INTERNATIONAL MONETARY FUND

Quota Formula Review—Data Update and Issues

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I. INTRODUCTION

1. **At the conclusion of the 14th General Review of Quotas (14th Review), the Board of Governors requested that a comprehensive review of the quota formula be completed by the Executive Board by January 2013.** The timetable for completing the 15th General Review was also brought forward by two years to January 2014.[1] This paper is intended to serve as background for an initial informal exchange of views on issues relating to the formula review. It begins with a brief stock-take, before presenting the results of updating the quota database through 2009. The remainder of the paper discusses potential issues that could be considered as part of the review.

II. BACKGROUND

2. **The quota formula has served as a guide in determining members' quotas.** The Articles are silent on how quotas should be adjusted, which gives the Fund broad discretion to decide the relevant considerations that should guide the determination of quotas. The Fund's practice has been that the formula provides guidance in quota reviews, and the Board of Governors has taken other relevant considerations into account when deciding on (adjustments in) members' quotas which require broad support of the membership (85 percent majority of the total voting power). The Fund's history includes many examples where quotas have been adjusted based on considerations other than the results of the formula. Nonetheless, the formula has been an important element in periodic quota adjustments, and since the 8th Review, a significant part of each agreed overall quota increase has been distributed to all members in proportion to their calculated quota shares (i.e., the results of the quota formula). In some cases, such as the 14th Review, departures from the formula were also the result of dissatisfaction with the outcomes it produced.

3. **The formula reflects the multiple roles of quotas.** These include their key role in determining the Fund's financial resources, their role in decisions on members' access to Fund resources, and their close link with members' voting rights. As a result, the formula has typically sought to capture members' relative positions in the world economy, their financial strength and ability to contribute usable resources, as well as their potential need to borrow from the Fund. In the 2008 reform, significant emphasis was placed on the Fund's non-financial activities, particularly bilateral and multilateral surveillance but also capacity building. It was argued that PPP GDP, as a measure of the relative volume of goods and services produced by economies, provided a better measure of the non-financial roles than market GDP, and PPP GDP was added to the formula for the first time (Box 1; external work on the formula is described in Box 2).

4. **In the lead up to the 2008 reform, Directors underscored that the formula should conform to a number of principles.** It should (i) be simple and transparent, so that the basis for differences in relative quota shares is readily understandable; (ii) be consistent

[1] See *IMF Quota and Governance Reform—Elements of an Agreement—Report of the Executive Board to the Board of Governors* (10/31/10). The proposed quotas under the 14th Review are expected to become effective no later than the Annual Meetings in 2012. The 2008 reform became effective on March 3, 2011.

with the multiple roles of quotas, appropriately reflecting global economic and financial trends and capturing members' relative positions in the world economy; (iii) result in calculated quota shares that are broadly acceptable to the membership; and (iv) be feasible to implement based on timely, high quality, and widely available data.

5. **The new formula agreed as part of the 2008 reform represented a major improvement over the previous five formulas.** In particular, it was much simpler and more transparent, and some of the variables were updated and modernized. Also, there was an understanding that the previous practice of selective adjustments to the quota database should be discontinued. At the same time, the agreement represented a difficult compromise, and many members had reservations about various aspects of the new formula. Reflecting these reservations, the Board agreed that:[2]

- further work was needed in several areas: the scope for measuring openness on a value added rather than a gross basis, the appropriate treatment of intra-currency union flows, the appropriate way of capturing financial openness, and how to improve the measure of variability to adequately capture members' potential need for Fund resources; and

- two new elements—PPP GDP and compression—should be included in the formula for a period of 20 years after which the scope for retaining them would be reviewed. This agreement recognized that the inclusion of these elements had been one of the most difficult aspects of the deliberations.

[2] See *Reform of Quota and Voice in the International Monetary Fund—Report of the Executive Board to the Board of Governors* (4/2/08). A staff paper taking stock of the issues with the quota formula variables was discussed by the Board in September 2009. Given the short timeframe available for completing the 14th Review, it was decided in the end to proceed without further changes in the formula. See *Quotas—Updated Calculations and Quota Variables* (8/28/09) and *The Acting Chair's Summing Up* (9/15/09).

Box 1. The Quota Formula

The current quota formula was agreed in 2008. It 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:

$$CQS = (0.5*Y + 0.3*O + 0.15*V + 0.05*R)^k$$

where:

CQS = calculated quota share;

Y = a blend of GDP converted at market rates and PPP exchange rates averaged over a three year period. The weights of market-based and PPP GDP are 0.60 and 0.40, respectively;

O = the annual average of the sum of current payments and current receipts (goods, services, income, and transfers) for a five year period;

V = variability of current receipts and net capital flows (measured as the standard deviation from a centered three-year trend over a thirteen year period);

R = twelve month average over one year of official reserves (foreign exchange, SDR holdings, reserve position in the Fund, and monetary gold);

and k = a compression factor of 0.95. The compression factor is applied to the uncompressed calculated quota shares which are then rescaled to sum to 100.

The original formula used at the Bretton Woods Conference contained five variables—national income, gold and foreign exchange reserves, the five-year average of annual exports and imports, and a variability measure based on the maximum fluctuation in exports over a five-year period. It was significantly revised in 1962/63, when it was expanded to five formulas that produced somewhat higher calculated quotas for members with relatively small and more open economies. In 1983, a further revision of the five formulas took place—the influence of variability of current receipts was reduced, GDP replaced national income, and reserves, which had been dropped earlier, were reintroduced. During the discussions on the 11th Review, many Directors requested that the quota formula be reviewed again—and in April 1997 the Interim Committee asked the Executive Board to promptly review the quota formula after the completion of the 11th Review.[1] A group of external experts (the Quota Formula Review Group (QFRG)) led by Professor Cooper was asked to review the formula and propose possible changes. The QFRG recommended the adoption of a single formula with two variables—market GDP and variability (see *External Review of the Quota Formula* (EBAP/00/52, 5/1/00)). However, no further changes were agreed until the 2008 reform.

[1] *Communiqué of the Interim Committee of the Board of Governors of the International Monetary Fund* (4/28/97).

Box 2. External Work on the Formula

Most external work on the quota formula predates the adoption of the current formula in 2008, but some more recent work has examined issues related to the current formula. The main focus of the external work has been on the selection and definition of variables.

Many earlier contributors—including from the G24 Secretariat—argued for the substitution of PPP GDP for market-based GDP or the use of a GDP blend in the quota formula. The rationale was that PPP GDP more correctly measures the level of economic activity in EMDCs where market prices of non-tradeables tend to be significantly below those prices in advanced economies. Within this group of contributors, Truman[1] argued for the Cooper formula with PPP GDP substituted for market-based GDP. Several authors also favored the use of population in the quota formula—from the perspective of measuring members' relative stake in the international public goods provided by the Fund or as a variable to capture per capita income differences.[2]

More recent concern has focused on the fact that the current formula does not deliver the "desired" shift in quota and voting power[3] and alternatives have been proposed that result in a more "acceptable" quota distributions. Bryant[4] proposes an illustrative formula with a GDP blend variable as well as population, measured in shares of global totals. He then adds a second set of variables—openness and variability—measured as ratios to market GDP to better capture qualitative differences between countries.

The G24 Secretariat has criticized the current quota formula arguing that it does not adequately recognize economic dynamism, improperly categorizes some advanced countries as under-represented because of distortions in measuring openness and variability, and incorrectly specifies variability to the disadvantage of borrowing members. It suggests reducing the weight of openness and scaling (and possibly capping) variability.

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[1] *International Monetary Fund Reform: An Overview of the Issues,* Background Paper prepared for the IIE Conference on IMF Reform, September 23, 2005.

[2] Ngaire Woods: *Structural Adjustment for the IMF,* Briefing, Bretton Woods Project, January 2001; and QFRG EBAP/00/52

[3] See for example Ted Truman: *Governance of the Bretton Woods Sisters: Making Progress on the Agenda,* Center for Global Development Bretton Woods Non-Commission, March 2009.

[4] *Governance Shares for the International Monetary Fund: Principles, Guidelines, Current Status*, Brookings Institution, March/April 2010.

6. **The new formula was used in distributing quota increases under both the 2008 reform and the 14th Review.** In the 2008 reform, all members that were under-represented using the formula were considered eligible for ad hoc increases, though some under-represented advanced countries agreed to forego part of the increases for which they would have otherwise been eligible. In the 14th Review, 60 percent of the overall increase was distributed to all members based on the results of the formula, and the formula also played a modest role in distributing the remaining 40 percent through various protection mechanisms. Given the concerns about the formula expressed by all Directors, the Board of Governors

Resolution completing the 14th Review requested that a comprehensive review of the formula be completed by the Executive Board by January 2013.[3]

III. UPDATED QUOTA CALCULATIONS

7. **As background for the review, staff has updated the quota database through 2009.** This advances by one year the data used for the 14th Review, using the same sources and methodology as in past updates (see Box 3 and the Statistical Appendix). The results for country groups and individual members are shown in Table 1 and A1, respectively.[4] The update partially reflects the impact of the global financial crisis on the quota variables. A further data update is expected in mid-2012 before the discussions on the formula are scheduled to be completed.

