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FINANCIAL INTERMEDIATION AS AN EXPLANATION OF ENDURING "DEFICITS" IN THE BALANCE OF PAYMENTS

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INTRODUCTION

IN THIS paper, I consider the subject described in its title mainly by reviewing and appraising the criticisms that have been made of the hypothesis of international financial intermediation, which, for brevity, I shall call IFI. This hypothesis, first set forth by Professor Kindleberger's essay of 1965 [16], and further expounded and developed by him, Professor Despres, and myself,¹ has elicited both criticism and support. I shall seek to state it, to compare it with other explanations of enduring deficits, and then to discuss the criticisms it has evoked.

Since my title contains words that are more than normally unfamiliar or ambiguous, it is more necessary than usual to begin by defining terms. I shall begin at the end of the title and work forward toward its beginning.

By "balance-of-payments deficit," I shall not mean the deficit on goods and services, or on current account (which also includes unilateral transfers), or the "basic" deficit (which is the deficit on current account and long-term capital transactions combined). I shall confine my meaning to the two concepts of accounting deficits called the "liquidity" deficit and the "official settlements" deficit. Since the problem posed in the title appears to refer to an accounting balance, which records what has actually occurred, I shall use these concepts

¹ See [4]. This article and Kindleberger's Princeton essay are not the only, or even the first, papers to have advanced arguments based on the IFI hypothesis, although they may have put the argument most explicitly and the Despres-Kindleberger-Salant article has been the main focus of the criticisms. Among earlier writings are those of James Ingram [14] and Tibor Scitovsky [40, Chapter II].

in that ex post sense. However, since the concern with deficits arises largely because of the widespread belief that they reflect an ex ante disequilibrium in the foreign-exchange market, I shall sometimes refer to that concept as well, making it clear that I then refer to an excess of demand for foreign exchange over supply at the existing exchange rate, and not to an excess of purchases over nonofficial sales.²

By "enduring," I shall mean an ex post deficit that has continued for, say, five or more years, an ex ante deficit that can be considered a disequilibrium in the sense that it is inherently incapable of continuing indefinitely, and one that is consistent with equilibrium in that sense.

I forgo defining "explanation," not because it is too simple to need definition but because defining it is too difficult and, I trust, unnecessary for our purposes. It may well be the word in the title that most needs explanation.

The term "international financial intermediation" poses problems for me. Financial intermediation in general consists of the acquisition of a financial asset, accompanied by the simultaneous creation of a financial liability, which may include an equity security (or equity in the form of undistributed net income, provided shareholders are regarded as separate entities from the corporations in which they hold shares). It is represented by the intermediary's increase in financial assets or in financial liabilities, whichever is smaller. Any excess of the increase in its financial assets over the increase in its financial liabilities, insofar as it is not accompanied by decreases of nonfinancial assets, represents saving; insofar as it is matched by decreases of nonfinancial assets, it is disinvestment. That much appears clear. Application of this definition to the international transactions of a country suggests that the measure of IFI should be the increase in a country's foreign financial assets, or the increase in its liabilities to foreigners, whichever is smaller. The excess of increase in assets over increase in liabilities, then, would be foreign investment that is transferred in the form of a

² The distinction between ex post and ex ante concepts of the balance of payments is discussed in Machlup's essay "Three Concepts of the Balance of Payments and the So-Called Dollar Shortage" [27]. The concept of an "exchange market" balance is equivalent to what that article calls the "market" balance. It is discussed in Gardner [7] and criticized in Machlup's "The Mysterious Numbers Game of Balance-of-Payments Statistics" [27]. See also Lary [23].

current-account surplus (and, perhaps, gold), rather than by intermediation.

Arthur Laffer has raised the question of whether that measure is sufficiently comprehensive. I understand that he would include in IFI the entire amount of increase in international financial assets or, at least, the entire amount of increases held by financial intermediary firms, and not merely the amount that is matched by an increase in liabilities to foreigners. His rationale appears to be that a country may intermediate not only between foreign lenders and foreign borrowers, but also between its own lenders and foreign borrowers. One reason that I resist this view is that when we talk about the role of a country as a whole, we, in effect, treat the various entities within it as though they were consolidated. From this aggregative point of view, the excess of an increase in a country's financial assets over an increase in its liabilities to foreigners represents foreign lending but not international financial intermediation.

Another criterion for determining whether an intermediary firm that borrows from a compatriot and lends to a foreigner is engaging in intermediation that can be called international, is whether the intermediary service that it provides is being exported or sold to a domestic resident. This presents a more difficult problem. The test might be whether the service that the intermediary renders is paid for by the compatriot of the intermediary or by the foreigner. Analysis of this question might take us far afield and it is not necessary for dealing with the questions I wish to consider here. I shall, therefore, regard IFI as excluding the excess of the increase in a country's foreign financial assets over the increase in its liabilities to foreigners.

The fact that these questions of definition center around capital flows prompts me to observe that most of the conventional theory of international payments equilibrium is irrelevant to the problem that it claims to analyze. This problem is the identification of the conditions of equilibrium in the foreign-exchange market and the process by which equilibrium, once disturbed, is restored—if it is restored. Most analyses, however, are concerned only with current-account transactions, which are responsible for only a portion of the bids, offers, and transactions in the foreign-exchange market when capital is mobile (i.e., when would-be demanders and suppliers of international financial

assets may freely offer, and bid for, foreign exchange, regardless of whether any capital actually moves). To the extent that such analyses exclude the capital account, they do not address the problem. If one defines the issue as one of explaining the causes, effects, and processes of eliminating deficits and surpluses in the total balance of payments, instead of defining it in terms of the foreign-exchange market, the conclusion is the same: until the past few years, most of the literature has been irrelevant, except insofar as the current account does not feed back to the capital account at all.³

THE HYPOTHESIS OF INTERNATIONAL FINANCIAL INTERMEDIATION

THE hypothesis of international financial intermediation grew out of a combination of the general theory of financial intermediation pioneered by Gurley and Shaw [9] and the observation that, beginning in 1950, the United States had persistent "liquidity deficits," accompanied for some years by great strength of the dollar in the foreign-

³ The survey by Anne Krueger [18] supports the conclusion that most of the literature is irrelevant. Early in her article, she says that the first problem of balance-of-payments theory is to formulate the nature of the external constraint. Two paragraphs later, she points out that "the question of the nature of the external constraint is bypassed." She observes that "the analysis of capital flows between countries as an integrated part of payments models has only begun to receive attention. Indeed, . . . there is no widely accepted theory incorporating both current and capital account items. The most thoroughly explored models in payments theory are those which consider only current account transactions and a means of payment" (pp. 2-3). Even Harry Johnson's well-known article, "Towards a General Theory of the Balance of Payments" [15], which sets out to analyze the total balance of payments and makes a valuable contribution toward doing so by distinguishing between stock and flow disequilibria, concentrates on the distinction between expenditure-switching and expenditure-changing, which is a relapse into analysis of the current account. The first word in the title of Johnson's essay suggests that he was well aware that he had taken only some steps in the necessary direction. Further progress has been made by Mundell [32], McKinnon [29, 30], Floyd [6], Laffer [19], Scitovsky [41], and others.

It may be noted that Krueger, after observing that "a deficit only implies a net change in a country's asset position," remarks that "it is obvious that none of these asset reductions could continue indefinitely" (p. 2, col. 2), and later questions the possibility that deficits and net capital inflows can continue indefinitely (pp. 22-23). The conclusion that deficits on current account cannot continue indefinitely is incorrect when applied to growing economies, as I stated [35] and Domar [5] elaborated twenty years ago.

exchange market. This strength reflected a demand for dollar assets by both private foreigners and foreign monetary authorities, who, on balance, preferred dollars to gold for at least most of the 1950's. Even after 1957, when liquidity deficits grew to a size that caused alarm, private holders continued to accumulate liquid dollar assets. In the ten years beginning in 1960, when the data first permit separating increases in holdings of liquid dollar assets by monetary authorities from increases in holdings by other foreigners, the recorded holdings of others have risen in every year; in six of these ten years they rose by more than \$1 billion a year. At the same time, outflows of American private capital, mainly long term, increased. Thus, the United States was increasing its foreign financial assets and its liquid financial liabilities to foreigners at the same time. The simultaneous strength of the dollar and the accumulation of dollar assets by foreign monetary authorities during the 1950's showed that the increase in the liquid liabilities of the United States was a response to an increasing total "stock demand." It appeared, therefore, that the United States was performing the role of a financial intermediary.

Three different phenomena could explain this role. The first, put forward by Kindleberger in 1965 [16], is that foreign asset-holders have a higher demand for liquidity, in relation to the supply of such assets made available by foreign borrowers, than American asset-holders have in relation to American supply — with demand and supply in both areas measured at the level and structure of interest rates that would prevail in both areas if capital could not flow between them. In other words, the hypothesis is that foreign asset-holders want short-term or liquid assets in larger quantities than foreign borrowers are willing to supply at the interest rates that would prevail if capital could not move into and out of the United States, with the opposite relationship prevailing in the United States. Although the Kindleberger statement does not say so, financial intermediaries in the two areas must be included among the suppliers and demanders, for the hypothesis requires that foreign financial intermediaries do not fully bridge the gap, and that the United States as a nation is (or American intermediaries are) willing to do so.⁴ Americans issue liquid liabilities against them-

⁴ The reason financial intermediaries must be included in the model is explained in Salant [37, p. 182].

selves that foreign asset-holders are willing to hold, and they buy the long-term obligations that foreign borrowers want to sell, but cannot sell at equally low yields abroad. This hypothesis of a difference in liquidity preference between the United States and foreign countries can give rise to an exchange of long-term assets for liquid assets.

Such a difference in liquidity preference, however, is not the sole, or even a necessary, explanation of international financial intermediation. Differences in the degree of competitiveness of the financial intermediary industries of the two areas can also account for it; so can differences in their costs of intermediating. That there is either a higher degree of oligopoly or higher costs in the financial-intermediary industries of other countries is indicated by the fact that spreads between the rates banks pay on short-term deposits and the rates that they charge, even to short-term borrowers, are wider abroad than in the United States. These spreads provide an opportunity for financial intermediation by American banks, which are content to accept narrower spreads. Both of these reasons for intermediation could give rise to foreign acquisitions of dollar deposits and American acquisition of short-term claims against (i.e., bank loans to) foreigners.

That these three explanations are distinct and independent becomes clear when one considers that, on the one hand, a pure difference in liquidity preference could give rise to short-term loans by foreigners directly to American industry. In that case, no intermediaries would be involved. On the other hand, if foreign intermediation is more oligopolistic, or is conducted at higher cost than American intermediation, American intermediaries have incentives to operate abroad, even if the liquidity-preference patterns of asset-holders and borrowers abroad are identical with those in the United States.

