Quotas and voting shares in the IMF

The International Monetary Fund (IMF), in addition to its important consultative and surveillance functions, has the task of providing resources to member countries experiencing temporary balance of payments problems. The IMF is structured as a "fund" in that the member countries pay into a pool of financial resources in accordance with predetermined shares of the capital. This pool is then used to extend credits. The members' shares or quotas determine not only their financial contributions but also their voting shares and influence on IMF policy. Given that fact, it is hardly surprising that the methods used for calculating the quotas in the IMF are the subject of constant debate. The methods of calculation used in the past have a number of shortcomings and therefore often lead to an outcome that members do not accept. The present article describes the calculation methods currently in use, points out their inadequacies and discusses the various existing proposals for change.

The functions of the quotas in the IMF

Each member of the IMF has a share in its capital. The capital shares, known as quotas, have several functions. First, the quotas determine the capital subscriptions (payment commitments) of the member countries. Since the Second Amendment of the Articles of Agreement in 1978, members have pro-

Quotas have several functions

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Quota and voting shares in the IMF

in %

Countries/groups of countries [1]	Actual quota shares	Voting shares
Industrial countries (24)	61.40	60.37
Germany	6.12	6.00
France	5.05	4.95
Italy	3.32	3.26
Netherlands	2.43	2.39
Belgium	2.17	2.13
Spain	1.43	1.41
Austria	0.88	0.87
Finland	0.59	0.59
Portugal	0.41	0.41
Ireland	0.39	0.40
Greece	0.39	0.39
Luxembourg	0.13	0.14
Euro-area countries (12)	23.31	22.95
United Kingdom	5.05	4.95
Sweden	1.13	1.11
Denmark	0.77	0.77
EU countries (15)	30.25	29.79
United States	17.47	17.11
Japan	6.26	6.14
Canada	2.99	2.94
Switzerland	1.63	1.60
Other industrial countries (5)	2.80	2.79
Developing countries (160)	38.60	39.63
Africa (51)	5.40	5.88
Asia (32)	10.31	10.47
Europe (30)	8.13	8.30
Middle East (15)	7.28	7.29
Western Hemisphere (32)	7.48	7.69
Total (184 countries)	100.00	100.00

Source: International Monetary Fund; Bundesbank calculations. — **1** Classification in accordance with the IMF's International Financial Statistics.

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vided up to one-quarter of the quota subscription in the form of reserve assets, ie special drawing rights (SDRs)[1] or foreign currencies acceptable to the IMF, and the remainder in their own currency.[2] Second, the quotas determine the extent to which the individual members can access the IMF's financial assistance. Third, quotas determine the distribution of voting rights in the IMF. In addition to a fixed number of basic votes, which is the same for all members, voting power is based on the size of the capital subscriptions (see adjacent table). Last but not least, quotas also determine a member's share in the allocation of SDRs.

Quota payments as a source of refinancing

In addition to the importance of the quotas for the individual IMF members, the absolute size of the combined quotas has a major part to play, reflecting, as it does, the resources pertentially available for IMF credits.[3] For that reason, the overall size of the quotas is a subject of recurring debate about the Fund's appropriate role in overcoming its members' balance of payments problems. At present, the quotas of

Quota volume reviewed regularly

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1 The value of the SDR is determined by the market value of a basket of currencies, comprising fixed amounts of US dollar, euro, Japanese yen and pound sterling. At end-August one SDR was equal to US$1.32751 and €1.35006. See also References on p 77.
2 See also Articles of Agreement of the International Monetary Fund, Article III, Section 3.
3 The IMF can also make use of borrowing arrangements with financially strong members. The potential amount of credit available to the IMF under the General Arrangements to Borrow (GAB) is SDR 17 billion. The total amount of resources available to the IMF under the New Arrangements to Borrow (NAB) and GAB combined is SDR 34 billion.

the 184 members amount to a total of SDR213 billion or US$282 billion. This contrasts with a figure of less than US$10 billion when the IMF was founded in 1944. Under the IMF Articles of Agreement, a general review of the appropriateness of the quotas (and thus of the Fund's financial resources) is to be conducted at intervals of not more than five years. Up to now, these reviews have resulted in the adoption of eight overall quota increases. These increases were intended to bring the IMF's ability to provide conditional liquidity successively into line with the anticipated growing needs of its members for the Fund's financial resources (see adjacent table).

