

ELEVENTH GENERAL REVIEW OF IMF QUOTAS *

Background and implications

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1. BACKGROUND

On 22 January 1999, the Eleventh General Review of the International Monetary Fund (IMF) quotas came into force, after a number of members holding a majority of not less than 85 per cent of votes expressed their consent to the proposed capital increase — hence fulfilling the participation requirement. The Eleventh General Review of Quotas had been concluded on 30 January 1998, when the IMF Board of Governors adopted the resolution submitted by the Executive Board proposing a 45 per cent increase to the overall amount of quotas in the institution — which rose to around SDR 212 billion (USD 299 billion⁽¹⁾). As regards Portugal, its quota is now SDR 867.4 million (USD 1,223 million), reflecting a SDR 309.8 million (USD 436.8 million) increase.

In what concerns to the distribution of the overall increase in the quota, and reflecting the views expressed by the Interim Committee⁽²⁾ in April and September 1997, it was agreed that:

i) 75 per cent of the overall increase would be equiproportionally distributed (i. e., as a proportion of each member's previous quota); ii) 15 per cent would be distributed in proportion to members' shares in calculated quotas (based on 1994 data), so as to better reflect their relative economic positions; and iii) the remaining 10 per cent would be allocated to the correction of the main anomalies affecting the quota structure. Regarding the latter amount, 90 per cent would be distributed by the countries holding a share in calculated quotas greater than their share in actual quotas, while the other 10 per cent would be distributed among five members whose current quotas are far out of line with their relative economic positions.

The conclusion of the Eleventh General Review of Quotas is particularly important given the turbulence affecting the international monetary system over the last years. The massive financial packages approved recently, following the difficulties experienced by the emerging markets of Southeast Asia and Latin America furnished the IMF with improved international visibility. However, the strong utilisation of financial resources resulted in a significant weakening of the institution's liquidity. With the approval of the quota increase — its major source of funds — the IMF sees its liquidity position strengthened, at a time when the institution's role in the face of challenges of a new international financial framework is under intense discussion.

This article starts by presenting the main functions played by the IMF quotas, as well as the several general reviews, to the present time (section 2). I then follow to analyse the procedures of de-

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(1) The values presented in US dollars assume a 1 SDR= 1.41 USD exchange rate (31 December 1998).

(2) I. e., the forum where IMF members meet (usually twice a year, in Spring — in Washington — and in Autumn — in the town receiving the Annual Assembly) to discuss issues of a monetary-exchange rate nature. This body —created in 1974— is composed by 24 central bank Governors or Ministers, and has mere advisory functions.

termination of individual quotas and the key role played in this process by the so-called calculated quotas (section 3). Finally, section 4 discusses the essential issues around the Eleventh General Review of Quotas: size and distribution of the overall increase; subscription and major implications over the structure of quotas.

2. QUOTAS: FUNCTIONS AND REVIEWS

A member's quota is the most fundamental element in its financial and organizational relations with the IMF; in parallel, the quotas also represent the IMF's financial base. Each member is assigned a quota, expressed in Special Drawing Rights (SDR)⁽³⁾, equivalent to the amount of the institution's capital subscribed by each member. Before the approval of the Eleventh General Review of Quotas, the IMF capital amounted to SDR 146 billion (USD 205.9 billion)⁽⁴⁾; the quota of Portugal was of SDR 557.6 million (USD 786.2 million).

In addition to the determination of **each member's contribution to the IMF's capital**, quotas perform three other major roles:

- 1) The **maximum of access to the IMF financial resources** is expressed in terms of quotas. In the context of regular facilities, each member can currently use resources of the IMF up to the maximum limit of 300 per cent of its quota. This limit does not apply to special facilities. This is the case of the Supplemental Reserve Facility, approved in December 1997 in the context of the agreement with Korea, where the limit of access is a function of each member's individual needs.
- 2) In accordance with the Articles of Agreement, the rates at which **SDR allocations** are made are expressed as percentages of quotas established on the date of each decision to allocate. Decisions regarding SDR attributions are taken in successive basic periods, with a maximum duration of five years. Over the course of the first basic period (1970-72) SDR 9.3 billion were allocated. A new SDR allocation (of 12.1 billion) was carried out only in the third basic period, which took place between 1978 and 1981. Portugal became member of the SDR Department in July 1975, receiving SDR 53.32 million (20.7 per cent of its quota at the time) under the allocation carried out in the third basic period⁽⁵⁾.
- 3) Finally, the amount of the quota determines a **member's voting power** in the IMF. Each member holds 250 basic votes, to which one vote for each SDR 100,000 quota is added. The number of votes of each member determines, for instance, its representation in the IMF Executive Board — the permanent decision making accountable for the management of general operations of the IMF, and for the exercise of powers delegated to it by the Board of Governors. In fact, five out of a total of 24 Executive Directors are appointed by the five members holding the largest number of votes — the United States, Japan, Germany, France and the United Kingdom.