The fact that foreigners had (and have) a positive demand for increments of liquid dollar assets makes it clear that the amount of the net balance of payments on the liquidity definition is not determined only by influences operating on the transactions placed "above the line" in that definition, with the liquidity balance being a mere residual. Sound theory supports the idea that, even under a monetary system of fixed exchange rates with reserves held in gold and dollars, none of the elements in the account should be assumed to be free to take on any value whatsoever. All, including gold holdings, should be treated as

variables, since assets and liabilities must be willingly held. Willingness to purchase and to sell the existing flow of goods and services, and to hold the existing stock of assets at existing prices, is implied in the definition of equilibrium in other parts of economic theory; it should be employed in explanations of the balance of payments as well. The existence of a positive foreign "net-flow demand" for liquid dollar assets and gold combined which exceeds the increase in world monetary gold stocks implies that a deficit of the United States on the liquidity definition is not only consistent with equilibrium in the foreign-exchange market but is a necessary condition of it, inasmuch as it can be met only from a decrease in American gold holdings, an increase in liquid liabilities to foreigners, or some combination of the two. Or, to put it differently, in the absence of a deficit, there would be foreign excess demand for gold cum dollars.

I have said that financial intermediation is performed when, and to the degree that, financial assets and liabilities increase simultaneously. The omission of any reference to the relative liquidity of these assets and liabilities implies that countries acquiring liquid assets and less-liquid liabilities, as well as those acquiring liquid liabilities and less-liquid assets, act as international financial intermediaries. The domestic correlative of this implied proposition is that when an individual borrows from his bank mainly to buy a house, but also uses some of the proceeds to maintain a higher cash balance, he — and not only his bank — is acting as a financial intermediary. Such a definition appears too broad, but narrowing it also raises difficult questions. I shall simply avoid the problem of whether, when financial aggregates are rising, practically everyone is to be regarded as a financial intermediary, treating that question, for present purposes, as unimportant to the general thrust of the IFI hypothesis.

The functions of financial intermediation have been identified by Arthur Laffer (in an unpublished paper dated March, 1968) as gathering information about rates of return (presumably those obtainable on primary loans) and the bringing together of lenders and borrowers,⁵

⁵ Logically, the brokerage function does not require financial intermediation, since brokers can bring buyers and sellers of financial assets together without owning such assets or issuing financial liabilities against themselves. Presumably, however, a broker can perform this function more efficiently if he holds some inventory of financial assets for his own account so that he may provide them to prospective buyers (lenders) who

thereby reducing the margin between lending and borrowing rates; pooling assets with "somewhat independent" risks and thereby reducing the risks of portfolios; and lengthening the investment-planning period, thereby lowering the relative weight of the risk factor.

Because economies of scale are important in gathering information relevant to primary securities, performing brokerage functions, and pooling assets of varying risks, a large economy like that of the United States is likely to develop the financial-intermediary function most effectively. Its size also plays a role by making it important in world trade, and therefore making its currency more needed for foreign trade transactions to which it is a party; this, in turn, promotes its use in transactions to which it is not a party.

It may help to clarify the concept of IFI further, and at the same time pave the way for discussion of some criticisms of it in the next section of this paper, if I set forth some explanations of enduring deficits that do not, I think, involve international financial intermediation.

ALTERNATIVE THEORIES OF ENDURING DEFICITS

THERE now seems to be widespread, perhaps even general, agreement that when international trade is growing, equilibrium is consistent with liquidity deficits in the balances of payments of vehicle-currency countries, i.e., countries whose currencies are used to make settlements in private foreign trade (Lederer [24], Chittenden [3], Bernstein [2], Mundell [32], Machlup [26, pp. 303 ff.]). Before publication of the first Kindleberger article in 1965, this conclusion was not widely accepted and was certainly rarely stated, although I had suggested that flows of foreign liquid capital to the United States are probably related positively to its bank loans to foreigners, the growth of its exports, and the growth of total world trade [36, pp. 18-19].

Some economists who do not, at least explicitly, embrace the IFI hypothesis appear to agree that a deficit, even on the official-settle-

appear when sellers of suitable primary securities (borrowers) are not at hand. If a broker finances such inventories entirely with his own capital, he is presumably still not a financial intermediary, but to the extent that he issues liabilities against himself, he is one.

ments definition, is consistent with equilibrium for a reserve-currency country under certain conditions. This agreement is based on recognition that under conditions of growth, foreign monetary authorities, as well as private foreigners, may have a growing stock demand (and therefore a positive flow demand) for a reserve currency that would cause the reserve-currency country to have an official-settlements deficit, and that these deficits can be sustained, given either of two conditions. One is that the monetary system provides sufficient growth of net reserves to enable a reserve-currency country, if it manages its affairs reasonably well, to maintain reserve assets in a relation to its liabilities to foreign monetary authorities that will not give rise to self-justifying speculation against the reserve currency. The other is that the monetary system provides no alternative reserve asset to foreign monetary authorities.

The argument that an official-settlements deficit is inconsistent with equilibrium is based on the fact, or assumption, that neither of these conditions is fulfilled. The proponents of the IFI hypothesis neither dispute that one of these conditions must be fulfilled if an official-settlements deficit is to be sustainable nor assert that either is currently fulfilled.⁶ They argue, rather, that the provision by the financial center of liquidity to private and official foreigners – and especially to private foreigners – is a useful function, and that the monetary system ought to be adapted to permit its continuation. But this is a normative point. From the point of view of positive analysis, their main difference with others appears to concern the question of what gives rise to enduring deficits. One way of posing the question is to ask, What has caused the deficits actually experienced since World War II by the United States, the country whose deficits the IFI seeks to explain? Have these deficits been accompanied by an equilibrium in the foreign-exchange market (apart from speculation) not calling for adjustment, or do they reflect a disequilibrium to which adjustment has not been made?

⁶ When neither condition is fulfilled, and official holders of the reserve currency are known to have access to an alternative form of reserve, liquidity deficits of the reserve-currency country give rise to speculation against that currency. This speculation increases the rate at which reserve-currency balances accrue to foreign monetary authorities and may increase them above the levels that these authorities are willing to hold when they have the alternative of converting such balances into gold. The result is that on this definition, a deficit cannot be sustained indefinitely.

Even "equilibrium deficits," however, may have various causes under conditions of growth. Some economists who do not associate themselves with the IFI hypothesis nevertheless agree that world economic growth may give rise to deficits of the United States that are consistent with equilibrium, and offer explanations based on the concept of portfolio balance. If their view is taken into account, the question becomes whether all deficits based on balanced expansions of asset portfolios in two or more countries reflect something that can be called "international financial intermediation," or whether the concept of such intermediation is more limited, describing only one kind of balanced expansion of portfolios.

Most theories that offer explanations of enduring deficits explain them as a condition of equilibrium. One that does not is Machlup's theory of the "Transfer Gap" in the United States balance of payments, which offers an explanation of persistent *disequilibrium* [28]. Machlup, after adjusting United States current and capital account data, calculates two series for the period 1950-67, Net Real Transfers and Net Financial Transfers (hereafter referred to as NRT and NFT, respectively). The difference between them, which he calls the Transfer Gap,⁷ is intended to be an approximate *ex post* measure of the failure of adjustment, i.e., the extent to which capital movements that are presumed to be autonomous exceed net exports of nonmilitary goods and services other than the services attributed to American-owned capital abroad.

Machlup finds that, despite substantial annual changes in NFT, NRT tends to change in the same direction, and that the Transfer Gap shows strikingly little variation. Although this Gap had a range of \$4.1 billion (between \$.7 and \$4.8 billion) in the period 1950-67, it lay

⁷ Machlup defines Net Real Transfers as the net current-account balance, modified to exclude unilateral transfers, exports of goods and services under military grants, imports of foreign services by the military, and investment income. He defines Net Financial Transfers as the net capital account, excluding changes in reserve assets, in liabilities to foreign official agencies, and in liabilities of the U.S. government or of American banks to others, plus unilateral transfers, military expenditures abroad, and investment income. Thus, the Transfer Gap, being the difference between them, consists of the liquidity deficit plus the increase in nonliquid liabilities of the U.S. government and banks, the net short-term borrowing reported by American residents other than banks, and net errors and omissions [28, pp. 202-207]. See Addendum of this paper for comments on Machlup's treatment of some components of the balance of payments, as well as a confirmation of his broad statistical results based on later figures.

within a range of only \$1.4 billion (between \$1.5 and \$2.9 billion) in eleven of the eighteen years. Moreover, he found that in most years the annual changes in NFT and in NRT were in the same direction. Apparently, changes in NFT were accompanied by changes in NRT that kept the Transfer Gap within a relatively restricted range, suggesting that an adjustment process was at work.

The question that Machlup poses is, Why does this process keep the Transfer Gap within a limited range centering on \$2.3 billion instead of on zero? His hunch is that "monetary and fiscal policies became circumspect and restrictive whenever the deficit increased beyond the accustomed level, and became more relaxed and more liberal whenever the payments position showed signs of improvement."

I see nothing in the Machlup hypothesis that makes it implausible on the face of it although I have some reservations about statistical matters. (See Addendum.) Other hypotheses, however, are equally plausible.

One significant question is whether all of the Transfer Gap, as measured by Machlup, represents a disequilibrium in the American payments position. Machlup recognizes that "it is surely incorrect to regard all changes in the size of liquid, near-liquid, and pseudo-liquid dollar assets as accommodating capital movements" (i.e., those induced by conditions in the foreign-exchange market). He cites four reasons why private foreign holders may want to increase their dollar balances and recognizes that two, which are associated with a rise of transactions demand under conditions of growth, are sustainable. (He would include them in his estimate of autonomous financial transfers if they could be identified.)

This demand is the main element of Machlup's Transfer Gap that I regard as sustainable under conditions of growth. I would add only that foreign monetary authorities are affected by similar considerations and, therefore, also have a growing transactions demand for dollar holdings. Thus, I do not have any major difference of opinion with Machlup on the theoretical issue. Note, however, that until the sustainable element of foreign-capital inflow can be identified and shifted from the Transfer Gap to Net Financial Transfers, we cannot know whether the relation between them, so revised, yields incremental relationships as stable as he found or, if it does, whether the

Gap tends to be substantially above zero.⁸ As Machlup observed, econometric techniques might make it possible to separate changes in foreign dollar holdings "explained" by growth in world trade from other changes. To me, such tests do not appear needed in order to make it clear that the Transfer Gap can reflect a foreign demand to acquire dollar assets and, therefore, can be consistent with equilibrium.⁹ What was pointed out in 1963 in *The United States Balance of Payments in 1968* [38, p. 1]—that "the dollar could be strong in the foreign-exchange markets when the United States had a deficit in its balance of payments"—and agreed to by Machlup [26, p. 303] is now increasingly recognized.¹⁰

The underlying unanswered question in the Machlup hypothesis is why the American authorities relax their efforts to reduce the Transfer Gap (or the deficit on which their attention is concentrated) before it reaches zero. Lack of an answer to that further question does not

⁸ If it were possible to include all accommodating finance in the Gap and get it out of *NFT*, what should we expect the regression of this Gap on *NFT*, thus revised, to look like? If the Gap reflected random deviations from an equilibrium level, one should expect that its average value would be zero, and that it would have no significant relation to Net Financial Transfers. These results imply that the constant would not differ significantly from zero. If *NFT* has a rising trend and there is a lag in adjustment of *NRT*, one should expect a positive relation between the Gap and first-differences in Net Financial Transfers, with a constant not significantly different from zero.

