
THE NEED FOR INTERNATIONAL RESERVES

UNITED STATES TREASURY DEPARTMENT

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GEORGE H. WILLIS
FRED L. SPRINGBORN

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I Introduction

This paper presents a statistical analysis of the past trends in the supply of and the demand for international reserves, together with some comments on the probable effects of a slowdown in the rate of new reserve creation. It does not attempt to present an argument as to what the theoretical optimum secular rate of reserve creation should be for the world as a whole. It does suggest that changes in the rate of growth in reserves, either for the world as a whole, for the world excluding the United States, or for the United States alone, are likely to have important effects on the policies of major countries with respect to selective policies of restraint affecting international trade and international investment.

That is, the approach is empirical, pragmatic, and statistical, rather than an attempt at building up a logical structure based upon certain given objectives. It is hoped, however, that the data presented and the commentary given on the data will throw some additional light on the fundamental question: At what rate should the world's reserves grow?

For the analysis, it was found useful to bring out the substantial difference in the trend of reserves for the world as a whole and for the world excluding the United States, because the United States has lost reserves while the rest of the world has gained them at a substantial rate. One result of this division is that there has been a considerably closer correspondence between the slopes of the trend lines for growth

in imports and growth in reserves for the world excluding the United States than for the world including the United States (see charts I and II). Another point that emerges is the probability that the downtrend in U.S. reserves will be halted or reversed, and the past divergent trends of declining U.S. reserves and rising imports brought closer together.

An attempt has also been made to ascertain what portion of the aggregate growth of reserves in countries gaining reserves has been covered by losses of reserves, and what portion has been covered by newly created reserves. For this purpose, also, it is necessary to look at what has happened to the rest of the world, excluding the United States. There is, of course, an interaction between the amount of reserves created and the total aggregate reserve gains. Nevertheless, it is quite interesting that, in the period 1961-66, at least half of the gross reserve gains of those countries gaining reserves was accounted for by new reserve creation. The point is that the secular trend of reserve growth has been as important or more important quantitatively than reserves gained at the expense of non-gold-producing deficit countries. A question suggested by the data is whether, as a practical matter, the world can operate a reasonably unrestricted system of trade and payments with a smaller ratio of new reserve creation to aggregate surpluses. That is, can we really expect the adjustment process to function smoothly to reduce this ratio, or would the consequences be

a shrinkage in trade and investment under policies of restraint, in a vain attempt to reduce the ratio? Deeper historical analysis might throw further light on this question.

A third point as to method may also be worthy of mention. In the tables covering the 16-year span from the end of 1950 through 1966, there has been no attempt to pay particular attention to the components of reserve increases, although the trends in the growth of the major reserve forms may be noted in chart III. This is a matter of design. Over the broad sweep of 16 years, the paper has concerned itself with the relationship of the trend of aggregate reserves to trade and to domestic liquidity, rather than with an examination of the composition of reserve growth.

It may be argued that the demand for reserves is not the same as the need for reserves, and that the paper should draw a clearer distinction between these concepts. Presumably this would imply that need must be tested against more clearly defined subjective value judgments. The authors basically maintain the approach that, in the absence of some clear reason for concluding otherwise, there will be a secular demand

for new reserves that will range within somewhat the same relationship to the rate of growth of world trade as in the past, and that reserves will probably be created to meet this demand. They have not tried to refine this concept by a definition of need that goes beyond this.

It may be observed that in attempting to analyze various data on past financial trends, especially in a first approach such as this, causal relationships are difficult to establish. One cannot expect, with a satisfactory degree of confidence, that relationships apparent in past periods will accurately and meaningfully hold for future periods.

This paper has three sections, following the summary and conclusions. One deals with the supply of reserves since 1950. Next there is an attempt to probe further the demand for reserves, in the quantitative sense, exploring past relationships with trade and with the aggregate surpluses. In a very rough way, some illustrative projections are ventured of the demand for reserves in 1970 and 1975. Finally, some tentative suggestions with respect to qualitative criteria are offered.

II Summary and Conclusions

During the past 16 years, the fact that world imports have grown three times as fast as global reserves has been made possible to a large extent by the willingness of the United States to experience a decline in its reserves while its imports grew, as did those of other countries. For the rest of the world, import trade has grown at the rate of 7.8 percent per annum and reserves at the rate of 5.4 percent per annum. While there have been wide short-term variations in the relationship between these two growth curves, there is no period of several years in the time interval examined when the world, excluding the United States, has seen its reserves grow at less than half the rate of growth in its imports.

The substantial decline in U.S. reserves also explains the fact that global reserves grew at an annual rate of 2.4 percent, while outside the United States the corresponding figure was much higher, at 5.4 percent. Even at this rate, the more rapid growth in imports has meant that outside the United States reserves are equal to only about 35 percent of annual imports, and thus cover only about 4 months' imports.

Moreover, for the world as a whole, reserve growth slowed in 1965-66, and the fact that there was any growth at all was due entirely to special nontraditional factors, as gold and foreign exchange reserves actually declined; drawings on the IMF and the monetization of securities by the United Kingdom provided temporary, one-shot, additions to global reserves.

Considering only the rest of the world, since the U.S. deficit cannot create reserves for the United States but only for the rest of the world, the U.S. international accounts provided 73 percent of reserve growth in 1961-64, and only 34 percent in 1965-66.

This calls attention to the dwindling role of new monetary gold supplies in providing for world reserve growth, and to the extent to which, prior to 1965, the world had become dependent upon an expansion of official dollar liabilities and U.S. sales of gold to provide the largest share of reserve growth outside the United States. With a general realization that continuation of the process of attenuating the U.S. reserve position to feed reserves to the rest of the world is no longer wise, and that the reserves of the United States should also now begin to grow, there is a clear need for a supplementary form of reserve asset.

The charge is sometimes made that reserves have grown too fast in some areas and have led to domestic credit expansion. It can be shown, however, that in 1961-65, even within the European Economic Community, domestic credit grew at a rate almost double that of the rising level of reserves.

In exploring the demand for reserves, particular attention is given to the relationship of the aggregate imbalances in world payments to the rate of growth in reserves. This analysis is related to the basic idea that surplus imbalances have always tended to exceed deficit imbalances,

for the world as a whole or for a part of the world, with imbalances measured by reserve changes. The difference between the two represents the growth of reserves for the world as a whole, or for the area concerned. The classic example of such a difference is new monetary gold supplies.

Aggregate reserve surpluses averaged 3.2 percent of world imports in 1954–66, and fell to 1.5 percent in 1966. In 1927 and 1928, the corresponding ratios are estimated at 2.2 percent and 7.4 percent. Looking ahead, potential reserve surpluses might be \$5 billion in 1970 at 2 percent of world trade (assumed to reach \$250 billion in 1970) or \$7.5 billion at 3 percent of world trade. Corresponding figures are \$7.5 billion to \$10.5 billion in 1975.

The next step was to make some rough assumption as to what portion of these reserve surpluses might appropriately be covered by new reserves, rather than by reducing someone else's reserves. Aggregate reserve losses ranged between 1.7 and 3.7 percent of world imports in 1954–60, and between 45 and 108 percent of aggregate reserve gains. The unweighted average annual rate was 71 percent of gross gains. For the 7-year period as a whole, the corresponding figure was 69 percent; put another way, new reserve creation provided 31 percent of the aggregate reserve gains in 1954–60.

Since 1960 reserve losses have fallen both absolutely and particularly in relation to world imports and to aggregate reserve gains. New reserves were created up to 47 percent of the reserve gains in 1961–66. The pattern of 1961–66 may be useful as an indication as to the future relationship of reserve gains and reserve losses. It is true that this ratio has been accompanied by some restraint on capital transactions, but probably a continuation of a higher rate of reserve losses would have intensified the pressures for such restraints.

If it is reasonable to assume that at least half of the reserve gains should be covered by reserve losses, a very rough guide emerges to the total new reserves of all types that might be desirable: \$2.5–\$3.75 billion in 1970 and \$3.75–\$5.25 billion in 1975.

At the close of this section, it is suggested that the 1965–66 situation is not a stable or

continuing one, and that new reserves in some form may be needed at the rate of at least 1 percent of world imports, even with considerable selective restraints on capital movements. It seems doubtful that the adjustment process could compress aggregate reserve surpluses below \$4 billion, or 2 percent of world imports (now \$200 billion per annum). Without an offset to this of at least half the amount through new reserve creation, rather than fully through drains in the reserves of other countries, it may be hard to avoid a rather serious cumulative spiral of restrictive measures affecting international transactions.

There would therefore seem to be risks in delaying a plan for collective reserve creation—risks that the pressure of events will fill the vacuum in a less collective way, but perhaps not in sufficient amounts or with the optimum timing.

Section V offers a few suggestions as to qualitative criteria that might be considered. In relating qualitative criteria to the concept that reserves should be created for 5-year periods, the secular concept, there should be less concern with cyclical or short-period factors, than with criteria that relate to longer term trends. Moreover, the bearing of the question of timing is not entirely clear when applied to a continuing long-term problem.

However, some criteria are suggested that might apply to the first activation. One of these is a tapering off in the rate of growth in international trade. Moves to tighten restraints on capital and current international transactions are other indications that new reserves might provide a useful antidote to these pressures. Maintenance of excessively high interest rates in important sectors of the world's economy, after allowance for price trends and cost-of-living increases, might also suggest the existence of reserve shortages and of competitive efforts to attract and hold reserves.

