP per Capita) 1/				By Grouping			
	Top Quartile	3rd	2nd	Bottom Quartile	Top Quartile	3rd	2nd	Bottom Quartile	AE (26)	EMDC excl. LIC (90)	LIC (72)	Total
Openness / GDP Blend Shares												
Number of countries who benefit (ratio > 1)	28	30	35	37	44	32	33	21	23	65	42	130
Median 2/	1.6	1.5	1.4	1.5	1.7	1.4	1.5	1.3	1.7	1.6	1.3	1.5
Average 2/	1.9	2.0	1.6	1.9	2.4	1.5	1.6	1.6	2.7	1.8	1.5	1.9
Variability / GDP Blend Shares												
Number of countries who benefit (ratio > 1)	27	33	39	41	39	35	35	31	19	70	51	140
Median 2/	1.6	1.9	1.9	1.6	2.2	1.7	1.6	1.7	1.8	1.8	1.7	1.7
Average 2/	2.0	2.5	3.0	2.7	3.2	2.1	2.0	3.0	4.0	2.2	2.6	2.6

Source: Finance Department

1/ Each quartile includes 47 countries.

2/ Average or median ratio among the countries which have ratios greater than 1.

Figure 4. Openness and Variability Shares Relative to GDP Share 1/



Source: Finance Department.

1/ The ratio of the openness share of the relevant group to its GDP blend share and the ratio of the variability share of the relevant group to its GDP blend share.

2/ Large EMDCs are those for which the GDP Blend share is greater than 1.0 percent.

3/ Other EMDCs excluding LICs.

Figure 5a. Ratio of Openness to Market GDP

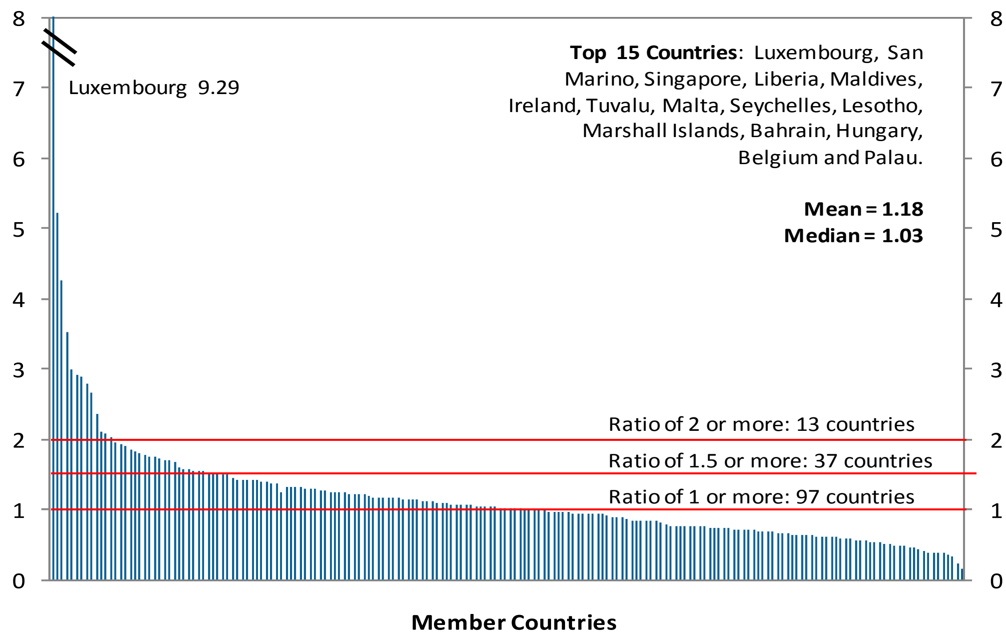
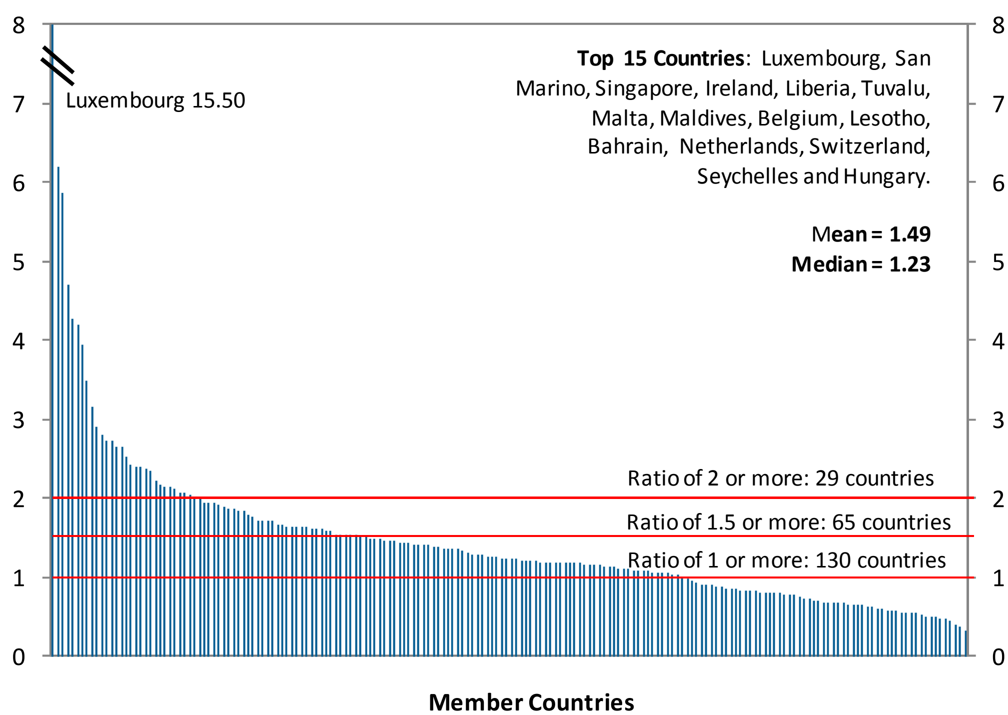


Figure 5b. Ratio of Openness Shares to GDP-Blend Shares



Source: Finance Department.

Table 6. Correlations between Quota Variables

Advanced Economies

	Blend GDP	Openness	Variability	Reserves
Blend GDP	1.00			
Openness	0.91	1.00		
Variability	0.98	0.95	1.00	
Reserves	0.35	0.25	0.29	1.00

EMDCs

	Blend GDP	Openness	Variability	Reserves
Blend GDP	1.00			
Openness	0.95	1.00		
Variability	0.87	0.93	1.00	
Reserves	0.95	0.94	0.86	1.00

All Countries 1/

	Blend GDP	Openness	Variability	Reserves
Blend GDP	1.00			
Openness	0.92	1.00		
Variability	0.95	0.95	1.00	
Reserves	0.54	0.52	0.43	1.00

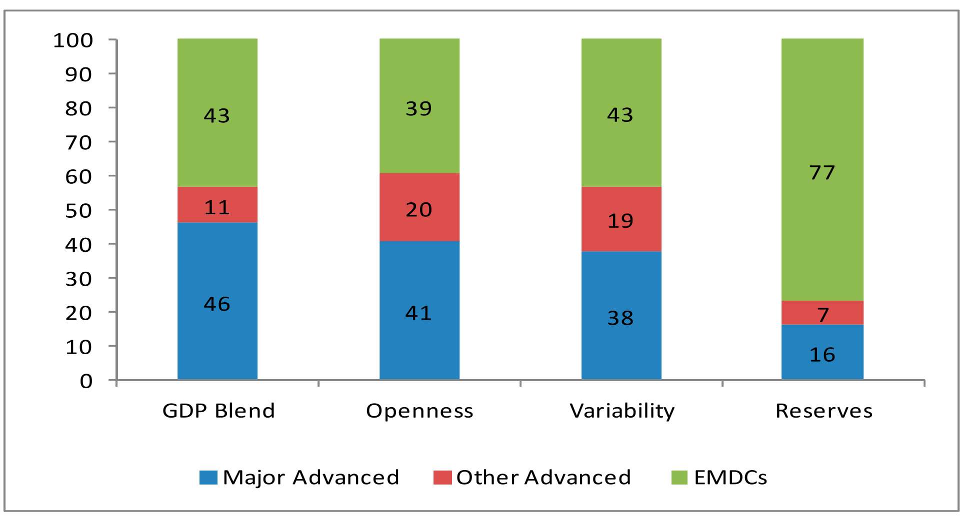
All Members excluding Top 10 2/

	Blend GDP	Openness	Variability	Reserves
Blend GDP	1.00			
Openness	0.84	1.00		
Variability	0.79	0.92	1.00	
Reserves	0.52	0.56	0.64	1.00

Source: Finance Department.