⁹ Arthur Laffer [19] sought to find a statistical "explanation" of monthly flows of private, foreign short-term capital into the United States during the period 1959-64 and concluded that growth in the value of world trade was an important determinant of such inflows. Whether the Machlup Transfer Gap represents a disequilibrium in the payments position might also be tested by seeing how, if at all, the Gap is associated with the position of the dollar in the foreign-exchange market. Such a test, however, would require taking into account complications created by official interventions in the foreign-exchange market and the difficulties of comparing yields on "similar" assets in different countries.

¹⁰ Houthakker, who was led by deficits and purchasing-power calculations to believe that the dollar was overvalued by as much as 15 or 20 per cent in relation to most European currencies even in 1963, after prices in the United States had for several years risen less than European prices, and the mark and guilder had been revalued in 1961 [12, p. 217], conceded in late 1969 that neither the liquidity nor the official-settlements definitions of the net balance "gives an adequate picture of our current international transactions." He observed that during 1969 "in the face of the huge liquidity deficit, the dollar has remained strong in the foreign-exchange market" and that in the third quarter of 1969, the dollar remained strong despite an official-settlements deficit. "If we want to analyze the strength or weakness of the dollar," he said, "these two concepts are of very limited usefulness" [13]. I suspect that similar difficulties would be found with Machlup's version of the Transfer Gap because, as he recognizes, it includes inflows that are not merely accommodating.

mean, of course, that Machlup's hypothesis is incorrect. One explanation might be that the authorities are unwilling to accept the domestic effects of the measures needed to eliminate the assumed international disequilibrium completely, while being willing to accept such a disequilibrium if it is of limited size. One might also explain it through some neurotic characteristic analogous to that which makes some people invariably late for appointments by an almost invariant interval. When pressed, they hurry enough to limit their tardiness to approximately that interval; when they have time to spare, they manage to waste just enough of it to be equally tardy.

But it is also possible that some of the persistent "gap," or "deficit," reflects a foreign demand for increments of liquid dollar assets. It is to be noted that Machlup's empirical analysis takes account, at least explicitly, only of data for the United States. If a reduction of the gap, or deficit, to less than the persistent amount would cause an undue starvation of foreign demand for dollar assets, market forces might be set in motion abroad that would increase the resistance to its further reduction. In that case, the enduring gap, or deficit, would turn out to be the result of foreign demand for more dollars, and would reflect the requirements of portfolio equilibrium, rather than the persistence of disequilibrium.

While Machlup offers an explanation of what he believes to be persistent disequilibrium, others offer theories to explain equilibrium deficits. These theories may be regarded as a subclass of a larger class of theories that explain gross flows of capital in opposite directions. The effects of such gross flows on net balances depend on the types of assets that each area purchases from the other, and on how net balances are defined. If, for example, the flows in both directions are equal and consist of long-term assets other than marketable United States government bonds and notes, they do not affect the basic balance, the liquidity balance, or the official-settlements balance.

One possibility is that ultimate savers resident in an area lend directly to foreign spenders on goods and services, while foreign ultimate savers lend directly to domestic spenders on goods and services. In such a case, there would be no indirect securities (that is, securities issued by intermediaries to finance the purchase of financial assets) and no financial intermediation. Even if the United States borrowed

short and lent equal amounts long, it would not have a liquidity deficit in its balance of payments, since in the liquidity definition increases in short-term liabilities to foreigners reported by American nonbanking concerns (other than the U.S. Treasury) are not regarded as liquid liabilities. In this case, there would be gross flows of financial assets in opposite directions that would not involve financial intermediaries and would not cause a deficit either on a liquidity or on an official-settlements basis, but could be enduring. However, if some of the American borrowing from foreigners was done by the U.S. government, financial assets would flow in opposite directions without involving financial intermediary firms, but there would be a liquidity deficit, and it could be enduring. Neither of these possible cases explains the past liquidity deficits of the United States. The second case, involving U.S. government borrowing abroad without the use of financial intermediary firms, can, at least, be imagined as a future possibility; but the first case, in which other American residents do the borrowing, could hardly occur on a scale large enough to be of practical importance on the world scene. Ultimate borrowers and ultimate lenders in different countries do not know enough about each other and cannot get enough information about each other at costs less than would be incurred either by financial intermediaries or by ultimate lenders and ultimate borrowers residing in the same country. Such transactions appear likely to occur, if at all, only in special cases where communication of information is close—for example, between small neighboring countries; between relatives and friends in different countries; where highly sophisticated savers in less-developed countries prefer to lend directly to business firms in a developed country, rather than to any borrowers in their own; or where some sophisticated savers (nonprofit foundations, for example) in a developed country lend directly to finance purchases of goods and services by a borrower in another country.

It would appear—at first sight, at least—that such transactions would always be small, unless brokers came into existence who found ultimate borrowers and ultimate lenders in different countries without being intermediaries themselves. One might suppose that, even then, such a brokerage enterprise would probably use the information for its own benefit, borrowing and lending on its own account, and thereby

becoming an intermediary. However, the existence of organized security exchanges and of an industry of more-or-less pure securities brokers suggests that cross-flows of financial assets might be, or become, substantial without intermediaries. A basis for portfolio diversification is provided in the models of portfolio balance described by Markowitz and Tobin. Grubel [8] shows that there is an empirical basis for diversification across national boundaries. It is clear from these models that enduring growth in two areas can give rise to enduring cross-flows of financial assets. Moreover, if there are securities markets in both areas which perform the brokerage function, these flows can be large, even without the direct participation of intermediaries. As the wealth of asset-holders in both areas grows, they may increase their holdings of assets in the other area as well as in their own, so that capital may flow in both directions merely as a result of international diversification of growing portfolios. Grubel's measurements of the benefits to investors of such diversification are confined to investments in common stocks—equal cross-flows of which do not affect deficits or surpluses—but such diversification need not be confined to long-term securities. As Grubel observes, the same motives can also explain flows of short-term securities. Cross-flows of assets that involve foreign investment in liquid claims against the United States contribute to a liquidity deficit in the balance of payments of the United States, irrespective of the amount, or maturity, of the foreign assets bought by Americans.

[While this statement was correct when the paper was given, the concept of the "liquidity balance" to which it refers has since been replaced in U.S. official statistics by that of a "net liquidity balance," which treats changes in liquid foreign assets owned by Americans as offsetting changes in U.S. liquid liabilities to foreigners. This statement, therefore, does not apply to the "liquidity balance" as it is defined at the time of publication.]

These considerations suggest that with growth and efficient brokerage in several areas, there could be an enduring liquidity deficit of the United States without the direct participation of financial intermediary firms. Corresponding diversification of assets by foreign monetary authorities could also give rise to an official-settlements deficit.

Another theory of enduring deficits consistent with equilibrium

under conditions of economic growth rests on the assumption that growth of real income, and the increasing wealth that may be presumed to accompany it, give rise to an increased demand for holdings of money. Mundell [32] shows that insofar as a country's money supply bears a fixed relation to its holdings of international reserves, growth in the demand of its residents for domestic money will set in motion forces that produce an over-all surplus in the balance of payments — this surplus being equal to the reserve increase commensurate with the additional supply of domestic money needed to satisfy the increased demand. Thus, according to Mundell, when a country's domestic stock of money bears a fixed relation to its international reserves, the monetary implication of growth is a surplus in its balance of payments. This conclusion, sketched briefly by Scitovsky as early as 1957 [40, pp. 89-90], is contrary to the widely held theory that growth, because of its income effect on the current account, tends to make for a deficit.

Mundell does not explain how his model could lead to enduring deficits for a country with positive growth, but equilibrium deficits for a reserve-currency country that is growing can be derived from his model and some other conditions. If the world economy is growing, the growth in demand for domestic money requires a growth in international reserves, unless countries are satisfied to reduce the ratio of their international reserves to their holdings of domestic money. If *net* international reserves (which, before the advent of Special Drawing Rights, meant world stocks of monetary gold) grow fast enough to satisfy the demand, everyone can have surpluses; then the growth of demand for domestic money does not require any country to have deficits. However, if international monetary reserves consist partly of national currencies, as they do in the present system, growth in the demand for international reserves can be satisfied by growth in the supply of reserve currency as well as of net monetary reserves; and the demand of growing countries will be forced in this direction if the world supply of net monetary reserves grows by less than the growth in demand for total international reserves on the part of non-reserve-currency countries. If the reserve-currency countries allow the supplies of their money to grow enough to meet growing foreign demand for reserves, they will have a growth in liabilities and, since these will

be liabilities to foreign monetary authorities, they will have deficits on the official-settlements definition.¹¹

Mundell considered the implications of growth for the balance of payments from the point of view of only one country, saying nothing explicit about what was happening in the rest of the world. A positive relationship between the rate of growth and the sign of the net balance of payments of the United States was also found by Williamson in his study of the United States in the century before World War I [45]. Arthur Laffer, in [20] and in his paper for this conference, has developed the monetary implications of growth for the balance of payments in a world model. His hypothesis is that while a positive rate in a country's growth does not necessarily make for a surplus in its balance of payments, a more rapid rate of growth than that of the rest of the world does so, unless the growth of its money stock relative to that of the rest of the world is sufficient to offset this effect; it has an adverse effect on the country's current-account balance but a larger favorable effect on its capital account. (The model in [20] abstracts from government activities, including open-market operations, which modify the results.) Laffer tests his hypothesis empirically by regressing, first, changes in the ratios of current-account balances to GNP's of twenty-two countries on changes in their percentage rates of income growth and, then, changes in the ratios of their total net balances of payments to their GNP's on the same variable.¹² He finds that both regressions are consistent with his hypothesis; net balances on goods and services (measured relative to GNP) are negatively related to rates of growth, as conventional theory suggests, but *total* net balances (also measured relative to GNP) have a positive relation to growth. Laffer finds that the latter, as well as the former, result is statistically highly significant.

¹¹ Mundell's simple model, in depicting this argument, employs an assumption that the demand for money by the residents of a country is only for domestic money. This assumption leaves no room for changes in monetary liabilities to foreign private holders. The distinction between domestic holdings of domestic money, domestic holdings of foreign money, and foreign holdings of domestic money is also absent in Harry Johnson's earlier article [15].

¹² The changes measured take place between the periods 1951-55 and 1956-60, and between 1956-60 and 1961-65, for twenty-two countries. The data for the two time periods are pooled, so that the number of observations is twice the number of countries. Current account and total net balances are measured as ratios to gross national expenditure.