(3) Special Drawing Rights are international reserve assets created by the IMF in the sequence of the First Amendment to Articles in 1969, and are attributed by the IMF to the members participating in the SDR Department. Since 1981 the value of the SDR is calculated on a daily basis, based on a basket comprising the five leading international currencies: the US dollar, the yen, the Deutsche mark, the French franc and the Pound sterling. On 1 January 1999, the amounts in Deutsche marks and in francs included in the SDR basket were substituted by an equivalent amount in euro, using the fixed conversion rates.

(4) In practice, the capacity of IMF to financially assist its members is lower than the institution's total capital. This is also because members pay 75 per cent of their quota in the corresponding national currency — which seldom is demanded outside the issuing territory. The stock of resources available to the IMF — normally reaching less than half its capital — encompasses the SDR assets of the institution, national currencies of members considered by the Executive Board to have a sound balance of payments positions (i.e., bound to be included in the quarterly Operational Budget), as well as the amounts not employed in the credit facilities activated in the context of the GAB/NAB (see section 4.1 for a more detailed explanation). Note that assets in gold are written-off from the stock of usable resources, as their inclusion in the financial operations of the IMF requires the prior approval by a majority of 85 per cent of total votes.

(5) In September 1997, the Board of Governors of the IMF approved a proposal of the Executive Board for amending the IMF's Articles of Agreement to allow for a special one-time allocation of SDRs so as to equalize members' ratios of cumulative allocations to their Ninth Review quotas at approximately 29.32 per cent. This decision shall imply the doubling of the total amount of SDR attributed (to SDR 42.87 billion) and the fixing of the ratios between the attributed SDR and the individual quotas at a value equal for all members (about 29.3 per cent). For Portugal, the SDR cumulative allocation shall increase about SDR 110 million, to SDR 163.46 million.

The other 19 are elected by the remaining countries. The constituency to which Portugal currently belongs includes also Italy — which indicated the Executive Director — Greece, Malta, Albania and San Marino.

It should be noted that the importance attributed by each member to the functions performed by quotas closely depends on its level of economic development. Although the increase in voting power is important for all members, developing countries tend to consider the amount of their quota specially as the basis over which the limits of their access to IMF resources and SDR allocations are determined. In turn, for developed countries more emphasis is given to quotas as providing a basis for determining contributions to IMF resources. A balanced and equitable quota system should meet the different perceptions of members as regards the various functions quotas perform.

Under the Articles of Agreement the Board of Governors is required to conduct a **general review of quotas** at intervals no longer than five years. If

appropriate, it shall also propose its adjustment to adequate the institution's capital to the financial needs resulting from changes undergone by the world economy⁽⁶⁾. A general review of quotas also enables re-adjustments to individual quotas, so that these may better reflect member's relative economic positions. The First General Review of Quotas was concluded in 1951 (table 1).

3. THE KEY ROLE OF CALCULATED QUOTAS

As mentioned above, the Articles of Agreement provide for a general review and possible adjustment of quotas every five years. However, they do not indicate how IMF quotas should be determined and the Executive Board has neither formally adopted nor endorsed any particular

(6) It should be noted that an 85 per cent majority of votes is required if the IMF's overall quota amount is to be subject to any change. In addition, a members quota shall not be changed without its expressed consent, and without the corresponding settlement.

Table 1

GENERAL REVIEWS OF QUOTAS

	Date of conclusion	Overall quota increase (%)	Quota of Portugal after each General Revision	
			In SDR million	(%)
First General Revision	1951			
Second General Revision	1956			
Extraordinary	1959	60.7		
Third General Revision	1960		60.0 ^(a)	
Fourth General Revision	1965	30.7	75.0	25.0
Fifth General Revision	1970	35.4	117.0	56.0
Sixth General Revision	1975/76	33.6	172.0	47.0
Seventh General Revision	1978	50.9	258.0	50.0
Eighth General Revision	1983	47.5	376.6	46.0
Ninth General Revision	1990	50.0	557.6	48.1
Tenth General Revision	1994		557.6	
Eleventh General Revision	1998	45.0	867.4	55.6

Note: The values up to the Fourth General Revision are expressed in million US dollars.