Increasing integration of the world economy …

Since the mid-1970s, the debate on the financial resources of the Fund has been conducted against a backdrop of flexible exchange rates and ever closer real and financial integration in the world economy (in this connection, see also the table on page 66). Over the past 20 years, for example, global trade has increased by 6% in real terms and, at current prices, roughly trebled (calculated on an SDR basis). The expansion in the financial sector has been much sharper still. The advancing liberalisation of capital movements and the associated integration of the financial markets led to explosive growth in cross-border capital transactions in the 1990s.

… insufficient justification for increasing liquidity needs

Given those developments, there are some quite conflicting assessments of IMF liquidity. Those advocating a marked raising of the overall quotas are expecting a sharp increase in the claims made on the Fund by its members. It is argued that the growth in cross-border transactions is linked with increasing

General Reviews of IMF Quotas

SDR billion

Quota review	Board of Governors' resolution adopted	Adopted increase	Size of Fund quotas after increase [1]
No 1	–	–	
No 2	–	–	
1958-59	February and April 1959	5.3	14.6
No 3	–	–	
No 4	March 1965	4.8	20.9
No 5	February 1970	7.4	28.8
No 6	March 1976	9.8	39.0
No 7	December 1978	19.8	59.6
No 8	March 1983	28.2	89.2
No 9	June 1990	45.1	135.2
No 10	–	–	
No 11	January 1998	65.8	212.0

Source: International Monetary Fund. — **1** Maximum quota volume on the basis of the resolution adopted by the IMF's Board of Governors; also influenced by changes outside the general reviews of quotas.

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balance of payments disequilibria, the financing of which is one of the IMF's core tasks. This argument is disputed, however. Those members less convinced of the necessity of an overall quota increase point to the satisfactory liquidity position of the Fund. Despite recently undertaken sizeable lending commitments, Fund liquidity is in better shape than its multi-year average. Additionally, so the line of reasoning continues, comparing the quotas with cross-border financial flows is not a sufficient argument for increasing the quotas, since most of these flows take place between the industrial countries which have not made demands on the IMF's resources for many years. In other words, the emerging markets and developing countries – the "actual credit customers" of the IMF – account

Quotas, IMF loans and the development of the world economy

SDR billion

| Year | IMF quotas [1] | Out-standing IMF loans [2] | For comparison | |
			World trade [3]	International banking business [4]
1950	8.0	0.2	59	.
1960	14.7	0.4	122	.
1970	28.4	3.2	302	141
1980	59.6	11.1	1,500	1,453
1981	60.7	16.4	1,573	1,895
1982	61.1	22.3	1,579	2,154
1983	88.5	32.8	1,627	2,363
1984	89.3	37.7	1,818	2,616
1985	89.3	37.7	1,956	2,728
1986	90.0	35.3	1,875	3,078
1987	90.0	30.6	1,927	3,399
1988	90.0	26.5	2,041	3,888
1989	90.1	24.7	2,307	4,534
1990	91.1	23.3	2,598	4,897
1991	91.2	26.7	2,474	4,807
1992	142.0	27.8	2,711	4,985
1993	144.8	29.2	2,719	5,189
1994	144.9	30.3	3,093	5,460
1995	145.3	41.6	3,454	5,650
1996	145.3	42.1	3,671	5,712
1997	145.3	52.6	4,053	6,706
1998	145.3	66.8	4,049	6,959
1999	210.2	57.5	4,169	7,125
2000	210.7	49.2	4,867	8,142
2001	212.4	59.9	4,860	9,009

Sources: International Monetary Fund (International Financial Statistics); Bank for International Settlements (Quarterly Reviews); Bundesbank calculations. — **1** Overall quota based on actual subscription payments. — **2** Comprises IMF loans disbursed from the General Resources Account (GRA) as well as SAF and ESAF (PRGF) trust fund loans. — **3** Average of world exports and imports; partly estimated in 2001. — **4** Average of foreign assets and liabilities of all banks.

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for no more than a comparatively small share of international payment flows.