As to more sensitive early indicators, one must probably look to deficit countries, since this is where the first indications of reserve shortage appear. Unfortunately, it is difficult to disentangle the impact of a general world shortage of reserves from individual balance-of-pay-

ments problems of particular countries. Perhaps some guidance could, however, be found by observing whether restraints on foreign assistance programs and private capital movements are emerging in such countries, or whether there are indications of competitive interest rate rises. The growing use of credit facilities instead of reserves might also provide a signal. All of these early indicators seem difficult to evaluate with precision. Fortunately, a secular approach does not call for excessively fine tuning, in the sense that the credit facilities provide some

short-term flexibility to the system in both directions, by enlarging reserves temporarily when granted and shrinking them when repayments are made. Perhaps the main task of reserve creation is to find the most satisfactory rate of secular advance rather than to overemphasize timing judgments. At the same time, a mounting list of qualitative criteria pointing to global reserve shortage would accentuate the need to be prepared with an adequate collective plan for reserve creation and to activate it in good time.

III The Supply of Reserves

International reserves consist of the aggregate stocks of assets held by the Nations' monetary authorities which are available unconditionally to settle imbalances arising from foreign trade and other international transactions. International reserves comprise three forms of assets, as generally agreed, and as compiled by the International Monetary Fund and published monthly in "International Financial Statistics." At the end of 1966, the world total of reserve assets reported was as follows, in millions of dollars equivalent:

Monetary gold	40, 905
Official foreign exchange holdings.....	24, 275
Reserve positions of the International Monetary Fund	6, 331
<hr/>	
Total	¹ 71, 510

¹ Partly estimated by IMF; figure revised since compilation of tables attached to this study.

Foreign exchange reserves consist largely of dollars and sterling, held by countries other than the reserve centers. Reserve positions in the Fund are the amounts that a member of the Fund, when experiencing a balance-of-payments deficit, may draw essentially automatically under the Fund's gold tranche policy.

What are the salient facts regarding the post-war supply of reserves? How has the rate of increase in reserves compared with the advance of other pertinent economic and monetary factors? What can be said about the future supply of traditional reserve assets? These are some of the questions to be touched upon in this section. The

major sources of reserve creation in the period 1961-66 will also be analyzed.

Reserve Trends and Other Economic Indicators

In the 16 years 1951-66, world reserves have grown at an average annual rate of 2.4 percent (table 1). The growth rate has not been steady from year to year. There was a small contraction of reserves in 1959, largely due to a redefinition of the foreign exchange component for some countries in connection with the liquidation of the European Payments Union. And in 1960 and 1963 the annual increase was unusually high. In 1965 and 1966, global reserve growth was substantially below the average, at 2 percent and 1.7 percent respectively. Of the total growth in world reserves amounting to \$22.3 billion, the foreign exchange component increased by \$10.5 billion, gold by \$7.1 billion, and reserve positions in the IMF by \$4.7 billion.

World trade has expanded at a much more rapid rate than that shown by reserves. Reserves as a percent of annual value of imports was about 62 percent in 1951; after increasing slightly in 1954 the ratio declined steadily through 1966 when it reached a point at which reserves covered only little more than the value of 4 months' imports.

These relationships were affected, of course, by the fact that the United States experienced a decline in its reserves almost continuously throughout this period. Thus, excluding data

for the United States the average rate of growth in reserves was considerably higher, at 5.4 percent, and the year-to-year variations somewhat wider. Nevertheless, the 1965 and 1966 increases were also below average. The relationship of reserve growth to imports, excluding the United States, has been much closer at about two to three, but it may be seen that for the developed countries as well as less developed countries generally the ratio of reserves to imports has declined in similar fashion (tables 2 and 3).

Regionally, reserve gains since 1950 have been concentrated heavily in the developed countries, excluding the two reserve centers (table 4). Other areas have generally experienced only moderate changes for most periods, although during the past 4 years less developed countries outside Africa have shown substantial gains.

In 1950, the United States held about one-half the total of reported world reserves. During the following 8 years, total reserves increased by more than \$10 billion, or at an annual compounded rate of about 2.1 percent. U.S. reserves declined by nearly \$2 billion, and at the end of 1958 the U.S. share of world reserves had declined to 40 percent. Nearly all of the increases accrued to European industrial countries, which added \$6 billion to gold and \$5 billion to their foreign exchange reserves.

Since 1958, the U.S. share of world reserves has dropped further to 21 percent, as U.S. reserves declined by over \$7 billion while the reserves of other countries increased by \$21 billion. Globally, total reserves increased at a compounded annual rate of 2.7 percent during this period. In contrast to the earlier period, less developed countries as a group added to their reserves. But, again, the industrial countries other than the reserve centers registered the major gains. The gold component in world reserves increased by less than \$3 billion while foreign exchange holdings expanded by over \$6 billion. Reserve positions in the Fund accounted for \$4 billion of the increase (table 5).

A statistical tabulation made for this paper compares the evolution of reserves with that of domestic credit and liquidity. Several indications emerge (table 6), showing the annual compounded rates of increase in the U.S. dollar

value of reserves and domestic credit, in the period from 1950 to 1960, and from 1960 to 1965. For the reserve centers, the United States and the United Kingdom, domestic credit has expanded substantially less than in other developed countries, while reserves were growing only slowly or declining. In the rest of the world, domestic credit has been growing at a substantially more rapid rate than reserves—almost twice as fast in 1960–65, and at a rate two-thirds higher in 1950–60. Only in the EEC countries in 1950–60 was the pace of growth of domestic credit held below the very steep rise in reserves which occurred during that period. However, domestic credit continued to expand in the EEC at 13 percent a year in the period 1960–65, or at almost exactly the same rate as the earlier period, although reserves were growing at less than half the annual rate of increase of the previous 10-year period. This indicates that, generally speaking, in those cases where a rapid rate of increase in domestic liquidity has been associated with inflationary conditions, the main monetary factor has been a sharp increase in domestic credit. On the other hand, the data in the table do not permit any judgment as to whether the supply of domestic credit in nonreserve countries would be adequate if reserve growth should cease or be reversed.

Major Sources of Growth in World Reserves

Milton Gilbert¹ termed 1960 the “watershed” year, following which the international monetary system became different. He enumerated a number of ways in which reserves were deliberately created since then by monetary authorities, indicating that the need for reserves was not being met by new accumulations of gold or dollars. He concludes that either no shortage of reserves occurred because these actions were taken, or because there was a shortage, it was necessary to take various actions.

In order to measure the effects of some of these actions, an analysis has been made of the major sources of reserve creation during 1961–66. This study shows clearly the marked shift

¹ “International Liquidity: The Present Situation,” statement at Bologna Center Conference, January 1967.

from reliance on the traditional sources, in 1961-64, to nontraditional and transitory sources in 1965-66 when the traditional sources became negative (table 7).

New gold entering into monetary stocks and foreign exchange reserves arising from settlement of payments imbalances may be termed the "traditional" ways in which world reserves are created. There are other ways, but these tend to be transitory and to lead to subsequent destruction of reserves. The most important of these is the net utilization of IMF credit tranches, which is a measure of the reserves generated by IMF operations in the form of super gold tranche positions including claims under the General Arrangements to Borrow. The other major ways in which reserves have been created recently have added to reserve currency balances. Since 1961 the United States has acquired and held foreign currency reserves, primarily through swap operation. Under some of these swap operations dollars have been generated which have added to the official holdings of other countries. Sufficient data are not available to measure the probable extent to which reserves might have been generated through comparable operations to which the United States was not a party. Finally, in 1966 the Bank of England transferred into its reserves the proceeds of certain sales of securities, thereby creating additional reserve assets.

Whereas during 1961-64 traditional sources of reserves accounted for 80 percent of the total growth in world reserves, during 1965-66 these sources substantially contracted world reserves. During the earlier period, world reserves grew by \$8 billion. Additions to foreign exchange not traceable to special operations accounted for \$4 billion and new gold supplies for \$2.5 billion. Of the remainder, most was accounted for by IMF operations, in particular by the large drawings in 1961. The combined net effect of U.S. short-term bilateral operations during this period added about \$0.6 billion to world reserves.

In the past 2 years world reserves expanded by about \$2.6 billion, well below the previous rate. However, the identifiable nontraditional sources generated new reserves amounting to over \$3.6 billion. In 1965 (as in 1961) there

was a substantial net expansion in the use of IMF credit tranches. This reflected a large United Kingdom drawing, the proceeds of which were used in large part to repay short-term credit facilities, which in turn had initially caused a growth in reserves. Additional operations to which the United States was a party further expanded both U.S. foreign exchange reserves and dollars held by other authorities, in 1965 and again in 1966. In 1966 the placement of the proceeds of security sales into reserves by the United Kingdom represented the largest single identifiable source of reserve growth. Monetary gold stocks declined and foreign exchange reserves grew by an amount smaller than that generated by special transactions. The traditional sources of reserve growth, then, caused a \$1 billion contraction of world reserves during 1965-66.

The U.S. balance of payments had no significant net effect on the reserve growth of other countries in the aggregate in 1966 (table 8). U.S. gold sales and the transfer to other countries of reserve positions in the IMF resulting from U.S. drawings were roughly offset by a decline in dollar reserves as reflected in U.S. liability data. During 1961-64 these factors accounted for nearly three-quarters of reserve growth outside the United States.

For the immediate future the outlook is for a reversal of nontraditional factors, as the United Kingdom continues to retire short-term obligations and repays Fund drawings. In 1967 alone, the impact of these operations could be substantial. Thus, during the interim period before the activation of reserve creation under a new plan, reserves could decline, except to the extent that any remaining flexibility in the traditional sources permits some growth to take place.