(a) Quota of Portugal at the date of its adhesion to the IMF (29 March 1961). The subscribed quota — accounting for 0.4 per cent of total capital — granted Portugal with 850 votes — 0.49 per cent of voting power. As regards representation in the Executive Board, Portugal was integrated in the same constituency of Italy (2,950 votes) — who indicated the Executive Director — Spain (1,750 votes) and Greece (850 votes). Finally, it was agreed that the initial parity of the escudo vis-à-vis the US dollar and gold would be 28.75 per USD and 1,006.25 per troy ounce, respectively.

FORMULAS OF CALCULATION OF QUOTAS USED IN THE ELEVENTH GENERAL REVIEW

Reduced Bretton-Woods: $(0.01Y+0.025R+0.05P+0.2276VC)(1+C/Y)$

Scheme III: $(0.0065Y+0.0205125R+0.078P+0.4052VC)(1+C/Y)$

Coefficient of adjustment: 0.850369

Scheme IV: $(0.0045Y+0.03896768R+0.07P+0.76976VC)(1+C/Y)$

Coefficient of adjustment: 0.827708

Scheme M4: $: 0.005Y+0.042280464R+0.044(P+C)+0.8352VC$

Coefficient of adjustment: 0.904555

Scheme M7: $0.0045Y+0.05281008R+0.039(P+C)+1.0432VC$

Coefficient of adjustment: 0.908865

Variables used have the following meaning:

Y - GDP at constant prices of 1994.

R - Annual average of reserves in gold and foreign currency, including assets in SDR and ECU, and reserve positions in the IMF.

P - Annual average of current payments (goods, services, income and unrequited transfers) in the period 1990-1994.

C - Annual average of current revenue (goods, services, income and unrequited transfers) in the period 1990-1994.

VC - Variability of current revenue, defined as the standard deviation of the 5-year moving average, centred on the third year, for the period 1982-1994.

The calculated quota is the highest value among the result reached through the Bretton-Woods formula and the average of the two lowest values yielded by the remaining four formulae. The latter are previously adjusted or "normalised" so that the sum of the calculated quotas for all members equals that derived from the Bretton-Woods formula.

method for determining quotas. To overcome this situation, the IMF has developed and put into force a set of formulae to obtain a synthetic indicator aiming to reflect the relative economic size of each member — the so-called **calculated quotas**.

Since 1963 — when the Bretton Woods original formula was first revised and several alternative formulae were developed — calculated quotas have played a central role in the distribution of the selective component of overall quota increases (i.e., the component that envisages to adjust the size of each member's quota to its relative economic position⁽⁷⁾). The current formulae employed in the determination of calculated quotas have been into force since the Eighth General Review (see Box 1).

From the Fifth to the Seventh General Reviews, the distribution of the selective component was made proportionally to the (positive) difference between calculated and actual quotas. This technique — named **Method B** since the Ninth General Re-

view — distributed the selective component by a limited number of members only. Over the course of the Eighth and Ninth General Reviews, the distribution of the selective component was propor-

(7) The way the quota increase is distributed depends on a set of factors, which includes the size of the overall increase to be distributed; the existing quota structure and the relative disparities in quotas among members; and the need to provide sufficient liquidity for the IMF to maintain its operations without undue reliance on borrowing. Up to the Eighth General Review of Quotas, the equiproportional component of the distribution was predominant, chiefly due to the non-existence of strong disparities between actual and calculated quotas, and the need to avoid severe perturbations to the voting structure. During the Eighth and Ninth General Reviews, the share of the selective component was respectively of 60 and 40 per cent, leading to a substantial change in the IMF quotas structure. Some Executive Directors support that a quota structure that better reflects the relative economic position of members tends to strengthen liquidity of the IMF, since members exhibiting wider discrepancies between the calculated and actual quota shares are those which have presented relatively fast growth and solid external positions.

tional to the share of each member's quota — the so-called **Method A**. This method has the advantage of being simpler and more transparent, and is applicable to all members. Appendix 1 describes methods A and B in further detail.

4. THE ELEVENTH GENERAL REVIEW OF QUOTAS

4.1 Size of the overall quota increase

The proposal adopted by the Board of Governors implied a 45 per cent increase in the overall amount of quotas, which rises from SDR 146.2 billion to SDR 212.0 billion.