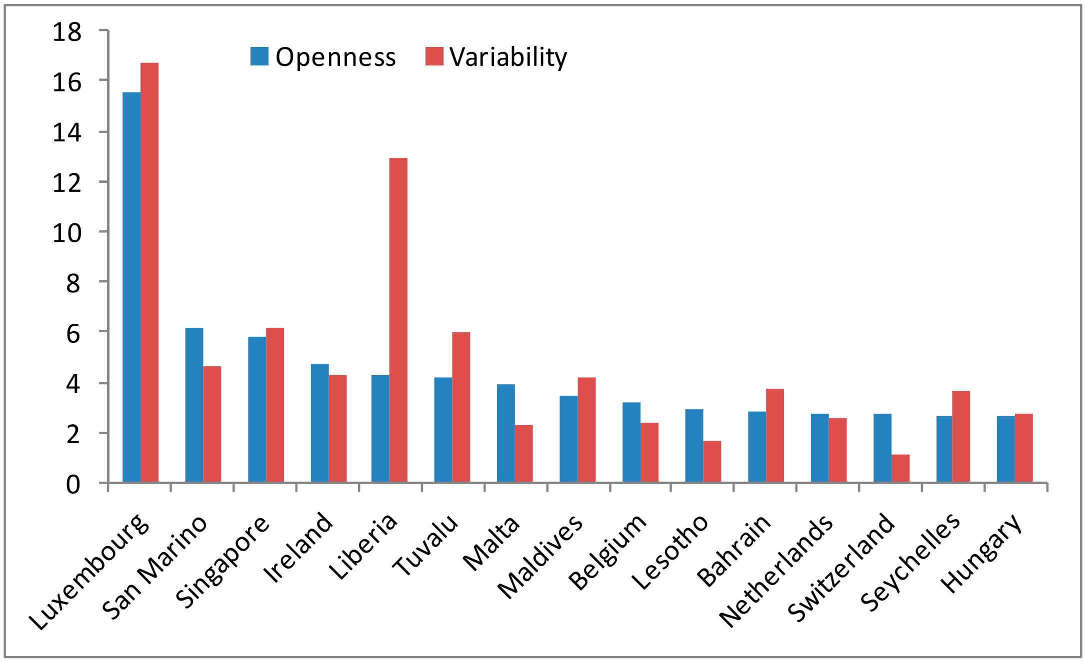
1/Given the heterogeneity of data and differing distributions, it is possible for correlations for the full sample to fall outside of the range for the two sub samples.
2/ Largest members in terms of share of GDP blend (60 percent market GDP and 40 percent PPP GDP).

Figure 6. Shares of Major Groups in Each Quota Variable



Source: Finance Department.

Figure 7. Top 15 Countries – Ratio of Openness Share to GDP Blend Share and Variability Share to GDP Blend Share 1/



1/ Countries ranked by openness to GDP blend share.

Source: Finance Department.

13. **In sum, many countries benefit from openness in the formula, but the gains for a narrower group of countries are very large.** These gains arise from the very high shares of openness (relative to GDP) in some cases, and also from the combined effect of openness and variability, which are highly correlated and together have a 45 percent weight. Smaller high income economies are among some of the largest gainers. The resulting CQS for some countries under the current formula appear large in relation to other measures of their relative economic positions.

14. **Different options have been considered to address the concerns about openness in the past.** One approach has been to make ad hoc adjustments to the data. Prior to the 2008 reform, adjustments were made in an effort to exclude the impact of large entrepôt trade activities, international financial centers, or the processing of imports for re-export. However, this practice was discontinued as part of the 2008 reform because it was seen as arbitrary and lacking a strong conceptual basis. Suggestions have also been made to exclude intra-currency union flows. This approach poses both conceptual and practical issues. From a conceptual perspective, the potential distortions associated with cross-border flows arise whenever there is vertical integration in the production process and are not limited to currency unions, though the existence of a currency union may contribute to the growth of such flows. Also, members of currency unions can still face balance of payments difficulties that require Fund support. On the practical side, while data are generally

available for merchandise trade within currency unions, they are not available on intra-currency union services flows.[9]

Data Availability

15. **Improvements in official data availability are unlikely to fully address these issues, at least in the near term.** The latest data update incorporates the implementation of BPM6, which removes one form of double-counting relating to goods that are processed for a fee by a nonresident (see Annex I). STA has developed BPM6 basis estimates for all of the countries still reporting on a BPM5 basis (of these, 58 reported data on goods for processing). However, gross trade flows are still included when there is a recorded change of ownership across economies, and the shift to BPM6 does not address some of the problems with large financial centers (investment income is still recorded in gross terms). Staff estimates suggest that the quantitative impact of the introduction of BPM6 appears to be small on average:

- *Countries reporting under BPM6*: for 12 of the 20 countries reporting under BPM6 and also reporting goods for processing, the average change in nominal openness which can be attributed to the change in methodology is estimated at less than 1 percent; the largest individual change is estimated at 14 percent;[10]

- *Countries reporting under BPM5, including those reporting goods for processing*: for the 58 countries in this group, STA has adjusted the reported data as a bridge to the BPM6 format. For this group, the estimated average change in openness attributable to this adjustment is less than 2 percent; and

- *Countries reporting under BPM5, but not reporting separately their goods for processing*: for these 110 members, no adjustments to bridge to BPM6 are possible and their openness data are therefore not affected by the introduction of BPM6.

16. **Efforts are also underway to improve estimates of trade data on a value added basis.**[11] The OECD and the WTO have launched a joint initiative to produce regular estimates of trade on a value-added basis that would complement the official statistics on gross trade (see Annex II for details).[12] The database was recently extended to include estimates for value added trade for 54

[9] See *Quota Formula Review - Additional Considerations* (9/4/12) and *The Chairman's Summing Up, Quota Formula Review—Additional Considerations* (10/4/12). Using the previous quota database (with data through 2010) excluding intra-currency union trade flows would have reduced the calculated quota share of euro area members by about 2.9 percentage points (and small reductions would have been implied for other currency unions). (See Annex III of *Quota Formula Review - Additional Considerations-Annexes* (9/4/12)).

[10] For Bosnia-Herzegovina.

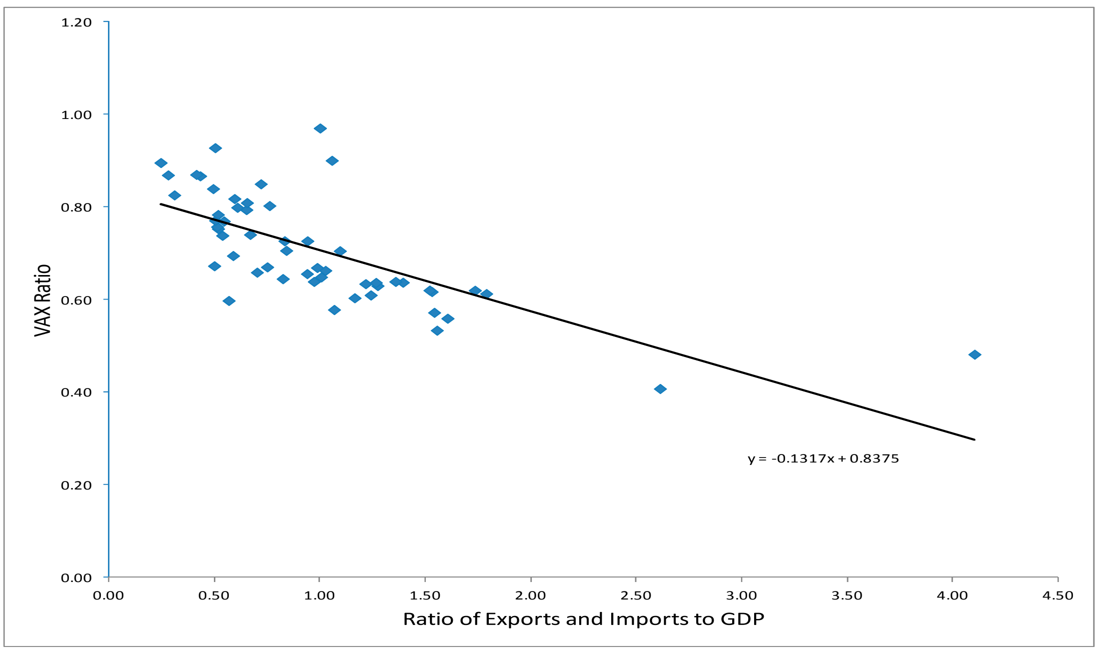
[11] For extensive background information on measuring trade on a value-added basis, see Annex II in *Quota Formula Review - Additional Considerations-Annexes* (9/4/12). See also Box 1 for a discussion of the challenges in measuring trade on a value-added basis.

[12] See www.oecd.org/trade/valueadded.

members (for the years 2005, 2008, and 2009).[13] Together, these countries cover 91 percent of current global openness shares. These estimates appear to support the view that the current openness variable may tend to over-state trade flows by larger amounts for countries that have relatively large recorded openness ratios. Specifically, for countries in the OECD-WTO sample, there is a relatively strong negative correlation (-0.71) between openness and the ratio of value-added to gross flows (see Table 7 and Figure 8).

17. **While these estimates represent an important step forward, they do not yet appear sufficiently comprehensive for use in the quota formula.** First, they cover less than 1/3 of the membership, and are only available for selected years. Also, they only cover part of total current account flows, and exclude investment income flows which can be substantial. In addition, unlike other quota data, the value-added trade data are not directly provided by country authorities but rather are estimates based on country data and input-output tables, with the estimates requiring a number of strong assumptions, as noted by the OECD-WTO.[14] Staff is in contact with the OECD to seek additional information on the methodology used.

Figure 8. Relationship between VAX Ratio and Ratio of Trade to GDP



Source: Finance Department

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[13] Data are available for 56 economies including Hong Kong SAR and Taiwan Province of China. In the data reported below, Hong Kong SAR is included in the data for China.

[14] There are also a variety of adjustments applied to the bilateral merchandise data used in estimation. For instance, OECD notes that "the published trade statistics are adjusted for *analytical* purposes (such as confidential flows, re-exports, waste and scrap products and valuables)." See *Trade in Value-Added: Concepts, Methodologies and Challenges (Joint OECD-WTO Note);* http://www.oecd.org/sti/ind/49894138.pdf.