Over-abundant Fund liquidity creates wrong incentives

The level of Fund resources that is adequate can be determined only in the light of an appropriate lending policy, and this is precisely the point on which the IMF members continue to hold considerably diverging views. A financially strong IMF may indeed create a certain degree of confidence, but over-abundant liquidity would be likely to create the wrong incentives and thus tend to be counterproductive. This is because the expectation of extensive financial assistance might encourage a risky and destabilising economic policy in the member countries. There is also a risk that the incentive structures on the international capital markets might be distorted to the detriment of private investors' risk-adequate behaviour, thereby making future financial crises more likely. Avoiding over-abundant IMF liquidity is the only way to make market players act in a prudent manner and make them aware of their responsibility to protect themselves, ie by giving credible signals that they cannot place unlimited reliance on the Fund's resources. Apart from this, the demand for Fund resources and the Fund's liquidity needs would be reduced "automatically" given improved crisis prevention.

The calculation methods currently in use

The IMF Articles of Agreement do not indicate how the quotas should be calculated. The initial quotas of the founding members of the IMF were derived from the original 1944 Bretton Woods formula, the aim of which

Original quota formula subject to political constraints

was to determine the overall size of the Fund quotas and the distribution of quotas among the individual members. Each member's quota was determined by the following variables: national income, foreign reserves, external trade and the variability of its exports. These variables were intended to take into account, first, each country's relative economic size and ability to contribute to Fund resources and, second, each member's potential need for Fund credits. The design and specification of the Bretton Woods formula were subject to several predetermined constraints, however. The United States, which as the strongest economy also had the most extensive foreign reserves (in this case, gold), would have the largest IMF quota. The United Kingdom would have the second-largest quota, half as large as that of the United States, and the quotas of other large members should be "reasonably related" to those of the United States and of the United Kingdom. Given these constraints, it is not surprising that the final agreed quotas were in some cases significantly higher or lower than the quotas determined in accordance with the above-mentioned variables (the "calculated" quotas). While the actual US and UK quotas were very close to the results of the formula, other countries' quotas showed a considerable divergence.

Quota calculation methods revised several times

The quota formula was revised for the first time in the early 1960s. This revision aimed, first, to realign actual and calculated quotas following an excessively sharp increase in the calculated quotas. Second, it was designed to produce somewhat higher calculated quotas for smaller member countries. For this pur-

pose, four formulas (derived from the Bretton Woods formula) were adopted for use together with the original formula in determining the quotas. Finally, more wide-ranging data on current payments and current receipts were introduced alongside data on imports and exports. This increased the number of formulas used for calculating the quotas to ten. The outcome of all these changes was that calculating the quotas became a very complex operation. A further revision of the quota formulas as part of the Eighth General Review of Quotas in the early 1980s brought only a small degree of simplification in the calculation method, however. After the 1983 revision, only data on current payments and receipts were used for transactions across national borders, gross domestic product (GDP) replaced national income and reserves were broadened to include SDRs and a number of other items. Additionally, the coefficient of variability was reduced in the four derived formulas in order to limit the mathematical effect of a sharp rise in commodities prices.

In the Eleventh General Review, which was concluded in January 1998, five formulas were applied in total (see overview on page 68). These are combined in a complex operation to give, first, the calculated quotas. Only after a series of extensive adjustments are the actual quotas then produced.

Complex calculation operations

The shortcomings of the current calculation methods

The shortcomings of the described method of calculation are obvious. The formulas used

IMF quota formulas

The original Bretton Woods formula

$CQ = (0.02Y + 0.05R + 0.1M + 0.1V)(1 + X/Y)$

where

CQ = calculated quota

Y = national income in 1940

R = gold and foreign exchange reserves as of 1 July 1943

X = average annual exports (five-year average 1934-38)

M = average annual imports (five-year average 1934-38)

V = maximum fluctuation in exports defined as the difference between the highest and lowest value of exports in 1934-38

Formula system applied since 1983

$Q1 = (0.01Y + 0.025R + 0.05P + 0.2276VC)(1 + C/Y)$
(revised Bretton Woods formula)

$Q2 = (0.0065Y + 0.0205125R + 0.078P + 0.4052VC)(1 + C/Y)$

$Q3 = (0.0045Y + 0.03896768R + 0.07P + 0.76976VC)(1 + C/Y)$

$Q4 = 0.005Y + 0.042280464R + 0.044(P + C) + 0.8352VC$

$Q5 = 0.0045Y + 0.05281008R + 0.039(P + C) + 1.0432VC$

$CQ = $ Max (Q1, mean of the lowest two of Q2, Q3, Q4, Q5)

where

CQ = calculated quota

Y = GDP at current market prices for a recent year

R = 12-month average value of gold and foreign exchange reserves, including SDR holdings and reserve positions in the IMF, for a recent year