The determination of the overall quota increase takes several factors into account. Some of these are: the growth of trade and international payments since the previous review; the size of the world economy; the scale of potential payments imbalances — including those due to sudden inversions in capital flows — and the role of private markets in financing those imbalances.

In this context, the assessment of **IMF's liquidity position** stands as a fundamental issue. As referred above, the IMF capacity to financially assist

its members is lower than the total capital of the institution, and depends on the stock of usable assets (SDR assets, national currencies of the members with solid external positions and contracted loans)⁽⁸⁾. The stock of assets should be confronted with the expected demand for IMF resources in a defined time span. This demand results from the need IMF has to (i) meet commitments ensured in the context of the existing facilities; (ii) meet the debt service contracted by the institution itself; (iii) attend to some members' will to draw their reserve positions fully or in part; (iv) and finally, to establish new financing agreements.

The **liquidity ratio** is a measure of the IMF's liquidity position, represented by the ratio of its uncommitted usable resources to its net liabilities. Table 2 describes the process of calculation of the liquidity ratio.

The unprecedented size of commitments under arrangements in response to the Asian financial crisis led to a pronounced weakening in the IMF liquidity position since the last review. Between

(8) About 67 per cent of the overall quota increase approved in the Eleventh General Review of Quotas (SDR 44 billion) consists of usable resources.

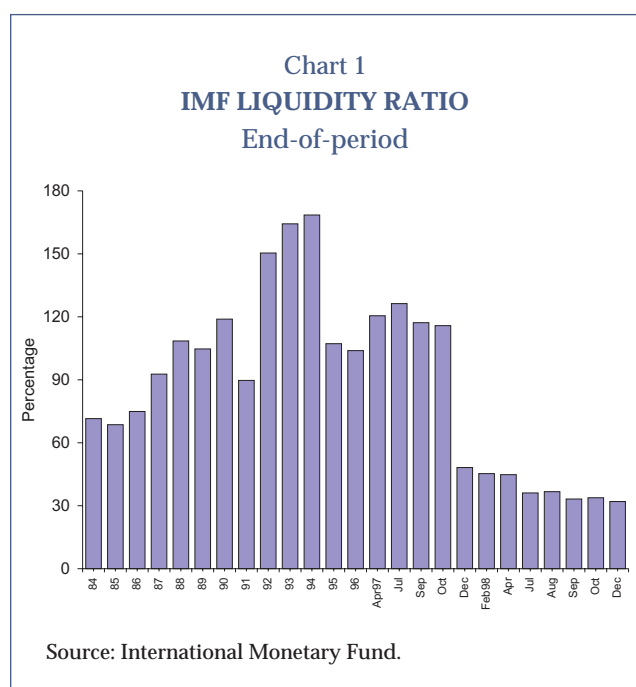
Table 2

CALCULATION OF THE LIQUIDITY RATIO

In SDR 10⁹, excepting mentions otherwise; end-of-period

	1996	1997	1998
1. Total resources	149.0	149.2	165.1
Members' currencies	143.4	144.7	149.4
Gold holding	3.6	3.6	3.6
SDR holdings	1.7	0.6	0.7
Other assets	0.3	0.3	0.3
Available under GAB activation	-	-	11.1
2. Non-usable resources	87.9	98.5	111.6
3. Usable resources (1-2)	61.1	50.7	53.5
4. Amount committed under arrangements	9.7	18.0	24.5
5. Working balances	11.9	10.0	9.6
6. Net uncommitted usable resources (3-4-5)	39.5	22.7	19.4
7. Reserve tranche positions	38.0	47.1	56.4
8. Outstanding borrowing under GAB	-	-	4.3
9. Net liabilities (7+8)	38.0	47.1	60.7
10. Liquidity ratio (6/9x100)	103.9	48.2	32.0

Source: International Monetary Fund.



July 1997 and the end of 1998, the amount of commitments exceeded SDR 43 billion. In this context, the agreements celebrated with Thailand (on 20 August 1997), Indonesia (5 November 1997), Korea (4 December 1997) and Brazil (2 December 1998) should be highlighted. These four agreements amounted to SDR 36 billion. In the same period, the value of resources decreased from SDR 58 billion to SDR 53.5 billion. These events resulted in a sharp decline of the liquidity ratio, from 126.3 to 32.0 per cent in the same period — a historically low level (chart 1) — reducing substantially IMF's ability to meet further commitments.