Table 7. Openness Ratios and OECD-WTO Data, 2008-2009

	Ratio of Openness to Market GDP	Ratio of Exports and Imports to Market GDP	VAX Ratio 1/	VAM Ratio 2/
1 Luxembourg	9.49	2.62	0.41	0.80
2 Singapore	4.70	4.10	0.48	0.75
3 Malta	2.91	1.79	0.61	0.76
4 Ireland	2.65	1.61	0.56	0.83
5 Belgium	1.94	1.52	0.62	0.74
6 Malaysia	1.91	1.74	0.62	0.70
7 Hungary	1.90	1.53	0.58	0.71
8 Slovak Republic	1.72	1.55	0.54	0.71
9 Vietnam	1.67	1.54	0.62	0.67
10 Switzerland	1.61	1.09	0.71	0.71
11 Netherlands	1.61	1.26	0.64	0.76
12 Estonia	1.58	1.34	0.64	0.74
13 Thailand	1.50	1.39	0.64	0.79
14 Slovenia	1.42	1.27	0.63	0.71
15 Bulgaria	1.38	1.21	0.64	0.75
16 Lithuania	1.37	1.21	0.61	0.79
17 Czech Republic	1.35	1.16	0.60	0.71
18 Iceland	1.33	0.95	0.64	0.77
19 Austria	1.26	1.02	0.67	0.73
20 Sweden	1.22	0.93	0.66	0.73
21 Denmark	1.21	0.98	0.67	0.75
22 Brunei Darussalam	1.18	1.10	0.90	0.70
23 Cambodia	1.17	1.01	0.65	0.74
24 Saudi Arabia	1.15	1.01	0.97	0.81
25 Korea	1.14	1.06	0.58	0.79
26 Latvia	1.13	0.91	0.73	0.74
27 Germany	1.00	0.83	0.73	0.73
28 Finland	1.00	0.82	0.65	0.76
29 Poland	0.95	0.83	0.71	0.72
30 Portugal	0.95	0.70	0.66	0.74
31 Chile	0.93	0.76	0.80	0.78
32 Norway	0.92	0.72	0.85	0.74
33 United Kingdom	0.91	0.59	0.82	0.75
34 Israel	0.89	0.75	0.67	0.73
35 Romania	0.79	0.65	0.74	0.73
36 Canada	0.76	0.65	0.80	0.79
37 New Zealand	0.76	0.61	0.80	0.76
38 South Africa	0.74	0.66	0.81	0.75
39 Philippines	0.74	0.57	0.60	0.73
40 France	0.73	0.54	0.74	0.74
41 Spain	0.71	0.54	0.77	0.75
42 China 3/	0.68	0.61	0.67	0.74
43 Greece	0.66	0.51	0.76	0.76
44 Italy	0.65	0.51	0.79	0.75
45 Mexico	0.64	0.58	0.70	0.75
46 Russian Federation	0.62	0.50	0.93	0.75
47 India	0.58	0.51	0.77	0.80
48 Indonesia	0.55	0.49	0.84	0.71
49 Australia	0.55	0.43	0.87	0.73
50 Turkey	0.54	0.51	0.76	0.75
51 Argentina	0.48	0.41	0.87	0.77
52 United States	0.39	0.28	0.87	0.74
53 Japan	0.37	0.31	0.83	0.79
54 Brazil	0.29	0.25	0.90	0.77
Average	1.32	0.98	0.71	0.75

Source: Columns 1 and 2 are computed using data from the quota database; columns 3 and 4 are computed using OECD-WTO data. Data are from the average of 2008 and 2009

1/ Ratio of value added exports to gross exports. Shading indicates VAX ratio below sample unweighted average of 0.71.

2/ Ratio of value added imports to gross imports. Shading indicates VAM ratio below sample unweighted average of 0.75.

3/ Weighted average for China, P.R. (Mainland) and Hong Kong SAR.

Possible Reforms

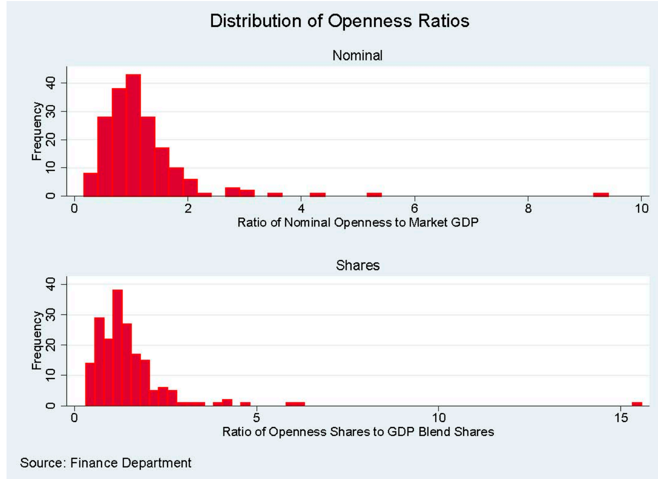
18. **One approach to addressing the issues raised with openness would be to lower its weight in the formula.** This has the advantage of simplicity and transparency, and could be one way of addressing the concerns raised by some members without adding additional complexity to the formula. For example, the weight on openness could be lowered, say, from 30 to 25 percent. If this was combined with dropping variability, the effective weight of GDP in the formula would rise from 50 to 70 percent. All countries that benefit from openness would face the same proportional reduction. While the current highly skewed distribution of contributions of openness would remain, its overall impact on the distribution of CQS would be significantly moderated. Moreover, the impact of such a change would be larger in absolute terms for those countries that have a higher relative contribution from openness in the current formula.

19. **An alternative approach discussed during the QFR was to cap the overall boost that individual countries receive from openness.** This would not reduce the weight of openness in the formula but rather would reallocate shares in openness from those countries that receive the highest relative boost from openness to all other members. In this way, and depending on where the threshold for the cap is set, it could go some way to address the issue noted above that some members receive a very large boost from the openness variable as currently defined. Such a more targeted approach would not disadvantage small countries, as all countries whose openness shares fall below the cap would benefit from the redistribution (countries that are above the threshold would lose share). However, a difficulty with any form of cap is that it adds complexity and requires relatively arbitrary judgments about where to set the thresholds.

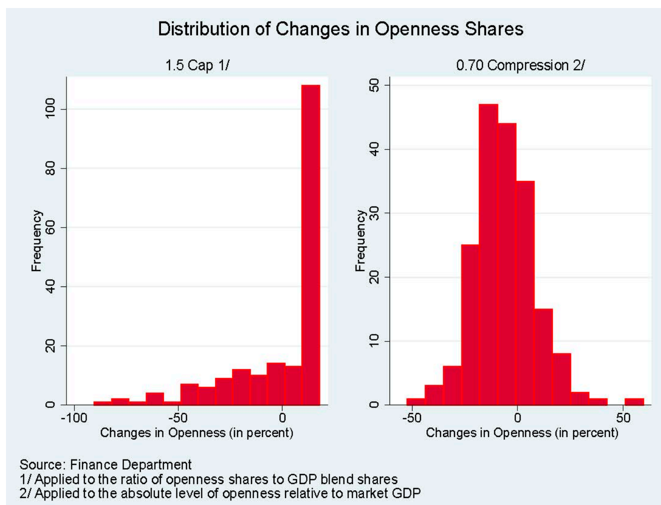
20. **Staff explored two types of openness caps.** The first was to cap the absolute level of openness relative to market GDP (*absolute* cap) above a certain level determined as a certain percentile of the total distribution (see Annex III for details). The second was to limit the boost that a member can receive from its openness share relative to its GDP blend share by directly capping this ratio *(shares cap)*.[15] Both approaches add complexity to the calculations. The first adjusts nominal openness of those countries affected by the cap and then recalculates openness shares for the membership based on the new adjusted total for nominal openness. The second directly caps the ratio of shares included in the formula. It is then necessary to rebase the shares to ensure they add to 100 and that the final ratio of openness shares to GDP blend shares of all members remains under the cap. In both cases, there is a need to determine the threshold for the cap, which requires an element of judgment. Countries also stand to gain or lose from the adjustment at the margin, depending on whether they are above or below the cap.

[15] The use of the GDP blend variable under the second approach, ceteris paribus, increases the likelihood that a country will be impacted by the openness share cap vis-à-vis the nominal cap if its PPP GDP share is lower than its market GDP share (typically the case for advanced countries).

21. **One difficulty with determining where to set the threshold arises from the highly skewed nature of the distribution of openness shares.** This reflects the combination of a zero bound on the left hand side of the distribution (all countries have positive openness ratios, mostly above 0.5) and the presence of a number of extreme outliers on the right hand side, making traditional statistical measures of the dispersion of the series such as the standard deviation more difficult to interpret. Previous papers explored alternative thresholds for a cap set at the 95th and 85th percentile of the distribution for the absolute openness ratio, and at 2.0 and 1.5 for the ratio of openness to GDP blend shares. A further approach considered here is to define the cap based on the top quartile of the distribution, such that it would affect a quarter of the membership (i.e., 47 countries).[16] This generates two new cap cutoffs of 75th percentile for the absolute cap and a 1.7 cap for the shares cap. Table 8 shows the impact on openness shares of capping under these two cut-offs as well as others considered in the past.