If a rate of growth faster than that of the rest of the world gives rise to an excess demand for both goods and money, and an excess supply of nonmonetary financial assets (i.e., to a balance-of-payments surplus), a relatively slow one gives rise to a deficit. Thus, we have here another theory of enduring deficits.

This theory, too, can account for equilibrium deficits without invoking the operation of financial intermediary enterprises. It posits a growth in the transactions demand for money associated with economic growth that could be fully satisfied by an increase in the stock of what, for the world, is "outside money," i.e., net world monetary reserves. However, if that demand is not satisfied by this means, it can be satisfied only by an expansion of what, for the world, is "inside money." This implies that a portion of the increase in reserves of surplus countries is matched by an increase in the liquid liabilities to foreigners of a reserve-currency country, which—being liquid—must be liabilities of a financial intermediary. Under the conditions posited by the theory, as implied by Mundell and explicitly developed by Laffer, the relatively fast-growing world outside the reserve-currency country has an excess of net capital imports over current-account deficit, i.e., a surplus. If the differential in growth generates a surplus large enough to exceed the growth in the world's net monetary reserves, the theory implies that the reserve-currency countries, in the aggregate, have capital exports along with growth of liquid liabilities, and are thereby providing international financial intermediation. Thus, the Mundell-Laffer theory implies that growth in the world outside the reserve-currency countries, if sufficiently faster than the growth in those countries, creates a demand for international reserves that is satisfied by more rapid growth in gross than in net international reserves. This theory need not imply a higher *level* of preference for liquid assets in the non-reserve-currency countries, but it does imply a more rapid *growth* in their demand for liquid assets, attributing that to greater rapidity of economic growth and a resulting greater increase in transactions demand.¹³

¹³ See the Addendum for additional comments on Laffer's model and for suggestions for further research relating to it.

CRITICISMS OF THE HYPOTHESIS

THIS section of the paper reviews some of the criticisms that have been made of the IFI hypothesis. In doing so, it distinguishes between criticisms of the hypothesis as positive economic analysis of the function performed by the United States in the world economy, and criticisms of the normative or policy propositions espoused by proponents of the hypothesis, i.e., criticisms which assert that continued intermediation by the United States is undesirable because it is incompatible with the existing international monetary system or with related institutions. I make this distinction because, as I have stated earlier, I do not regard the hypothesis as saying that the international monetary system, especially as it existed until March, 1968 (which, be it noted, is not at all the same as the present system), was perfectly compatible with the continued performance of IFI by the United States or by any other country — particularly if one includes, along with the international monetary system, the prevailing ideas about how it should work. It is no criticism of a theory about what is occurring in the world to say that it should not be occurring, or that its continuation is inconsistent with existing institutions. Economists can and do analyze the causes — and, however ineffectually, the effects — of inflation without making recommendations for or against it. Similarly, they can logically find a prevailing practice economically beneficial but inconsistent with existing institutions, as one might do in the case of banking without a central bank and deposit insurance. If their analysis is correct, perhaps the institutions should be made compatible with performance of the function, rather than terminating the performance of that function.

Because I am here chiefly interested in the positive analysis, first I shall deal quickly with the criticisms of the normative and policy aspects of the hypothesis.

CRITICISMS OF POLICY IMPLICATIONS

1. One criticism of the IFI hypothesis is that the mere explanation or interpretation of the role of the United States in the world as the performance of financial intermediation is not enough to sustain

confidence in the dollar (Halm [10]). This observation may be correct, but it seems to me relevant only to whether the United States could continue to perform the role of the financial intermediary under the gold-dollar monetary system as it existed before March, 1968.

Moreover, I doubt that this criticism is, in fact, correct. The confidence that the system requires is in the foreign-exchange value of the currency, and the degree of that confidence cannot be inferred from the *ex post* balance-of-payments position, especially if and when that position shows a deficit only on the liquidity definition. A deficit on that definition is compatible with an excess demand for dollars in the foreign-exchange market at the existing price, and a surplus is compatible with an excess supply of dollars.

2. It is also argued that the high volatility of short-term capital impedes the operation of national monetary policy and that—since performance of the intermediary function implies that the intermediary receives continuing inflows of foreign short-term capital—the performance of intermediation itself is incompatible with the operation of national monetary policy. This argument assumes that any interference with the operation of monetary policy on a national basis is bad, which one might question. Perhaps more important from an analytical point of view is the fact that the volatility of foreign-owned short-term capital would create problems, irrespective of whether one interprets the presence of such capital as evidence of financial intermediation or in some other way. The issue of volatility has little to do with the IFI hypothesis; it has to do, rather, with the compatibility of a fixed-rate monetary system and national stabilization. Although the encouragement of IFI certainly increases the amount of international short-term-asset holding, any financial center, if faced with a liquidity crisis, must either have very large reserves or credit facilities or be forced to adopt direct controls or internal policies that it may regard as undesirable on domestic grounds. Whatever the relation between IFI and the volatility problem, I see nothing wrong with solving it by having a lender of last resort that has, or can create, resources large enough to handle crisis situations.

3. Also dependent on the existing monetary system is the criticism that short-term capital flows cannot permanently and increasingly finance the deficits of the intermediating country in the face of a deteri-

oration of its net reserve position. It is not necessary, however, that the increase of liquid liabilities of a financial center, which is inherent in its performance of the intermediary function, should cause deterioration of the relation of its liquid assets to its liquid liabilities. A monetary system designed to permit performance of this function should also provide for adequate increases in its reserve assets.

4. It is also true, as some critics point out, that the system of adjustable pegs accentuates the problem created by volatile short-term capital movements. But this fact alone does not imply that IFI is undesirable. It simply raises the question of whether the advantages of international integration of capital markets outweigh the disadvantages of fixity of rates, or of their discontinuous adjustment. Indeed, the implication that the discrete adjustability of exchange-rate pegs is upsetting could well lead to the conclusion that rates should be fixed absolutely and forever. That might make short-term capital less volatile. In any case, a world monetary system comparable to the national monetary system of a large country like the United States would make the volatility of capital harmless; reserves would be adequate to take care of such movements, while the fixity of exchange rates, if it could be made credible, would drastically reduce the incentives for such capital to move in large quantities at one time.

All of the above arguments concern the incompatibility of international financial intermediation with a particular system of international monetary institutions. Analytically—and also in practice, given a long enough period of time—that incompatibility, if it exists, does not refute the proposition that IFI accounts for deficits. At most, it implies that the continued performance of this function and the continuation of the existing monetary system are incompatible. That incompatibility no more implies that the function should not be performed than it implies that the system should be changed and the performance of the function be continued.

CRITICISMS OF POSITIVE ANALYSIS

To turn now to the criticisms of the hypothesis as positive economic analysis, a number of these criticisms appear to me to be based upon misunderstanding of the hypothesis.

1. The first criticism is that the theory conflicts with the fact that American financial investment in Europe—more precisely, the cumulative flow of capital since 1955—has fallen short of the flow of capital from Europe to the United States if one excludes movements of European official funds. One element of this argument, as stated by Triffin [43, pp. 9–15], is the assumption that the hypothesis claims to explain only the cross-flows of financial assets between Europe and the United States, i.e., that it relates only to regional bilateral movements of capital. It is true that the article in the *Economist* and Kindleberger's first article did focus attention on asset preferences and capital markets in Europe. Nevertheless, a bilateral interpretation is not implied by the hypothesis. For the United States to provide financial intermediary services to the rest of the world, it is no more necessary that it lend to the same country or area from which it borrows than it is necessary for a domestic financial intermediary to lend to someone doing business on the same street as the depositor from which it borrows. Financial intermediation is being performed if the United States borrows from Europe and lends to other areas just as much as if it borrows from, and lends to, Europe. Thus, the hypothesis cannot be refuted by an appeal to bilateral statistics.

2. A second criticism by Triffin, which also seems to me invalid as a refutation, is that a substantial portion of the assets acquired by the United States takes the form of direct investment. The criticism asserts that these investments should be excluded because "the initiative certainly lies far more with the American investor than with any autonomous desire of Europeans to raise long-term funds in the United States, as is assumed by our three authors" [43, p. 11]. As I have explained elsewhere [37, pp. 186–187], if such investment increases, it makes no difference to the validity of the analysis whether the buyers or the sellers of the equity take the initiative. When American investors buy equity interests from European investors, the sellers receive liquid funds. They may have no demand for them at the existing interest rates yielded by liquid funds, but they must do something with the proceeds. They can hold them in liquid form or they can buy securities of intermediate or long term, thereby reducing interest rates for those maturities and transferring the liquid assets to someone else who, at the lowered interest rates, is willing to have more liquid assets. It is

obvious, therefore, that even direct investment by the United States increases European private holdings of liquid assets in the form either of dollars or of the national currencies of the holders. Whatever sellers of the equities do, American direct investment contributes to easing the credit or capital markets, or both, in the foreign country; correspondingly, any restrictions on such investment will tighten those markets. Thus, the analysis applies to direct investment as much as to other forms of capital flow.

3. A third objection is that a substantial part of the foreign holdings of liquid dollar assets in the United States is held by official, not private, holders. Triffin, after appearing to regard this fact as a valid objection, then recognizes that the intermediation thesis takes into account the possibility that the demands of private foreigners for liquid assets may be for assets denominated in their national currencies, rather than in dollars. It asserts that this demand is satisfied by the acquisition of balances in national currencies from the foreign resident's central bank, which accepts the excess dollars supplied in the private market.¹⁴

4. Another criticism is that foreigners make some long-term investments in the United States and that these capital flows do not reflect a desire for liquid assets. This objection ignores the postulate that the basis for IFI is not confined to differences in liquidity preference between the United States and other countries. As I have already observed, that difference was the sole basis for it in Kindleberger's

¹⁴ See [43, pp. 12-13]. In a footnote, Triffin says that this extension of the intermediation thesis to the dollars accumulated by foreign monetary authorities seems to be defended mostly by Kindleberger, and that I express considerable doubts about it. My doubts extended only to the portion of dollars accumulated by foreign monetary authorities unwillingly; I had, and have, no doubt that the portion held willingly should be regarded as part of the intermediation process. I even questioned the proposition that the "involuntary" changes in official holdings of dollars should be excluded, because no holdings are "involuntary" in relation to the alternatives that confront the holder. If the alternative of gold were not available to the monetary authorities, there would be no question that the entire increase of holdings should be included, and little question that they would have been as large as, or larger than, when the gold alternative was available. In other words, I see no reason to suppose that without the gold alternative, foreign monetary authorities would have increased their total reserves by smaller amounts. (See [37, p. 186n].) The question of whether "involuntary" foreign official holdings are to be excluded from intermediation is analogous to the question of whether the amount of intermediation performed by a bank is diminished when a portion of the liquid assets held by depositors is withdrawn in the form of currency.

original article [16], but I expanded his model and pointed out two other possible bases for it. I introduced into the model a financial-intermediary industry, which was not explicitly present in his model, and pointed out that IFI could arise both from differences between the market structures of the American and foreign financial-intermediary industries, and from differences in their economic efficiency and consequently their costs of doing business. In this expanded model, the maturities of financial assets flowing to the United States need not differ from the maturities of those flowing from the United States.