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

	Quota Shares		Calculated Quota Shares 2/			
	Post Second Round 1/	14th General Review	Current 3/	14th Review 4/	2009 5/	2008 Reform 6/
Advanced economies	60.5	57.7	57.5	58.2	60.4	63.8
Major advanced economies	45.3	43.4	41.6	42.9	45.0	47.6
Of which: US	17.7	17.4	16.1	17.0	17.8	19.0
Other advanced economies	15.1	14.3	15.9	15.3	15.4	16.2
Emerging Market and Developing Countrie	39.5	42.3	42.5	41.8	39.6	36.2
Developing countries	32.4	35.1	34.7	34.1	32.6	30.0
Africa	4.9	4.4	3.2	3.1	3.1	2.8
Asia 7/	12.6	16.1	18.3	17.7	17.2	15.8
Middle East, Malta & Turkey	7.2	6.7	6.2	6.2	5.4	4.8
Western Hemisphere	7.7	7.9	6.9	7.0	6.9	6.6
Transition economies	7.1	7.2	7.8	7.7	7.0	6.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Item:						
EU 27	31.9	30.2	32.2	31.3	32.1	32.9
LICs (PRGT-eligible countries)	4.3	4.0	2.6	2.6	2.5	2.2

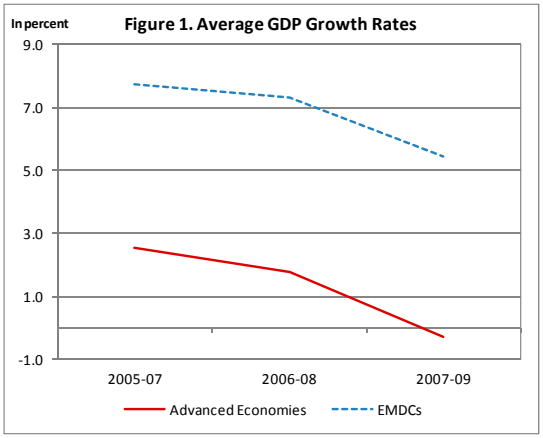
Source: Finance Department.

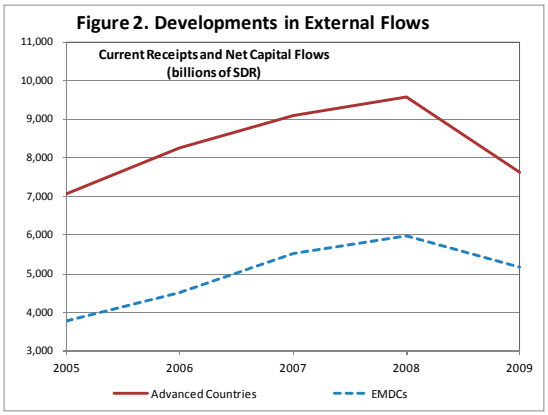
1/ For the two countries that have not yet consented to, and paid for, their quota increases, 11th Review proposed quotas are used. Includes ad hoc increases for 54 eligible members under the 2008 reform which became effective on March 3, 2011.
2/ Based on the following formula: CQS = (0.50*GDP + 0.30*Openness +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 2009.
4/ Based on IFS data through 2008.
5/ Based on IFS data through 2007.
6/ Based on IFS data through 2005.Reflects the impact of adjustments to current receipts and payments for re-exports, international banking interest, and non-monetary gold.
7/ Including Korea and Singapore.

[3] See *IMF Quota and Governance Reform—Elements of an Agreement* (10/31/2010).

[4] Tables for individual members are provided in the Statistical Appendix.

8. **Overall, the data update continues several broad trends observed in previous updates.** The calculated quota share (CQS) of emerging market and developing countries (EMDCs) as a group increased by a further 0.7 percentage points to 42.5 percent (Table 1). Compared with the database for the 2008 reform, the aggregate share of EMDCs has now risen by more than 6 percentage points. Within this group, the major gains continued to be recorded by Asia. Other sub-regions registered modest increases with the latest data update, except for the Western Hemisphere which had a small decline. Among the advanced countries, the major advanced countries as a group continued to lose share, but there was a significant, although not full, reversal of the previous declining trend for other advanced countries, which gained 0.6 percentage points.





9. **The changes in calculated quota shares reflected a combination of partly offsetting factors** (Tables 3 and 4). First, real growth trends continued to diverge (Figure 1), with EMDCs for all sub-groups (except the transition economies) recording gains as they continued to experience much stronger growth than the advanced economies. Second, EMDCs also gained share of the openness variable, as they experienced a less pronounced drop in external flows than the advanced countries (Figure 2). Third, the aggregate share of advanced economies in the variability measure increased significantly, as some of these countries experienced major contractions in external flows in 2009. The divergent impact of the crisis on the variability measure for individual countries is a feature of the data update, as discussed in more detail in Annex I, and the impact of this is unlikely to persist in the subsequent update. Fourth, the share of EMDCs in the reserves measure also declined, as some sub-groups gained while others recorded sizable declines.

10. **There were significant changes for some individual countries** (Table 2). China recorded the largest individual increase by a significant margin. Unlike for the previous update, however, a number of the largest individual gainers were advanced economies, reflecting the impact of the variability measure. The United States recorded the largest decline, followed by the United Kingdom, Russia, and Japan.

Table 2. Top 10 Positive and Negative Changes in Calculated Quota Shares (In percentage points)

	Difference between Current and Previous Shares 1/ 2/		Contribution of Variables to Change in CQS 3/			
	Top 10: Positive Change	Calculated Quota Shares	GDP Blend 4/	Openness	Variability	Reserves
1	China 5/	0.71	0.61	0.10	-0.08	0.18
2	Italy	0.24	-0.04	-0.03	0.32	0.00
3	Netherlands	0.22	-0.01	-0.01	0.24	0.00
4	Saudi Arabia	0.13	-0.01	0.01	0.14	-0.01
5	Sweden	0.12	-0.01	-0.01	0.14	0.00
6	Luxembourg	0.11	0.00	0.01	0.09	0.00
7	Germany	0.10	-0.05	-0.04	0.21	0.00
8	Belgium	0.09	0.00	-0.04	0.14	0.00
9	Spain	0.09	-0.01	-0.01	0.13	0.00
10	Hungary	0.07	0.00	0.00	0.06	0.01
	Top 10: Negative Change					
1	United States	-0.93	-0.45	-0.09	-0.53	0.01
2	United Kingdom	-0.37	-0.15	-0.09	-0.16	0.00
3	Russia	-0.27	0.00	0.02	-0.21	-0.10
4	Japan	-0.23	-0.07	-0.04	-0.12	-0.01
5	Korea	-0.15	-0.05	0.01	-0.09	-0.01
6	Ireland	-0.09	-0.01	0.00	-0.08	0.00
7	Switzerland	-0.08	0.00	0.01	-0.11	0.02
8	Mexico	-0.08	-0.06	-0.01	-0.01	-0.01
9	Canada	-0.07	-0.04	-0.02	-0.01	0.00
10	Malaysia	-0.06	0.00	0.00	-0.04	-0.02

Source: Finance Department.

1/ Current calculations are based on data through 2009 using the existing formula.
2/ Previous calculations are based on data through 2008 using the existing formula.
3/ The difference between the current dataset through 2009 and the previous dataset through 2008, multiplied by the variable weight in the quota formula. The change in CQS also reflects the effect of compression.
4/ GDP blended using 60 percent market and 40 percent PPP exchange rates.
5/ Includes China, P.R., Hong Kong SAR, and Macao SAR.

11. **Aggregate calculated quota shares are broadly in line with the 14th Review proposed quota shares (Table 5), but significant disparities remain at the individual country level.** At the start of the 14th Review, EMDCs as a group were substantially under-represented, by over 2 percentage points. This difference was eliminated in the 14th Review. Significant disparities remain at the individual country level. Relative to the 14th Review proposed quotas, a total of 69 countries are under-represented based on the updated data, compared with 66 based on the previous data.

Box 3. Data Sources and Methodology

The data sources and methodology remain in line with past practice (see the Statistical Appendix for further details):

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, 2011 for incorporating new data in the quota database was employed for IFS; consistent with this cutoff, the Fall 2010 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.

Table 3. Distribution of Quotas and Updated Quota Variables (In percent)

	14th General Review Quota Shares	GDP Blend 3/		Openness		Variability 4/		Reserves	
		Current 1/	Previous 2/	Current 1/	Previous 2/	Current 1/	Previous 2/	Current 1/	Previous 2/
Advanced economies	57.7	60.2	61.9	63.8	65.0	58.6	56.0	23.6	22.7
Major advanced economies	43.4	49.1	50.8	43.0	44.1	37.6	39.1	18.4	18.4
Of which: US	17.4	23.0	23.9	13.3	13.6	14.1	17.6	1.4	1.1
Other advanced economies	14.3	11.1	11.2	20.8	20.9	20.9	16.9	5.3	4.3
Emerging Market and Developing Countrie	42.3	39.8	38.1	36.2	35.0	41.4	44.0	76.4	77.3
Developing countries	35.1	33.5	31.8	29.2	28.2	31.4	34.6	66.4	65.0
Africa	4.4	2.5	2.4	2.5	2.3	3.8	3.8	4.5	4.7
Asia 5/	16.1	18.7	17.2	16.9	16.3	12.6	14.9	43.4	40.9
Middle East, Malta & Turkey	6.7	4.8	4.7	5.0	4.8	8.6	8.5	11.8	12.4
Western Hemisphere	7.9	7.6	7.5	4.8	4.7	6.4	7.4	6.7	7.0
Transition economies	7.2	6.3	6.3	7.0	6.8	10.0	9.4	9.9	12.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Item:									
EU 27	30.2	26.6	27.2	42.2	43.0	37.1	27.8	7.7	7.6
LICs (PRGT-eligible countries)	4.0	2.1	2.0	2.0	1.8	2.7	3.2	2.3	2.5

Source: Finance Department.