P = average annual current payments over a recent five-year period

C = average annual current receipts over a recent five-year period

VC = variability of current receipts, defined as one standard deviation from the centered five-year moving average, from a recent 13-year period

The results of formulas Q2, Q3, Q4 and Q5 are multiplied by an adjustment factor in order to make them comparable. This ensures that, for each formula, the sum of the quota calculations across members equals that derived from the revised Bretton Woods formula. The calculated quota of a member is the higher of the revised Bretton Woods calculation or the average of the lowest two calculations using formulas Q2 to Q5.

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are extremely complex and therefore difficult to understand. In some cases, they are inconsistent. The formulas lack "transparency", not only insofar as they fail to provide information *per se* but also in the sense that they have no explanatory power. The procedure for combining the individual formulas which ultimately produces the calculated quotas is also difficult to understand. Furthermore, the additional calculations demonstrate that the calculated quotas have been construed, from the outset, only as an intermediate step. At all events, in the most recent General Review, the actual quotas were arrived at only after protracted negotiations and *ad hoc* modifications of the specifications. The actual quotas reflect, among other things, the special wishes and concerns of the individual countries. The large "equiproportional component" of the increases, ie increases are distributed in proportion to the members' old quotas, results in a pronounced inertia. The actual quotas are thus very slow in catching up with developments in the world economy. The reason for this is that broad consent is required (an 85% majority). Member countries are reluctant to accept a reduction in their quota shares not only on grounds of prestige but also because of the implications this would have in terms of their voting power and potential access to credit. That is especially the case for countries whose actual quota is higher than the one calculated. The upshot of this is that there continue to be glaring differences between the actual and the calculated quotas – something which applies to both the overall sum of the quotas and the shares of the individual countries (see chart on page 70).

Apart from the cited technical deficiencies and inconsistencies, in many countries there is a considerable degree of political dissatisfaction with the quotas set for them. Many members regard their shares in the Fund as inappropriately low. The emerging market economies with a high rate of growth and an intensive involvement in international current and financial transactions feel that their increased weight in the global economy is not being given adequate consideration. The poorer developing countries are dissatisfied because the quota calculations and the relevant determined quotas have meant that, as a group, their quota share has been falling for some time. In particular, there are doubts as to whether the variables used to calculate the quotas take adequate account of the radical changes which have taken place in the world economy and in the international financial system. As a result, there is a prevailing consensus, albeit for quite different and occasionally conflicting reasons, that the methods of calculating quotas, in their present form, are fraught with major deficiencies. For attaining a higher degree of approval for the setting of the quotas, there are basically two options: either to aim at negotiated solutions from the outset, with the mathematical calculations serving, at most, as a guideline; or to attempt to develop a new and comprehensible quota formula which meets with the broad acceptance of the IMF membership.
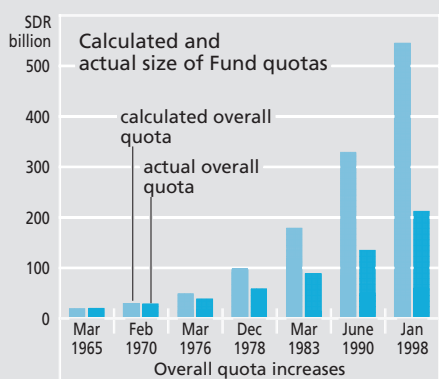
*Persistent
dissatisfaction
with the results*
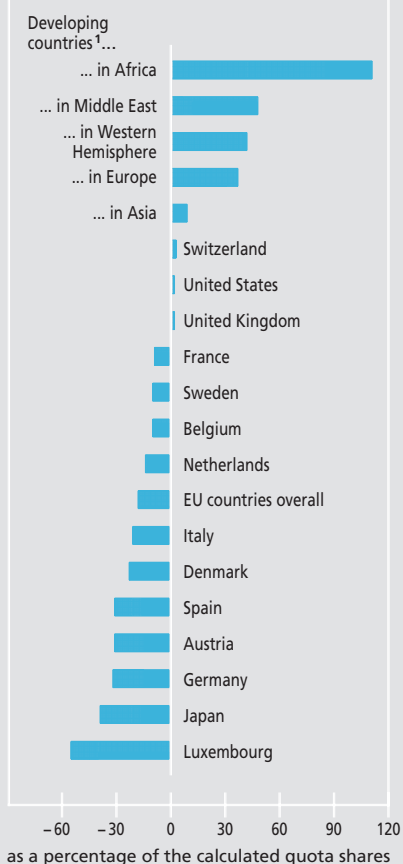
New approaches: the QFRG report