Prospects are that future monetary gold supplies will continue to be far from adequate to meet reserve needs. Gold reserves declined in 1966. The demand for gold for industrial and other nonmonetary purposes has expanded rapidly and it is by no means certain that new supplies will increase substantially above present levels. The enactment of timely and sound arrangements for deliberate reserve creation will have a favorable effect on the amount of gold that will be available for monetary

purposes. This effect will not occur, however, until the machinery for creating new reserves has been put in place and has been proven to be fully viable. As for the other traditional source of reserve growth, there may be some

limited flexibility in traditional sources of reserves in foreign exchange, but this cannot go far without compromising the desired improvement in the gross reserve position of the United States.

IV The Demand for Reserves

Reasons for Rising Reserves in Surplus Countries

When reserves change hands, they move to countries in surplus. The accumulation of reserves in surplus countries may be in response to a continuing conscious desire to build up reserves, as was the case in Europe in the 1950's. Or it may result from the application of policy measures to check declines in reserves in bad times, while permitting reserves to rise in good times. A third possibility is that measures to restrain domestic inflationary pressures lead to the accumulation of reserves as a consequence or even almost as a byproduct, either by enlarging a current account surplus or by attracting capital. Another possibility is that the area in surplus does not have a sufficiently wide spectrum of institutional arrangements to supply capital, or has so many restraints on competition in meeting local capital needs, that entrepreneurs and others seeking to raise capital find it cheaper to do so abroad, lending to an influx of capital even though reserves are rising. Still other explanations for rising reserves can be found, such as movements of speculative or refugee capital, as in the case of the U.S. receipts of reserves in 1936-41. Or one may cite oil-producing countries, or other developing countries that experience gains from rising prices of their products, where there is a lag between the rising international income and the spending of these reserves. Finally, a marked tendency for rising reserves to be associated with defense outlays in foreign areas was noted. In this category, India during World War II, Germany, and, more recently, some countries in Southeast Asia may be cited.

Very few countries have permitted their re-

serves to fall substantially without taking policy measures to arrest the decline. That is, there are firm indications that countries readily become accustomed to a higher absolute level of reserves, and take action to avoid a drop to earlier levels. This is entirely reasonable, since they are conscious that their imports and other international transactions, as well as their economies and domestic money supplies, are growing steadily. While few countries appear to have established clear-cut quantitative growth targets for their reserves, they generally welcome a rise in reserves and try to avoid declines.

There have been two major exceptions to this latter statement. The first is the United States which until recently permitted very large reductions in both its gross reserves and in its net reserve position. The other instance was the spending by some countries of reserves that were accumulated during World War II.

Looking ahead from the year 1966, the position is well summarized in paragraph 17 of the report of Working Party Three on the Balance of Payments Adjustment Process:²

In the course of preparing this report countries were invited to submit memoranda describing the configuration of their balance of payments which they considered appropriate over a run of years. A major element in countries' balance-of-payments aims is the change in their official reserves which they regard as desirable or tolerable. *It is recognized that over the short*

² "The Balance of Payments Adjustment Process," a report by Working Party No. 3 of the Economic Policy Committee of the Organization for Economic Cooperation and Development, August 1966.

*run reasonable variations in reserves and payments positions are inevitable, and need not be regarded as inconsistent with equilibrium. Over the longer run, however, while some countries are not at present seeking an increase in their reserves, it is clear that most countries wish to see a secular rise in their reserves. No country is prepared to have its reserves decrease over the longer run.*³

The annual percentage rate of increase in world reserves, both for the world as a whole and for the world outside the United States, has been noted. During the 16 years 1951-66, the annual average, as well as the compounded rate of growth, was 2.4 percent for the world as a whole. For the world excluding the United States, the corresponding rate was 5.4 percent. Reference has also been made to a comparison of the trends of world reserves and world trade.

Even outside the United States, reserves have been slowly falling in recent years, in terms of the coverage of annual imports. At present, outside the United States, published reserves cover about 4 months' imports. The most striking feature is, of course, the very steep decline in U.S. reserves.

Aggregate Reserve Gains, 1954-66

The various factors mentioned above have been associated with the existence of substantial annual totals of aggregate surpluses, frequently referred to as "world imbalances." Table 9 shows that during 1954-66, the aggregate surpluses of all the surplus countries in the world, as measured by the aggregate positive increases in gross reserves, reported in "International Financial Statistics," averaged about \$4 billion a year. This amounts to about 3 percent of the average value of world imports (c.i.f.). These figures are broken down geographically in table 10.

During 1954-59, when global surpluses were about \$3.5 billion a year and new monetary gold supplies were about \$650 million, about 19 percent of the aggregate could be covered without corresponding deficits in other countries, by this new gold. Since 1959, the proportion of new

³ *Italic supplied.*

monetary gold supplies to gross surpluses has ranged between 5 and 20 percent, averaging 11 percent in 1960-65, and last year became slightly negative.

The United States has been endeavoring for some years to reduce the drain on its reserves, and lowered its contribution to the reserves of other countries from an average of \$2 billion in 1961-64 to \$1.5 billion in 1965 and to zero in 1966. (See table 8.) Financing the United Kingdom's deficit provided a large part of the reserve increases for others in 1965-66.

Aggregate Reserve Gains and Aggregate Reserve Losses

Aggregate reserve gains can take place in four forms: (1) gains that are offset by gross reserve losses in other nonreserve countries; (2) gains that are offset by a change in the net reserve position of reserve centers; (3) gains that result from new monetary gold supplies for the world as a whole; and (4) gains that result from a multilateral institutional method of reserve creation. Depending upon the circumstances of the time, these four methods may differ more or less in their economic and financial impacts.

Reserve losses under some conditions can affect general domestic policies and growth rates. More frequently, reserve losses are likely to be associated with selective restraints on international trade and investment transactions. Reserve gains work in the opposite direction, though the effects may be slower and less uniform. Surplus countries may not wish to expand their growth rates because of inflationary fears, and may find resistance to liberalizing restraints on imports or capital transactions, no longer needed to protect reserves. On the whole, it should be expected that reserve losses imply a tendency to a deliberalization of international payments through selective restraints, that are not fully offset by liberalization resulting from reserve gains.

Table 11 presents some historical data on gross reserve losses. For the world as a whole aggregate reserve losses were highest in relation to world imports in 1958-60. Since then they have been brought down, partly through

selective restraints applied by the United States and the United Kingdom. It is reasonable to assume that continuing reserve losses by reserve centers could result in pressure for tightening of selective restraints.

Reserve creation in the form of monetary gold from new production reduces reserve losses mainly for South Africa, the Soviet Union, and Canada as the principal gold producers. Dishoarded gold would ease the reserve position of the monetary authorities that received more gold than they paid out in other reserves.

Reserve creation by international action can add to the reserves of all countries, whether in deficit or surplus, by moderate amounts. It can therefore exert a check on the growing pressure for selective deliberalization of world trade and payments. The moderate amounts involved are less likely to affect domestic growth policies in major countries. In surplus countries, the new reserves accrue in the first instance to the monetary authorities and exert no impact as a domestic expansionary pressure unless the monetary authorities decide to follow a policy of monetary ease. Hence, reserve creation in this form is subject to less danger of inflation than a corresponding amount of reserve growth in any of the other forms, including gold. The other types of reserve growth add to the income stream and, unless offset by the authorities, to the money supply of the surplus country, whereas with deliberate reserve creation, this is true only of the reserves gained from other countries.

Insofar as a desire to protect reserves, in both deficit and surplus countries, leads to higher interest rates, there is a clear possibility of general worldwide escalation of interest rates as countries compete to hold or enlarge reserves. A secular growth in reserves can help to moderate such competitive actions, but by itself may not suffice to avoid the susceptibility of the system to such pressures. They may become especially pronounced if major markets are partially shut off as capital exporters or become capital importers.

There has been some change in the ratio of gross reserve gains to gross reserve losses in 1961-66, as compared with 1954-60. In the earlier period, roughly 70 percent of global

reserve gains were offset by reserve losses. In this period the United States permitted some redistribution of its large reserves without reacting strongly to reserve losses. In 1961-66 about one-half the gains were balanced by losses. Presumably this changing ratio reflects the various measures of monetary cooperation which have had the effect of reducing the relative size of reserve losses. The average annual additions to reserves have risen in absolute terms, while the absolute amount of reserve losses has remained relatively constant, or, more recently, declined.

It seems doubtful that the world can return to the situation of the late 1950's, when reserve losses were unusually high, relative both to world imports and to reserve gains. This was made possible by the willingness of the United States to lose reserves without taking strong action to reduce its losses.

However, reserve losses, even at 1 percent to 1½ percent of world imports, can lead to further deliberalization of world payments if they are persistent and if they apply to major countries. An infusion of new reserves could reduce this percentage of losses still further, while at the same time enlarging the level of aggregate reserve gains. A widening of this margin between reserve losses and gains through reserve creation measures, in a sense, the liberalizing effect on world trade and payments, in both deficit and surplus countries. During the years 1954-60, this margin was 1.2 percent of world imports; in 1961-66, the percentage remained the same.⁴ However, it has been lower than this in 1965 and 1966.

Relationship of Global Reserve Needs to Deficit Country Needs

Several problems are encountered in quantifying an appropriate rate for reserve growth. The need for reserves will necessarily appear in its most pronounced form among countries that are losing reserves. The consequences for world trade and investment of insufficient global reserve growth will first become manifest

⁴ Reserve losses and reserve gains include countries for which individual reserve data are published, and the margin between them does not fully reflect changes in the published figures on total world reserves.

through the actions of deficit countries. As a result, there is a tendency to confusion between the impact of a deficient growth of world reserves on deficit countries and special factors of imbalance affecting these individual countries. The world as a whole has an interest in the degree of restrictiveness that should be applied by deficit countries, in the sense of providing sufficient potential for recovery of reserves to avoid the excessive restrictions that might appear necessary to them if there were an insufficient hope for acquiring additional reserves over time. On the other hand, the surplus countries wish to avoid a situation in which the supply of new reserves seriously reduces the financial incentive for deficit countries to adjust their balance-of-payments policies.