1/ Based on IFS data through 2009.
2/ Based on IFS data through 2008.
3/ GDP blended using 60 percent market and 40 percent PPP exchange rates.
4/ Variability of current receipts plus net capital flows.
5/ Including Korea and Singapore.

Table 4. Contributions to Changes in Calculated Quota Shares (CQS)
(In percentage points)

	14th General Review Quota Shares (In percent)	Contribution of Variables to Change in CQS 1/				Total	
		GDP Blend (1)	Openness (2)	Variability (3)	Reserves (4)	Sum Cols (1 - 4)	CQS Change 2/
Advanced economies	57.7	-0.87	-0.38	0.39	0.05	-0.82	-0.73
Major advanced economies	43.4	-0.83	-0.32	-0.22	0.00	-1.38	-1.26
Of which: US	17.4	-0.45	-0.09	-0.53	0.01	-1.05	-0.93
Other advanced economies	14.3	-0.04	-0.05	0.61	0.05	0.56	0.53
Emerging Market and Developing Countrie	42.3	0.87	0.38	-0.39	-0.05	0.82	0.73
Developing countries	35.1	0.85	0.30	-0.47	0.07	0.76	0.64
Africa	4.4	0.04	0.04	0.01	-0.01	0.08	0.08
Asia 3/	16.1	0.74	0.18	-0.35	0.12	0.70	0.59
Middle East, Malta & Turkey	6.7	0.03	0.07	0.01	-0.03	0.08	0.07
Western Hemisphere	7.9	0.04	0.01	-0.14	-0.01	-0.10	-0.10
Transition economies	7.2	0.02	0.07	0.08	-0.12	0.06	0.08
Total	100.0	0.00	0.00	0.00	0.00	0.00	0.00
Memorandum items:							
EU 27	30.2	-0.31	-0.22	1.39	0.01	0.87	0.84
LICs (PRGT-eligible countries)	4.0	0.05	0.04	-0.07	-0.01	0.01	0.02

Source: Finance Department.

1/ The difference between the current dataset through 2009 and the previous dataset through 2008, multiplied by the variable weight in the quota formula.
2/ The difference between current calculated quota share through 2009 and previous calculated quota share through 2008. The CQS reflects also the impact of the compression factor.
3/ Including Korea and Singapore.

Table 5. Under- and Overrepresented Countries by Major Country Groups 1/
(In percentage points)

	14th General Review Quota Share (In percent)	Difference 2/		Post Second Round Quota Share 5/ (In percent)	Difference 6/
		Current 3/	Previous 4/		
Advanced economies	**57.7**	**-0.2**	**0.6**	**60.5**	**-2.2**
Underrepresented	--	2.0	1.6	--	1.8
Overrepresented	--	-2.2	-1.1	--	-4.1
Emerging Market and Developing Countries	**42.3**	**0.2**	**-0.6**	**39.5**	**2.2**
Underrepresented	--	4.5	3.7	--	8.9
Overrepresented	--	-4.3	-4.3	--	-6.7
Total Underrepresented Countries	**42.3**	**6.5**	**5.3**	**29.1**	**10.7**
Total Overrepresented Countries	**57.7**	**-6.5**	**-5.3**	**70.9**	**-10.7**
Memorandum Items:					
EU 27	30.2	1.9	1.1	31.9	-0.5
Underrepresented	--	2.4	1.8	--	2.2
Overrepresented	--	-0.4	-0.7	--	-2.8
LICs (PRGT-eligible countries)	4.0	-1.4	-1.4	4.3	-1.7
Underrepresented	--	0.1	0.1	--	0.1
Overrepresented	--	-1.5	-1.5	--	-1.8

Source: Finance Department.

1/ Under- and over-represented countries for the two datasets, respectively.
2/ Difference between calculated quota shares and 14th Review quota shares.
3/ Based on IFS data through 2009.
4/ Based on IFS data through 2008.
5/ Includes ad hoc increases for 54 eligible members under the 2008 reform which became effective on March 3, 2011.
6/ Difference between calculated quota shares based on IFS data through 2008 and post second round quota shares.

IV. Possible Issues for the Review

12. **Although the formula was substantially improved in 2008, considerable dissatisfaction remains**. The Board already provided guidance on several specific issues for further work when it concluded the 2008 reform. In addition, it was evident during the 14th Review discussions that no one saw the formula as perfect, and many felt that it could be further improved. However, there was no consensus on any specific changes, and many suggestions for change went in different directions. The remainder of this note briefly takes stock of previous discussions as a basis for seeking Directors' views on possible areas for further work.

A. Existing Variables

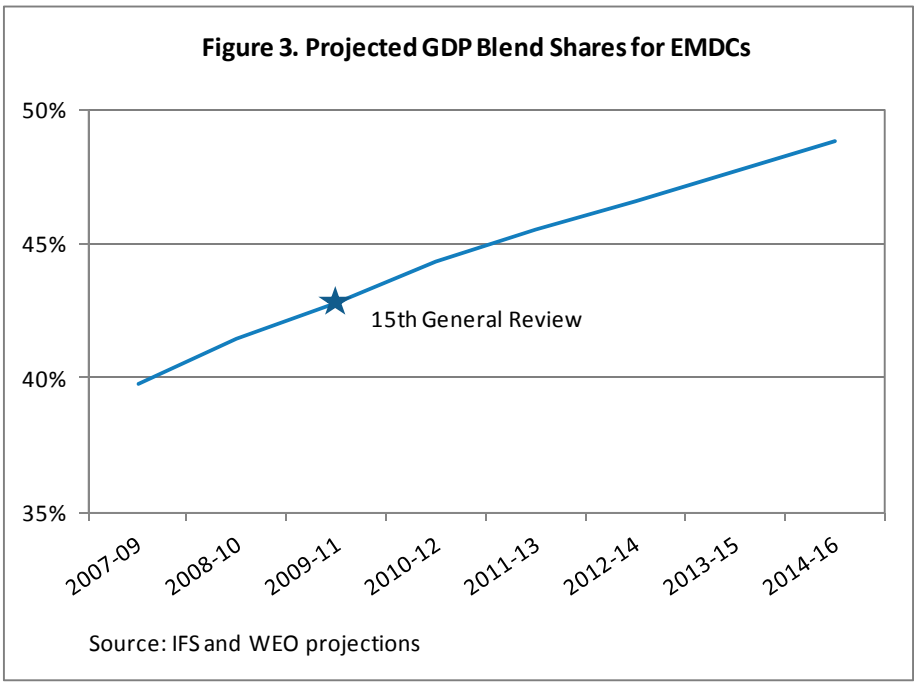
GDP

13. **It is generally agreed that GDP is the most important quota variable.** GDP provides a comprehensive measure of economic size, and is a widely reported and used measure that is available on a timely basis for the vast majority of the membership. Market GDP has been viewed as the single most relevant indicator of a member's ability to contribute to the Fund's finances, though it is clearly not the only such measure, and is also relevant to a member's potential demand for Fund resources. As noted, PPP GDP was viewed as a relevant measure of members' weight in the global economy from the perspective of the Fund's non-financial activities.[5] The GDP variable also captures dynamism. The more rapid growth of EMDCs in recent years has already been reflected in an increase in their aggregate share in the GDP blend variable from 32.7 percent at the time of the 2008 reform (data through 2005) to 39.8 percent in the latest update (data through 2009). Based on the latest WEO forecasts, this share is projected to increase further to about 43 percent by the 15th Review and just under 50 percent by 2014-16 (Figure 3).

14. **Two main issues have been raised regarding the role of GDP in the formula.** One relates to its weight in the formula, where some have argued that GDP should have a higher weight, including that it should be the only variable. In the 14th Review, the effective weight of GDP in distributing the quota increases was increased as it also played an important role in determining eligibility for the 40 percent ad hoc increase. Preliminary staff work also suggests that market GDP has played a significant role in judgments on members' access to Fund resources in recent exceptional access cases (Annex III). A second issue relates to the mix between market and PPP GDP in the blend variable. The 2008 agreement to use a 60/40 weight reflected a compromise, taking account of the central role of quotas in the Fund's financial operations, for which market GDP is the most relevant indicator. However, views

[5] The inclusion of PPP GDP in the quota formula in 2008 was facilitated by a substantial improvement in the coverage and quality of the data provided by the International Comparison Program (ICP) and subsequently incorporated into the WEO database. The 2011 Round of the ICP, which will result in further improvements in the data, has begun and the updated PPP data are expected to be available by end-2013.

have continued to diverge, with some arguing that market GDP is the only relevant measure, and others arguing the PPP GDP should play a larger if not exclusive role.[6]



Openness

15. **Openness has been viewed as an indicator of a member's involvement and stake in the global economy.** Countries that are relatively more open to trade and financial flows may have a greater stake in promoting global economic and financial stability. Openness also may have a bearing on a member's ability to make financial contributions to the Fund, as well as its potential need for Fund resources. The current openness measure is highly correlated with GDP, but gives a greater relative weight to countries with higher ratios of exports to GDP.[7] Some have questioned the role of openness in the formula as currently measured (the QFRG proposed that it be excluded), and its effective weight was reduced significantly in 2008 though it remained the second most important variable with a weight of 30 percent. Among the issues raised are:

- **Measuring trade on a value added basis.** A longstanding issue has been the concern that the current gross measure leads to double counting of cross-border flows which can exaggerate the importance of openness. This effect tends to be magnified over time as the share of trade in global value added increases, reflecting greater vertical specialization and trade in intermediate goods. It can be a particular issue for countries with large entrepot trade activities, international financial centers, or those

[6] *The Chairman's Summing Up, Quota and Voice Reform—Key Elements of a Potential Package of Reforms* (3/18/08).