At the World Bank-IMF annual meetings in Hong Kong in 1997, the IMF's ministerial advisory body, the Interim Committee (now the

*Group of
experts to
review the
formulas*

Calculated and actual quotas of the IMF members

Calculated and actual size of Fund quotas

SDR billion

calculated overall quota

actual overall quota

Mar 1965 · Feb 1970 · Mar 1976 · Dec 1978 · Mar 1983 · June 1990 · Jan 1998

Overall quota increases

Difference between actual quota shares and calculated quota shares (As of end-2001)

Developing countries [1]...

... in Africa
... in Middle East
... in Western Hemisphere
... in Europe
... in Asia

Switzerland
United States
United Kingdom
France
Sweden
Belgium
Netherlands
EU countries overall
Italy
Denmark
Spain
Austria
Germany
Japan
Luxembourg

−60 −30 0 30 60 90 120

as a percentage of the calculated quota shares

Source: International Monetary Fund and Bundesbank calculations. — **1** Classification in accordance with the IMF's International Financial Statistics.

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International Monetary and Financial Committee (IMFC)) requested the Executive Board to review the quota formulas.[4] As a first step in the review process, in May 1999 the IMF established an external eight-member panel of experts, chaired by Professor Richard N Cooper of Harvard University (German member: Professor Horst Siebert, President of the Kiel Institute of World Economics). This panel was commissioned to submit an independent report on the adequacy of the quota formulas and to make proposals on a formula which would more closely reflect members' relative position in the world economy as well as their ability to contribute to and (potential) need for the Fund's financial resources. This review was also to take account of the extent to which variables reflecting the increasing globalisation of the markets and other determinants, such as per capita income and population, should be included in the formula. (See the box on page 71 for the terms of reference of the quota formula review.)

Experts seek a transparent and acceptable approach ...

The Quota Formula Review Group (QFRG) first examined the persistent deviations of the actual (negotiated) quotas from (formula-derived) calculated quotas and asked whether the actual quotas display consistent features or follow certain statistically verifiable principles. Accordingly, the panel used a number of econometric approaches in an attempt to establish a correlation between the different variables and the actual quotas. This was designed to throw light on the underlying motives specific to the

4 See Interim Committee Communiqué, "The Committee reiterated its view that the formulas used to calculate quotas should be reviewed by the Board promptly after the completion of the Eleventh General Review", Hong Kong 1997.

negotiations. Although this approach brought a limited amount of success, it did not provide a basis for recommending a definite, transparent and persuasive new formula.

... and recommended a single linear formula

In its final report, the panel recommended a formula containing only two variables: GDP and the variability of current receipts, including the variability of capital flows. The variables are defined on the basis of shares so that the results denote *a priori* the calculated quota shares of each member country.

Executive Board: still no agreement

The recommendations in the report were taken up by the Executive Board as a valuable stimulus to the debate. However, the Directors were unable to bring themselves to make a decision on defining a new formula. There was, for example, some criticism that the proposed formula did not adequately reflect the described multiple functions of the quotas. The Executive Board discussion has since continued. Given the, in some cases, serious differences of opinion that exist, agreement on a new formula is unlikely to be achieved very soon – if at all.

Quota calculation reform: desirable basic principles

Consensus on basic principles desirable

In order to achieve a greater measure of consensus in determining the members' quotas, the following basic principles would have to be applied.

Simple and cogent formula structure

First, the calculation of the quotas should be as transparent and straightforward as possible. A formula can be credible, persuasive

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The mandate of the Quota Formula Review Group

The mandate of the group is intended to ... include the following main areas:

– To review the quota formulas and their working, and to assess their adequacy to help determine members' calculated quotas in the IMF in a manner that reasonably reflects members' relative position in the world economy as well as their relative need for and contributions to the Fund's financial resources, taking into account changes in the functioning of the world economy and the international financial system and in light of the increasing globalization of the markets.