22. **Staff also previously explored the possibility of compressing the openness ratio.** Compression maintains the original ranking of the series and narrows its dispersion. This approach reduces the dispersion by increasing openness shares for those countries whose ratios are below 1 and decreasing the shares of those with ratios above 1. A key difference between the effects of compression and caps is in the distribution of gains and losses. More countries are negatively affected using compression than under a cap. Furthermore, while the caps generate very concentrated losses for a limited number of members with very high openness shares and modest proportional gains for most other members, compression generates relatively smaller losses but more spread out gains, with the largest gains going to those members that are least open (see text figure and Table 8). Compression also adds complexity and requires a judgment on where to set the compression factor.



[16] Staff also explored a two-step procedure whereby extreme outliers were initially excluded to obtain a more symmetric distribution and then the cutoff was set at one standard deviation from the mean. This approach generated very similar results to setting the cap based on the top quartile. For further details, see Annex III.

Table 8. Openness Shares Under Caps and Compression 1/
(In percent)

	Openness Shares	Capped Openness (Shares)			Capped Openness (Absolute)			Compressed Openness	GDP blend Shares
		2.0	1.7	1.5	95th 2/	85th 2/	75th 2/	0.7	
Advanced economies	60.71	60.21	59.89	59.29	60.87	60.90	60.93	61.14	56.61
Major advanced economies	40.68	43.70	44.59	44.80	41.59	42.40	43.19	44.00	46.09
United States	12.99	13.95	14.45	15.31	13.28	13.54	13.79	15.91	21.57
Japan	4.30	4.62	4.79	5.07	4.40	4.49	4.57	5.48	7.51
Germany	7.95	8.54	8.18	7.22	8.13	8.29	8.44	7.30	4.81
France	4.52	4.85	5.03	5.32	4.62	4.71	4.80	4.56	3.66
United Kingdom	5.12	5.50	5.70	5.05	5.24	5.34	5.44	4.77	3.37
Italy	3.22	3.46	3.58	3.79	3.29	3.36	3.42	3.37	2.98
Canada	2.57	2.77	2.86	3.03	2.63	2.68	2.73	2.62	2.19
Other advanced economies	20.03	16.52	15.30	14.49	19.28	18.50	17.74	17.14	10.52
Spain	2.44	2.62	2.71	2.88	2.49	2.54	2.59	2.47	2.11
Netherlands	3.08	2.26	1.92	1.69	3.15	2.95	2.57	2.44	1.13
Australia	1.36	1.46	1.51	1.60	1.39	1.42	1.44	1.57	1.64
Belgium	2.13	1.35	1.15	1.01	2.18	1.78	1.56	1.62	0.68
Switzerland	1.97	1.45	1.23	1.09	2.01	2.05	1.83	1.61	0.73
Sweden	1.27	1.28	1.09	0.96	1.30	1.32	1.35	1.11	0.64
Austria	1.14	1.11	0.94	0.83	1.16	1.19	1.21	0.98	0.55
Norway	0.87	0.94	0.93	0.82	0.89	0.91	0.93	0.84	0.55
Ireland	1.43	0.61	0.52	0.46	1.14	0.80	0.70	0.96	0.30
Denmark	0.88	0.82	0.70	0.61	0.90	0.91	0.93	0.77	0.41
Luxembourg	1.13	0.15	0.12	0.11	0.28	0.20	0.17	0.54	0.07
Emerging Market and Developing Countries 3/	39.29	39.79	40.11	40.71	39.13	39.10	39.07	38.86	43.39
Africa	2.67	2.84	2.88	2.96	2.73	2.75	2.78	2.60	2.68
South Africa	0.50	0.53	0.55	0.59	0.51	0.52	0.53	0.53	0.62
Nigeria	0.41	0.44	0.45	0.48	0.42	0.42	0.43	0.38	0.39
Asia	18.93	18.62	18.90	19.22	18.32	18.17	18.14	18.52	21.38
China 4/	8.53	9.17	9.49	10.06	8.72	8.90	9.06	9.24	11.65
India	1.79	1.93	2.00	2.11	1.83	1.87	1.90	2.05	3.68
Korea	2.44	2.62	2.71	2.59	2.49	2.54	2.59	2.20	1.72
Indonesia	0.73	0.78	0.81	0.86	0.74	0.76	0.77	0.85	1.22
Singapore	2.15	0.73	0.62	0.55	1.17	0.82	0.72	1.29	0.37
Malaysia	0.99	0.93	0.79	0.70	1.01	0.90	0.79	0.77	0.47
Thailand	0.98	1.06	1.03	0.91	1.01	1.03	0.99	0.82	0.60
Middle East, Malta and Turkey	5.42	5.50	5.43	5.27	5.54	5.58	5.56	5.24	5.12
Saudi Arabia	1.14	1.22	1.26	1.18	1.16	1.18	1.21	1.03	0.79
Turkey	0.85	0.91	0.95	1.00	0.87	0.89	0.90	0.95	1.20
Iran, Islamic Republic of	0.45	0.48	0.50	0.53	0.46	0.47	0.48	0.52	0.90
Western Hemisphere	5.02	5.39	5.56	5.84	5.13	5.23	5.31	5.74	8.09
Brazil	1.14	1.23	1.27	1.35	1.17	1.19	1.21	1.62	3.13
Mexico	1.53	1.64	1.70	1.80	1.56	1.59	1.62	1.61	1.81
Venezuela, República Bolivariana de	0.33	0.36	0.37	0.39	0.34	0.34	0.35	0.40	0.52
Argentina	0.37	0.40	0.41	0.44	0.38	0.39	0.39	0.44	0.71
Transition economies	7.25	7.44	7.35	7.43	7.41	7.36	7.27	6.76	6.13
Russian Federation	2.11	2.26	2.34	2.48	2.15	2.20	2.24	2.28	2.68
Poland	1.05	1.13	1.17	1.24	1.08	1.10	1.12	0.98	0.84
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Memorandum items:									
EU27	39.58	37.83	36.66	34.76	39.26	38.67	38.33	35.55	24.08
LICs 5/	2.21	2.35	2.40	2.42	2.25	2.28	2.24	2.09	2.30

Source: Finance Department.

1/ Shading indicates countries with capped/compressed openness shares lower than their original openness shares.
2/ These correspond to the thresholds on absolute ratios of openness to market GDP of 2.28, 1.57, and 1.34 for the 95th, 85th and 75th percentile caps, respectively.
3/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic and Slovenia.
4/ Including China, P.R., Hong Kong SAR, and Macao SAR.
5/ PRGT-eligible countries.

C. Variability

23. **Variability in the quota formula is intended to capture members' potential need for Fund resources.** In previous work, staff examined the link between variability and balance of payments need proxied by approval of a Fund arrangement. Empirical analysis suggested that the existing variability measure, even when adjusted for economic size, is virtually uncorrelated with use of IMF resources. Alternative definitions of variability were also examined but none consistently outperformed the current measure in terms of stability of CQS or relation to potential need. Furthermore, staff noted some conceptual issues that make it difficult to design a single measure of variability that would be appropriate for all members under all circumstances.[17] In light of this work, there was considerable support for dropping variability from the formula.

24. **However, some Directors continued to see a role for variability and a few requested further work, including on a possible link between variability and a broader measure of balance of payments difficulties.** While using the approval of a Fund arrangement has a number of advantages, notably simplicity, unambiguousness and direct link to balance of payments need, this measure would not capture cases where balance of payments pressures arose but were resolved without having to resort to IMF assistance.

25. **To broaden the scope of the analysis, staff has examined the correlation between variability and measures of exchange market pressure.** Exchange market pressure (EMP) indices have been frequently used in the literature to identify currency crisis episodes. Staff used EMP indices as proxies for balance of payments difficulties based on three different thresholds equal to one, one and a half and two standard deviations from the mean (see Annex IV for more details). If variability (adjusted for economic size) were a good indicator of balance of payments difficulties, the two variables would be expected to move together. In practice, however, the correlation between these variables is very weak, ranging between 0.035 and 0.046 depending on the choice of the threshold for the binary EMP measure.

26. **Staff also examined the correlation between variability and several indicators of external sector vulnerability.** These include reserves in percent of short-term debt at remaining maturity plus current account deficit; current account in percent of GDP; external debt in percent of GDP; and external debt in percent of exports, using the respective thresholds identified in the vulnerability exercise for emerging markets. This approach would capture potential links between variability and members' underlying external sector vulnerabilities which may not necessarily lead to balance of payments pressures. However, the calculated correlations are either not significantly different from zero or negative (see Annex IV).

[17] See *Quota Formula Review—Data Update and Further Considerations* (6/28/12).

ILLUSTRATIVE CALCULATIONS

27. **This section presents illustrative simulations of possible reforms of the quota formula.** The simulations are illustrative and no proposals are made at this stage. The simulations seek to build on the discussions under the QFR. Variability is dropped under all simulations. Two different approaches to reallocating its weight are explored—either all to GDP (thereby increasing the relative weight of GDP in the formula) or split between GDP (2/3) and openness (1/3) leaving the relative weights of GDP and openness broadly unchanged. The reserves variable is retained with its current weight.

28. **The simulations explore possible reforms of openness discussed in this paper.** These include two possible approaches to capping—one based on absolute ratios of openness to market GDP and the other based on the ratio of openness to GDP blend shares. Two alterative thresholds for the cap are presented in each case: at the 85th and 75th percentile of the distribution for the absolute ratios, and at 1.7 and 1.5 for the ratio of openness to GDP blend shares. The simulations also show the impact of an approach that maintains the current openness measure but reduces its weight to 25 percent (shown in those sets where all the weight from variability is allocated to GDP).