[7] The correlation coefficient between openness and GDP using data through 2009 is 0.92

heavily engaged in processing imports for re-export. Moving to a value added basis could address these issues, but the lack of a reliable database with sufficient coverage has precluded such a change to date.[8] The sixth edition of the *Balance of Payments and International Investment Position Manual* (BPM6) will introduce changes to the treatment of goods for processing to capture in trade flows only the explicit fees that are paid to the goods processor rather than the full value of the goods entering and leaving the processing economy, in the case where goods do not change ownership. However, it is likely to be many years before these changes can be fully implemented, and even then they will not eliminate all cases where trade is double counted (see Statistical Appendix, Box A2).

- **Treatment of intra-currency union flows.** Some have argued 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. It has also been argued that since trade takes place in a common currency, the existence of a currency union reduces an important source of balance of payments risk for its members. Against this, others have emphasized that greater trade integration is not limited to currency unions and the degree of integration can vary across unions. Also, the Fund has frequently been called upon to provide balance of payments support to members of currency unions. When this issue was last discussed in 2009, no euro area member had entered into a financial arrangement with the Fund, and this possibility was still considered fairly remote. However, subsequent events have made clear that even currency union members with relatively well-developed financial systems and institutional frameworks can be subject to balance of payments risks that give rise to requests for financial assistance from the Fund.

- **Including a measure of financial openness.** It is recognized that integration in the global capital markets is an important indicator of a member's stake in the global economy and global financial stability, and is also relevant to its ability to contribute to the Fund's finances and its potential need for Fund resources. However, data limitations have precluded the explicit introduction of such a measure in the formula to date. Three broad options were considered in the 2008 reform: the international investment position (IIP), investment income, and financial flows. Of these, IIP was considered the most promising but less than half of the membership reported IIP data for the relevant period as of the data cutoff date. The number has increased to 102 countries reporting IIP data for 2009 compared with 81 members reporting 2005 data at the time of the 2008 reform. Staff also examined the possibility of using investment income as a proxy for IIP, and for developing an alternative measure based on aggregate financial asset and liability flows, though the latter raised a number of difficult data issues. Staff has updated these estimates as part of the current exercise (Table 6). In general, they remain heavily dominated by advanced economies, with particularly large shares for members with important international financial centers.

[8] This information is not broadly available, as conceptual and measurement issues have not been fully addressed in existing international statistical manuals.

Table 6. Measures of Financial Openness
(In percent)

	14th General Review Quota Shares	Openness 2005-2009	Alternative Variables: Trade Openness 1/ 2005-2009	Alternative Variables: International Investment Position 2/ 2009	Alternative Variables: Investment Income 2005-2009	Alternative Variables: Financial Flows 3/ 2005-2009
Advanced economies	57.7	63.8	60.3	85.8	82.1	83.5
Major advanced economies	43.4	43.0	40.8	58.1	54.4	52.2
Of which: US	17.4	13.3	12.1	20.2	20.0	14.8
Other advanced economies	14.3	20.8	19.4	27.7	27.6	31.4
Emerging Market and Developing Countrie	42.3	36.2	39.7	14.2	17.9	16.5
Developing countries	35.1	29.2	32.1	11.4	14.3	12.9
Africa	4.4	2.5	2.7	0.6	1.1	0.7
Asia 4/	16.1	16.9	18.5	7.9	8.6	7.1
Middle East, Malta & Turkey	6.7	5.0	5.7	0.7	1.7	2.9
Western Hemisphere	7.9	4.8	5.2	2.2	2.7	2.1
Transition economies	7.2	7.0	7.6	2.7	3.7	3.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum Item:						
EU 27	30.2	42.2	40.3	56.6	52.2	57.0
LICs (PRGT-eligible countries)	4.0	2.0	2.2	0.2	0.6	0.6

Source: Finance Department.

1/ Trade Openness is the average sum of current receipts and payments, excluding investment income.
2/ Assets plus liabilities; 102 members reporting in 2009.
3/ The sum of the absolute value of transactions in assets and liabilities in the financial account of the Balance of Payments for direct investment, portfolio investment, financial derivatives, and other investments.
4/ Including Korea and Singapore.

Variability

16. **Variability is intended to capture members' vulnerability to balance of payments shocks and potential need for Fund financing.** It featured in the original Bretton Woods formula and was modernized in 2008 to include both current receipts and net capital flows. However, questions have been frequently raised as to whether the measure adequately captures members' potential need for Fund resources, particularly given that advanced economies hold the majority share of the variable.[9] Staff examined in detail a range of possibilities for amending the measure of variability as part of the work for the 2008 reform, and this work was updated in 2009.[10] The options considered included: scaling the existing measure of variability to GDP or the average of current receipts and net capital flows; use of a three- versus five-year trend; focusing on downside or extreme variability; and summing variability of current receipts and variability of net capital flows. In addition to the more traditional measures, staff also explored broader indicators such as volatility of GDP growth, volatility of consumption growth and measures of consumption risk sharing.

[9] The current measure of variability (see Box 1) is heavily influenced by economic size which is reflected in its very high correlation with GDP and openness (with correlation coefficients of 0.95 and 0.96 respectively).

[10] See Appendix 1 of *Quota and Voice Reform —Stocktaking and Further Considerations* (7/11/07); Appendix 2 of *Quota and Voice—Key Elements of a Potential Package of Reforms* (2/26/08); and *Quotas—Updated Calculations and Variables* (8/27/09).

17. **It has proven difficult so far to identify a measure that is clearly superior to the current approach.** In the above work, the largest shifts in quota shares relative to the current measure were registered for the scaled measures of variability. However, there is little evidence that scaled variability better reflects potential need for Fund resources, and small countries tend to have the largest shares. Alternative measures based on GDP or consumption tended to give greater weight to domestic shocks, including policy slippages and domestic upheavals, and raised data issues in some cases. While these variants all have shortcomings, the experience with the recent crisis and the large shifts in shares of this variable for a number of countries resulting from the 2009 data update suggest that further analysis of whether the current measure adequately captures potential vulnerability is warranted.

Reserves

18. **Reserves provide an indicator of a member's financial strength and ability to contribute to the Fund's finances.** While reserves have long been included in the formula, a variety of views were expressed on their continued relevance in the lead-up to the 2008 reform. Many Directors continued to see a role for reserves as a relevant indicator of members' financial strength and ability to contribute to the Fund's finances. However, a number of others argued that the relevance of this indicator has declined over time and raised concerns about potential distortions associated with excess reserve accumulation. Reserves are seen to have become less relevant to the ability to contribute given the increasing role of international capital markets, and they are considered to be a particularly misleading indicator for countries issuing international reserve currencies. One option that was explored was the feasibility of introducing a cap on reserves, but this was considered challenging given the absence of a clear benchmark for excess reserves accumulation.[11] In the end, the consensus was to retain reserves in the formula with a relatively small weight.

B. Possible New Variables and Other Issues

Financial Contributions

19. **A number of Directors have stressed the importance of members' financial contributions to the Fund**. Financial contributions to increase the Fund's liquidity have long been recognized as relevant when determining quota increases both within and outside general quota reviews. While some elements of the formula capture members' potential ability to contribute (e.g., market GDP, openness and reserves), *actual* financial contributions have been taken into account outside of the formula, and mainly in recognition of a proven ability to enhance Fund resources. Financial contributions have also generally been supplemental to the issue of whether a member's quota is out of line with its relative economic position.

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[11] *A New Quota Formula —Additional Considerations* (3/14/07). Recent work has demonstrated that "one-approach-fits all" is not appropriate for reserve adequacy assessments and that the relevant metrics need to be supplemented with judgment and country-specific characteristics, see *Assessing Reserve Adequacy* (2/15/11) and *Public Information Notice No. 11/47* (4/7/11).

20. **The question of whether to explicitly include a measure of members' financial contributions (liquidity enhancing and others) in the formula was discussed in the 2008 reform and the 14th Review.**[12] A general conclusion of that work was that members' financial contributions to the Fund come in a wide variety of forms, and difficult measurement and aggregation issues would need to be addressed if members' actual contributions were to be captured on a more systematic basis. These include questions regarding which types of contributions should be taken into account, how different types of contributions should be aggregated, and what time periods should be considered.

Other Variables

21. **A variety of other variables have been suggested in the past**. These include per capita income, external debt, changes in exchange rates, and population (see QFRG report). The latter has been seen as a way of capturing members' relative stakes in the international public goods provided by the Fund. While this issue was raised again in the 2008 reform, the case for population is in many ways similar to that for PPP GDP, and the two variables have a relatively high correlation.[13] In past discussions, there has not been sufficiently broad support for including population in the formula on the grounds that the Fund is essentially a monetary institution, and population does not bear directly on international monetary issues.

Compression

22. **As noted, a compression factor was introduced in the 2008 reform.** This was seen as a way to moderate somewhat the effects of the high correlation of size-related variables that tends to favor large economies. However, some Directors argued that compression would reduce transparency and could dampen the formula's ability to capture dynamism over time. Compression tends to reduce the shares of a relatively small number of countries with the largest calculated quota shares, and increase the shares of all other members, without changing the ranking of members. Given the differences of view, the final compromise included a relatively modest compression factor and the agreement that it would be revisited in 20 years along with the role of PPP GDP.