Moreover, the conventional criterion for judging the liquidity of financial assets does not coincide fully with that implied even by the original Kindleberger model. The conventional criterion is that an asset is liquid if its original maturity is less than a year or if it is a U.S. government security (other than a Roosa bond). However, a more satisfactory economic criterion would take into account the incremental costs and benefits of early, as contrasted with later, liquidation of an asset, including in these benefits the imputed values of convenience and anxiety avoided. The difference in costs between liquidating a given asset at different periods of time affects its liquidity. Comparing the liquidity of different assets requires a comparison of the costs of liquidating them in the same periods of time. On this economic criterion, shares in American Telephone and Telegraph Corporation are a more liquid asset than, say, a nine-month loan to a borrower known only to the residents of a small country with a limited capital market. Even shares in a New York-based real-estate investment trust may be more liquid than such a loan. It follows that even a model in which IFI is based entirely on differences in liquidity preference would not be upset by a demonstration that foreign holdings of American assets were predominantly in long-term assets other than U.S. government securities or that American holdings of foreign assets were of short-term character. American assets held by foreigners, despite being long-term and nongovernmental, may still be liquid, while foreign assets held by Americans may be short-term but relatively illiquid. For this reason, as well as for reasons I have mentioned in the second section of this paper, IFI can take place without giving rise to a deficit on either the liquidity or official-settlements definition. It seems clear, however, that the cross-flows of financial assets could take a form that would give rise

to deficits on either definition. How enduring these deficits would be is discussed below.

5. Another objection to the IFI hypothesis is based on the view that such intermediation constitutes a monetary veil behind which nothing "real" occurs. I confess to finding this objection a bit confusing. It appears to involve two different points, but they were put forward together and seem to depend on the same allegation of fact. One such argument is that, since the long-term funds that have been lent remain in the lending country as short-term balances, nothing happens in international trade. Real resources stay where they are; the long-term lender does not have to produce an export surplus and the short-term lender does not add, via imports, to his productive capacity. The second and logically separable part of the argument is that if such intermediation has no trade effects, "the European countries ought to be able to mobilize their own productive resources through their credit systems and their monetary and fiscal policies. The roundabout way of an international financial circuit . . . is basically unnecessary" (Halm [10, p. 5]).

In my view, this argument errs on several grounds. First, the context makes it clear that the statement "real resources stay where they are" means that long-term lending does not produce an export surplus and that short-term lending does not produce an import surplus. (In both cases "surplus" is to be interpreted as a larger surplus or smaller deficit than the country would otherwise have had.) The mere absence of effects on export or import surpluses, however, does not imply that the allocation of resources *within* each country is the same as it would have been in the absence of intermediation. Thus, the fact alleged does not imply that there is no effect at all on international trade, for the composition of trade may be affected. Similarly, it does not imply that the short-term lender has not added to his productive capacity: Moreover, he may add to his real income or welfare without adding to his productive capacity by getting more liquidity or a higher interest rate for a given liquidity. This criticism implies that financial intermediation, whether domestic or international, has no real effects if it does not alter the relation between the aggregate income and the spending on goods and services of any economic unit. It entirely ignores the possibility that intermediation may alter the composition of spending between consumption and capital formation or affect the allocation of

resources in other ways. It is inconsistent with the concession, made in the same criticism a few sentences later, that IFI may have lowered European interest rates and thereby stimulated investment. If an effect on real resources required an effect upon trade surpluses or deficits, changes in tariffs would also be of no significance because, like IFI, they would have no effect on the equilibrium levels of trade surpluses or deficits but would "merely" affect the allocation of resources within the partner countries.

Moreover, even if the trade effect of IFI were nil, which we have no reason to suppose is the case, it would not follow that foreign countries "ought to be able to mobilize their own productive resources through their credit systems and their monetary and fiscal policies," if "ought to be able" means that they would do so, given their preferences as to assets and liabilities and their existing financial-intermediary institutions. The question, "Why should not the same effect be achieved through domestic monetary policies, since no real resources are transferred?" is asked but not answered. That the same effect is, in fact, not achieved in this way indicates that there must be some reason.¹⁵

Although it may be true that "we cannot see" any real changes in current accounts in the raw statistics, this does not mean that the cross-flows of assets have no effect upon them, any more than our inability to "see" (in the same sense) the gains from international trade means that they do not occur. To the extent that the United States lends long and borrows short, and lends at higher rates than it pays for what it borrows, it earns an interest differential which shows up in the current account. If foreigners find it profitable both to lend to the United States and to borrow from it, the United States is apparently providing some financial services to foreigners. The provision of these services can be

¹⁵ In Halm's essay, the theme of the section entitled "The Transfer Problem" appears to be that the dollar glut existing at the time he wrote was a side effect of a massive transfer problem, made inevitable by the failure of the United States to develop export surpluses large enough to transfer economic and military-aid expenditures, and that this dollar glut gave Europe excessive liquidity and threatened it with "imported inflation." I assume that this is intended to be a summary of his views and not an independent argument, because in the latter case, the reasoning would be circular. Thus, the statement that "only when the trade balance cannot be adjusted will it be necessary to match, to that extent, foreign long-term borrowing or foreign short-term lending in the form of privately or officially held dollar balances" assumes the points at issue.

explained by the theory of international trade in the same way that the provision of any service to foreigners is explained: the country providing the services apparently has a comparative advantage in supplying them and earns a return in doing so. The return appears as a difference in interest rates and financial commissions, but from the point of view of economic analysis, it can be imputed to payment for resources of labor and capital invested in intermediation, just as payment for any current export may be so analyzed. Viewed in this light, the long-run growth of the intermediary country's liquid liabilities to foreigners does not represent an excess supply of its money or near-money but a growth in foreign stock demand for financial assets denominated in its currency. A growth in that stock demand is consistent with portfolio balance when the foreign economy is growing.

The real gain to foreigners from the importation of financial intermediary services may take several forms. First, the availability of a foreign financial asset that provides the lender or borrower with a larger bundle of utilities in the form of interest, safety, and liquidity than he could have obtained at home increases his real income directly. Second, it may cause lenders to increase saving out of given incomes, as compared with what such saving would have been if the only intermediation available were provided domestically, and thereby make possible a higher level of investment. Third, the better access of borrowers to capital is likely to result in a better allocation of a given amount of investment outlays than would otherwise occur. Fourth, beside increasing investment by increasing saving at given levels of income, an increase in efficiency of intermediation reduces the amount of capital and labor absorbed in the process of transforming saving into investment, and thereby makes more resources available for investment or consumption.

DIFFERENCES IN LIQUIDITY PREFERENCE?

Let us consider criticisms of some of the specific reasons given by proponents of IFI for the role that they attribute to the United States. The original and best-known reason is the hypothesis, first put forward by Kindleberger, that the preference for liquidity abroad is higher than

that in the United States, with the result that foreign borrowers are less willing to supply short-term financial obligations and foreign lenders prefer financial assets in liquid form—these preferences, in both cases, being interpreted as relative to those of American borrowers and lenders. As a result, foreign long-term assets can be more readily sold in the United States and liquid financial assets more readily supplied by the United States than abroad.

6. One criticism of this view has been made by Lamfalussy, first in a book [21] and more recently in a paper [22]. As I understand Lamfalussy's argument, it denies that European households shun medium- and long-term financial assets and that European corporations have difficulty in selling them. He says "the new issue market in common stock has been much stronger in Europe than in the United States" and cites figures showing that in the years 1960–65 four EEC countries, Germany, France, Italy, Belgium, . . . issued about two and a half times as many new equities as the United States, i.e., an annual average of \$3.4 billion compared to \$1.0 billion in the United States. Moreover, he says that, in 1964, German and French corporations issued long-term and medium-term debt equivalent to \$8.4 billion, compared with only \$4.9 billion in the United States, and that the proportions for the period 1960–65 as a whole were "not basically dissimilar" from these. He argues that both common stocks and bonds issued in Europe by corporations and various government agencies are sold to a large extent directly to households on a retail basis, with intermediaries playing a relatively small role in the new issues market. As a result, direct security purchases form a substantial proportion of the acquisition of financial assets by European households. These households direct only a relatively small proportion of their financial investments toward those institutional investors (insurance companies and pension trusts) which in the United States and the United Kingdom are the main purchasers of securities.

Lamfalussy says nothing, however, about the yields required to induce households to purchase these securities. That they purchase a substantial proportion directly and relatively little through intermediaries, and that the proportion purchased by intermediaries for their own accounts is small in comparison with the corresponding proportion in the United States, tells us nothing about the relative liquidity prefer-

ences of households in Europe and the United States but only something about the *relation* between preferences of households and intermediary institutions in Europe compared with the corresponding relation within the United States. The facts he cites are consistent with European households having liquidity preferences that exceed those of American households if that excess is less than the excess of European intermediaries' liquidity preferences over those of American intermediaries. In other words, European households may buy a larger proportion of medium- and long-term securities directly and a smaller proportion indirectly than do American households, not because their liquidity preference is lower than that of American households, but because the liquidity preference of European intermediaries is greater than that of American intermediaries. Lamfalussy is observing single points on curves relating price and quantity, whereas the hypothesis concerning relative liquidity preferences has to do with the relative positions of the curves. One can deduce nothing about that by observing differences in actual quantity without reference to price.

Lamfalussy also points out that the total of direct securities purchases and investments with institutional investors forms approximately the same proportion of the gross acquisition of financial assets by households in Europe as in the United States or in the United Kingdom, except in France, where the proportion is lower. Or, to put it the other way around, the accumulation of currency, bank deposits, and saving deposits forms the same proportion in all countries considered, except in France, where that proportion is higher. This fact does not have the implications that Lamfalussy sees in it. If, in continental Europe, accumulations of liquid assets are as high as they are in the United States or the United Kingdom but yield much less, that fact supports, rather than conflicts with, the thesis that liquidity preference is higher in Europe.