In its concluding remarks and referring both to reserves and to conditional liquidity, the report on the Balance of Payments Adjustment Process calls attention to the need for striking an appropriate balance between "the adequate provision of means of financing temporary imbalances, and the need to insure that imbalances are kept within due limits and eliminated in due time."

The difficulties of quantification thus arise in part from the technical problems of measuring the effects of a given rate of reserve loss or reserve growth on the degree of restriction or ease in national balance-of-payments policies, and in part from the fact that countries differ widely at times with respect to their economic growth rates and the pressures these are generating on economic resources, prices and employment. National objectives as to desired rates of world reserve growth may differ. There is, however, a solid foundation for reserve creation in the fact that there is a universal desire of all nations to see their reserves rise over time.

Projection of Trends into the Future

Aggregate "reserve surpluses," as measured by the sum of those national changes in gross reserves that were positive, according to IFS, have been compared with the total of world imports (table 9). This comparison shows that reserve surpluses averaged 3.7 percent of world imports in 1954-59 and 3.3 percent in 1960-65. In 1964-65, there was a slight fall in this ratio

to 2.5 percent, but 1966 recorded a sharp drop to 1.5 percent. This presumably reflects, among other things, a number of measures taken in the United States, under its balance-of-payments program, which reduced its official settlements deficit. The declining ratio has probably also been affected by European measures to divert some reserve holdings into the assets of the commercial banking system. In a sense, this moderate compression of the aggregate reserve surpluses may be regarded as having bent downward the upward trend which would, other things being equal, have risen along with the growth of trade.

Taking this factor into account, a rough estimate has been made of the possible level of aggregate reserve surpluses in 1970 and 1975, on two alternative assumptions. The first assumes a trend at 3 percent of world imports and implies relatively little resort to restraints on the free flow of capital of the type that have been applied in 1965-66. The second adopts a trend at 2 percent of global imports, making allowance for the use of such restraints by countries in deficit. Both assume continuation or some further development of the practice of channeling reserves into commercial bank holdings.

The first figure of about 3 percent of world imports, estimated at \$250 billion,⁵ would mean approximately \$7.5 billion of aggregate reserve surpluses in 1970. The second alternative, at 2 percent of the same estimate for world trade, would be \$5 billion. The upper limit, related to unrestricted capital flows, would thus call for aggregate reserve increases by the countries in surplus as a group of about \$7.5 billion in 1970. The lower limit, corresponding to a regime of selective restraints by countries in deficit, would imply about \$5 billion a year in 1970.

This is of course an extremely rough projection to give some general idea of the possible range of magnitudes on the assumptions set forth. It implies no particular geographical distribution of reserve surpluses among the major countries. Also it makes no attempt to distinguish between reserve surpluses that result

⁵ World imports reached an annual rate of nearly \$200 billion in the fourth quarter of 1966. A projection of the recent growth trend of about 7 percent a year would raise the level to about \$250 billion in 1970.

from allocations of newly created reserves to surplus countries and their earned or borrowed reserve surplus positions, which are likely to involve gross or net reserve losses elsewhere. In effect, the assumption is implicit that allocations of created reserves will satisfy reserve needs as effectively as will earned surpluses. This is a conservative assumption and the level of reserve surpluses could be higher in actuality, if reserve losses and earned surpluses do not correspond with this assumption.

The figures cited do not measure the need for reserve creation, as a substantial part of the reserve surpluses could be offset by reserve deficits of the countries losing reserves. If one were to make a further assumption that half of the reserve surpluses should be covered by new reserve creation, and half by reserve losses, a target ranging from \$2.5 billion to \$3.75 billion for new reserve supplies in 1970 would result, between the two limiting assumptions.

By 1975 we assume that world imports will equal \$350 billion. This would result from an annual compounded rate of increase from the

end of 1966 of 7 percent. Aggregate surpluses at 3 percent of this figure would call for a rise to \$10.5 billion of reserve surpluses in 1975. The lower figure, at 2 percent of imports, would be \$7.5 billion a year. At first glance these very rough illustrative figures may seem large. But it should be realized that absolute magnitudes rise rapidly when the world's economy and trade are growing as fast as they are now.

Table 11 presents a tabulation of aggregate reserve losses, and a comparison with aggregate reserve gains is shown in table 12. In the most recent period, 1961-66, nearly half of the reserve gains resulted from new reserve creation, and about half were offset by reserve losses elsewhere.

An analysis of aggregate reserve surpluses of nonreserve countries for recent years throws some light on the assumption that half of the aggregate reserve surpluses might reasonably be covered by new supplies of reserves. If we look only at the aggregate surpluses of countries other than the United States, we find the offsets to these surpluses are as follows:

	Increase in world monetary gold		U.S. reserve creation (including net gold sold)		Total reserve creation (1) and (2)		Other offsets		Aggregate reserve surpluses outside United States
	Amount (in millions of dollars)	Percent of total	Amount (in millions of dollars)	Percent of total	Amount (in millions of dollars)	Percent of total	Amount (in millions of dollars)	Percent of total	Amount (in millions of dollars)
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)
1961.....	600	12.4	1,576	32.6	2,176	45.0	2,659	55.0	4,835
1962.....	335	11.1	2,632	87.4	2,967	98.5	46	1.5	3,013
1963.....	840	16.9	2,087	41.9	2,927	58.8	2,049	41.2	4,976
1964.....	750	17.8	1,678	39.7	2,428	57.5	1,796	42.5	4,224
1965.....	240	5.8	1,502	36.2	1,742	42.0	2,412	58.0	4,154
1966.....	-100	-3.4	-29	-1.0	-129	-4.4	3,035	104.4	2,906
Total.....	2,665	11.1	9,446	39.1	12,111	50.2	11,997	49.8	24,108

In 1961-66, about half of the aggregate surpluses shown above were covered by gold and by reserve creation for other countries arising from the U.S. balance of payments. Only the remainder of the surpluses corresponded to deficits in the rest of the world.⁶ The pressure exerted on other deficit countries by the surplus

⁶ In varying amounts, other factors also affected the financing of surpluses; e.g., substantial drawings in IMF credit tranches in 1961 and 1965 and the monetization of securities by the United Kingdom in 1966.

countries would undoubtedly have been more severe in the absence of the gold supplies and U.S. reserve creation.

The projections given above for 1970 and 1975 are illustrative. They are intended to suggest some concepts and procedures that might be developed further and to throw some light on past performance. While the need for reserves in the future may not necessarily follow the guidelines suggested by past experience,

the past relationships cannot be ignored and should at least be a starting point for estimates of future needs.

If the needs for newly created reserves to cover aggregate reserve surpluses are something like the illustrative magnitudes of \$2.5 billion to \$3.75 billion indicated for 1970, the previous analysis implies that the need for reserve creation may not be as far in the future as has been assumed. A situation such as 1966, where all of the substantial reserve surpluses were covered by corresponding deficits that did not involve

reserve creation in the form of gold and dollars, is probably an unstable and short-lived pattern of world payments. Nor does it seem likely that the reserve surpluses can be rapidly reduced to zero without harsher policies than should be expected to materialize. There will therefore be a vacuum which will probably call for reserve creation in some form. Since presumably the preferred method of reserve creation is a collective one, the perceptible need for introduction of such collective procedures may well be closer than has been realized to date.

V Criteria for Activation of Reserve Creation

The decision to activate a 5-year tranche of reserve creation will call not only for some judgment as to the approximate trend of selected basic statistical indicators, but also for seeking a balance among objectives that are not the same for all countries. On the positive side, in favor of activation, we may set a greater measure of calm in the gold markets and reduced threats to exchange stability. We may also cite a tendency to relax and postpone restrictive external measures, particularly in the sphere of freedom of capital movements. A decision to activate a reserve creation plan should also mean less upward pressure on world interest rates in the long run. Finally, we could expect some impetus to economic growth and expansion. It is here that some part of the world may be concerned because the strongest surplus countries may under some conditions be fearful that more expansion could add to their inflationary pressures.

In such cases, it will be natural to take account of the economic weight of the countries that would in their judgment consider it desirable to activate the plan, as compared with the economic importance of those desiring to delay activation. An ultimate decision may have to be taken against the background of a weighted voting procedure. But it would be highly desirable to have as wide a consensus as possible, to make the reserves created serve their

purpose most effectively. To this end it may be helpful to indicate some of the criteria that might be used for determining the timing of a decision to activate a cycle of reserve creation.

The reports of the Deputies of the Ministers and Governors of the Group of Ten and of the Study Group on Reserve Creation have indicated in a general way some of the qualitative factors to be taken into account. Extracts from these reports are shown in the annex to this paper.

It may be desirable to suggest some specific and clearcut evidence that reserve creation is called for.

One indication would be a definite tapering off in the rate of advance in the value of international trade. In a world of rapidly expanding population, it would be an extreme view to insist upon an actual shrinkage of world trade in absolute terms, before activating a reserve creation plan. It is suggested that a deceleration in the rate of expansion of world trade, particularly if it persists for several quarterly periods, should be a quite strong indicator that reserves are becoming inadequate and that this inadequacy is pinching off trade.

Second, growing pressure for moves to tighten restraints on current and capital transactions in deficit countries would provide an important signal, unless these pressures were entirely un-

related to and unsupported by considerations as to reserve losses.

Third, persistence of historically high interest rates in domestic money and capital markets, despite receding inflationary pressures, could result from competitive actions to maintain reserves, and thus indicate that more reserves are needed. With the development of the Euro-dollar market, a sensitive guide to the global level of short-term international liquidity may be available, which reflects international competition for funds.