– To propose, as appropriate, changes in the variables and their specification to be used in the formulas.

– To examine other issues directly related to the quota formulas.

... the group is requested ... to review, inter alia, issues that have arisen in recent discussions by the Executive Board. ... In this connection, some Directors have requested the explicit inclusion of capital movements and access to capital markets in the quota formulas, while other Directors have noted that the quota formulas should contain a variable that would indicate a member's per capita income as an indicator of relative wealth, and they also ask whether population should be taken into account, either directly or indirectly.

Issues regarding data have also arisen, in particular, whether purchasing power parity indexes ... should be used to convert nominal GDP expressed in domestic currency into SDRs as an alternative to the current practice of making such conversions at market exchange rates. Directors have also raised questions regarding both the number of quota formulas and whether they should be reduced, and also the possibility of restructuring the formulas so as to simplify them with a view to removing anomalies in their working.

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and acceptable to the vast majority of members only if it is easily understood. In that respect, changing over to a single formula would represent a significant gain in itself.

No set political objectives

Second, the quota formula should not be weighed down with political objectives. Wide acceptance will not be gained by designing the formula so that the existing distribution of quotas (or a different one felt to be desirable) is generated mathematically. Predetermining the envisaged quota shares for certain groups of countries (advanced economies, emerging markets, developing countries or other groupings) would also be a very questionable practice. That would only make it more difficult, if not impossible, to derive an economically feasible formula.

Economic criteria desirable

Third, it is crucial that the quota formula be based on verifiable and clear economic criteria and that it reflect the relative economic position of each member country and be the same for all members. It would be imprudent to select and weight the variables so that certain countries are given preferential treatment. The variables used should also respect the IMF's mandate and its character as a monetary institution geared to the balance of payments.

No wrong incentives

Fourth, it is important that the quota formula should not set the wrong incentives which might conflict with the pursuit of the IMF's principles and sustainable underlying conditions in the world economy. A formula – including, say, the criterion of "vulnerability to crisis" – which ultimately rewards a flawed economic policy with increased voting power

and greater access to credits has to be avoided under all circumstances.

Fund size determined separately

Fifth, it would be advisable not to pursue too many different aims simultaneously with the quota formula. A quota formula should merely determine the percentage shares of the individual members, ie the "correct" structure of the quotas. A separate decision should be made on the absolute size of the Fund.

Calculated quotas should be rapidly implemented

Sixth, it is important that the results of an agreed method of calculation be implemented. In other words, there should not arise a situation where the quota calculations are followed by negotiations after which the quota shares end up being set on a discretionary basis.

The individual variables

GDP should be key variable

As a measure of economic performance, GDP is the best indicator of a country's relative position in the world economy as well as, to a certain extent, its ability to contribute to the Fund's resources. Up to now, domestic currency GDP has invariably been converted at market exchange rates, thus providing a standard of comparability. This approach should be maintained. It adequately reflects the international "market value" of a country's resources from which the member's financial commitments to the IMF have to be met. Converting GDP using purchasing power parities (PPP) – as proposed by many countries with what tend to be weaker currencies – would, by comparison, be less expedient. A PPP-based adjustment of GDP – as commonly performed by the World Bank, for

example – may be a useful method of making cross-country comparisons of real income. It is geared too much to the domestic price level, however, and fails to take account of the actual market conditions for cross-border transactions.

Openness variable desirable as a corrective

With good reason, openness has been included in the quota formula(s) to reflect countries' integration in the world economy. Countries which press ahead with liberalisation and the opening of their borders, thus increasing their influence on the world economy, should thereby earn themselves greater voting power in international monetary policy. To a certain degree, an "openness variable" is an indicator of the extent to which a country that is integrated in the international economy might need Fund resources in the event of external shocks. The use of an openness variable in parallel with domestically oriented GDP is not undisputed, however. Some reference is made to the fact that the openness percentages correlate too closely with the shares of GDP and thus have no additional informative value. In actual fact, large countries do also show sizeable external transactions in most cases, which results in an unmistakable positive correlation. Nevertheless, the differences between the shares produced by the two variables can be quite glaring in specific instances, with smaller countries tending to show a relatively large degree of openness (see also the adjacent table). For that reason, the openness variable, as a corrective to the GDP variable, should not be dispensed with.