In this context, the **New Arrangements to Borrow** (NAB) — which came into force on 17 November 1998 — played a central role. The NAB, adopted by the Board of Governors on 27 January 1997, consist of credit facilities agreed between the IMF and 25 members (or the respective central banks), with the purpose of strengthening the resources of the institution in exceptional situations of shortage of funds⁽⁹⁾. The NAB were first activated on 2 December 1998, following to the agreement celebrated between the IMF and Brazil.

(9) The NAB do not replace the former General Arrangements to Borrow (GAB), which are still in force. However, the NAB shall be the main and first mechanism to which countries will resort if needed. The combined amount of resources available in the context of NAB and GAB amounts to SDR 34 billion (USD 47.6 billion).

4.2 Distribution of the overall increase

Following to the Executive Board decision, 75 per cent of the total increase was distributed equiproportionally — i.e., taking into account the share of each member's actual quotas. For Portugal, the equiproportional quota increase amounted to SDR 188.2 million:

Rate of growth of the overall quota = 45%.

Share of the equiproportional component
= 75% of the overall increase.

Quota = SDR 557.6 million.

Equiproportional increase = $0.45 \times 0.75 \times 557.6 = 188.2$

To adjust the quota structure to the relative economic position of members, 15 per cent of the overall increase were distributed in proportion to members' shares in calculated quotas (based on 1994 data), using Method A. This method requires the prior determination of the amount and the share of each member's calculated quota. In the Portuguese case, according to data available up to 1994, the calculated quota amounts to SDR 3,049.0 million (0.56 per cent of total quota). Thus, the selective quota increase for Portugal was of SDR 55.2 million:

Overall increase = SDR 65,800 million.

Share of the selective quota = 15% of the overall increase.

Share of the calculated quota = 0.56%.

Selective increase = $65,800 \times 0.15 \times 0.0056 = 55.2$.

Finally, the remaining 10 per cent of the overall increase (about SDR 6,500 million) was distributed as to correct the major anomalies in the current quota structure (*ad hoc* increase). 90 per cent of this increase was distributed by members (37) for which the share of the respective calculated quota was not smaller than the share of its actual quota; the remaining 10 per cent were distributed by the five members whose quotas were far out of line with their relative economic positions and that were simultaneously participants in the NAB — Singapore, Luxembourg, Korea, Thailand and Malaysia. The *ad hoc* quota increase for Portugal equalled SDR 66.4 million. Appendix 2 presents the respective calculations.

Table 3

CALCULATION OF THE NORM AND THE REMUNERATED RESERVE TRANCHE FOR PORTUGAL

Position on 31 December 1998

	SDR106	% of quota
1. Quota on 1/4/1978	117.00	20.98
2. Quota on 31/12/1998	557.60	100.00
3. 75 per cent of quota on 1/4/1978	87.75	15.74
4. Change in quota since 1/4/1978	440.60	79.02
5. Norm (3+4)	528.35	94.75
6. Holding of escudos (31/12/1998)	115.50	20.71
7. Reserve tranche position (31/12/1998)	442.10	79.29
8. Remunerated reserve tranche position (5-6)	412.85	74.04

Source: International Monetary Fund.

The new quota for Portugal is thus SDR 867.4 million, resulting from a SDR 309.8 million increase. It should be noted that, since the previous quota structure underestimated the relative economic size of Portugal, the individual quota increase amounted to about 56 per cent, i.e. above the overall increase (45 per cent).

4.3 Subscription and reserve tranche position

The IMF agreement provides that, after the quota increase comes into force, members shall pay the IMF, within an agreed period, 25 per cent of their increase in SDR or in any other currency to be defined by the institution — this is the so-called **reserve asset payment**. The balance of the increase shall be paid in national currency, usually through the issuing of non-negotiable non-interest bearing notes in favour of the IMF⁽¹⁰⁾. The reserve asset payment does not affect each member's overall amount of external reserves, as the reduction of assets in foreign currency is compensated by an increase, of equal value, in its reserve position in the IMF. In accordance with the 30-working day period agreed in the context of the Eleventh General