Any one of the above developments would make it advisable to consider an activation of a 5-year tranche of reserve creation or an expansion of the rate of creation during the next 5 years. A combination of several of these criteria would present a strong case.

Since reserve creation is essentially a long-term trend matter, fine tuning in the cyclical sense is normally not required. Once the plan has been activated, the problem of timing would relate rather to changes in the rate of reserve creation than to a stop-and-go cyclical pattern. Nevertheless, in line with the spirit of modern economic policies, there may be times when it is important to apply reserve creation earlier, as a preventive, to strengthen the resistance of the world economy to recession, cumulative restrictions, and underemployment of resources.

It is in countries in deficit that the first impact of deficient reserve growth will be felt. Early signs, for example, may be strenuous efforts by governments to reduce the impact of governmental outlays on the balance of payments. A typically sensitive indicator may be found in moves to tighten restraints on the out-

flow of capital, and, to a lesser degree, in measures to stimulate an influx of foreign capital. Under this general heading some types of interest rate actions are included, such as those associated with competitive efforts to attract or retain reserves, rather than with more fundamental considerations. The wide variety of actions with many degrees of severity that can be applied in this area makes it difficult to say just when the signal light becomes intense enough to trigger action. But at least one can say that the light is always lit whenever selective restrictions are being tightened or interest rates, adjusted for price changes, are historically high in several major countries.

Another sensitive indicator, though one which may not be easy to assess, is a noticeable tendency for countries representing an important fraction of the world's economy to seek to finance deficits without drawing down their reserves further, through borrowings of various types or cashing in of nonreserve assets. It might, for example, be possible to develop some estimate of the amount of financing carried out that would otherwise have been reflected in reserve losses by deficit countries. In the qualitative sense, a mere listing of examples of this type of procedure might prove helpful.

Essentially, however, a trend approach implies less emphasis on qualitative criteria, related to timing, than on the development of guidelines that help to determine the slope of a trend curve and variations in that slope at periodic intervals. It is in this sense, rather than as applied to sporadic interventions, that qualitative criteria may be of some value.

Extracts on Qualitative Criteria From Group of Ten and IMF Reports

The Deputies Report of 1964,⁷ in paragraph 24, states:

. . . On the one hand, the fact that some individual countries find themselves short of external liquidity is not prima facie evidence of a general shortage of international liquidity. On the other hand, the existence of a general shortage, in its extreme form, might be accompanied by widespread deflationary developments or restrictions on trade and payments resulting from the efforts of governments to defend or restore their reserves. The aggregate needs for liquidity are presumably in some way related to such factors as the growth of world trade and capital movements, and the amplitude and duration of imbalances in international payments, taking into account the efficacy of adjustment policies in correcting such imbalances; they are also affected by psychological attitudes toward minimum or desired levels of national reserves, toward reserve movements, and toward the use of available credit facilities. While there appears to be no convincing evidence that imbalances will be longer-lasting or more intractable than hitherto in the postwar period, a rising turnover of current and capital payments is likely to entail some increase in the size of fluctuations. Moreover, we have noted that a concern for domestic objectives such as growth, employment, and price stability, or for international political, monetary, and economic responsibilities, may sometimes lead to wider swings in the balance of payments.

The 1965 Report of the Study Group on Reserve Creation,⁸ in paragraph 10, also deals with this question in general terms:

We have considered what circumstances might indicate a general inadequacy of reserves. An indication that reserves are inadequate might be found in a reluctance to extend intergovernmental credit, or in an increasing propensity to seek credit, in preference to parting with reserve assets. Clearer evidence of a general scarcity might be found in a marked tendency to make maintenance, increase or restoration of reserves an overriding objective of economic policy, taking priority over other fundamental objectives, such as economic growth, a high level of employment and freedom of international trade. Indeed, a general scarcity might well have been permitted to develop

⁷ Annex to the Ministerial Statement of the Group of Ten, August 1964.

⁸ Report to the Deputies of the Group of Ten, May 1965.

too far when such tendencies became evident. In that situation, the anxiety to retain or increase reserves would probably lead countries to adopt excessively restrictive policies to prevent the emergence of a payments deficit or to achieve a surplus. In such conditions, therefore, the absence of large imbalances would not necessarily be evidence that reserves were adequate. Significant symptoms of strain would be a generalization of trade and payments restrictions, instability of exchange rates, rising unemployment, and falling international prices. No doubt, so far as lenders were willing to extend credit in the assumed prevailing scarcity of reserves, the greatly developed credit element in international liquidity would continue to be used to avoid these consequences as far as possible; and this would have the incidental effect of increasing reserve assets of certain kinds. But the additional assets would not necessarily be adequate in amounts, satisfactory in their distribution, or available in the desired forms.

In the 1966 Report of the Deputies,⁹ paragraph 35 deals with the qualitative aspects of the decision to create reserves:

Nor will it be easy to evolve qualitative criteria for a collective judgment on the need for additional reserves in the future. Nevertheless, despite the difficulties involved, some of us think it important to pursue the investigations into this subject with the aim of arriving at a generally agreed set of principles. The problem of evaluating the reserve needs for a certain period ahead is, in many respects, similar to that of evaluating the need for conditional liquidity at 5-year intervals on the occasion of the quinquennial review of members' quotas in the IMF, as provided for in the Articles of Agreement of the Fund. Some other members questioned whether it will be possible to arrive at a common judgment regarding such criteria, as member countries may differ considerably in the relative weight that they would attach to various factors. They consider that an analysis of the decisions taken will in the course of time provide precedents, derived from the test of actual experience, from which criteria can be developed.

Finally, the Annual Report of the IMF for 1965 has a brief paragraph on this topic:

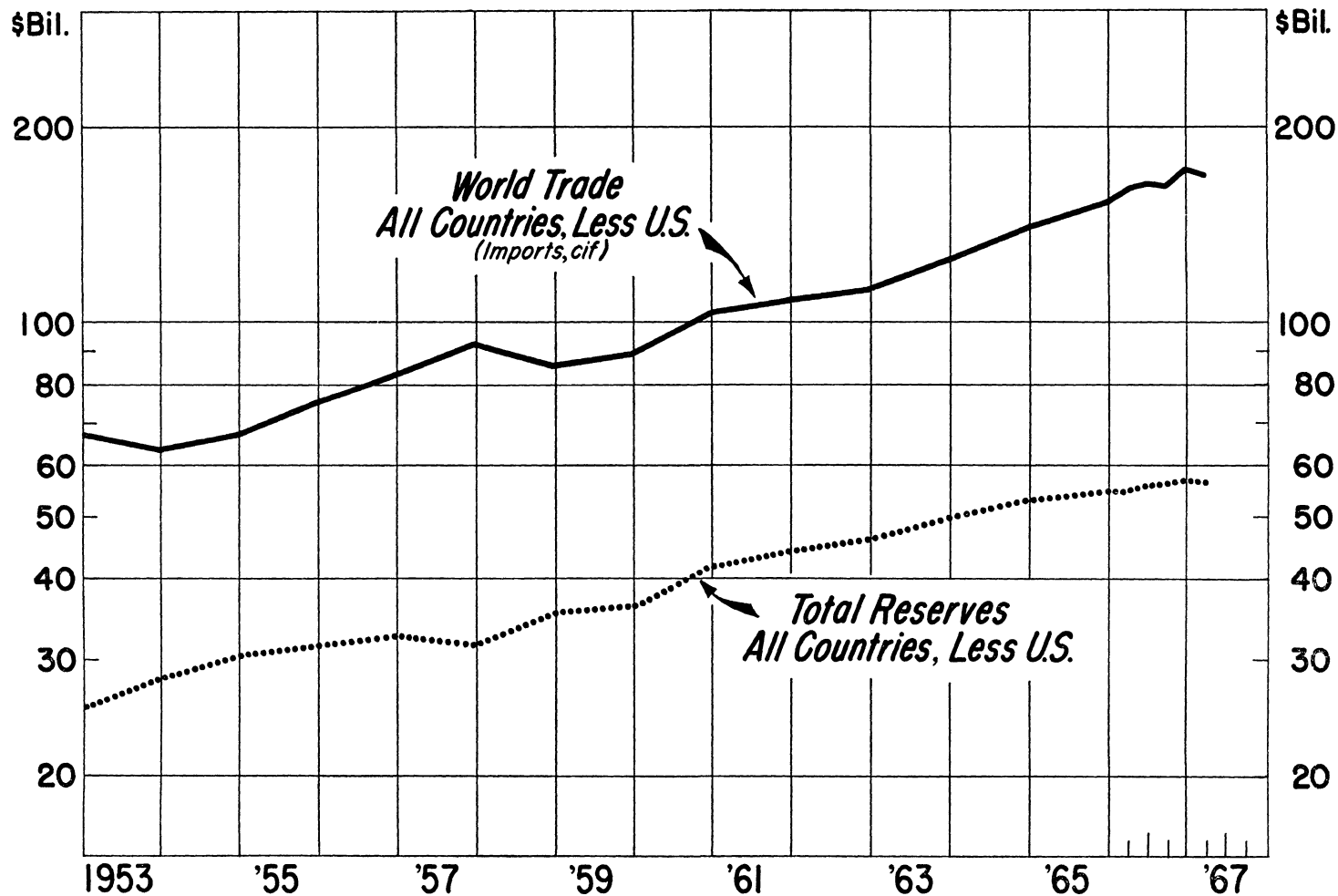
Appraisal of general reserve needs is not something that can be carried out on the basis of precise criteria. Resort to qualitative judgment is inescapable. In par-

⁹ Report to the Group of Ten ". . . on improvements needed in the international monetary system, including arrangements for the future creation of reserve assets, as and when needed . . ." July 1966.