Country Classification

23. **The country classification used for quota purposes diverges from the WEO.** The country groupings used for CQS (and quota purposes generally) were derived from earlier WEO classifications. However, to ensure continuity with previous quota papers, they do not incorporate several WEO modifications that have been introduced over time. As discussed in Annex II, shifting to the WEO based classification would lead to an increase in the share of advanced countries.

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[12] See *Fourteenth General Review of Quotas—Realigning Quota Shares—Initial Considerations* (3/5/10).

[13] See *A New Quota Formula—Additional Considerations (*3/14/07).

V. NEXT STEPS

24. **The above discussion highlights a few potential areas for future work.** In staff's view, the principles emphasized by Directors in the lead up to the 2008 reform remain valid, including that the formula should remain simple and transparent and should be feasible to implement based on timely, high quality, and widely available data. Some issues identified in the past such as measuring openness on a value added basis still seem infeasible. In addition, earlier arguments against excluding intra-currency union flows appear to have gained force with the latest crisis. Nonetheless, there are several areas where future work could be considered. These include:

- **GDP:** the composition of the blend, though it must be recognized that the current 60/40 blend was the product of a difficult compromise.

- **Openness:** Of the issues identified to date, how to better capture financial openness appears to be the most promising area for future work. This could also draw on the lessons from the recent global financial crisis.

- **Variability:** Whether the current measure is capturing the goal of reflecting members' potential need for Fund resources, and whether any technical or more fundamental improvements can be proposed.

- **Capacity to contribute to the Fund:** whether recent work on reserve adequacy offers any insights on the role of the reserves variable, and whether there is scope to introduce a measure of members' actual financial contributions to the Fund.

- **Formula structure and weights:** whether there is scope to further simplify the formula, whether the current variable weights remain appropriate, and the role of the compression factor.

- **Country classification:** whether this is the appropriate time to shift to the WEO classification.

25. **Directors may wish to give their views on these issues.** Do they see other possible areas for work under the review? Also, given that many of these issues have proved highly contentious in the past, and the relatively short time available, what are Directors' views on how best to carry the review forward?

ANNEX I: THE IMPACT OF VARIABILITY ON QUOTA CALCULATIONS

In the update of the data through 2009, variability had a large impact on the quota calculations, despite its small weight in the quota formula.[14] This annex explores the reasons behind the large changes in variability shares and its impact on CQS. The main findings are:

- ***Size effect.*** Size, as in the case of other quota variables, plays an important role in the largest changes in variability.
- ***Nominal effect.*** With the underlying variables (current receipts and capital flows) displaying a long-term upward trend over time, relatively recent movements have a larger impact than the same movements (in percentage terms) in earlier years. While this applies to some extent to other quota variables as well, the longer period covered by the variability measure (13 years versus, for example, 3 years for the GDP measure) makes this a more important issue for the variability variable.
- ***Crisis impact in 2009.*** The data for 2009 capture to an important extent the global crisis and its differential impact on the membership. However, due to the nominal effect noted above, the effect of the last observation (2009) on the overall variability measure is particularly large. This impact may not be expected to persist in the subsequent update.
- ***Largest gainers and losers.*** For some countries (for example, Russia and the United Kingdom), relatively sizable declines in their variability measure with the 2009 data update tended to reverse relatively large gains under the 2008 data update. While variability is meant to capture the (potential) need for Fund resources, it is worth noting that many of the countries that gained large shares in variability do not have arrangements with the Fund.

Properties of the Variability Measure

The variability measure used in the current formula covers a 13-year period (1997-2009) and is defined as the standard deviation in current receipts and net capital flows from a centered three-year trend (Box A1). While such a measure would be expected to pick up the effects of the crisis on external flows in 2009, the resulting shifts in variability shares are very large, dwarfing the effects of variables with a larger weight in the formula (GDP, openness) in a number of cases, particularly for the advanced counties.[15]

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[14]The correlation between changes in variability shares and changes in CQS is 0.86 based on differences between the data ending in 2009 and 2008, larger than for any other variable.

[15] The average difference between a country's current variability share and its share using data through 2008 was 0.48 percentage points—more than four times larger than the average difference in CQS (0.10) and significantly larger than the average differences of other quota variables (GDP(0.12), PPP GDP(0.11), Openness(0.05), and Reserves (0.31)).

Box A1. Variability Formula

The calculation of variability covers a 13-year period (1997-2009) and is measured as the standard deviation from a centered three-year trend as follows:

$$\sqrt{\frac{1}{11}\sum_{i=1998}^{2008}(x_i - Average(x_{i-1}, x_i, x_{i+1}))^2}$$

where x_i = current receipts$_i$ + net capital flows$_i$.

The update captures several important developments:

- **Global variability**: The economic crisis resulted in a sharp increase in the variability measure at the global level[16] (by over 40 percent in the data update for 2009 versus an increase of 3-7 percent for the other quota variables). As a result, some countries that recorded sizable increases in variability still saw a decline in their variability *share*, as their increases were below the increase in global variability.
- **Size effect:** Other things being equal, changes in the variability shares in level terms are higher for countries that already have a high variability share to begin with—there is a size effect, as for other quota variables. This helps to explain why many of the largest changes are recorded by advanced countries.
- **Shift in period:** As a result of the data update, the period covered by variability shifts—dropping one year (1996 in the current update) and adding a new year (2009). If the dropped term (which relates to the period 1996-98) represents a period with below-average variability, total variability increases and vice versa. As noted above, because variability is measured in nominal terms with the underlying variables trending upward over time, the impact of the dropped term tends to be small.
- **Deviation relative to three-year trend:** Since variability is measured as a deviation from a 3-year moving average, the contribution of adding a new year (2009) depends on the pattern of change in the underlying variables over the last three years (2007–09). If all three observations lie on the same trend, then the middle observation will tend to be close to the average and the contribution to variability will tend to be small. If, on the other hand, there have been divergent movements in the last two years or changes of very different magnitudes , the contribution to variability will be higher. Since 2009 was a particular turbulent year for current receipt and net capital flows, the data update had a particularly large impact on variability for the membership as a whole, and on relative variability across the membership. In this case, the effect on variability is likely to be temporary since the subsequent observation may be closer to the three-year trend.

[16] Global variability is defined as the sum of individual countries' variability.

- **Data revisions:** Revisions of historical data can also increase or decrease variability, depending on the profile of the revised series compared to the original one. While data revisions played an important role for some members in the previous data update (EB/CQuota/10/3), it played a less prominent role for the current dataset.

Impact on selected countries

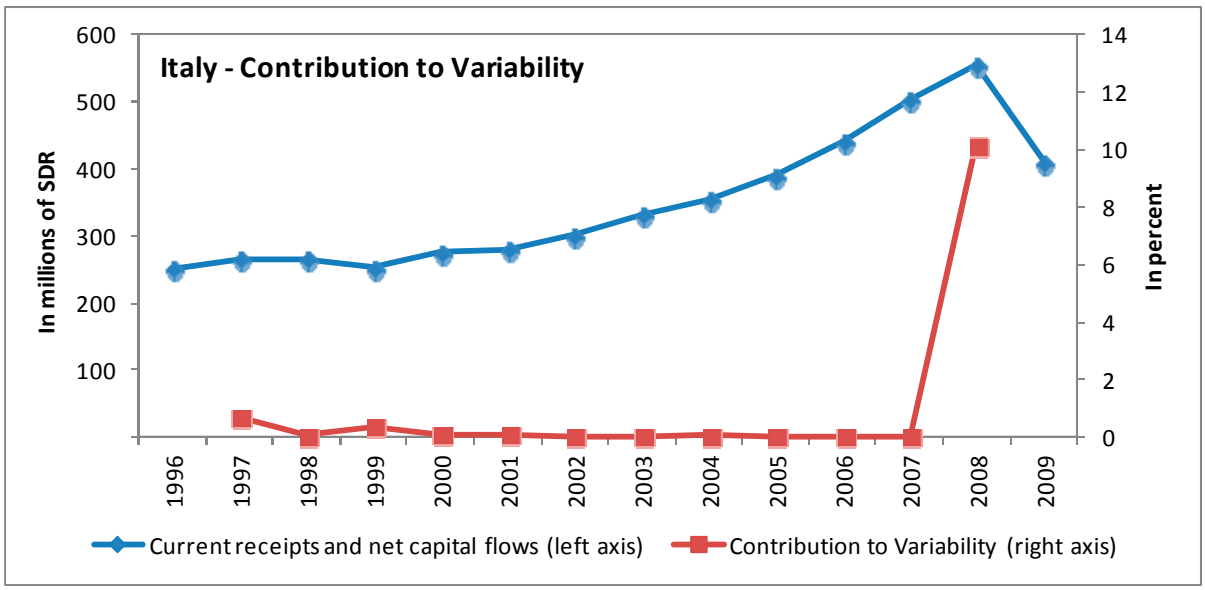
Changes in variability were a major contributor to the largest changes in members' calculated quota shares (CQS). Nine of the ten countries with the largest positive increases in variability share are among the ten largest gainers in terms of CQS, and seven of the ten countries with the largest decline in variability share are among the ten largest losers (see text table). In some cases, large losses (or gains) in variability shares with the 2009 data update tended to reverse large gains (or losses) under the 2008 data update. While variability is intended to capture potential balance of payments need, the largest changes are recorded for countries which do not presently have arrangements with the Fund.