29. **As noted, it was also agreed to revisit the composition of the GDP blend and the compression factor.** One or both of these elements could potentially be considered as part of a further reform of the formula. As shown in Table 5 above, a relatively large number of countries stand to lose some share if variability is dropped and its weight is reallocated solely to GDP (similarly if the share of openness is reduced). An increase in the weight of PPP GDP and/or an increase compression could help mitigate this impact.

30. **Table 9 summarizes the distributional impact of increasing the share of PPP GDP and increasing compression.** Most EMDCs and almost all LICs benefit from a higher share of PPP GDP in the blend variable, whereas only one AE gains. In contrast, with higher compression (a lower compression factor) both AEs and EMDCs gain (all but the nine largest members benefit).[18] The simulations illustrate two alternative combinations for the GDP blend: a 55/45 split between market and PPP GDP, and a 50/50 split. In addition, one set of simulations is shown with higher compression (compression factor of 0.925), and the last set combines a higher weight for PPP GDP (55/45) with a higher compression.

[18] These nine members are China, France, Germany, India, Italy, Japan, Russia, United Kingdom, and United States.

Table 9. Countries that Benefit from PPP GDP and Compression

	By Size (Market GDP) 1/				By Income (GDP per Capita) 1/				By Grouping			
	Top Quartile	3rd	2nd	Bottom Quartile	Top Quartile	3rd	2nd	Bottom Quartile	AE (26)	EMDC excl. LIC (90)	LIC (72)	Total
PPP/Market GDP Shares												
Number of countries who benefit (ratio > 1)	22	40	45	45	18	43	45	46	1	80	71	152
Median 2/	1.3	1.4	1.6	1.6	1.1	1.4	1.6	1.8	1.5	1.4	1.7	1.4
Average 2/	1.5	1.5	1.6	1.7	1.2	1.5	1.7	1.8	1.5	1.5	1.8	1.4
CQS / uncompressed linear combination												
Number of countries who benefit (ratio > 1)	38	47	47	47	41	45	46	47	20	87	72	179
Median 2/	1.1	1.2	1.3	1.4	1.1	1.2	1.2	1.3	1.1	1.2	1.3	1.2
Average 2/	1.1	1.2	1.3	1.4	1.1	1.2	1.3	1.3	1.1	1.2	1.3	1.2

Source: Finance Department
1/ Each quartile includes 47 countries.
2/ Average or median ratio among the countries which have ratios greater than 1.

31. **Summary results for the 35 members with the largest quotas and for major country groups are presented below.** Table 10 provides an overview of the results for major country groups and detailed results for all members are presented in the Statistical Appendix (issued separately)**.**

Set 1 – Simplification of the Current Formula – 60/40 GDP blend and all weight of variability allocated to GDP (Table 11)
The main impact on group shares is a shift from other advanced to major advanced economies. Capping openness shares or a reduction in the weight on openness also produces a modest shift to EMDCs as a group.

Set 2 – Same as Set 1, but with weight split between GDP (2/3) and openness (1/3) (Table 12)
The overall shifts are somewhat lower than in Set 1. EMDCs as a group lose from most formulas in this set, with the exception of those that use capped openness shares.

Sets 3-4 – Same as Sets 1-2, but using a 55/45 GDP blend (Tables 13-14)
EMDCs as a group gain moderately and the impact on LICs is moderated as a result of the increased weight on PPP GDP. The largest shifts come from the simulations using a cap on openness shares.

Set 5-6—Same as Sets 1-2 but using a 50/50 GDP blend (Table 15-16)
Set 5 results in larger overall shift to EMDCs as a group.

Set 7—Same as Set 1 but with higher compression (0.925) (Table 17)
EMDCs also gain significantly from this set though less than in Set 5. LICs gain from all formulas. A majority of all member countries (almost 2/3 of the membership) gain in these simulations, reflecting the impact of compression.

Set 8—Same as Set 3 but with higher compression (0.925) (Table 18)
Set 8 results in the largest overall shifts to EMDCs and also to LICs.

Table 10. Illustrative Calculations: Summary

	Change in CQS (p.p)				Number of Gainers
	Major Advanced	Other Advanced	EMDC	LIC	
Set 1. Different Openness Measures, 60/40 GDP blend, dropping variability, all weight to GDP					
1. Existing openness measure	1.24	-1.27	0.02	-0.12	54
2. Nominal openness capped at the 85th percentile	1.75	-1.74	-0.01	-0.10	66
3. Nominal openness capped at the 75th percentile	1.98	-1.96	-0.02	-0.11	69
4. Openness shares capped at 1.7	2.39	-2.70	0.31	-0.06	78
5. Openness shares capped at 1.5	2.46	-2.94	0.48	-0.05	76
6. Weight of openness reduced to 0.25	1.50	-1.73	0.23	-0.12	52
Set 2. Same as Set 1, but weight split between GDP (2/3) and openness (1/3)					
1. Existing openness measure	0.99	-0.80	-0.19	-0.13	61
2. Nominal openness capped at the 85th percentile	1.58	-1.35	-0.23	-0.10	76
3. Nominal openness capped at the 75th percentile	1.84	-1.61	-0.24	-0.12	78
4. Openness shares capped at 1.7	2.32	-2.46	0.14	-0.05	88
5. Openness shares capped at 1.5	2.40	-2.75	0.35	-0.04	86
Set 3. Same as Set 1 with a 55/45 GDP Blend					
1. Existing openness measure	0.92	-1.39	0.47	-0.07	59
2. Nominal openness capped at the 85th percentile	1.43	-1.86	0.43	-0.05	74
3. Nominal openness capped at the 75th percentile	1.66	-2.08	0.42	-0.06	77
4. Openness shares capped at 1.7	2.06	-2.87	0.81	0.00	86
5. Openness shares capped at 1.5	2.12	-3.11	0.99	0.01	85
6. Weight of openness reduced to 0.25	1.15	-1.86	0.71	-0.06	56
Set 4. Same as Set 2 with a 55/45 GDP blend					
1. Existing openness measure	0.69	-0.91	0.22	-0.09	73
2. Nominal openness capped at the 85th percentile	1.28	-1.46	0.18	-0.06	84
3. Nominal openness capped at the 75th percentile	1.54	-1.72	0.17	-0.07	83
4. Openness shares capped at 1.7	2.01	-2.63	0.62	0.00	97
5. Openness shares capped at 1.5	2.08	-2.91	0.83	0.01	93
Set 5. Same as Set 1 with a 50/50 GDP Blend					
1. Existing openness measure	0.60	-1.51	0.91	-0.02	68
2. Nominal openness capped at the 85th percentile	1.10	-1.98	0.88	0.00	81
3. Nominal openness capped at the 75th percentile	1.33	-2.20	0.87	-0.01	81
4. Openness shares capped at 1.7	1.73	-3.04	1.31	0.05	92
5. Openness shares capped at 1.5	1.77	-3.28	1.51	0.07	91
6. Weight of openness reduced to 0.25	0.80	-1.99	1.19	-0.01	61
Set 6. Same as Set 2 with a 50/50 GDP blend					
1. Existing openness measure	0.39	-1.02	0.63	-0.04	78
2. Nominal openness capped at the 85th percentile	0.98	-1.57	0.59	-0.01	91
3. Nominal openness capped at the 75th percentile	1.25	-1.83	0.58	-0.02	87
4. Openness shares capped at 1.7	1.70	-2.80	1.10	0.05	102
5. Openness shares capped at 1.5	1.76	-3.08	1.33	0.07	96
Set 7. Same as Set 1 but with higher compression (0.925)					
1. Existing openness measure	0.12	-0.92	0.80	0.13	113
2. Nominal openness capped at the 85th percentile	0.62	-1.40	0.78	0.16	123
3. Nominal openness capped at the 75th percentile	0.85	-1.62	0.77	0.14	122
4. Openness shares capped at 1.7	1.25	-2.35	1.10	0.20	123
5. Openness shares capped at 1.5	1.32	-2.59	1.27	0.21	122
6. Weight of openness reduced to 0.25	0.37	-1.38	1.01	0.14	112
Set 8. Same as Set 3 but with higher compression (0.925)					
1. Existing openness measure	-0.19	-1.04	1.23	0.18	121
2. Nominal openness capped at the 85th percentile	0.31	-1.52	1.21	0.21	126
3. Nominal openness capped at the 75th percentile	0.54	-1.74	1.20	0.20	123
4. Openness shares capped at 1.7	0.93	-2.52	1.59	0.26	127
5. Openness shares capped at 1.5	0.99	-2.77	1.77	0.27	122
6. Weight of openness reduced to 0.25	0.04	-1.51	1.48	0.19	116

Source: Finance Department.

CONCLUDING REMARKS

32. **This paper presents the results of updating the quota data through 2011 and discusses the results of further staff work on openness and variability.** The data update advances by one year the data presented last June. The update reflects a continuation of several broad trends observed in previous updates. In particular, there is a further significant increase in the calculated quota share of EMDCs of 1.3 pps. This translates into a cumulative gain of 9.1 pps relative to their CQS based on data ending in 2005.

33. **The paper also revisits issues regarding openness and presents the results of additional staff work on variability.** On openness, the paper notes the highly skewed nature of the distribution of openness shares. While many countries benefit from openness, the gains for a narrower group are very large. In terms of aggregate shares, smaller advanced countries as a group are the main beneficiaries. The paper revisits a range of options for possible reforms. These include various approaches to capping openness, all of which add some complexity to the formula and require judgments on where to set the thresholds for the cap. Lowering the weight on openness could also be considered, which would have advantages in terms of simplicity and transparency. The paper also explores the relationship between variability and balance of payments difficulties that did not result in use of Fund resources but fails to find any significant link. This analysis complements earlier staff work which found virtually no correlation between variability and balance of payments difficulties involving use of Fund resources.