ticular, no close relationship exists between these needs and such simple indices as the value of international transactions. In the exercise of such judgment, attention has to be focused primarily on the nature of the reactions, particularly in the sphere of national policies, which it appears appropriate to encourage or discourage in the interest of sound development of the world economy with a minimum of monetary disturbance. Some of the consequences, or symptoms, of excess or deficiency in international liquidity were discussed at page 14 above. In the light of this analysis, the following appear to be the main criteria on the basis of which consideration should be given to an increase—or, on rare occasions, a decrease—in international liquidity: whether, in circumstances in which countries' financial policies are likely to be influenced by the

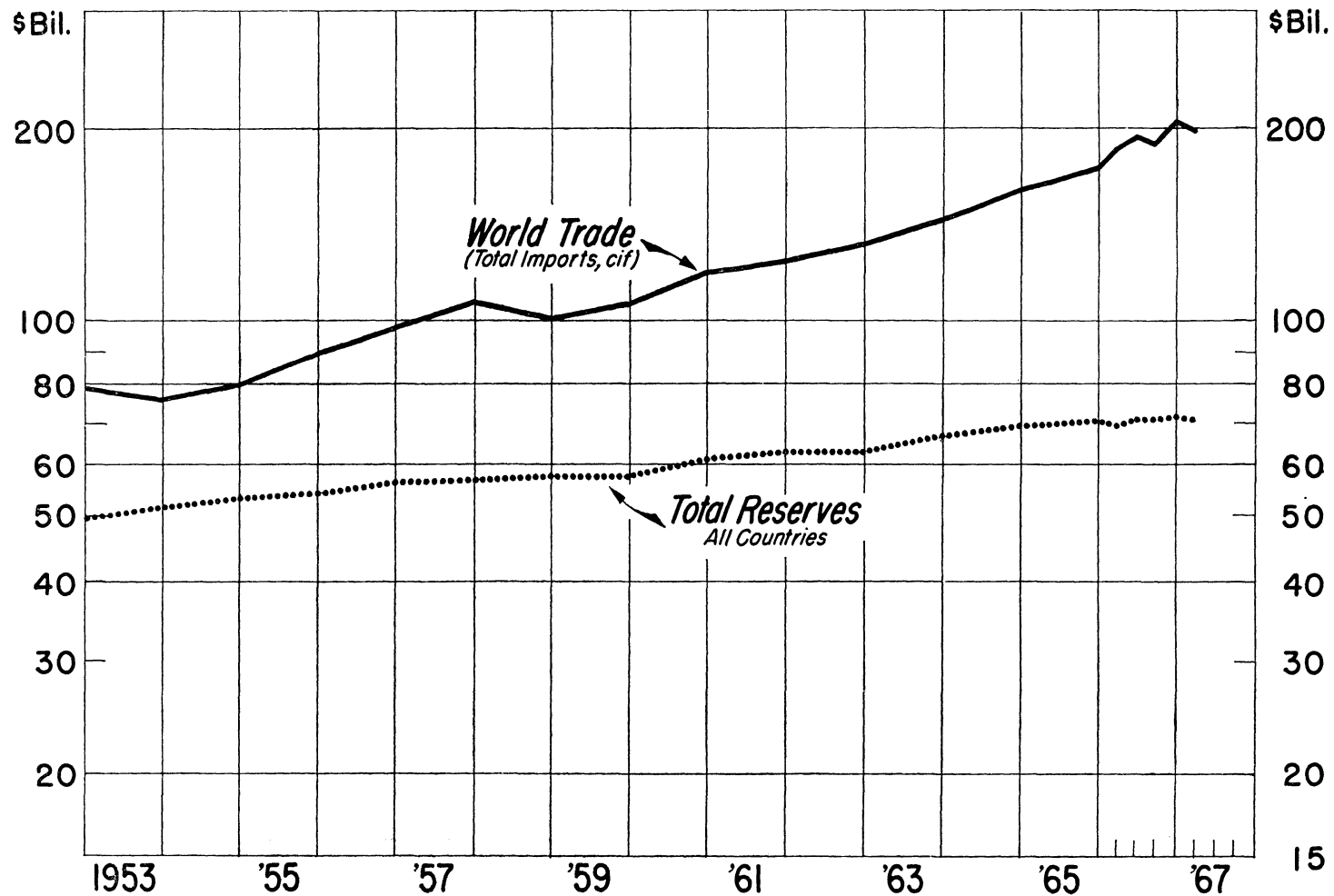
level of world reserves, it appears desirable on balance to enlarge the scope for an expansion of monetary demand or to influence countries in the direction of counter-inflationary action; whether, on balance, exchange rates are under undue pressure, or needed adjustments in exchange rates are being unduly delayed; and whether there are widespread restrictions in international transactions, or widespread tendencies to speculative capital movements that an expansion in world reserves could to some extent relieve. Some of these conditions might, of course, call primarily for a change in the supply of conditional rather than unconditional liquidity, or for other changes in the techniques of international cooperation, but they are all relevant in some degree to the question of reserve needs (p. 16).

WORLD TRADE AND MONETARY RESERVES, LESS U.S.



Source: *International Financial Statistics, 1966-'67 Supplement and July 1967.*

WORLD TRADE AND MONETARY RESERVES



Source: *International Financial Statistics, 1966-'67 Supplement and July 1967.*

COMPOSITION OF WORLD RESERVES, 1948-'66

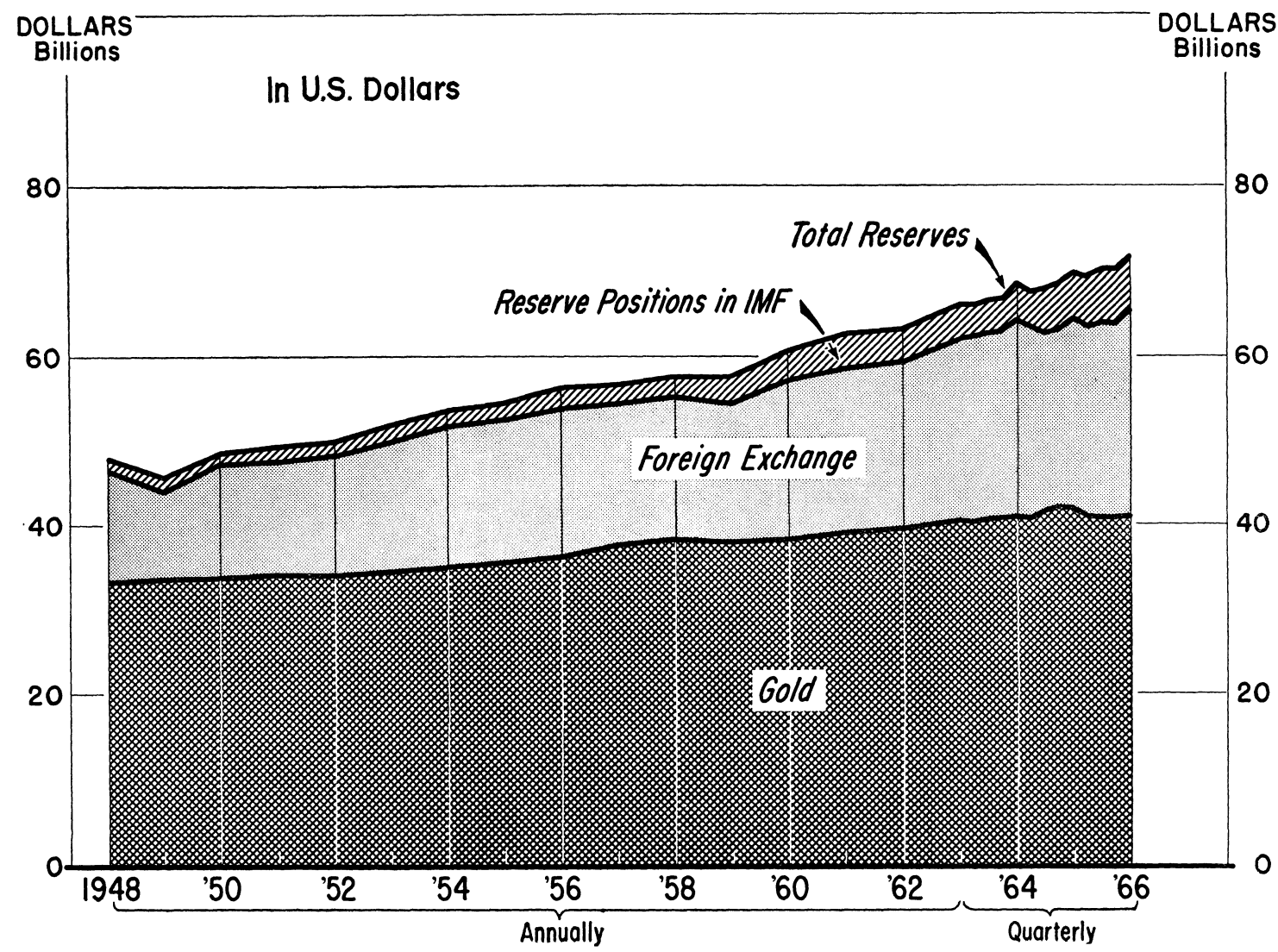


TABLE 1.—Reserves ¹ and reserve growth—all countries, and all countries excluding the United States (1950–66)

	Total reserves, all countries		Total reserves, all countries, excluding United States	
	In millions of dollars	Percent annual increase	In millions of dollars	Percent annual increase
1950.....	48,715	-----	24,450	-----
1951.....	49,360	1.3	25,061	2.5
1952.....	49,920	1.1	25,206	.6
1953.....	51,780	3.7	28,322	12.4
1954.....	53,470	3.3	30,492	7.7
1955.....	54,305	1.6	31,508	3.3
1956.....	56,150	3.4	32,484	3.1
1957.....	56,645	.9	31,813	-2.1
1958.....	57,570	1.6	35,030	10.1
1959.....	57,325	-.4	35,821	2.3
1960.....	60,250	5.1	40,891	14.2
1961.....	62,285	3.4	43,532	6.5
1962.....	62,590	.5	45,370	4.2
1963.....	65,990	5.4	49,147	8.3
1964.....	68,440	3.7	51,768	5.3
1965.....	69,800	2.0	54,350	5.0
1966.....	71,010	1.7	56,129	3.3
Total increases, 16 years.....	22,295	45.8	31,679	129.6
Average annual rate of growth.....	1,393	² 2.4	1,980	² 5.4

¹ Gold, foreign exchange and reserve positions in the IMF.