Largest Changes in Share of Variability
(In percentage points)

Country	Change in share 1/	
	Variability	CQS
Italy	2.16	0.24
Netherlands	1.60	0.22
Germany	1.41	0.10
Belgium	0.96	0.09
Saudi Arabia	0.95	0.13
Sweden	0.94	0.12
Spain	0.84	0.09
Luxembourg	0.62	0.11
Hungary	0.41	0.07
France	0.40	0.00
United States	-3.52	-0.93
Russia	-1.43	-0.27
United Kingdom	-1.03	-0.37
Japan	-0.78	-0.23
Switzerland	-0.76	-0.08
Brazil	-0.74	-0.05
Korea	-0.61	-0.15
Ireland	-0.53	-0.09
China	-0.52	0.71
India	-0.52	0.04

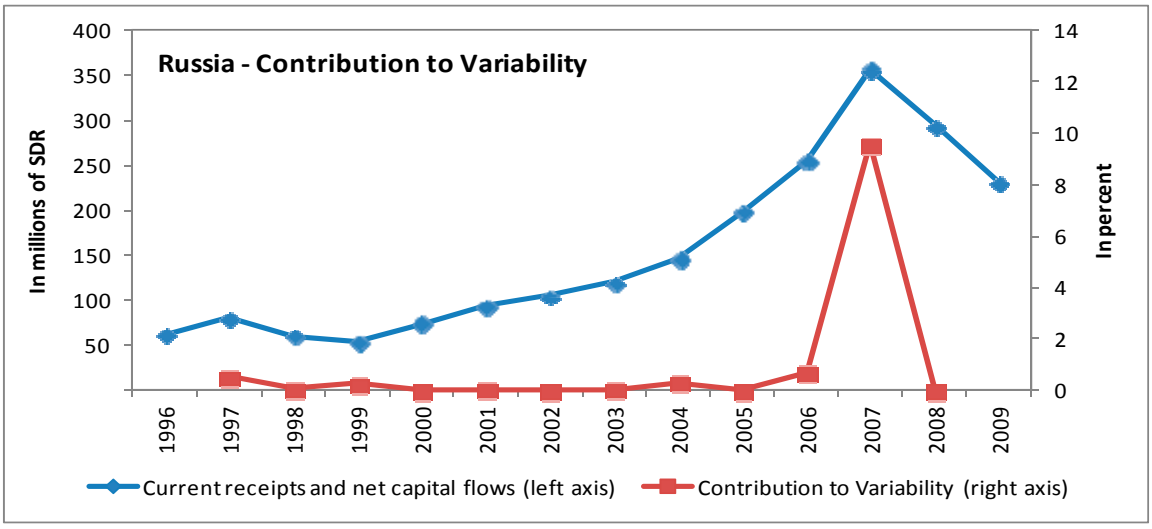
1/ Difference in share between current update (data ending in 2009) and previous update (data ending in 2008).

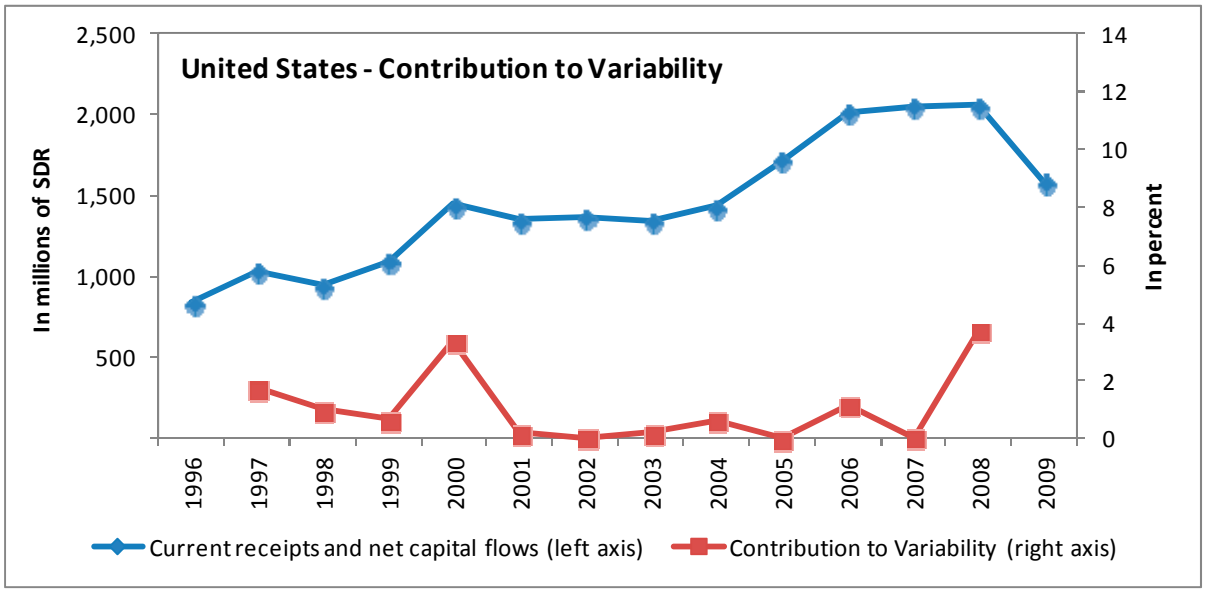
Countries with large positive changes in their variability share tended to experience a sharp reversal in the trend of current receipts and net capital flows in 2009—typically more than doubling the value of variability. The typical pattern for all of these countries is a relatively large upward movement in current receipts and in net capital flows in the years leading up to the crisis (including 2008) followed by a substantial drop in 2009. This pattern, illustrated below in the chart for Italy, is mirrored in all of the ten countries that recorded the largest increase in variability shares. Put differently, variability is heavily concentrated on the latest three-year interval with very limited variability in the series prior to that. The trend in current receipts is typically the dominant one, reflecting the relatively larger size of current receipts compared to net capital flows. In a few cases, the very erratic behavior of net capital flows is a substantial contributing factor (e.g., for Saudi Arabia). In terms of the variability measure, the result is a very large contribution of the last observation term in the variability formula.

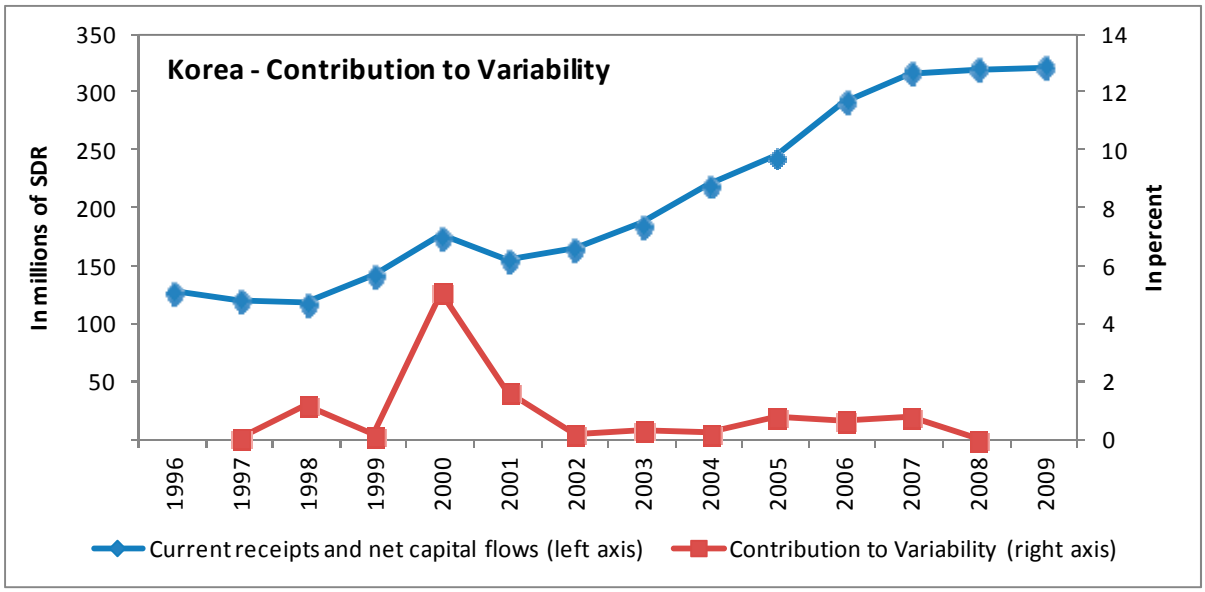


For the group of countries with large negative changes in the variability share, several patterns can be distinguished:

- In some cases (e.g., Russia, the United Kingdom, and Brazil) even though the sum of current receipts and net capital flows declined in 2009, this followed declines already observed in 2008. This tended to reduce the variability measure under the 2009 data update (and in some cases reversed increases in variability shares recorded under the 2008 data update).
- For another group of countries that experienced a significant drop in current receipts and net capital flows in 2009 (e.g., the United States, Japan, and Ireland), the impact of the last term on variability is limited because of relatively higher historical variability.
- In other cases, which did not experience the "typical" drop in current receipts and net capital flows (e.g., Korea, Switzerland and India), the variability share declined.