Lamfalussy also points out that a high proportion of bonds taken up by households in Europe is issued by financial intermediaries, which finance themselves by issuing bonds and which, in turn, grant long-term or medium-term loans to corporations. He refers here to nationalized or seminationalized intermediaries of a specialized kind, which he says scarcely exist in the United States and are much weaker in the United Kingdom. These intermediaries and the commercial banking system

lend long-term and medium-term funds to corporations in proportions unknown in either the United States or the United Kingdom. He says that ten-year loans have become a common feature in continental banking, with the result that the dominant types of financial intermediary in Europe are the commercial banks and the specialized lending institutions, just as the dominant types in the United Kingdom and the United States for long-term finance are the insurance companies and the pension-trust funds. The European commercial-banking system also sells securities directly to households in the manner of retail stores. He recognizes that this is not intermediation but retail distribution and says it explains the well-known weakness of the secondary markets. He then adds, somewhat mysteriously, that "it must be clearly understood that the weakness of the secondary market is not [the] equivalent of a weakness in the primary market. Indeed, the opposite is true." I should suppose that weakness of the secondary market must be important in reducing the demand for such financial assets and a major factor making for high yields. That primary markets in Europe "have been able to accommodate substantially larger equity and debt issues than the U.S. market" implies nothing about comparative liquidity preference among European households. We can infer nothing about demand curves for these assets merely from the volume of transactions; we must know the yields at which transactions occur.¹⁶

As Lamfalussy makes clear, there are very serious and perhaps insuperable difficulties in making valid comparisons of interest rates on various financial assets in the United States and in continental Europe. (He does not, however, relate his discussion of interest rates to his discussion of asset acquisitions and so does not appear to recognize my first criticism.) He points out that taxation and a number of other

¹⁶ Lamfalussy says that the belief that liquidity preference is higher in Europe than in the United States grew from the observation that per capita currency circulation is higher in countries like Belgium, Switzerland, France, Italy, Germany, and the Netherlands than in the United States or in the United Kingdom. He points out that both the EEC and the OECD reports on capital markets reaffirm the belief that this is a sign of a higher liquidity preference and quote more extensive statistics than the partial figures of currency holdings alone. This fact played no part in my participation in the IFI hypothesis, since, in my view, differences in liquidity preference are only one possible explanation of international financial intermediation. Kindleberger assures me that his views about national differences in liquidity preference were not based on the relative quantities of holdings of one asset, unrelated to asset prices.

related facts make it difficult to find out what interest rates really are. For example, European households keep a very high proportion of their semiliquid assets in savings deposits, but the liquidity of these deposits varies considerably from one country to another and, indeed, from one financial institution to another. Moreover, the tax advantages attached to these deposits are so complicated that it is impossible to separate the interest differential from the tax differential; the latter may vary even among different deposits in a given financial institution, depending on the size of the holder's family. Because of these and other complications, a $3\frac{1}{2}$ per cent rate on savings deposits can be as high as 6 or 7 per cent in terms of pretax interest income in some cases and only 4 per cent, or even less, in others.

Lamfalussy further argues that if one tries to bypass these difficulties by measuring the cost of financial intermediation directly, one may encounter even more formidable difficulties. It is difficult to compare costs and returns of various categories of liabilities and assets, and if we give up the effort to measure the yields on categories of assets, "the comparison of the over-all yield gap would be only marginally more significant, for banks earn more and more income from fees, underwriting and selling commissions which have nothing to do with their borrowing and lending activity" [22, p. 6]. This fact may make it difficult to use the difference between the total revenues and the costs of intermediaries to test the hypothesis that international financial intermediation arises from differences in liquidity preference; but I doubt that it rules out the possibility of testing the more general hypothesis, in which such differences are only one of several possible explanations. The fees and the underwriting and selling commissions to which he refers are largely returns earned by supplying services that, in my view, are very much a part of the provision of financial intermediation, whether one chooses (as I do) to regard them as part of borrowing and lending activity or not. Surely the underwriting and selling commissions that a borrowing firm pays are part of the net cost of the capital that it thereby obtains. It is hard to see what fees, underwriting and selling commissions Lamfalussy refers to as "having nothing to do" with borrowing and lending activity.

A second kind of evidence relevant to the intermediation hypothesis, as applied internationally, centers on interest-rate relationships.

Any research workers ambitious enough to try to put interest-rate statistics on a comparable basis, despite the difficulties pointed out by Lamfalussy, should be aware of exactly what interest-rate relationships the IFI hypothesis implies. It is sometimes said that the hypothesis implies that the gap between the yields of liquid and illiquid financial assets should be greater in Europe than in the United States. I would make two observations about that statement. First, differences in liquidity preference would cause the spreads between liquid and illiquid assets to differ in the two areas when international intermediation does not take place; but when it does take place, it may be expected to reduce, if not eliminate, the difference in spreads, just as trade reduces or eliminates differences in spreads among prices of traded commodities. Consequently, what the researcher should look for is a difference between areas in the spreads between yields of liquid and illiquid assets when international intermediation is impeded, a reduction in that difference when the impediments are reduced, and an increase in it when they are increased. He should not expect to find great differences in spreads between the major markets in Europe and the United States while such intermediation is occurring.

For this reason, I suggest that it might be worthwhile to see how the difference in spreads between liquid and illiquid assets in the United States and in Europe changed between the years before 1958 and the period from 1959 to approximately the middle of 1963. (The end of 1958 was the time when European currencies took the largest jump toward convertibility, and the middle of 1963 marks the period when obstacles were first imposed on the export of American capital in the form of the Interest Equalization Tax.) One might also compare the difference in spreads in the second of these periods with the difference in the period beginning in, say, 1965, when the United States imposed substantial barriers to the outflow of American capital. I do not know if detailed research would show that these are the best terminal points for the relevant periods or whether some technique other than the use of discrete periods would be better. The essential point is that one must not merely compare European and American spreads but must see whether any difference between them is affected by the possibilities, or actual occurrence, of financial intermediation across national boundaries.

My second observation is that a difference between areas in their spreads between yields on liquid and illiquid assets is relevant only to that strand of the IFI hypothesis attributing intermediation to differences in liquidity preferences. It is not relevant to the hypothesis that such intermediation can also result from differences in efficiency between European and American intermediaries, or from differences in the market structure of the financial industries in the two areas, which might make the American industry more competitive and willing to accept lower rates of return. To test this hypothesis, one would need data on the gross margins of financial intermediaries in the two areas when international intermediation does not take place, and when it does, in order to see how the relation between the gross margins is affected by it. These gross margins would be reflected in spreads of interest rates, but not necessarily in spreads between rates on liquid and illiquid assets. Indeed, if this explanation is to be distinguished from the explanation based on liquidity preference, the effects of differences in liquidity should be eliminated, the relevant spreads becoming those between the interest rates that intermediaries pay to lenders and those that they charge to borrowers.

Then, in order to make a further distinction between the explanations based on differences in efficiency and those based on differences in market structure or competitiveness, one must break the spread between the rates that intermediaries pay and those that they charge into its two components—costs of inputs (other than funds borrowed) and profits—and one must examine how that breakdown is affected by the absence, or presence, of international intermediation.

Thus, at least two kinds of difference in spread have to be taken into account: those between yields on liquid and illiquid assets, and those between borrowers and lenders. It is obvious that even if we make a crude dichotomy of financial assets (merely between liquid and illiquid assets) and forget that the degree of liquidity is a continuum, we have four categories—liquid assets, illiquid assets, borrowers, and lenders—so that we have to consider four interest rates both in the United States and abroad.¹⁷

¹⁷ A test of the liquidity-preference explanation requires an examination of the effects of international capital flows on the differences between rates charged to borrowers on more and less liquid funds in the two areas, and also on the differences between the rates

7. Another criticism of the hypothesis of differences in liquidity preference is that the evidence shows that Europeans actually are willing to acquire long-term securities. Thus, E. M. Bernstein, in private conversation during 1967, expressed the opinion that among several attributes of financial assets, the one most important to European lenders is the currency in which the security is denominated. The next most important, he thought, is the nationality of the obligor, which affects the laws governing the transaction, the rights of ownership, and other considerations. He ranked the maturity of the asset last among these three attributes, characterizing it as unimportant. As evidence that currency of denomination has primary importance, Bernstein cited the large volume of long-term Eurodollar bonds that Europeans buy.

Aliber [1] also appears to conclude that maturity is not important. He states that the curve relating yield to maturity on the dollar liabilities of the French government is less steep than that depicting its franc liabilities, and argues that since the risk of default is the same on both, the difference reflects exchange risk. I agree that such a difference in slopes seems to show that the market takes account of exchange risk and regards it as correlated with the maturity of the securities, but this does not imply that maturity (or, better, liquidity) is *not* a factor. Aliber also finds that the yield curve on the dollar liabilities of the French government is steeper than that on the dollar liabilities of the United States government, the difference largely reflecting the risk of default, there being no difference in exchange risk. (He notes that it may also reflect differences in marketability in the two countries.) Aliber reports only the difference in steepness of the yield curves; he does not tell us anything about the relationship of one curve to the other at either end of the maturity scale. Since the difference in steepness of these curves for securities of the same obligor reflects a correlation between assessment of exchange risks and maturity, it cannot tell us anything about the relative importance of exchange risk and

paid to lenders on more and less liquid fund in the two areas. A test of the other two explanations, considered together, requires a comparison of the differences between borrowing and lending rates in the two areas. Furthermore, a test that distinguishes between the efficiency and competitiveness hypotheses requires a breaking down of the differences between borrowing and lending rates into their cost and profit components, as already indicated.

maturity. To appraise the role of exchange risk alone, we need to know whether the dollar obligations of the French government bear a higher yield than its franc obligations at the short end of the maturity scale. If they do not, I would infer that exchange risk is not rated very high. It is true that the slope of the yield curve for franc obligations is a purer measure of preferences for short over long maturities (i.e., it is a measure free of exchange risk), and that the greater steepness of the curve for dollar obligations, which reflects both maturity and exchange risk, establishes the presence of exchange risk. It does not, however, establish the absence of a preference for liquidity; nor does it establish whether that preference is higher, lower, or equal to the corresponding preference in the United States.

Considering all of the points discussed in this section, I conclude that no valid empirical evidence has been produced that damages the hypothesis that preference for liquidity is lower in the United States than abroad. I think it also true, however, that no empirical evidence has been adduced that gives stronger support to that hypothesis than to alternative hypotheses. If these conclusions are correct, the hypothesis retains the same status that it had when first put forward; no additional relevant evidence has been adduced on either side.

GREATER COMPETITIVENESS OF AMERICAN INTERMEDIARIES?

8. The only reference that I have seen to my own suggestion that the United States may export financial intermediary services because American intermediaries are more competitive than those in Europe is Halm's observation that "an explanation of high interest rates by monopolistic features of the European credit market is difficult to maintain in view of the extreme fungibility of the market object" [10, p. 4]. Citing the statement of Despres, Kindleberger, and myself [4] that money is "costless to store and to transport" and "the easiest commodity to arbitrage in time and in space," he says that these reasons not only prevent government control of international capital flows from working well but make ineffective private attempts to compartmentalize the domestic credit market and to raise interest rates by monopolistic devices.