Given the rapid pace of integration in the international capital markets and their ever

Shares of the IMF member countries in world output and world trade

in %; 1999

Country/groups of countries	Share in world output	Share in world trade
Industrial countries (24)	76.11	67.20
Germany	6.84	8.92
France	4.64	5.18
Italy	3.79	4.00
Spain	1.93	2.23
Netherlands	1.28	3.43
Belgium	0.80	3.01
Austria	0.67	1.17
Finland	0.42	0.65
Greece	0.41	0.31
Portugal	0.37	0.57
Ireland	0.30	1.03
Luxembourg	0.06	0.16
Euro-area countries (12)	21.51	30.65
United Kingdom	4.67	5.14
Sweden	0.77	1.35
Denmark	0.56	0.81
EU countries (15)	27.52	37.95
United States	29.64	15.41
Japan	14.08	6.42
Canada	2.06	4.02
Switzerland	0.84	1.33
Other industrial countries (5)	1.98	2.06
Developing countries (160)	23.89	32.80
Africa (51)	1.38	1.76
Asia (32)	8.72	17.43
Europe (30)	3.60	5.19
Middle East (15)	2.11	3.02
Western Hemisphere (32)	6.63	5.54
Total (184 countries)	100.00	100.00

Source: International Monetary Fund (International Financial Statistics); World Bank (World Development Indicators); Bundesbank calculations.

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Financial openness should be included as well

greater importance to the world economy, it is also important to include in the formula not only "real openness" (trade in goods) – as at present – but also "financial openness". There is therefore rightly an ongoing discussion on the use of an indicator that accurately describes a country's integration in the international financial markets in addition to the one based on current receipts and payments. The choice of a suitable financial openness variable raises problems, however, as there are considerable variations in the quality and availability of the data (see the "discrepancy studies" cited in the references on page 77). Potential candidates, apart from the capital flows themselves, are the international investment position and investment income.

Statistical short-comings make it more difficult to select a financial component

Capital flows are comparatively volatile in most cases and are therefore no more than an inadequate reflection of integration in the international financial system. Moreover, the data on capital flows are incomplete. By comparison, the foreign assets and liabilities shown in the international investment position would be a better indicator of a country's financial integration in the world economy. However, only a few countries report on international investment positions, even though members are actually required to provide such information to the IMF. Owing to the lack of such data, the use of this variable would therefore also be fraught with difficulties. Investment income streams could be used as an indicator of financial integration, however. These reflect, as it were, the earnings side of external assets. It is true that this investment income also suffers from significant statistical inadequacies, but it has one

advantage in that such data are available for almost every country. No decision has been made yet in this matter and, quite apart from that, the weighting attached to financial openness in the calculations would still have to be determined.

Also under discussion is the inclusion in the quota formula of a component to model the variability of international receipts – as an indicator of a member's vulnerability to crisis and thus of its potential need for the Fund's resources. Such a variable is designed to capture the potential short-term margin of fluctuation in both current account receipts and capital inflows. This might set the wrong incentives, however, since a "vulnerability variable" of this kind would "reward" (with a higher quota and greater voting power) those countries whose external "vulnerability" is due to weaknesses in their own domestic economic policy. Moreover, the vulnerability figures for some countries do not appear to be particularly consistent. Some major industrial countries, for example, displayed a "variability" in their balance of payments and capital inflows over the past few years which was higher than that of a number of crisis countries. Fluctuations in balance of payments transactions are thus only of limited use as an indicator of a country's external vulnerability.

Variable for vulnerability to crisis creates wrong incentives

From a present-day perspective, the case for including foreign reserves when calculating the quotas appears to be less persuasive than it was at the time the IMF was established. In a world of flexible exchange rates and liberalised capital markets, large reserves of foreign currency are now much less of a material ne-

Foreign reserves not absolutely essential as a variable

cessity and have lost much of their indicator quality. Large reserves are not always a sign of strength and comparatively small reserves are not necessarily a sign of weakness. Even so, for countries whose access to the international capital market is not assured on a sustained basis, reserves may still be of use, say, for the steady servicing of foreign debt. At least, the inclusion of foreign reserves in the quota formula does not – in contrast to variability – generate any negative incentive effects.