United States - Contribution to Variability
In millions of SDR
In percent
2,500
2,000
1,500
1,000
500
14
12
10
8
6
4
2
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Current receipts and net capital flows (left axis)
Contribution to Variability (right axis)


Korea - Contribution to Variability
In millions of SDR
In percent
350
300
250
200
150
100
50
14
12
10
8
6
4
2
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Current receipts and net capital flows (left axis)
Contribution to Variability (right axis)

ANNEX II: IMPLICATIONS OF MOVING TO THE WEO CLASSIFICATION

Aligning the country classifications used for quota purposes with those used in the World Economic Outlook (WEO) will have important implications.[17] The current country groupings used in quota work were derived from earlier WEO classifications. However, they do not incorporate several WEO modifications introduced over time in an effort to ensure continuity with previous quota papers. In particular, Korea and Singapore are classified as advanced economies in the WEO but are included in "developing Asia" for purposes of quota work. In addition, Czech Republic, Estonia, Slovenia, Malta, and the Slovak Republic are classified as advanced economies by WEO, but as EMDCs for quota purposes.

Moving to the WEO classification would significantly increase the quota share of advanced economies (Table A1):

- Advanced economies' share of post 2008 actual quotas would be 63.3 percent, a 2.8 percentage points (pp) increase relative to the current classification, mainly due to the inclusion of Korea, Singapore, and Czech Republic.

- The shift in quota share to EMDCs as a result of the 14th review would be somewhat lower (0.7 pp), mainly because Korea's gain in quota share would be attributed to advanced economies under the WEO classification.

- The increase in CQS for EMDCs as a result of the data update would be slightly higher, although advanced countries' aggregate CQS would be significantly higher (4.3 pp).

For the EMDC subgroups, there would also be several changes if the current WEO classification was adopted. Transition economies would be eliminated, and replaced with two groups, Commonwealth of Independent States (CIS) and Central & Eastern Europe. In addition, Africa would be split into a new Sub-Saharan Africa group and an expanded Middle East group, Middle East and North Africa. Among the EMDC regions, developing Asia would lose significant quota share (2.0 pp) due to the reclassification of Korea and Singapore as advanced economies (see Table A2 for a summary of country classification changes).

[17] The WEO classification is based on economic and other considerations to provide a meaningful basis for country comparisons and organizing data

Table A1. Distribution of Quotas and Calculated Quotas using the WEO Classification

	Quota Shares		Calculated Quota Shares 2/		CQS Difference
	Post Second Round 1/	14th General Review	Current 3/	Previous 4/	Current - Previous
Advanced economies	63.3	61.2	61.8	62.5	-0.78
Major advanced economies	45.3	43.4	41.6	42.9	-1.26
Other advanced economies	17.9	17.8	20.1	19.6	0.48
Emerging Market and Developing Countries	36.7	38.8	38.2	37.5	0.78
Sub-Saharan Africa	3.9	3.5	2.3	2.3	-0.01
Developing Asia	10.6	13.4	15.1	14.4	0.72
Middle East and North Africa	7.6	6.6	6.0	5.8	0.20
Latin America and the Caribbean	7.7	7.9	6.9	7.0	-0.10
CIS and Central & Eastern Europe 5/	7.0	7.4	7.8	7.8	-0.03
Total	100.0	100.0	100.0	100.0	
Memorandum items:	*Change in quota shares resulting from WEO reclassification*				
Advanced economies	2.8	3.5	4.3	4.3	-0.05
Emerging Market and Developing Countries	-2.8	-3.5	-4.3	-4.3	0.05
Of which: Developing Asia	-2.0	-2.6	-3.2	-3.3	0.13

Source: Finance Department.

1/ For the two countries that have not yet consented to, and paid for, their quota increases, 11th Review proposed quotas are used.
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 2009.
4/ Based on IFS data through 2008.
5/ Combination of two WEO classifications. This grouping is broadly comparable to the Transition economies.

Table A2. Comparison of Current with WEO Classification

Current Classification	Updated WEO Classification
Advanced Economies 1/	
Australia	Australia
Austria	Austria
Belgium	Belgium
Canada	Canada
Cyprus	Cyprus
	Czech Republic
Denmark	Denmark
	Estonia
Finland	Finland
France	France
Germany	Germany
Greece	Greece
Iceland	Iceland
Ireland	Ireland
Israel	Israel
Italy	Italy
Japan	Japan
	Korea
Luxembourg	Luxembourg
	Malta
Netherlands	Netherlands
New Zealand	New Zealand
Norway	Norway
Portugal	Portugal
San Marino	San Marino*
	Singapore
	Slovak Republic
	Slovenia
Spain	Spain
Sweden	Sweden
Switzerland	Switzerland
United Kingdom	United Kingdom
United States	United States
Emerging Market and Developing Countries	
Developing Asia	
Afghanistan, Islamic Republic of	Afghanistan, Islamic Republic of
Bangladesh	Bangladesh
Bhutan	Bhutan
Brunei Darussalam	Brunei Darussalam
Cambodia	Cambodia
China	China
Fiji	Fiji
India	India
Indonesia	Indonesia
Kiribati	Kiribati
Korea	
Lao, People's Dem. Republic	Lao, People's Dem. Republic
Malaysia	Malaysia
Maldives	Maldives
Marshall Islands	Marshall Islands*
Micronesia, Fed. States of	Micronesia, Fed. States of*
Myanmar	Myanmar
Nepal	Nepal
Pakistan	Pakistan
Palau, Republic of	Palau, Republic of*
Papua New Guinea	Papua New Guinea
Philippines	Philippines
Samoa	Samoa
Singapore	
Solomon Islands	Solomon Islands
Sri Lanka	Sri Lanka
Thailand	Thailand
Timor Leste	Timor Leste
Tonga	Tonga
Tuvalu	Tuvalu
Vanuatu	Vanuatu
Vietnam	Vietnam

Current Classification	Updated WEO Classification
Emerging Market and Developing Countries continued	
Transition Economies	***CIS and Central & Eastern Europe 2/***
Albania	Albania
Armenia	Armenia
Azerbaijan	Azerbaijan
Belarus	Belarus
Bosnia-Herzegovina	Bosnia-Herzegovina
Bulgaria	Bulgaria
Croatia	Croatia
Czech Republic	
Estonia	
Georgia	Georgia
Hungary	Hungary
Kazakhstan	Kazakhstan
Kosovo	Kosovo
Kyrgyz Republic	Kyrgyz Republic
Latvia	Latvia
Lithuania	Lithuania
Macedonia, FYR	Macedonia, FYR
Moldova	Moldova
Mongolia	Mongolia
Montenegro	Montenegro
Poland	Poland
Romania	Romania
Russia	Russia
Serbia, Republic of	Serbia, Republic of
Slovak Republic	
Slovenia	
Tajikistan	Tajikistan
	Turkey
Turkmenistan	Turkmenistan
Ukraine	Ukraine
Uzbekistan	Uzbekistan
Africa	***Sub-Saharan Africa***
Algeria	
Angola	Angola
Benin	Benin
Botswana	Botswana
Burkina Faso	Burkina Faso
Burundi	Burundi
Cameroon	Cameroon
Cape Verde	Cape Verde
Central African Republic	Central African Republic
Chad	Chad
Comoros	Comoros
Congo, Dem. Republic of	Congo, Dem. Republic of
Congo, Republic of	Congo, Republic of
Cote d'Ivoire	Cote d'Ivoire
Djibouti	
Equatorial Guinea	Equatorial Guinea
Eritrea	Eritrea
Ethiopia	Ethiopia
Gabon	Gabon
Gambia, The	Gambia, The
Ghana	Ghana
Guinea	Guinea
Guinea-Bissau	Guinea-Bissau
Kenya	Kenya
Lesotho	Lesotho
Liberia	Liberia
Madagascar	Madagascar
Malawi	Malawi
Mali	Mali
Mauritania	
Mauritius	Mauritius
Morocco	
Mozambique	Mozambique
Namibia	Namibia

1/ Excluding Taiwan
2/ Comprises two WEO categaries of Central & Eastern Europe and
*Countries not covered by WEO

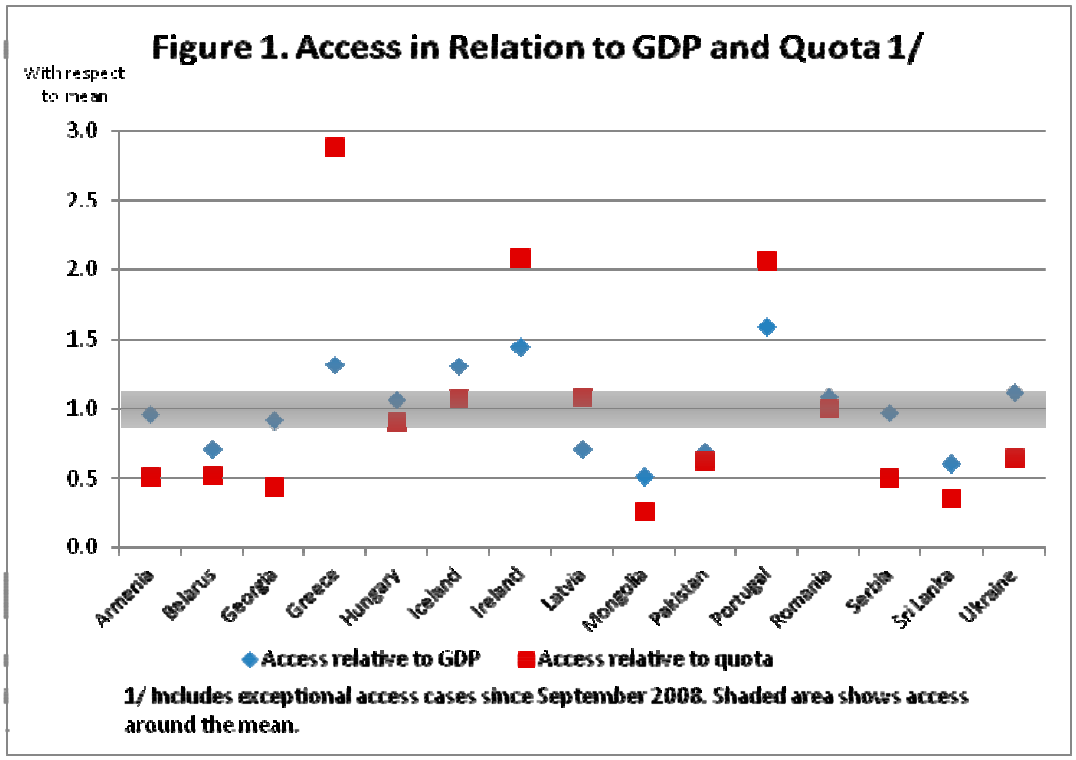
Table A2. Comparison of Current with WEO Classification (continued)