It appears to me that "attempts" are not necessary to compartmentalize the domestic credit market. In the absence of intermediaries, the domestic credit market would be compartmentalized with no effort on the part of anyone; positive attempts are needed to break down the compartments, and this is what financial intermediaries do. How effectively a domestic intermediary industry does that job depends, of course, upon its degree of competitiveness, which is influenced by both the aggressiveness of the members of the industry and the ease of entering it. The same comment may be made about raising interest rates by "monopolistic devices." Interest rates to borrowers will exceed those paid to lenders by more, the less competitive the intermediaries are. They need not resort to devices specifically designed to widen those margins if they are not aggressively competitive or if there are institutional barriers to entry. Neither of these aspects of competitiveness of the European industry relative to that of the United States (aggressiveness and ease of entry) can be appraised on the basis of a priori assumptions or inferences from the ineffectiveness of government controls over capital flows—especially when the ineffectiveness of controls results partly from the very competitiveness of American intermediaries, which the hypothesis asserts to be superior.

Students of European capital markets appear to support the view that competition among intermediaries is restricted in Europe, and have suggested that it is more so than in the United States. Unfortunately, their testimony consists of expressions of judgment rather than statistical information. The study by Sidney Rolfe says the following:

Whereas in the U.S. there exists intense competition among several types of lenders for long-term business . . . these tasks tend to be more neatly parcelled into noncompetitive sectors in Europe. Thus, long-term lending is largely left to special credit institutions that refinance themselves by bond sales and to savings banks using a certain ratio of deposits. This imparts a degree of rigidity to lending markets, although changing conditions make this rigidity less warranted. Thus, while the liabilities of commercial banks have increasingly changed from demand to savings deposits, requiring less liquidity, the structure of assets has in most countries not followed suit [34, p. 49].

Rolfe goes on to say that while statistical evidence is sparse and “probably not too meaningful,” so that qualitative judgment must be relied upon, some evidence does exist. In his judgment, what forces borrowers to go directly to the public is the inability of financial intermediaries to supply long-term credit through the bond market. Since retail sales of bonds to households are more expensive than bulk sales to institutions, and since “households have a high liquidity preference” (his words), such borrowing will cost more. It requires a greater spread of rates. He then cites data to show that the spread of interest rates in Europe is higher than that in the United States, measuring these spreads by the difference between interest rates paid on short-term savings deposits and those paid by borrowers for long-term or bond loans. He presents data showing that during 1964, in virtually every European country, that difference exceeded 3 per cent, while in the United States it was about half of one per cent.¹⁸

The group of experts appointed by the EEC, in their report *The Development of the European Capital Market*, noted that the scope of operations of European financial intermediaries was limited by exchange control, fiscal laws, and exchange risks, but was also impeded by other restrictions deriving from operating rules imposed on the financial institutions by law or by administrative regulation [42, Chapter 12]. While the experts made these observations in connection with the participation of intermediaries in the European capital market and their operation across national boundaries, it is clear that the impediments they refer to operate domestically as well. They point out, for example, that banks (except in the Netherlands, and in Germany in the case of very large sums) are restricted in the interest rates that they may pay on deposits, and that these restrictions limit the extent to which the banks may bid against each other for deposits. One reason for these maximum limits was the prevention of competition likely to endanger the security of deposits. A second reason was to allow the banks to lend at reasonable rates. Surely a limitation on the price of inputs is not an effective way to limit the price of the output;

¹⁸ The text of Rolfe's study refers to Table 10 but clearly should refer to Table 11. His data come from the OECD's *Study on Improvement of Capital Markets*, Annex V, C(66)78.

indeed, it is more likely to limit the number of suppliers and expand the gross margins of those already in the industry.

The EEC experts found that the problem of supplying capital to enterprises and public authorities is not attributable to any general lack of saving but to the way in which saving is channeled to would-be users. The experts note that there is an "excessive bias toward liquidity" and a "reluctance to engage in risk investment and contractual saving." They express the view that these features may not reflect the preferences of transactors as much as the nature of present financial structures (p. 77), which results from factors that emerged after two periods of "fundamental imbalance." The first, in the 1930's, led to restriction of competition in the field of credit and to rigid compartmentalization of various national markets. The second was the reconstruction period after World War II, when "the dearth of savings in relation to the swollen requirements led the authorities to introduce measures for compulsory direction of available resources" (p. 78).

GREATER EFFICIENCY OF AMERICAN INTERMEDIARIES

9. The view that the comparative inefficiency of European capital markets has been an important cause of capital movements between the United States and Europe, in the sense of cross-flows of capital, has not, to my knowledge, been criticized. Donald Heckerman [11], while agreeing that such inefficiency has probably caused European interest rates—especially long-term rates—to be high, questions whether it can explain capital movements "between the United States and Europe." The argument makes clear, however, that he refers to *net* capital flows from the United States to Europe, which are not at issue in the IFI hypothesis.

CHANGES IN THE BALANCE OF PAYMENTS OF THE UNITED STATES SINCE 1968

10. Lamfalussy, in his 1969 paper [22], writes that serious doubts are also cast on the Despres-Kindleberger-Salant thesis by changes in the balance of payments of the United States in 1968. In that year "the

United States has ceased to acquire long-term private assets; in fact, there has been a *decline* in the net long-term private claims of the U.S. economy over the rest of the world." He recognized that this decline had been going on for only eighteen months when he wrote, and that it would be unwise to regard these changes as a reversal of trends; nonetheless he thought that the mere emergence of the decline cast serious doubts on the theory.

I agree that what happens in so short a period has little significance for our theory. For that very reason, I do not understand how the new development can cast doubt on it. Nothing in the IFI hypothesis denies the possibility of short-period movements counter to the general trend that it envisages.

Moreover, the hypothesis does not deny that foreign reluctance to hold long-term securities can be overcome by high expected rates of return. A large element—\$1.3 billion—in the change to which Lamfalussy refers was an increase in foreign purchases of American common stocks. Expected rates of return on common stocks include both the dividend yield and the expected capital gain. When the American stock market is booming, this expected rate of return may be high indeed and may attract foreign long-term capital. But such a flow is also likely to be short-lived—and it turned out to be short-lived in this instance. Foreign purchases of American common stocks, which had risen in the last quarter of 1968 and the first quarter of 1969 to \$792 million and \$752 million, respectively, fell to \$152 million and \$169 million, respectively, in the second and third quarters of 1969. The decline in net purchases began after January, 1969, when they totaled \$360 million, and was still in progress in June, when foreigners sold \$105 million of American stocks, on balance. This decline coincided with a reversal of the rise in American stock prices. (A chart showing quarterly data on foreign purchases of U.S. stocks, U.S. stock prices, and European stock prices appears on page 33 of the September, 1969, *Survey of Current Business*.)

As Kindleberger observed in discussing Lamfalussy's paper, the fact of disintermediation in 1968—if it was a fact—does not imply that intermediation had not occurred before. I doubt, moreover, that the changes of capital flows in 1968, which provided the occasion for Lamfalussy's argument, constituted disintermediation. Disintermediation

is the reversal, although perhaps only a partial reversal, of prior intermediation. One would expect it to take the form of repatriation of American capital from abroad, accompanied by repatriation of foreign capital invested in the United States, i.e., disinvestment by each area in the other. Even reductions in investment abroad by both areas would be only a reduction of intermediation if such investment remained positive. Apparently neither of these matching movements occurred in 1968.

I noted earlier that holdings of publicly issued American common stocks were so readily marketable that they could be regarded as liquid assets; their purchase by foreigners conforms to the IFI hypothesis very well. I concede that even if we regard the increase of such holdings as the acquisition of liquid assets by foreigners and deduct them from the inflow of foreign long-term capital to the United States, the remaining increase in foreign long-term capital flows into the United States in 1968 would still be \$2.3 billion. If we also deduct the nearly \$500 million representing the United Kingdom's liquidation in 1967 of American securities other than U.S. Treasury issues, an increase of \$1.8 billion in foreign long-term investment in the United States between the two years remains to be explained. Of this \$1.8 billion, nearly \$1.7 billion consisted of an increase in new issues of securities sold abroad by American corporations. This rise of American borrowing abroad does not appear to be inconsistent with the intermediation hypothesis when one considers that it was forced by governmental barriers to capital flows. In any event, this increase was very short-lived; the annual rate of such sales relapsed in the second and third quarters of 1969 to \$730 million, little more than one-third of the 1968 level.¹⁹

The theory of financial intermediation suggests that disintermediation or reductions in intermediation, whether domestic or international, could result from one of three causes. One of them is that the asset preferences of ultimate lenders and the liability preferences of ultimate borrowers might become more similar, so that purchases of primary

¹⁹ See Table D-2 of December, 1969, *Survey of Current Business*. New issues of securities sold abroad by American corporations exclude both securities issued by subsidiaries incorporated abroad and funds obtained abroad by American corporations through bank loans and other credits.

securities by ultimate lenders would increase relative to financing as a whole, and the use of intermediaries would become less necessary. A second possible cause is a decline in foreign capital formation that reduces the demand for the services of intermediaries, given the proportion of foreign capital formation financed through intermediaries. A third possibility is an increase in the demand for capital in the intermediary country itself, which would cause the rate of return on domestic capital formation to rise relative to the rate its citizens could earn by buying financial assets of other long-term borrowers. (An illustration of this cause of disintermediation in the case of a single financial intermediary firm would be an insurance company's liquidation of some of its security holdings to purchase housing, because the return on housing has improved relative to that on securities.) Any of these changes would cause total financial disintermediation or reduce total intermediation. They could also have the same effect on the portion of total intermediation that is international.

In addition, international financial disintermediation could also be caused—or international intermediation reduced—by a shift within a given total of intermediation from international to domestic intermediation. Such a shift would occur, for example, if the comparative efficiency (or competitiveness) of intermediaries increased in the area in which it was relatively less. Such an improvement in European intermediation may, in fact, have been occurring in the past few years, as the growth of mutual funds in Europe suggests.²⁰ Such a development might reduce American financial intermediation in Europe in the future, but it probably does not explain the large changes in the capital account of the United States between 1967 and 1968. Neither does the second of the possible causes mentioned above. A decline in capital formation abroad does not appear to have occurred.

²⁰ Since these mutual funds seem to have been promoted mainly by Americans, it is a fine question whether their growth should be considered part of American financial intermediation. If an American starts a mutual fund in Europe, selling its shares to Europeans and investing only in European securities, is it American or European intermediation? Technically, if the company is American, the intermediation is international. This is one illustration of the difficulty of attaching much importance to the concept of nationality in an increasingly integrated world. The anomaly of calling this intermediation international is no greater than that of calling the sale of a commodity by an American in Europe to a European embassy located in Washington an American export and a European import, which is what balance-of-payments rules call for.

The third possible cause is a more plausible explanation of the changes in the capital account in 1968; capital formation in the United States rose steadily through 1968 and 1969. Assuming, however, that the rate of expected increase in American prices will be reduced in 1970 or 1971, and taking into account the declining percentage of capacity utilized, the present high rate of capital formation in the United States relative to that abroad (and measured in dollars) appears likely to be temporary.

From these considerations, I am unable to find anything that casts doubt on the international financial intermediation hypothesis, either in the evidence adduced by Lamfalussy, or in any other facts that I have observed about recent changes in the balance of payments of the United States.