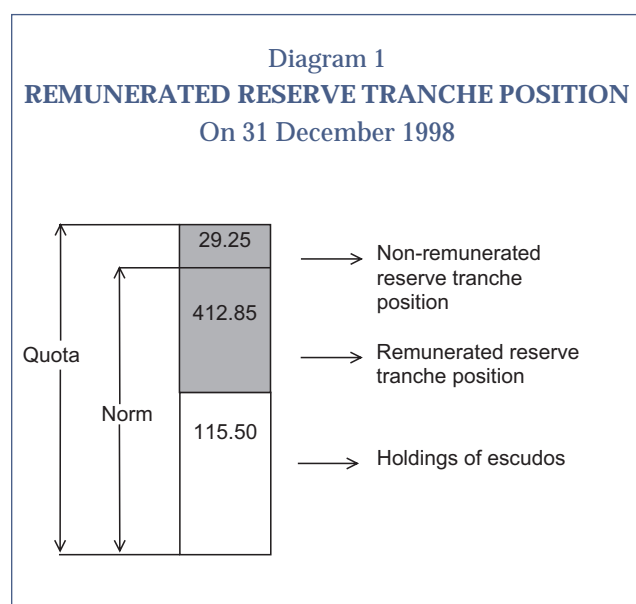
Review of Quotas, Portugal proceeded to the payment of its quota increase in early February 1999.

Each member's **reserve tranche position** (previously known as the "gold tranche") consists of the difference between its quota and the IMF's holdings in its respective national currency, excluding the amount resulting from loans granted by the IMF to that member. Drawings made under the reserve tranche are not considered an use of IMF credit as each member's reserve positions are a part of their foreign reserves. Request for reserve tranche purchases shall not be subject to challenge (Article V, section 3(c)).

Every quarter, the IMF pays a return to those members holding a **remunerated reserve tranche position**. A reserve tranche position is remunerated when a member's amount of national currency held by the IMF is lower than a pre-determined "norm" (excluding currency held by the country due to credits granted by the IMF to the member). For each member, the norm equals 75 per cent of the quota existing prior to the Second Amendment to the Articles of the Agreement (1 April 1978) plus all following quota increases. Therefore, as the quota increases, the norm converges to 100 per cent of the effective quota — progressively reducing the share of the non-remunerated component.

According to the data available in late 1998, only a small part of the reserve position of Portugal (about 6.6 per cent) is non-remunerated (table 3, diagram 1).

(10) In the terms of Decree-Law no. 245/89, which regulates the relationship between Portugal and the IMF, "the Banco de Portugal is enforced to carry out increases to the Portuguese quota in the International Monetary Fund; for this purpose it shall make on its own account the deliveries of special drawing rights, of currencies of other members or of escudos".



4.4 Major changes to the quota structure

The Eleventh General Review of Quotas yielded some important changes to the structure of quotas and voting power in the IMF. Firstly, worth noting are the significant increases in the quotas of Japan and Germany (62 and 58 per cent,

respectively), which resulted in substantial rises in these countries' voting powers. Indeed, Japan became the IMF member with the second largest quota. The United States recorded a percentage change below the overall increase (40 per cent, compared with 45 per cent), recording a slight fall in its share in total voting power. The Eleventh General Review of Quotas also enabled some members holding large quotas but that did not reflect their respective relative economic size, to benefit from significant quota increases. This was the case of Korea (104 per cent increase), Ireland (60 per cent), Spain (58 per cent) Austria (58 per cent) and Italy (54 per cent), among others.

As regards the constituency where Portugal is included, the overall quota increase amounted to SDR 3,065 million (52.4 per cent), resulting in a 0.2 percentage points rise in the voting power share of this group, to 4.2 per cent (table 4). Reflecting these changes, Portugal became the country holding the second largest quota in the constituency.

Table 4

CHANGES TO THE RELATIVE POSITIONS OF SOME MEMBERS

Amount of quota expressed in SDR 10⁶

	Ninth General Review of Quotas				Eleventh General Review of Quotas			
	Quota	Share (%)	Votes	Share (%)	Quota	Share (%)	Votes	Share (%)
1. United States	26526.8	18.21	265 518	17.61	37149.3	17.52	371 743	17.16
2. Japan	8241.5	5.66	82 665	5.48	13312.8	6.28	133 378	6.16
3. Germany	8241.5	5.66	82 665	5.48	13008.2	6.14	130 332	6.02
4. France	7414.6	5.09	74 396	4.93	10738.5	5.07	107 635	4.97
5. United Kingdom	7414.6	5.09	74 396	4.93	10378.5	5.07	107 635	4.97
6. Italy	4590.7	3.15	46 157	3.06	7055.5	3.33	70 805	3.27
7. Greece	587.6	0.40	6 126	0.41	823.0	0.39	8 480	0.39
8. Portugal	557.6	0.38	5 826	0.39	867.4	0.41	8 924	0.41
9. Malta	67.5	0.05	925	0.06	102.0	0.05	1 270	0.06
10. Albania	35.3	0.02	603	0.04	48.7	0.02	737	0.03
11. San Marino	10.0	0.01	350	0.02	17.0	0.01	420	0.02
12. Total (6 to 11)	5848.7	4.00	59 987	3.98	8913.6	4.20	90 636	4.18

5. CONCLUDING REMARKS

The conclusion of the Eleventh General Review of Quotas takes place in a context where the establishment of a new architecture for the international monetary system became one of the most widely discussed issues. The IMF's capacity for assisting financially its members with imbalances in their balance of payments was substantially increased with the endorsement of the Eleventh General Review of Quotas and the NAB, strengthening the central position of the IMF in the international monetary system.