34. **The paper includes several sets of simulations based on the new data that illustrate the impact of possible reforms of the formula based on the earlier discussion.**

35. **Directors may wish to comment on the following issues:**

- How do Directors assess the relative merits of alternative reforms of the formula in light of the latest data update?
- What are Directors' views on the possible reforms of the openness variable explored in this paper? Do they see merit in continuing to explore some form of cap on openness? Alternatively, is there a case for leaving the definition of openness unchanged but reducing its weight in the formula? Are there any areas where additional work would be useful?
- Do Directors agree that the additional staff work presented in this paper further supports the case for dropping variability from the formula?
- What are Directors' views on the case for increasing the weight of PPP GDP as part of a reform of the formula? Do they see a possible case for an increase in compression or a combination of these two approaches?

Table 11: Illustrative Calculations—60/40 GDP Blend, Dropping Variability, All Weight to GDP, and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:					Formula w/o Variability and:
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5	Weight of openness reduced to 0.25
Advanced economies	57.6	54.7	54.7	54.7	54.7	54.4	54.2	54.5
Major advanced economies	43.4	39.5	40.8	41.3	41.5	41.9	42.0	41.0
United States	17.4	15.6	16.4	16.5	16.6	16.8	17.0	16.8
Japan	6.5	6.1	6.5	6.5	6.5	6.6	6.7	6.6
Germany	5.6	5.4	5.4	5.5	5.5	5.4	5.2	5.2
France	4.2	3.5	3.7	3.8	3.8	3.9	3.9	3.7
United Kingdom	4.2	3.8	3.7	3.8	3.8	3.9	3.7	3.6
Italy	3.2	2.9	2.9	3.0	3.0	3.0	3.1	2.9
Canada	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.2
Other advanced economies	14.3	15.2	13.9	13.4	13.2	12.5	12.2	13.4
Spain	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.1
Netherlands	1.8	2.0	1.7	1.7	1.6	1.4	1.3	1.6
Australia	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6
Belgium	1.3	1.3	1.1	1.0	1.0	0.8	0.8	1.1
Switzerland	1.2	1.3	1.2	1.3	1.2	1.0	1.0	1.2
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8	0.8
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.4	0.4	0.4	0.6
Denmark	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.6
Emerging Market and Developing Countries 1/	42.4	45.3	45.3	45.3	45.3	45.6	45.8	45.5
Africa	4.4	3.4	3.2	3.2	3.2	3.2	3.3	3.2
South Africa	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Nigeria	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4
Asia	16.0	20.6	21.5	21.3	21.3	21.5	21.6	21.6
China 2/	6.4	10.1	10.9	11.0	11.1	11.2	11.4	11.1
India	2.7	2.8	3.1	3.1	3.1	3.1	3.2	3.2
Korea	1.8	2.0	2.0	2.1	2.1	2.1	2.1	2.0
Indonesia	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.1
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6	1.0
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Thailand	0.7	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Middle East, Malta and Turkey	6.7	6.4	5.9	6.0	6.0	6.0	5.9	5.9
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2	1.1
Turkey	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.1
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
Western Hemisphere	7.9	7.3	7.5	7.6	7.6	7.7	7.8	7.7
Brazil	2.3	2.3	2.6	2.6	2.6	2.6	2.6	2.7
Mexico	1.9	1.7	1.7	1.8	1.8	1.8	1.8	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7
Transition economies	7.2	7.6	7.1	7.2	7.1	7.2	7.2	7.1
Russian Federation	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:								
EU27	30.2	29.6	28.4	28.1	28.0	27.5	26.9	27.6
LICs 3/	4.0	2.8	2.7	2.7	2.7	2.8	2.8	2.7
Coefficients for quota variables								
GDP		0.300	0.390	0.390	0.390	0.390	0.390	0.420
PPP GDP		0.200	0.260	0.260	0.260	0.260	0.260	0.280
Openness		0.300	0.300	0.300	0.300	0.300	0.300	0.250
Variability		0.150	0.000	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 12: Illustrative Calculations—60/40 GDP Blend, Dropping Variability, Weight Split Between GDP (2/3) and Openness (1/3), and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:				
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5
Advanced economies	57.6	54.7	54.9	54.9	55.0	54.6	54.4
Major advanced economies	43.4	39.5	40.5	41.1	41.4	41.9	41.9
United States	17.4	15.6	16.0	16.2	16.3	16.5	16.7
Japan	6.5	6.1	6.3	6.4	6.4	6.5	6.6
Germany	5.6	5.4	5.5	5.6	5.7	5.6	5.3
France	4.2	3.5	3.7	3.8	3.8	3.9	4.0
United Kingdom	4.2	3.8	3.8	3.9	3.9	4.0	3.8
Italy	3.2	2.9	2.9	3.0	3.0	3.1	3.1
Canada	2.3	2.2	2.3	2.3	2.3	2.4	2.4
Other advanced economies	14.3	15.2	14.4	13.8	13.6	12.7	12.4
Spain	2.0	2.1	2.2	2.2	2.2	2.3	2.3
Netherlands	1.8	2.0	1.8	1.8	1.6	1.4	1.3
Australia	1.4	1.5	1.5	1.5	1.6	1.6	1.6
Belgium	1.3	1.3	1.2	1.1	1.0	0.9	0.8
Switzerland	1.2	1.3	1.3	1.3	1.3	1.1	1.0
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.5	0.4	0.4
Denmark	0.7	0.7	0.6	0.7	0.7	0.6	0.5
Emerging Market and Developing Countries 1/	42.4	45.3	45.1	45.1	45.0	45.4	45.6
Africa	4.4	3.4	3.2	3.2	3.2	3.3	3.3
South Africa	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Nigeria	0.5	0.5	0.4	0.4	0.4	0.4	0.5
Asia	16.0	20.6	21.4	21.1	21.1	21.4	21.5
China 2/	6.4	10.1	10.8	10.9	11.0	11.1	11.3
India	2.7	2.8	3.0	3.0	3.0	3.0	3.1
Korea	1.8	2.0	2.1	2.1	2.1	2.2	2.1
Indonesia	1.0	1.1	1.1	1.1	1.1	1.1	1.1
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6
Thailand	0.7	0.9	0.8	0.9	0.8	0.9	0.8
Middle East, Malta and Turkey	6.7	6.4	6.0	6.0	6.0	6.0	5.9
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2
Turkey	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.8	0.8
Western Hemisphere	7.9	7.3	7.4	7.5	7.5	7.6	7.7
Brazil	2.3	2.3	2.5	2.5	2.5	2.5	2.5
Mexico	1.9	1.7	1.7	1.8	1.8	1.8	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.6	0.6	0.6	0.6	0.6
Transition economies	7.2	7.6	7.2	7.2	7.2	7.2	7.3
Russian Federation	2.7	2.6	2.6	2.6	2.6	2.7	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:							
EU27	30.2	29.6	29.1	28.8	28.6	28.1	27.4
LICs 3/	4.0	2.8	2.7	2.7	2.7	2.8	2.8
Coefficients for quota variables							
GDP		0.300	0.360	0.360	0.360	0.360	0.360
PPP GDP		0.200	0.240	0.240	0.240	0.240	0.240
Openness		0.300	0.350	0.350	0.350	0.350	0.350
Variability		0.150	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 13: Illustrative Calculations—55/45 GDP blend, Dropping Variability, All Weight to GDP, and Different Measures of Openness