CONCLUDING OBSERVATIONS

AFTER looking over the recent developments in the theory of international payments, I conclude that the compatibility of payments deficits with equilibrium under conditions of growth is now accepted so widely among leading students that it can be regarded as an established theorem. The major development of the past few years appears to me to be the introduction of the portfolio approach. In fact, the general acceptance of that approach may be the most notable feature of this conference. Continuing portfolio balance combined with continuing world economic growth can account for cross-flows of financial assets, with or without deficits, on any definition. The explanation of deficits as the consequence of international financial intermediation is one member of the larger class of portfolio theories, both because portfolio theories can account for cross-flows of financial assets that do not imply deficits or surpluses, and because they can account for cross-flows that do not logically require financial intermediaries. A question which remains is whether all theories of equilibrium deficits invoke international financial intermediation in some form; some of them may be independent of it.

Restoration of a disturbance in portfolio balance, or lagged ad-

justment to a change in desired portfolios, involves a stock adjustment that is transitory. Continuous maintenance of balance in growth of portfolios such as accompanies world economic growth can account for continuous cross-flows of financial assets consistent with equilibrium. Continuing cross-flows of financial assets can account for, but do not necessarily imply, enduring deficits in balances of payments on both the liquidity and official-settlements definitions. Whether they imply liquidity deficits depends on whether or not a net transfer of assets officially labeled "liquid" occurs. Whether they imply official-settlements deficits depends on whether a net transfer of officially held assets occurs.

Present theories of balance in growing portfolios include growth in demand for the stock of money or near-money. Some explain it as necessary for transactions purposes, and associate the growth in demand with growth in income. Others associate it with precautionary balances and the growth of wealth. A theory that excluded growth in both transactions and precautionary demand for money or near-money would be extremely unrealistic; realism probably requires us to include the growth of both types of demand. International financial intermediation comes into this picture when one country can supply assets other than outside money in excess of the demand of its own residents at a particular price, while others can supply them at that price (plus the price-equivalent of barriers to their international flow) only in amounts that fall short of their domestic demand. These excess supplies and demands may reflect differences in tastes (e.g., Kindleberger's difference in national liquidity preference), including the tastes of the intermediaries themselves; they may reflect differences in the costs of providing the intermediary services (including variations in the profits demanded, which, of course, are part of supply price); or they may reflect differences in the competitiveness of intermediaries.

I think we are far from able to estimate how much of the liquidity deficit of the United States can be accounted for by a comparative advantage in the provision of financial-intermediary services. An estimate really calls for an econometric model covering most of the world and designed to explain the demand and supply conditions for liquid assets of residents in different areas. It should distinguish between official and nonofficial suppliers and demanders in the markets

for financial assets; between interest rates on assets representing different degrees of liquidity, or perhaps risk (defined as variance of price); and also between the rates charged by financial intermediaries to borrowers and the rates paid by them to lenders. It must also take into account levels of world trade (with which Laffer found foreign private demand for dollars to be associated) and many other variables. Without such a model, we can only make guesses. My own guess would be, on the one hand, that financial intermediation by the United States does not account for all of the liquidity deficit of the past two decades, but, on the other hand, that the increase of liquid liabilities of the United States willingly held by nonofficial foreigners—\$11.6 billion in the period 1960 to 1968, or 58 per cent of the total liquidity deficit of \$20.0 billion—implies that it does account for much of that deficit.

ADDENDUM

MACHLUP'S "TRANSFER GAP OF THE UNITED STATES"

The following comments on Machlup's results and treatment of various components of the balance of payments of the United States may be of interest for their own sake although they deviate from the main track of this paper.

First, Machlup's broad statistical conclusions are reinforced by revised data for 1964–67, new data for 1968, and preliminary estimates for 1969. From 1966 to 1967, *NRT* and *NFT* (as he defines them) changed in the same direction, whereas the figures available when he wrote showed them as changing in opposite directions. In 1968 and 1969, they also changed in the same direction. Therefore, the number of years in which annual changes were in the same direction becomes 16 out of 19, instead of being 13 out of 17. The revised figures reduce the Transfer Gap in 1966 and 1967, but only by \$0.2 to \$0.3 billion, on the basis of rounded figures. For 1968 and 1969, it was \$2.6 billion and \$3.9 billion, respectively, compared with the (revised) average of \$2.5 billion for the period 1950–67.

Machlup's calculation of the regression of *NRT* on *NFT* for the

period 1950 to 1966 (omitting 1967 because it lay well off the regression line of the other observations) gave the equation

$$NRT = -1.74 + 0.92NFT, \\ (1.8) \quad (6.0)$$

with $R^2 = 0.71$ and the t -statistics indicated by the numbers in parentheses under the parameters. Using the figures now available for years since 1964 and fitting the regression to data for 1950 to 1969, the equation becomes

$$NRT_{rev} = -1.50 + 0.85NFT_{rev}. \\ (1.6) \quad (5.9)$$

The \bar{R}^2 is 0.64, the coefficient of NFT remains significant at a 99 per cent level of confidence, and the constant term remains not significantly different from zero at a 95 per cent level of confidence. These equations imply the following relationships of transfer gaps (TG) to NFT :

$$TG = \$1.74 \text{ billion} + 0.08NFT \\ TG_{rev} = \$1.49 \text{ billion} + 0.15NFT_{rev}.$$

The relationship between changes in NRT and NFT , which is reflected in these derived equations as a relationship between changes in NFT and TG , appears to imply that an adjustment process is at work, but the nonsignificance of the constant's difference from zero appears to throw doubt on the finding that the adjustment process tends to stop when the transfer gap is still substantially larger than zero. Nevertheless, I refrain from concluding that this makes Machlup's hypothesis implausible, partly because the t -values in both equations are very close to being statistically significant, and partly because untutored instinct tells me that, judging from the figures for the Transfer Gap, it would be foolish to bet that for any year in the near future that gap would be as low as 8 or even 15 per cent of Net Financial Transfers, as an equation with a zero constant and the same coefficients for Net Financial Transfers would imply.

The foregoing calculations accept Machlup's allocations of the detailed categories of the international transactions of the United States. Some of the transactions that Machlup treated as autonomous

and included in Net Financial Transfers might as plausibly be treated as accommodating and placed in the Transfer Gap, while the increase in long-term liabilities of American banks might reasonably be treated as Net Financial Transfers, rather than as part of the Transfer Gap. One may also question his treatment of dividend income as a Net Financial Transfer, rather than as a Net Real Transfer (of which it would be a negative component), since it presumably responds partly to changes of income abroad and thus contains a large nonautonomous factor. American receipts of income on direct investments abroad have risen steadily from \$1.3 billion in 1950 to \$5.6 billion in 1969, and their excess over American payments of both private interest and dividends to foreigners has risen from nearly \$1.0 billion in 1950 to nearly \$2.0 billion in 1969. Shifting these transactions would not affect the Transfer Gap, since it would affect *NFT* and *NRT* by equal amounts, but it might affect the stability of the relationship between them. Any further experimentation with the Machlup idea might include an investigation of the behavior of some of these components of the balance of payments, reallocating them and revising the estimates of the Transfer Gap on the basis of the results, and then going on to examine the relationship of the revised Transfer Gap to Net Financial Transfers.

LAFFER'S "ANTI-TRADITIONAL THEORY"

The Laffer model [20] appears to me a promising extension and test of ideas suggested or formulated by Scitovsky and Mundell concerning the effects of growth on the balance of payments, therefore justifying some further comments and suggestions.

It is clear that Laffer's model can account for enduring deficits of the United States when its economy is growing more slowly than the weighted world average. However, the model also implies that the United States would have a surplus when it grows more rapidly than other countries but other countries are, nevertheless, growing. The question then arises, How can the increasing transactions demand of other countries for their domestic money be satisfied when the world's net monetary reserves grow by less than is required to support a supply

of their domestic money that satisfies the growth in foreigners' demand?

One answer may be that the assumption in Laffer's model of a fixed relation between a country's domestic money and its international reserves breaks down; i.e., that this ratio must be reduced. There is another possible answer, however. Laffer defines the net balance of payments as the change in *gross* international reserves and applies this definition to the United States as well as to other countries. Consequently, the increase in American liabilities to foreign monetary authorities does not affect his measure of the balance of payments, but it still provides foreign monetary authorities with the reserve basis for increasing their domestic money supplies. Thus, when the world outside the United States grows absolutely, but less rapidly than the United States, its need for a growth of reserves (a balance-of-payments surplus) can be reconciled with a surplus of the United States on Laffer's definition, assuming that the United States has an increase in reserve assets and, at the same time, a larger increase in liabilities to foreign monetary authorities. In that way, the Laffer model is consistent with a deficit of the United States, defined as a decrease of *net* reserves, that can endure not only while American growth is slower than that of the rest of the world but when it is faster, too.

It is true that in such a situation, other countries in the aggregate would have a surplus or zero net balance, which result appears inconsistent with Laffer's theoretical hypothesis. While it would not necessarily cause failure to meet his empirical test, which relates *changes* in the ratio of net balances to GNP to *changes* in rates of growth relative to the world's average rate of growth, this inconsistency shows that the model tested does not represent the theoretical hypothesis precisely. To pass Laffer's empirical test, it is sufficient for deterioration in a country's rate of growth relative to the world's growth rate to cause a deterioration in the ratio of its net balance to its GNP. To conform to the theoretical hypothesis, however, a rate of growth lower than the world average should produce a negative ratio of net balance to GNP. Thus, the behavior of a country's balance of payments could pass the empirical test without conforming to the theoretical hypothesis.

I have mentioned above that Laffer applies his measurement of net balances as changes in gross reserves to the reserve-currency countries (the United States and the United Kingdom), as well as to other countries. His theoretical hypothesis, however, appears to call for the application of a net-reserve concept to these countries, since increases in the demand of their residents for money can be satisfied not only by increases in the total amount of the domestic money stock, which require increases in reserve assets, but also by the transfer of foreign-owned portions of an unchanged money stock to domestic ownership. Such transfers reduce liquid liabilities to foreigners and thereby make for a surplus—at least on the liquidity definition; and if the reduction is in liabilities to foreign official holders, on the official-settlements definition, too. Laffer has informed me that his empirical results would not be much affected by exclusion of the United States and the United Kingdom from his test. It would be of interest to know how his results would be affected if the net balances of these two countries were included but were defined as changes in net, rather than gross, reserves.

The Laffer model in [20] abstracts from governmental creation of nominal money. Laffer, like Mundell before him, recognized that the creation of such money by governments may contribute to explaining actual events. As Mundell noted [32, pp. 137–38], while growth—or, in Laffer's model, relative growth—*per se* tends to induce a balance-of-payments surplus, "credit creation" by the monetary authority of the growing—or relatively growing—country can reduce or eliminate that surplus. In his paper in the present volume, Laffer has developed and tested an expanded model that allows for the creation of nominal money, thereby overcoming that limitation of his earlier one.

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