The world economy financial background is today unquestionably different from that in 1945, when the IMF Agreement was signed⁽¹¹⁾. The monetary system based upon fixed parities against gold and infrequent adjustments was replaced by a greater exchange rate flexibility between the major economic areas; the size of private capital flows rose substantially; integration among countries increased, through their greater openness — both to trade and capital flows; finally, the IMF membership expanded enormously, granting the institution with an universal status — and simultaneously rising the potential demand for its resources.

The financial instability affecting the international markets in the 1990s offers the IMF possibly its greatest challenge since the end of the Bretton-Woods regime, in the early 1970s. The size of repercussions of the recent turbulence in financial markets over the world economy makes urgent the re-adaptation of the institution's surveillance practices, granting them with new dimensions. For instance, the usual analysis of members' economic policies should be supplemented with a systematic and rigorous assessment of the sound-

ness of the financial sector. It is also important that the recent trend towards greater information transparency and availability is strengthened. This comprises, for instance, indicators on the level of short-term private external debt.

An effective surveillance by the IMF, which allows for an early diagnosis of problems and their advanced correction, should help to avoid or diminish the severity of both general disturbances to the world economy and specific problems in individual members that contribute to balance of payments difficulties, the likelihood of sudden and massive adjustments in balances of payments, and the potential demand for its financial resources.

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(11) The IMF was formerly founded in 1945, reflecting the consensus reached one year before — during the Monetary and Financial Conference held in Bretton Woods. The cornerstone idea supporting the creation of the IMF was that the promotion of international monetary co-operation would be the best way to reach other objectives considered essential to the welfare of the respective members. These objectives are listed in Article I of the IMF Agreement.

METHODS OF DISTRIBUTION OF THE SELECTIVE QUOTA INCREASE

This Appendix describes the mathematical properties of the alternative techniques for allocating quota increases presented in the main text and introduces the concept of “adjustment coefficient”.

1. The adjustment coefficient

To ease the comparison between the alternative distribution methods, it seemed useful to calculate a measure of its effectiveness in reducing the divergence between the shares in calculated quotas and those in actual quotas. The adjustment coefficient, developed during the Eight General Review, indicates precisely the amount of reduction in the difference between the share in the calculated quota and the share in the actual quota, as a percentage of the original difference. For each member i , the coefficient of adjustment is calculated as follows:

$$\alpha^i = \frac{S_n^i - S_p^i}{S_c^i - S_p^i} \times 100 \tag{1}$$

where S_p^i , S_c^i and S_n^i stand respectively for the share in the actual quota, the calculated quota and the new quota. For the m IMF members as a whole, the adjustment coefficient is determined through the following formula:

$$\alpha = \frac{\left[\sum_{i=1}^m (S_c^i - S_p^i)^2 \right]^{1/2} - \left[\sum_{i=1}^m (S_c^i - S_n^i)^2 \right]^{1/2}}{\left[\sum_{i=1}^m (S_c^i - S_p^i)^2 \right]^{1/2}} \times 100 \tag{2}$$

2. Method A

This method allocates the selective component of the quota increase to all members, as a proportion of their shares in calculated quotas. The new quota of member i , excluding the *ad hoc* component of the increase, can be expressed as a function of its effective and calculated quotas, as follows:

$$Q_n^i = (1 + a)Q_p^i + \sigma Q_c^i$$

where Q_p^i , Q_c^i and Q_n^i are respectively the actual quota, calculated quota and the new quota. Parameter $a \geq 0$ stands for the equiproportional quota increase as a percentage of the actual quota, and σ defines the aggregate amount of the selective increases ($\sum \Delta Q_s^i$) as a proportion of total calculated quotas. By definition we have:

$$\sigma = \frac{\sum_{i=1}^m Q_n^i - (1 + a) \sum_{i=1}^m Q_p^i}{\sum_{i=1}^m \Delta Q_s^i} = \frac{\sum_{i=1}^m \Delta Q_s^i}{\sum_{i=1}^m Q_c^i} \tag{4}$$

$$\Delta Q_s^i = S_c^i \sum_{i=1}^m \Delta Q_s^i \tag{5}$$

It can be demonstrated that the coefficient of adjustment is constant in this case, and equal to:

$$\alpha^i = 1 - (1 + a) \frac{\sum_{i=1}^m Q_p^i}{\sum_{i=1}^m Q_n^i} \tag{6}$$

Equation (6) shows that the coefficient of adjustment varies inversely to the size of the equiproportional component, and that its value is limited by the overall quota increase. For example, if the capital of IMF doubles, and the equiproportional component is null, the coefficient of adjustment equals 50 per cent.

3. Method B

This method distributes the selective component of the quota increase among a restricted number of previously elected members. The selective increase for elected member i is distributed as a proportion of its share in the total excess of calculated quotas over actual quotas of all the eligible members:

$$Q_n^i = (1 + a) Q_p^i + d(Q_c^i - Q_p^i) \tag{7}$$

where d is the aggregate size of selective increases in relation to the difference between the sum of calculated quotas and the sum of effective quotas. So,

$$d = \frac{\sum_{i=1}^m Q_n^i - (1+a) \sum_{i=1}^m Q_p^i}{\sum_{i=1}^k (Q_c^i - Q_p^i)} \quad (8)$$

with $k < m$. For the $m-k$ non-eligible members, $d = 0$, and

$$Q_n^i = (1+a) Q_p^i \quad (9)$$

Three other techniques were analysed during the Eleventh General Review alternatively to methods A and B.

Appendix 2

AD HOC QUOTA INCREASES

Ad hoc quota increases are determined so that the initial discrepancy between the ratio of the calculated quota share to the effective quota share, and a given pre-fixed value (F) is uniformly reduced for all selected countries. Algebraically, for an eligible member i we have:

$$\frac{S_c^i}{S_n^i} = \frac{S_c^i}{S_p^i} - b \left[\frac{S_c^i}{S_p^i} - F \right] \quad (1)$$

Where S_c^i , S_n^i and S_p^i stand respectively for the shares in the calculated quota, the new quota and the effective quota of member i . S_n^i is, in this case, defined as the quota share of country i , considering only the *ad hoc* increase. Therefore, for a selected country the sum of its actual quota with the *ad hoc* increase (Q_n^i) is:

$$Q_n^i = S_n^i \left[\sum_{all} Q_p^i + A \right] \quad (2)$$

where A indicates the total value of the *ad hoc* increase.

Coefficient b in equation (1) is identical for all selected countries, and is calculated iteratively to ensure that the sum of individual increases match a pre-determined amount. A further restriction imposed on b is that it must not be greater than 1.

In the case of the current review, the *ad hoc* increase is divided into two parts: 9 per cent of the overall increase is distributed by the 37 members

with a calculated quota share not lower than the respective actual quota share ($F=1$), and 1 per cent by the five members with the highest ratios of the calculated quota share to the effective quota share and that simultaneously participate in the NAB — Singapore, Luxemburg, Korea Thailand and Malaysia.

For an *ad hoc* quota increase of SDR 6.5 billion, calculated coefficient b is 0.226. Portugal, which has a calculated quota share to the effective quota share of 1.47, benefits from the first part of the increase.

For Portugal, the variables in equations (1) and (2) take the following values:

$$S_n^p = \frac{S_c^p}{\frac{S_c^p}{S_p^p} - b \left[\frac{S_c^p}{S_p^p} - F \right]} = \frac{0.00560}{\frac{0.00560}{0.00381} - 0.226 \left[\frac{0.00560}{0.00381} - 1 \right]} = 0.004107$$

$$Q_n^p = S_n^p \left[\sum_{all} Q_p^i + A \right] = 0.004107 \times (146226.1 + 5922.16) = 624.8$$

with $A = 146,226.1 \times 0.45 \times 0.09 = 5,922.16$. Since the actual quota of Portugal is SDR 557.6 million, the corresponding *ad hoc* increase amounts to SDR 67.2 million (SDR 624.8 million — SDR 557.6 million).

The values reached for the *ad hoc* increase were adjusted so that these would not imply excessive changes in the shares of new quotas. For Portugal, full adjustment resulted in a SDR 0.8 million downward review of its *ad hoc* increase, which thus amounted to SDR 66.4 million.