² Same percentage for annual compounded rate of increase.

Source: IFS 1966–67 Supplement for 1950–57 data and March 1967 issue for later data.

TABLE 2.—Growth in world reserves and world imports ¹—all countries and all countries excluding the United States (1951–66)

[Amounts in millions of dollars]

	All countries				All countries excluding the United States			
	Increase in reserves		Increase in imports		Increase in reserves		Increase in imports	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1951.....	+645	1.3	+21,800	27.2	+611	2.5	+19,509	40.1
1952.....	+560	1.1	-1,300	-1.6	+145	.6	-1,085	-1.6
1953.....	+1,860	3.7	-3,500	-4.4	+3,116	12.4	-3,639	-5.4
1954.....	+1,690	3.3	+3,400	4.3	+2,170	7.7	+4,106	6.5
Average 1951-54...	+1,189	2.4	+5,100	6.4	+1,511	5.8	+4,723	9.9
1955.....	+835	1.6	+9,600	10.9	+1,016	3.3	+8,251	12.2
1956.....	+1,845	3.4	+9,200	9.4	+976	3.1	+7,702	10.2
1957.....	+495	.9	+9,600	9.0	-671	-2.1	+8,967	10.7
1958.....	+925	1.6	-6,700	-6.3	+3,217	10.1	-6,699	-7.2
1959.....	-245	-.3	+5,800	5.5	+791	2.3	+3,411	4.0
Average 1955-59...	+771	1.4	+5,500	5.7	+1,066	3.3	+4,326	6.0
1960.....	+2,925	5.1	+12,600	10.6	+5,070	14.2	+13,233	14.8
1961.....	+2,035	3.4	+5,000	4.0	+2,641	6.5	+5,433	5.3
1962.....	+305	.5	+7,800	5.9	+1,838	4.2	+5,959	5.5
1963.....	+3,400	5.4	+11,500	8.0	+3,777	8.3	+13,667	9.4
1964.....	+2,450	3.7	+16,900	10.6	+2,621	5.3	+12,228	12.2
Average 1960-64...	+2,223	3.6	+10,760	7.8	+3,189	7.7	+10,104	9.4
1965.....	+1,360	2.0	+14,200	8.2	+2,582	5.0	+11,299	8.1
1966.....	+1,210	1.7	+15,800	9.1	+1,779	3.3	+11,259	7.5
Average 1965-66...	+1,285	1.9	+15,000	8.7	+2,181	4.2	+11,279	7.8
Total 16 Years....	+22,295	45.8	+131,700	225.9	+31,679	129.6	+113,602	233.4
Average 16 Years..	+1,393	2.4	+8,231	6.9	+1,980	5.4	+7,100	8.3
Compounded rate of increase.....		2.4		7.6		5.4		7.8

¹ Reserves end of year and imports during year.

Source: IFS data.

TABLE 3.—Reserves as percent of annual value of imports (1951-66)

	All countries	All countries excluding United States	Developed countries	Developed countries excluding United States	G-10, excluding United States	United States	Less developed areas	Less developed areas: excluding high initial reserve holders ¹
1951.....	62	37	68	33	27	204	45	31
1954.....	68	45	75	43	40	206	49	36
1958.....	57	41	65	44	42	154	35	32
1959.....	54	40	60	42	40	126	35	32
1960.....	51	40	57	43	43	117	32	30
1961.....	50	40	57	45	45	117	29	28
1962.....	47	40	53	44	43	97	27	27
1963.....	46	39	51	43	40	91	29	30
1964.....	43	37	47	40	38	82	27	29
1965.....	40	36	43	38	37	67	29	31
1966.....	37	35	39	36	35	54	30	31

¹ Excludes Ceylon, Ghana, India, Pakistan, Sudan, and UAR.

NOTE: Compiled from separate IFS tables on reserves and trade and some groupings and totals are not completely comparable.

TABLE 4.—Changes in world reserves, principal regions (1951-66)

[In millions of dollars]

	1951-54	1955-58	1959-62	1963-66	Total, 1951-66
United States.....	-1, 287	-438	-5, 320	-2, 339	-9, 384
United Kingdom.....	-409	71	203	-209	-344
Industrial Europe, Canada and Japan.....	6, 199	5, 841	9, 359	7, 308	28, 707
Other developed areas.....	70	-105	1, 665	785	2, 415
Latin America.....	-5	15	-1, 020	910	-100
Middle East.....	-145	25	420	1, 060	1, 360
Other Asia.....	-250	-980	-60	1, 005	-285
Other Africa.....	1, 130	-145	-310	-105	570
Total all Countries ¹	4, 755	4, 240	4, 880	8, 420	22, 295

¹ Totals not completely reflected in data components by region.

TABLE 5.—Changes in total reserves—major countries and groups—end of 1958–66

[Billions of U.S. dollars]

	Gold	Foreign exchange	IMF reserve position	Total change	Percent of gross increase
Group of Ten and Switzerland:					
United States.....	-7.3	+1.3	-1.6	-7.6	-----
United Kingdom.....	- .9	+ .9	0	0	-----
Belgium.....	+ .3	+ .2	+ .3	+ .7	5.2
France.....	+4.5	+ .2	+1.0	+5.7	42.5
Germany.....	+1.7	- .6	+1.1	+2.1	15.6
Italy.....	+1.3	+ .2	+ .8	+2.4	17.9
Netherlands.....	+ .7	- .1	+ .4	+ .9	6.7
Sweden.....	0	+ .4	+ .1	+ .5	3.7
Switzerland.....	+ .9	+ .3	-----	+1.3	9.7
Canada.....	0	+ .3	+ .4	+ .6	4.4
Japan.....	+ .3	+ .5	+ .3	+1.1	8.2
Total G-10 and Switzerland.....	+1.5	+3.6	+2.8	+7.7	¹ 57.5
(G-10 and Switzerland excluding United States and United Kingdom).....	(+9.7)	(+1.4)	(+4.4)	(+15.3)	(114.2)
Other Industrial and Developed.....	+1.8	+1.1	+ .6	+3.7	27.6
Less Developed.....	- .4	+2.0	+ .4	+2.0	14.9
Total all Countries.....	+2.9	+6.7	+3.8	+13.4	100.0

¹ Calculation includes U.S. net loss of \$7.6 billion.

NOTE: Totals may not add because of rounding.

TABLE 6.—Annual compounded rates of increase in U.S. dollar values of reserves and domestic credit, 1950–60 and 1960–65

	Percent per year			
	1950-60		1960-65	
	Reserves	Domestic credit	Reserves	Domestic credit
1. Group of Ten and Switzerland:				
United States.....	-2.0	4.2	-4.3	8.9
United Kingdom.....	1.9	2.5	-3.5	6.0
EEC.....	18.2	13.5	7.6	13.2
Other.....	4.1	10.0	6.7	15.0
Total.....	2.8	6.5	2.2	10.1
2. Other developed.....	2.5	5.4	10.2	11.4
3. Less developed.....	- .4	5.9	3.1	9.2
4. All countries.....	2.1	6.3	3.0	10.8
5. All countries, excluding United States and United Kingdom.....	5.6	9.4	6.7	13.0

Source: Based on IFS data for 90 countries (including Switzerland) converted into U.S. dollars as a common denominator. "Reserves" refer to official international reserves of monetary authorities, including Reserve Position in the Fund. "Domestic credit" refers to domestic credit extended by monetary authorities and deposit money banks

TABLE 7.—Sources of world reserve growth 1961-66

[Dollars in millions]

	1961	1962	1963	1964	1965	1966	1961-66		Percent total, 1961-64	Percent total, 1965-66
							Amount	Percent total		
Nontraditional sources:										
1. IMF credit tranche use.....	\$1,011	-\$434	\$84	\$339	\$1,528	-\$14	\$2,514	23.4	12.2	58.9
2. U.S. foreign exchange holdings.....	116	-17	113	220	349	540	1,321	12.3	5.3	34.6
3. Dollars generated by U.S. swaps activated by others.....	-----	-----	50	150	275	75	550	5.1	2.4	13.6
4. UK securities taken into reserves.....	-----	-----	-----	-----	-----	885	885	8.2	-----	34.4
Total nontraditional sources.....	<u>1,127</u>	<u>-451</u>	<u>247</u>	<u>709</u>	<u>2,152</u>	<u>1,486</u>	<u>5,270</u>	<u>49.0</u>	<u>19.9</u>	<u>141.6</u>
Traditional sources:										
5. Additions to world monetary gold (Soviet sales).....	600 (300)	335 (215)	840 (550)	750 (450)	240 (550)	¹ -100 (0)	2,665 (2,065)	24.8	30.8	5.4
6. Additions to foreign exchange not accounted for above ²	509	307	2,132	1,210	-1,489	¹ -210	2,459	22.8	50.8	-66.1
7. Other factors.....	-201	114	181	-219	457	34	366	3.4	-1.5	19.1
Total traditional sources.....	<u>908</u>	<u>756</u>	<u>3,153</u>	<u>1,741</u>	<u>-792</u>	<u>-276</u>	<u>5,490</u>	<u>51.0</u>	<u>80.1</u>	<u>-41.6</u>
Total change in world reserves.....	<u>2,035</u>	<u>305</u>	<u>3,400</u>	<u>2,450</u>	<u>1,360</u>	<u>¹1,210</u>	<u>10,760</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

¹ Estimated.² Change in foreign exchange reserves as shown in IFS, excluding lines 2, 3, and 4.