	14th General Review Quotas	Current Formula	Formula w/o Variability and Openness Measured by: Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5	Formula w/o Variability and: Weight of openness reduced to 0.25
Advanced economies	57.6	54.7	54.3	54.3	54.3	53.9	53.7	54.0
Major advanced economies	43.4	39.5	40.5	41.0	41.2	41.6	41.7	40.7
United States	17.4	15.6	16.3	16.5	16.5	16.7	16.9	16.7
Japan	6.5	6.1	6.4	6.4	6.5	6.5	6.6	6.5
Germany	5.6	5.4	5.3	5.4	5.5	5.4	5.1	5.2
France	4.2	3.5	3.7	3.7	3.8	3.8	3.9	3.6
United Kingdom	4.2	3.8	3.7	3.8	3.8	3.9	3.7	3.6
Italy	3.2	2.9	2.9	2.9	3.0	3.0	3.1	2.9
Canada	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.2
Other advanced economies	14.3	15.2	13.8	13.3	13.1	12.3	12.1	13.3
Spain	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.1
Netherlands	1.8	2.0	1.7	1.7	1.6	1.4	1.3	1.6
Australia	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.5
Belgium	1.3	1.3	1.1	1.0	1.0	0.8	0.8	1.1
Switzerland	1.2	1.3	1.2	1.3	1.2	1.0	1.0	1.2
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8	0.8
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.4	0.4	0.4	0.6
Denmark	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.6
Emerging Market and Developing Countries 1/	42.4	45.3	45.7	45.7	45.7	46.1	46.3	46.0
Africa	4.4	3.4	3.2	3.2	3.2	3.3	3.3	3.2
South Africa	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.6
Nigeria	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.4
Asia	16.0	20.6	21.8	21.6	21.6	21.8	21.9	21.9
China 2/	6.4	10.1	11.0	11.1	11.2	11.3	11.5	11.2
India	2.7	2.8	3.1	3.2	3.2	3.2	3.2	3.2
Korea	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.0
Indonesia	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6	1.0
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Thailand	0.7	0.9	0.8	0.9	0.8	0.9	0.8	0.8
Middle East, Malta and Turkey	6.7	6.4	6.0	6.0	6.0	6.0	5.9	6.0
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2	1.1
Turkey	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9
Western Hemisphere	7.9	7.3	7.6	7.7	7.7	7.8	7.9	7.7
Brazil	2.3	2.3	2.5	2.6	2.6	2.6	2.6	2.6
Mexico	1.9	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Transition economies	7.2	7.6	7.2	7.2	7.2	7.2	7.3	7.1
Russian Federation	2.7	2.6	2.6	2.7	2.7	2.7	2.8	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:								
EU27	30.2	29.6	28.2	27.9	27.8	27.2	26.7	27.4
LICs 3/	4.0	2.8	2.7	2.8	2.8	2.8	2.8	2.8
Coefficients for quota variables								
GDP		0.300	0.358	0.358	0.358	0.358	0.358	0.385
PPP GDP		0.200	0.293	0.293	0.293	0.293	0.293	0.315
Openness		0.300	0.300	0.300	0.300	0.300	0.300	0.250
Variability		0.150	0.000	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 14: Illustrative Calculations—55/45 GDP Blend, Dropping Variability, Weight Split Between GDP (2/3) and Openness (1/3), and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:				
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5
Advanced economies	57.6	54.7	54.5	54.5	54.5	54.1	53.9
Major advanced economies	43.4	39.5	40.2	40.8	41.1	41.6	41.6
United States	17.4	15.6	15.9	16.1	16.2	16.4	16.7
Japan	6.5	6.1	6.2	6.3	6.3	6.4	6.5
Germany	5.6	5.4	5.5	5.6	5.6	5.5	5.2
France	4.2	3.5	3.7	3.8	3.8	3.9	4.0
United Kingdom	4.2	3.8	3.8	3.8	3.9	4.0	3.7
Italy	3.2	2.9	2.9	3.0	3.0	3.0	3.1
Canada	2.3	2.2	2.2	2.3	2.3	2.4	2.4
Other advanced economies	14.3	15.2	14.3	13.7	13.5	12.5	12.3
Spain	2.0	2.1	2.1	2.2	2.2	2.2	2.3
Netherlands	1.8	2.0	1.8	1.8	1.6	1.4	1.3
Australia	1.4	1.5	1.5	1.5	1.5	1.6	1.6
Belgium	1.3	1.3	1.2	1.1	1.0	0.9	0.8
Switzerland	1.2	1.3	1.3	1.3	1.2	1.0	1.0
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.5	0.4	0.4
Denmark	0.7	0.7	0.6	0.6	0.7	0.6	0.5
Emerging Market and Developing Countries 1/	42.4	45.3	45.5	45.5	45.5	45.9	46.1
Africa	4.4	3.4	3.2	3.2	3.2	3.3	3.3
South Africa	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Nigeria	0.5	0.5	0.4	0.4	0.4	0.5	0.5
Asia	16.0	20.6	21.7	21.4	21.4	21.7	21.8
China 2/	6.4	10.1	10.9	11.0	11.1	11.2	11.4
India	2.7	2.8	3.1	3.1	3.1	3.1	3.2
Korea	1.8	2.0	2.1	2.1	2.1	2.2	2.2
Indonesia	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6
Thailand	0.7	0.9	0.9	0.9	0.9	0.9	0.8
Middle East, Malta and Turkey	6.7	6.4	6.0	6.0	6.0	6.0	5.9
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2
Turkey	1.0	1.1	1.1	1.1	1.1	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.8	0.8
Western Hemisphere	7.9	7.3	7.4	7.5	7.5	7.6	7.7
Brazil	2.3	2.3	2.5	2.5	2.5	2.5	2.5
Mexico	1.9	1.7	1.7	1.8	1.8	1.8	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.6	0.6	0.6	0.6	0.7
Transition economies	7.2	7.6	7.2	7.3	7.3	7.3	7.3
Russian Federation	2.7	2.6	2.6	2.6	2.7	2.7	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:							
EU27	30.2	29.6	28.9	28.6	28.5	27.8	27.2
LICs 3/	4.0	2.8	2.7	2.8	2.8	2.8	2.8
Coefficients for quota variables							
GDP		0.300	0.330	0.330	0.330	0.330	0.330
PPP GDP		0.200	0.270	0.270	0.270	0.270	0.270
Openness		0.300	0.350	0.350	0.350	0.350	0.350
Variability		0.150	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 15: Illustrative Calculations—50/50 GDP Blend, Dropping Variability, All Weight to GDP, and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:					Formula w/o Variability and:
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5	Weight of openness reduced to 0.25
Advanced economies	57.6	54.7	53.8	53.8	53.8	53.4	53.2	53.5
Major advanced economies	43.4	39.5	40.1	40.6	40.9	41.3	41.3	40.3
United States	17.4	15.6	16.2	16.4	16.4	16.6	16.9	16.6
Japan	6.5	6.1	6.3	6.3	6.4	6.4	6.5	6.4
Germany	5.6	5.4	5.3	5.4	5.4	5.3	5.0	5.1
France	4.2	3.5	3.6	3.7	3.7	3.8	3.9	3.6
United Kingdom	4.2	3.8	3.7	3.7	3.8	3.8	3.6	3.6
Italy	3.2	2.9	2.9	2.9	2.9	3.0	3.0	2.8
Canada	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.2
Other advanced economies	14.3	15.2	13.7	13.2	13.0	12.1	11.9	13.2
Spain	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.1
Netherlands	1.8	2.0	1.7	1.7	1.5	1.3	1.3	1.6
Australia	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.5
Belgium	1.3	1.3	1.1	1.0	1.0	0.8	0.8	1.1
Switzerland	1.2	1.3	1.2	1.2	1.2	1.0	0.9	1.2
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.7	0.8
Austria	0.8	0.8	0.7	0.8	0.8	0.7	0.6	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Ireland	0.7	0.8	0.7	0.5	0.4	0.4	0.4	0.6
Denmark	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.6
Emerging Market and Developing Countries 1/	42.4	45.3	46.2	46.2	46.2	46.6	46.8	46.5
Africa	4.4	3.4	3.3	3.3	3.3	3.3	3.4	3.3
South Africa	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6
Nigeria	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4
Asia	16.0	20.6	22.1	21.9	21.9	22.1	22.2	22.3
China 2/	6.4	10.1	11.2	11.3	11.3	11.5	11.6	11.3
India	2.7	2.8	3.2	3.3	3.3	3.3	3.3	3.3
Korea	1.8	2.0	2.1	2.1	2.1	2.2	2.1	2.0
Indonesia	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6	1.0
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Thailand	0.7	0.9	0.8	0.9	0.9	0.9	0.8	0.8
Middle East, Malta and Turkey	6.7	6.4	6.0	6.1	6.1	6.0	6.0	6.0
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2	1.1
Turkey	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.9
Western Hemisphere	7.9	7.3	7.6	7.7	7.7	7.8	7.9	7.8
Brazil	2.3	2.3	2.5	2.6	2.6	2.6	2.6	2.6
Mexico	1.9	1.7	1.8	1.8	1.8	1.8	1.9	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Transition economies	7.2	7.6	7.2	7.3	7.3	7.3	7.3	7.2
Russian Federation	2.7	2.6	2.7	2.7	2.7	2.7	2.8	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:								
EU27	30.2	29.6	28.0	27.7	27.6	27.0	26.4	27.2
LICs 3/	4.0	2.8	2.8	2.8	2.8	2.9	2.9	2.8
Coefficients for quota variables								
GDP		0.300	0.325	0.325	0.325	0.325	0.325	0.350
PPP GDP		0.200	0.325	0.325	0.325	0.325	0.325	0.350
Openness		0.300	0.300	0.300	0.300	0.300	0.300	0.250
Variability		0.150	0.000	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 16: Illustrative Calculations—50/50 GDP Blend, Dropping Variability, Weight Split Between GDP (2/3) and Openness (1/3), and Different Measures of Openness