Current Classification	Updated WEO Classification	Current Classification	Updated WEO Classification
Emerging Market and Developing Countries continued		*Emerging Market and Developing Countries continued*	
Africa continued	*Sub-Saharan Africa continued*	*Western Hemisphere continued*	*Latin America and the Caribbean cont.*
Niger	Niger	Jamaica	Jamaica
Nigeria	Nigeria	Mexico	Mexico
Rwanda	Rwanda	Nicaragua	Nicaragua
Sao Tome and Principe	Sao Tome and Principe	Panama	Panama
Senegal	Senegal	Paraguay	Paraguay
Seychelles	Seychelles	Peru	Peru
Sierra Leone	Sierra Leone	St. Kitts and Nevis	St. Kitts and Nevis
Somalia	Somalia*	St. Lucia	St. Lucia
South Africa	South Africa	St. Vincent and the Grenadines	St. Vincent and the Grenadines
Sudan		Suriname	Suriname
Swaziland	Swaziland	Trinidad and Tobago	Trinidad and Tobago
Tanzania	Tanzania	Uruguay	Uruguay
Togo	Togo	Venezuela	Venezuela
Tunisia			
Uganda	Uganda	*Middle East, Malta & Turkey*	*Middle East and North Africa*
Zambia	Zambia		**Algeria**
Zimbabwe	Zimbabwe	Bahrain	Bahrain
			Djibouti
Western Hemisphere	*Latin America and the Caribbean*	Egypt	Egypt
Antigua and Barbuda	Antigua and Barbuda	Iran	Iran
Argentina	Argentina	Iraq	Iraq
Bahamas, The	Bahamas, The	Jordan	Jordan
Barbados	Barbados	Kuwait	Kuwait
Belize	Belize	Lebanon	Lebanon
Bolivia	Bolivia	Libya	Libya
Brazil	Brazil		**Mauritania**
Chile	Chile	**Malta**	
Colombia	Colombia		**Morocco**
Costa Rica	Costa Rica	Oman	Oman
Dominica	Dominica	Qatar	Qatar
Dominican Republic	Dominican Republic	Saudi Arabia	Saudi Arabia
Ecuador	Ecuador		**Sudan**
El Salvador	El Salvador	Syrian Arab Republic	Syrian Arab Republic
Grenada	Grenada		**Tunisia**
Guatemala	Guatemala	**Turkey**	
Guyana	Guyana	United Arab Emirates	United Arab Emirates
Haiti	Haiti	Yemen, Republic of	Yemen, Republic of
Honduras	Honduras		

*Countries not covered by WEO

ANNEX III: MEASURING ACCESS

Based on a sample of exceptional access cases, access measured in relation to GDP appears more stable than access measured in relation to quota. Access in relation to quota varies over a wide range in exceptional access cases relative to access in relation to GDP. This is illustrated in Figures 1 and 2, which show access in relation to the two measures (scaled by mean access): (i) for the 15 non-precautionary exceptional access arrangements approved since September 2008 and (ii) for all exceptional access cases since February 1995, respectively.[18] In the more recent period, access varied between 300 and 3,212 percent of quota while access relative to GDP ranged from 5.2 to 16.0 percent. In the longer period, access ranged from 259 to 3,212 percent of quota while relative to GDP, it ranged from 1.2 to 19.2 percent. The relevance of GDP as a guide is also highlighted by a statistical analysis of dispersion of access relative to GDP compared to quota. For the period since September 2008, the coefficient of variation is 0.32 for access in relation to GDP versus 0.76 for access based on quotas; and is 0.56 versus 0.70 for the period since 1995.[19] This suggests that GDP by itself, rather than quota, is a better gauge of potential access to Fund financing.



[18] Mean access in relation to GDP and quota for the non-precautionary exceptional access cases since September 2008 was 10 percent and 1,114 percent and for all exceptional access cases since the beginning of 1995, it was 7.2 percent and 867.5 percent, respectively. The period since 1995 excludes several cases where the arrangement was below the limits but where the cumulative limit was breached due to existing credit outstanding.

[19] Dispersion is computed by the coefficient of variation which is the ratio of the standard deviation to the mean.

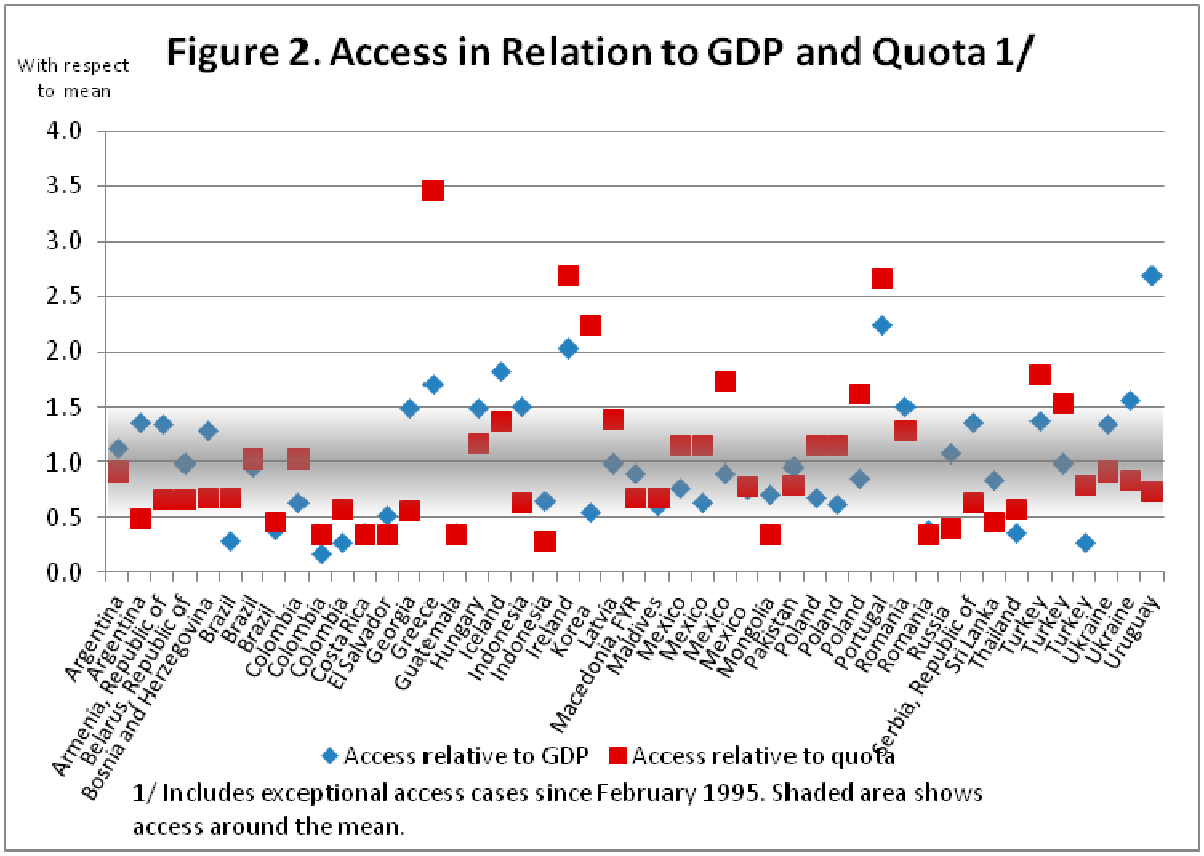


Figure 2. Access in Relation to GDP and Quota 1/
With respect to mean
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Argentina
Argentina
Armenia, Republic of
Belarus
Bosnia and Herzegovina
Brazil
Brazil
Brazil
Colombia
Colombia
Colombia
Costa Rica
El Salvador
Georgia
Greece
Guatemala
Hungary
Iceland
Indonesia
Indonesia
Ireland
Korea
Latvia
Macedonia, FYR
Maldives
Mexico
Mexico
Mexico
Mongolia
Pakistan
Poland
Poland
Poland
Portugal
Romania
Romania
Russia
Serbia, Republic of
Sri Lanka
Thailand
Turkey
Turkey
Turkey
Ukraine
Ukraine
Uruguay
Access relative to GDP
Access relative to quota
1/ Includes exceptional access cases since February 1995. Shaded area shows access around the mean.