TABLE 8.—Sources of reserve growth outside United States, 1961–66

[Dollars in millions]

	1961	1962	1963	1964	1965	1966	1961–1966		Percent total, 1961–64	Percent total, 1965–66
							Amount	Percent total		
U.S. B/P factors:										
Gold sales to foreign countries (includes BIS).....	\$970	\$833	\$392	\$36	\$1, 288	\$431	\$3, 950	25. 9	20. 5	39. 4
Net use of IMF reserve position, excluding U.S. gold subscription payment.....	–135	626	29	266	165	537	1, 488	9. 8	7. 2	16. 1
Net increase in liabilities to official foreigners excluding monetary liabilities to IMF.....	741	1, 173	1, 666	1, 376	49	–997	4, 008	26. 3	45. 6	–21. 7
Total U.S. B/P factors.....	<u>1, 576</u>	<u>2, 632</u>	<u>2, 087</u>	<u>1, 678</u>	<u>1, 502</u>	<u>–29</u>	<u>9, 446</u>	<u>62. 0</u>	<u>73. 3</u>	<u>33. 8</u>
(U.S. official settlements).....	(–1, 347)	(–2, 706)	(–2, 044)	(–1, 547)	(–1, 305)	(252)	(–8, 697)			
Additions to world monetary gold.....	600	330	840	750	240	–100	2, 660	17. 5	23. 2	3. 2
(U.S.S.R. sales).....	(300)	(215)	(550)	(450)	(550)	(0)	(2, 065)			
IMF credit tranche use.....	1, 011	–434	84	339	1, 528	–14	2, 514	16. 5	9. 2	34. 7
UK securities taken into reserves.....						885	885	5. 8		20. 3
Other factors.....	–546	–690	766	–146	–688	1, 037	–267	–1. 8	–5. 7	8. 0
Total factors, other than U.S. B/P.....	<u>1, 065</u>	<u>–794</u>	<u>1, 690</u>	<u>943</u>	<u>1, 080</u>	<u>1, 808</u>	<u>5, 792</u>	<u>38. 0</u>	<u>26. 7</u>	<u>66. 2</u>
Change in reserves, countries other than United States.....	<u>2, 641</u>	<u>1, 838</u>	<u>3, 777</u>	<u>2, 621</u>	<u>2, 582</u>	<u>1, 779</u>	<u>15, 238</u>	<u>100. 0</u>	<u>100. 0</u>	<u>100. 0</u>

TABLE 9.—Aggregate of gross reserve gains, compared with world imports and net additions to monetary gold, 1926-28, 1937, and 1954-66

[Dollars in millions]

	Aggregate of gross reserve gains	World imports		Addition to world monetary gold	
		Amount	Column (1) as percent of column (2)	Amount	Column (3) as percent of column (1)
	(1)	(2)		(3)	
1926.....	\$314	\$31, 163	1. 0	\$309	98. 4
1927.....	744	33, 764	2. 2	128	17. 2
1928.....	2, 538	34, 475	7. 4	705	27. 8
1937.....	2, 116	27, 500	7. 7	1, 350	63. 8
1954.....	2, 922	78, 700	3. 7	670	22. 9
1955.....	2, 502	88, 300	2. 8	665	26. 6
1956.....	3, 703	97, 500	3. 8	490	13. 2
1957.....	3, 568	107, 100	3. 3	690	19. 3
1958.....	4, 835	100, 400	4. 8	680	14. 1
1959.....	3, 654	106, 200	3. 4	750	20. 5
Average 1954-59.....	3, 531	96, 367	3. 7	658	18. 6
1960.....	6, 613	118, 800	5. 6	345	5. 2
1961.....	4, 835	123, 800	3. 9	600	12. 4
1962.....	3, 013	131, 800	2. 3	335	11. 1
1963.....	4, 976	143, 100	3. 5	840	16. 9
1964.....	4, 224	160, 100	2. 6	750	17. 8
1965.....	4, 154	174, 200	2. 4	240	5. 8
Average 1960-65.....	4, 636	141, 967	3. 3	518	11. 2
1966.....	2, 906	190, 000	1. 5	-100	-----
Average 1954-66.....	3, 993	124, 615	3. 2	535	13. 4

TABLE 10.—Aggregate of gross reserve gains, 1954–66—major countries and regions

[In millions of dollars]

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
EEC:													
Belgium.....		105	16		405		200	307		187	252	112	16
France.....	435	711			405	686	536	1,093	684	859	816	619	390
Germany.....	806	439	1,184	995	682		2,242	131		694	232		599
Italy.....	159	240	69	68	830	872	195	548	19		418	591	151
Netherlands.....	46	14			530		421	95		156	247	67	32
Total EEC.....	1,446	1,509	1,269	1,063	2,852	1,558	3,594	2,174	703	1,896	1,965	1,389	1,188
Other G-10 and Switzerland:													
United States.....			869	1,166									
United Kingdom.....	364			98	731		918					688	96
Sweden.....			13		15		50	208	65		206	8	55
Canada.....	127		50		112			287	271	56	278	146	
Japan.....	38	146	194		234	385	502		356	36		133	
Switzerland.....	69	10	35	16	165		261	435	113	206	45	124	80
Other G-10 and Switzerland.....	598	156	1,161	1,280	1,257	385	1,731	930	805	298	529	1,099	231
(G-10 excluding United States and United Kingdom).....	1,680	1,665	1,561	1,079	3,378	1,943	4,407	3,104	1,508	2,194	2,494	1,800	1,323
Other developed.....	435	138	277	570	446	727	459	1,114	921	1,278	1,022	184	564
Latin America.....	73	333	632	555	66	365	270	191	48	573	279	553	95
Middle East.....	125	119	117	27	90	55	112	184	281	484	150	372	223
Other Asia.....	110	201	156	58	98	389	280	220	191	383	189	373	493
Other Africa.....	135	46	91	15	26	175	167	22	64	64	90	184	112
Total, all countries.....	2,922	2,502	3,703	3,568	4,835	3,654	6,613	4,835	3,013	4,976	4,224	4,154	2,906

TABLE 11.—Aggregate of gross reserve losses, 1954-66—major countries and regions

[In millions of dollars]

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
EEC:													
Belgium.....	46			71		247			60				
France.....			664	666									
Germany.....						1,089			207			453	
Italy.....										449			
Netherlands.....			185	98		97			12				
Total EEC.....	46		849	835		1,433			279	449		453	
Other G-10 and Switzerland:													
United States.....	480	181			2,292	1,036	2,145	606	1,533	377	171	1,222	569
United Kingdom.....		642	116			304		401	10	161	831		
Sweden.....	15	21		34		38				43			
Canada.....		44		109		9	40						334
Japan.....				442				283			39		33
Switzerland.....													
Other G-10 and Switzerland..	495	888	116	585	2,292	1,387	2,185	1,290	1,543	581	1,041	1,222	936
(G-10 excluding United States and United Kingdom).....	61	65	849	1,420	0	1,480	40	283	279	492	39	453	367
Other developed.....	294	496	159	193	286	190	666	171	68	40	132	901	316
Latin America.....	242	306	112	363	688	449	220	278	507	91	124	56	213
Middle East.....		86	90	173	56	160	113	101	25	7	91	47	59
Other Asia.....	186	96	418	750	324	32	203	156	218	47	197	57	51
Other Africa.....	37	57	55	249	59	289	74	341	85	315	141	42	78
Total all countries.....	1,300	1,929	1,799	3,148	3,705	3,940	3,461	2,337	2,725	1,530	1,726	2,778	1,653

TABLE 12.—*Aggregate of gross reserve gains and losses compared with world imports,¹ 1954-66*

	Gross reserve gains		Gross reserve losses		Difference between gross gains and losses	
	Amount	Percent world imports	Amount	Percent world imports	Amount	Percent world imports
1954.....	\$2,922	3.7	\$1,300	1.7	\$1,622	2.1
1955.....	2,502	2.8	1,929	2.2	573	.6
1956.....	3,703	3.8	1,799	1.8	1,904	2.0
1957.....	3,568	3.3	3,148	2.9	420	.4
1958.....	4,835	4.8	3,705	3.7	1,130	1.1
1959.....	3,654	3.4	3,940	3.7	-286	-----
1960.....	6,613	5.6	3,461	2.9	3,152	2.7
Average 1954-1960.....	3,971	4.0	2,755	2.8	1,216	1.2
1961.....	4,835	3.9	2,337	1.9	2,498	2.0
1962.....	3,013	2.3	2,725	2.1	288	.2
1963.....	4,976	3.5	1,530	1.1	3,446	2.4
1964.....	4,224	2.6	1,726	1.1	2,498	1.6
1965.....	4,154	2.4	2,778	1.6	1,376	.8
1966.....	2,906	1.5	1,653	.9	1,253	.7
Average 1961-1966.....	4,018	2.6	2,125	1.4	1,893	1.2
Average total Period 1954-66.....	3,993	3.2	2,464	2.0	1,529	1.2

¹ The data are not fully comparable, because individual reserve statistics are not published for all countries included in total world trade figures. Similarly, the difference shown between gross reserve gains and losses do not fully reflect net changes in total world reserves; the totals of aggregate gains and losses are derived from individual country data and add up to different totals than the published total for global reserves, which includes countries not shown individually.