Non-economic variables should be rejected

By contrast, calls for non-economic variables to be introduced into the quota formula cannot be reconciled with the basic monetary and balance of payments objectives for which the IMF was established. Such non-economic variables would include "population" and "poverty indices". These are often brought into the discussion with a view to increasing the voting shares and credit access limits of the poorer developing countries. The IMF's mandate to promote countries' external stability through economic policy surveillance and to make resources temporarily available to its members facing balance of payments problems leaves no scope for such variables. The primary objective of the quota formula must be to reflect a member country's relative position in the world economy – not its level of prosperity: this is more a target variable of development policy and thus a matter for the World Bank and other development institutions. Moreover, contrary to the intention, the inclusion of non-economic variables might tend to weaken, rather than strengthen, the borrowing countries' potential access to resources. That is because any weakening

of the Fund's ability to provide financial assistance stemming from a reduction in the lending countries' share of the quotas would ultimately be to the detriment of the debtor countries, which would have fewer total resources available to them.

Averaging, share structure and weights

An appropriate choice of variables, by itself, does not mean that all the problems are solved. A decision then has to be made on how the variables should be "processed". For example, the choice of the base period is a matter of some relevance. Using only the most recent year means that current developments can be taken into account with a short time lag, but major cyclical fluctuations may also occur. Calculating an average over a period of, say, three to five years might counter this effect without causing too much of a delay in adjusting the calculated quotas to the latest economic developments.

Base period important for adjustment dynamics

Although the members' shares vary in relation to each variable (see table on page 76), this share structure should not in itself constitute a basis for the choice and weights of the variables. In particular, what is to be resisted is any attempt to set the weighting in a way that gives certain (groups of) countries *a priori* preferential treatment or, in fact, achieves a given predetermined outcome. Instead, the weighting structure should be adequately plausible and thus persuasive. The three variables, GDP, "real openness" and "financial openness", could each be given a weighting of one-third, for instance. Another

Weighting of the formulas should be plausible

Structural data on the quota formula

Shares in %

Country/group of countries	Results of the Eleventh General Review of Quotas		Discussed variables						
	Share on the basis of …		GDP [1]						
	calcu-lated quotas	actual quotas	at market prices	at pur-chasing power parities	Open-ness [2]	Invest-ment income [3]	Variabil-ity [4]	Official re-serves [5]	Popula-tion
Germany	9.0	6.1	7.1	4.7	8.9	6.9	7.5	4.2	1.5
EU countries (15)	37.1	30.3	28.2	20.1	40.8	43.8	33.4	20.5	23.6
United States	17.3	17.5	29.5	21.5	15.3	20.8	15.4	4.8	4.7
Industrial countries	70.3	61.4	76.9	53.4	71.4	87.0	59.4	47.7	38.5
Developing countries	24.4	31.0	20.3	40.6	24.5	11.6	30.9	47.1	56.3
Transition economies	5.3	7.6	2.7	6.0	4.0	1.4	9.7	5.2	5.2
All countries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: International Monetary Fund; Bundesbank calculations. — **1** Average of the years 1997-99. — **2** Sum of current receipts and payments. — **3** Sum of receipts and payments. — **4** Variability of current receipts and net capital inflows; standard deviation from a centred three-year trend during the 1987-99 period. — **5** Average of the end-of-month levels in 1999.

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possibility would be 50% for GDP and 50% for openness to the world economy.

The role of the basic votes

Increase in the number of basic votes also under discussion

In the debate on quotas, there are occasionally calls for raising the number of basic votes in order to increase their relative importance for the voting power of individual countries. Since the IMF has been in existence, each member has had 250 basic votes, independently of its quota, plus one additional vote for every SDR100,000 of its quota. This arrangement was agreed in Bretton Woods and can be altered only by an amendment of the IMF Articles of Agreement, which requires an 85% majority. In effect, the "basic vote" instrument gives greater voting power to small-

er countries with a lower-than-average quota than would be the case if voting power were distributed strictly in line with their quota shares. The reverse is true of countries (large economies) with a higher-than-average quota. The ratio of basic votes to overall votes, which was 11.3% in 1945, is currently about 2%. The decline in the weight of the basic votes is due to the quota increases made since the IMF was founded. The fact of their declining weight alone cannot be cited as justification for an increase in the number of basic votes, however. In a financial institution which obtains its liquidity from the contributions of its members, a distribution of voting power determined largely by the quotas is probably the best way of ensuring efficiency.

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