	14th General Review Quotas	Current Formula	Formula w/o Variability and Openness Measured by: Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5
Advanced economies	57.6	54.7	54.1	54.1	54.1	53.6	53.4
Major advanced economies	43.4	39.5	39.9	40.5	40.8	41.2	41.3
United States	17.4	15.6	15.8	16.0	16.1	16.3	16.6
Japan	6.5	6.1	6.2	6.2	6.2	6.3	6.4
Germany	5.6	5.4	5.4	5.5	5.6	5.4	5.1
France	4.2	3.5	3.7	3.7	3.8	3.9	3.9
United Kingdom	4.2	3.8	3.8	3.8	3.9	3.9	3.7
Italy	3.2	2.9	2.9	2.9	2.9	3.0	3.1
Canada	2.3	2.2	2.2	2.3	2.3	2.3	2.4
Other advanced economies	14.3	15.2	14.2	13.6	13.3	12.4	12.1
Spain	2.0	2.1	2.1	2.2	2.2	2.2	2.3
Netherlands	1.8	2.0	1.8	1.7	1.6	1.4	1.3
Australia	1.4	1.5	1.5	1.5	1.5	1.5	1.6
Belgium	1.3	1.3	1.2	1.1	1.0	0.8	0.8
Switzerland	1.2	1.3	1.3	1.3	1.2	1.0	1.0
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.5	0.4	0.4
Denmark	0.7	0.7	0.6	0.6	0.6	0.6	0.5
Emerging Market and Developing Countries 1/	42.4	45.3	45.9	45.9	45.9	46.4	46.6
Africa	4.4	3.4	3.2	3.3	3.3	3.3	3.4
South Africa	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Nigeria	0.5	0.5	0.4	0.5	0.5	0.5	0.5
Asia	16.0	20.6	21.9	21.7	21.6	22.0	22.1
China 2/	6.4	10.1	11.0	11.1	11.2	11.3	11.5
India	2.7	2.8	3.1	3.2	3.2	3.2	3.3
Korea	1.8	2.0	2.1	2.1	2.1	2.2	2.2
Indonesia	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6
Malaysia	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Thailand	0.7	0.9	0.9	0.9	0.9	0.9	0.9
Middle East, Malta and Turkey	6.7	6.4	6.0	6.1	6.1	6.0	6.0
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2
Turkey	1.0	1.1	1.1	1.1	1.1	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.9	0.9
Western Hemisphere	7.9	7.3	7.5	7.5	7.6	7.7	7.8
Brazil	2.3	2.3	2.4	2.5	2.5	2.5	2.5
Mexico	1.9	1.7	1.8	1.8	1.8	1.8	1.9
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.6	0.6	0.6	0.7	0.7
Transition economies	7.2	7.6	7.3	7.3	7.3	7.4	7.4
Russian Federation	2.7	2.6	2.6	2.7	2.7	2.7	2.8
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:							
EU27	30.2	29.6	28.8	28.4	28.3	27.6	26.9
LICs 3/	4.0	2.8	2.8	2.8	2.8	2.9	2.9
Coefficients for quota variables							
GDP		0.300	0.300	0.300	0.300	0.300	0.300
PPP GDP		0.200	0.300	0.300	0.300	0.300	0.300
Openness		0.300	0.350	0.350	0.350	0.350	0.350
Variability		0.150	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.950	0.950	0.950	0.950	0.950

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 17: Illustrative Calculations—60/40 GDP Blend, Dropping Variability, All Weight to GDP, Higher Compression (0.925), and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:					Formula w/o Variability and:
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5	Weight of openness reduced to 0.25
Advanced economies	57.6	54.7	53.9	53.9	53.9	53.6	53.4	53.7
Major advanced economies	43.4	39.5	39.7	40.2	40.4	40.8	40.9	39.9
United States	17.4	15.6	15.6	15.8	15.8	16.0	16.2	16.0
Japan	6.5	6.1	6.3	6.4	6.4	6.4	6.5	6.4
Germany	5.6	5.4	5.3	5.4	5.4	5.3	5.1	5.1
France	4.2	3.5	3.7	3.7	3.8	3.8	3.9	3.6
United Kingdom	4.2	3.8	3.7	3.7	3.8	3.8	3.7	3.6
Italy	3.2	2.9	2.9	3.0	3.0	3.0	3.1	2.9
Canada	2.3	2.2	2.3	2.3	2.3	2.3	2.4	2.2
Other advanced economies	14.3	15.2	14.3	13.8	13.6	12.8	12.6	13.8
Spain	2.0	2.1	2.2	2.2	2.2	2.2	2.3	2.1
Netherlands	1.8	2.0	1.7	1.7	1.6	1.4	1.3	1.6
Australia	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Belgium	1.3	1.3	1.2	1.1	1.0	0.9	0.8	1.1
Switzerland	1.2	1.3	1.3	1.3	1.2	1.1	1.0	1.2
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8	0.9
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.5	0.4	0.4	0.6
Denmark	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.6
Emerging Market and Developing Countries 1/	42.4	45.3	46.1	46.1	46.1	46.4	46.6	46.3
Africa	4.4	3.4	3.4	3.4	3.5	3.5	3.5	3.4
South Africa	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Nigeria	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Asia	16.0	20.6	21.3	21.1	21.1	21.3	21.4	21.4
China 2/	6.4	10.1	10.5	10.6	10.7	10.8	10.9	10.7
India	2.7	2.8	3.0	3.1	3.1	3.1	3.1	3.1
Korea	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.0
Indonesia	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6	1.0
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
Thailand	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8
Middle East, Malta and Turkey	6.7	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2	1.2
Turkey	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9
Western Hemisphere	7.9	7.3	7.8	7.8	7.9	8.0	8.0	7.9
Brazil	2.3	2.3	2.6	2.6	2.6	2.6	2.6	2.7
Mexico	1.9	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Transition economies	7.2	7.6	7.4	7.4	7.4	7.4	7.5	7.3
Russian Federation	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:								
EU27	30.2	29.6	28.6	28.3	28.2	27.7	27.1	27.8
LICs 3/	4.0	2.8	3.0	3.0	3.0	3.0	3.0	3.0
Coefficients for quota variables								
GDP		0.300	0.390	0.390	0.390	0.390	0.390	0.420
PPP GDP		0.200	0.260	0.260	0.260	0.260	0.260	0.280
Openness		0.300	0.300	0.300	0.300	0.300	0.300	0.250
Variability		0.150	0.000	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.925	0.925	0.925	0.925	0.925	0.925

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.

Table 18: Illustrative Calculations—55/45 GDP Blend, Dropping Variability, All Weight to GDP, Higher Compression (0.925), and Different Measures of Openness

			Formula w/o Variability and Openness Measured by:					Formula w/o Variability and:
	14th General Review Quotas	Current Formula	Existing openness measure	Nominal openness capped at 85th percentile	Nominal openness capped at 75th percentile	Openness shares capped at 1.7	Openness shares capped at 1.5	Weight of openness reduced to 0.25
Advanced economies	57.6	54.7	53.5	53.5	53.5	53.1	52.9	53.2
Major advanced economies	43.4	39.5	39.4	39.9	40.1	40.5	40.5	39.6
United States	17.4	15.6	15.5	15.7	15.7	15.9	16.1	15.9
Japan	6.5	6.1	6.2	6.3	6.3	6.4	6.4	6.4
Germany	5.6	5.4	5.2	5.3	5.4	5.3	5.0	5.1
France	4.2	3.5	3.6	3.7	3.7	3.8	3.9	3.6
United Kingdom	4.2	3.8	3.7	3.7	3.7	3.8	3.6	3.6
Italy	3.2	2.9	2.9	2.9	2.9	3.0	3.1	2.9
Canada	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.2
Other advanced economies	14.3	15.2	14.1	13.7	13.4	12.7	12.4	13.7
Spain	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.1
Netherlands	1.8	2.0	1.7	1.7	1.6	1.4	1.3	1.6
Australia	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6
Belgium	1.3	1.3	1.2	1.1	1.0	0.9	0.8	1.1
Switzerland	1.2	1.3	1.3	1.3	1.2	1.0	1.0	1.2
Sweden	0.9	1.0	0.9	0.9	0.9	0.8	0.8	0.9
Austria	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Norway	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Ireland	0.7	0.8	0.7	0.5	0.5	0.4	0.4	0.6
Denmark	0.7	0.7	0.6	0.6	0.7	0.6	0.5	0.6
Emerging Market and Developing Countries 1/	42.4	45.3	46.5	46.5	46.5	46.9	47.1	46.8
Africa	4.4	3.4	3.5	3.5	3.5	3.5	3.6	3.5
South Africa	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Nigeria	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Asia	16.0	20.6	21.6	21.4	21.4	21.6	21.7	21.7
China 2/	6.4	10.1	10.6	10.7	10.8	10.9	11.0	10.8
India	2.7	2.8	3.1	3.2	3.2	3.2	3.2	3.2
Korea	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.0
Indonesia	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2
Singapore	0.8	1.3	1.1	0.7	0.6	0.6	0.6	1.0
Malaysia	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Thailand	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8
Middle East, Malta and Turkey	6.7	6.4	6.2	6.3	6.3	6.2	6.2	6.2
Saudi Arabia	2.1	1.4	1.2	1.2	1.2	1.2	1.2	1.2
Turkey	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2
Iran, Islamic Republic of	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.9
Western Hemisphere	7.9	7.3	7.8	7.9	7.9	8.0	8.1	8.0
Brazil	2.3	2.3	2.5	2.6	2.6	2.6	2.6	2.6
Mexico	1.9	1.7	1.8	1.8	1.8	1.8	1.9	1.8
Venezuela, República Bolivariana de	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Argentina	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Transition economies	7.2	7.6	7.5	7.5	7.5	7.5	7.5	7.4
Russian Federation	2.7	2.6	2.6	2.7	2.7	2.7	2.8	2.7
Poland	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum items:								
EU27	30.2	29.6	28.4	28.1	28.0	27.4	26.9	27.7
LICs 3/	4.0	2.8	3.0	3.0	3.0	3.1	3.1	3.0
Coefficients for quota variables								
GDP		0.300	0.358	0.358	0.358	0.358	0.358	0.385
PPP GDP		0.200	0.293	0.293	0.293	0.293	0.293	0.315
Openness		0.300	0.300	0.300	0.300	0.300	0.300	0.250
Variability		0.150	0.000	0.000	0.000	0.000	0.000	0.000
Reserves		0.050	0.050	0.050	0.050	0.050	0.050	0.050
Compression factor		0.950	0.925	0.925	0.925	0.925	0.925	0.925

Source: Finance Department.

1/ Including Czech Republic, Estonia, Korea, Malta, Singapore, Slovak Republic, and Slovenia.
2/ Including China, P.R., Hong Kong SAR, and Macao SAR.
3/ PRGT-eligible countries.