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RFD 661

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Division of International Finance

REVIEW OF FOREIGN DEVELOPMENTS

October 26, 1970

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Exchange-Risk Under Fixed and Flexible Exchange Rates

45 Pages

This paper reflects the personal opinion of the author and must not be interpreted as representing the opinion of the Board of Governors.

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Exchange-risk as an economic burden	3
Exchange-risk as a measurable cost	3
Exchange-risk and resource-allocation	6
Price-setting in the foreign-exchange market	8
Risk-avoidance by commercial banks	8
Banks as "professional risk-bearers"	9
How exchange quotations are determined	12
Exchange-risk under flexible rates	13
Role of central bank	13
Exchange-risk and the private entrepreneur	15
Forward quotations and "interest parity"	20
Exchange-risk under fixed rates	21
The entrepreneur reduces his exchange risk	22
"Leads and lags" in commercial payments	25
Covering net exposed current assets	27
Covering long-term assets	31
Official support and forward rates	34
Concluding observations	36
Flexible rates and private markets	39
Vulnerability of par-value system	41
Prompt adjustment of parities	43

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Exchange-Risk Under Fixed and Flexible Exchange Rates

Samuel I. Katz^{1/}

It is a truism that the special exchange-risks associated with foreign commerce come not from the existence of separate national monies but from variations over time in their relative values. The possibility of losses from such fluctuations is an unavoidable risk for the entrepreneur who is engaged in international trade or who has either assets or liabilities in foreign currencies. He is forced to accept this uncertainty as a unique and additional cost of foreign business, not encountered when his business activities are confined to a single (usually, a national) monetary area.

This paper will explore the economic significance of exchange-risk as an added cost of foreign business under fixed and flexible exchange rates. Since the social costs of exchange-risk are the same under the two systems, but are borne by different people, we shall compare the ways these uncertainties are distributed under each of them and then consider some of the broader economic implications of these differences.

It would perhaps be preferable if we could choose as our representative fixed-rate system one in which par-values were permanently

^{1/} This paper reflects the personal opinion of the author and must not be interpreted as representing the views of the Board of Governors of the Federal Reserve System. The author is particularly indebted to Guy V. Stevens and Samuel Pizer for comments and suggestions.

fixed (as in a full-fledged pre-1914 gold standard) and for our representative flexible-rate system one in which there was absolutely no government intervention. Neither of these two models are realistic alternatives. A rigid fixed-rate system is no longer a practical alternative in a world where countries are no longer prepared to accept balance-of-payments adjustment on the domestic economy through the processes of internal deflation and inflation. For our present purposes, therefore, the Fund's par-value system will be regarded as the contemporary variant of a fixed-rate system, even though changes in par-value are authorized under it in cases of fundamental disequilibrium. The Fund's par-value system will be compared with a hypothetical system of flexible rates in which market quotations would be determined "by the forces of demand and supply, without restrictions imposed by governmental policy on the extent to which rates can move."^{1/} Under such a flexible-rate system, the central bank might, and probably would, intervene in the exchange market; but its intervention would only aim to reduce technical and random variations in market prices and would not attempt to affect the level or direction of exchange quotations.

^{1/} Harry Johnson, "The Case For Flexible Rates, 1969," Federal Reserve Bank of St. Louis Review, June 1969, p. 12.

Exchange-risk as an economic burden

There are no a priori grounds for assuming that the magnitude of the exchange-risk would necessarily be greater under flexible than under fixed rates. The recurrent international financial crises during the past decade under the Fund's par-value system have underscored Professor Friedman's contention that the essential difference between these two systems is found not in the magnitude of the exchange-risk but in the form the uncertainty takes.^{1/} The uncertainty manifests itself: (a) with flexible rates, in the form of changing market quotations; and (b) with the par-value system, in the form of changes in official reserves and then in major rate changes at irregular intervals; of changes in restrictions on exports, imports and other current transactions; and of changes in controls on private capital transfers.

Exchange-risk as a measurable cost - A study of the effects of this uncertainty as an additional cost of foreign-currency enterprises has to have a general, rather than a specific, focus because the sensitivity of individual firms to these risks can vary greatly. Watts has differentiated the vulnerability of individual enterprises in terms of three principal factors:^{2/} (i) by type of enterprise (including

^{1/} The International Adjustment Mechanism, Proceedings of a Monetary Conference, Federal Reserve Bank of Boston, October 1969, p. 115.

^{2/} J. H. Watts, "The Business View of Proposals for International Monetary Reform" in George N. Halm, ed., Approaches to Greater Flexibility of Exchange Rates (Princeton: University Press, 1970), pp. 167 to 176.

manufacturers of export and import goods; direct investors abroad; commercial traders; investors in portfolio securities; and service firms); (ii) by type of exchange transaction (including trade transactions; borrowing and investing of short-term funds; long-term borrowings; portfolio investments; and transfers for direct investment); and (iii) by nature of the markets for the product (so that an importer stands to lose more business because of exchange-risk costs when a good domestic supply or substitute exists than he does when it does not exist). In addition, risk attitudes are bound to vary among entrepreneurs in a similar situation.

Clearly exchange-risk can differ widely among different types of firms or transactions. Regardless of these differences, however, exchange-risk can be established as a cost in any transaction -- under either fixed or flexible rates -- in which the entrepreneur buys or sells a foreign currency, spot and/or forward, with his commercial bank. He can use the same measure whenever he decides to assume the exchange-risk himself, either because he regards market facilities as too costly or as imperfectly adapted to the particular transactions.

But exchange-market cost cannot be a general measure of exchange-risk because there are too many international transactions which cannot be covered through the facilities of that market. For this reason, exchange-risk as a general business cost must be approached, essentially as Lanyi has suggested, in terms of the effects of currency

fluctuations on aggregate corporate profits on foreign transactions.^{1/} As an analytical concept, exchange-risk ought to include the effects on corporate profits of governmental measures taken to avoid changes in exchange rates (such as import or other taxes or restrictions) as well as exchange-rate fluctuations. In addition, the entrepreneur might cover an exchange-risk which, otherwise, would not directly affect operating profits merely to avoid capital losses in the profit and loss account.

As a concept, then, exchange-risk is measured by the effects on long-term corporate (or individual) profits from the fact that earnings and payments (or assets and liabilities) are denominated in one currency and profits (or net worth) are calculated in another. The entrepreneur's objective is to maximize current profits over time, adjusted for changes in the value of foreign-currency assets, as transferred into (or recorded in) a "profit currency."^{2/} These calculations are made particularly difficult in practice because accounting procedures can vary widely in the treatment of gains or losses on foreign exchange (both realized and unrealized) in consolidated corporate profit and loss statements and in the establishment of reserve accounts to absorb fluctuations in earnings or valuation. The larger multinational

^{1/} Anthony Lanyi, The Case For Floating Exchange Rates Reconsidered, Princeton Essay in International Finance No. 72, February 1969, p. 4.

^{2/} This definition disregards non-monetary elements associated with exchange-rate uncertainties.

firms often have assets and receivables widely dispersed but they tend to consolidate their foreign operations into the parent company's balance sheet, though in varied forms, in reports to stockholders. Even when these corporations attempt to match assets and liabilities in individual currencies or to be self-insured, they often seek ways, during major currency disturbances, to protect the long-term value of assets and receivables.

Exchange-risk and resource-allocation - Because exchange-risk is an additional cost found only in foreign business, it will affect the willingness of the entrepreneur to engage in activities which require foreign currencies. As a ceteris paribus proposition, his willingness to engage in such business should vary inversely with his assessment of the exchange-risk. In Lanyi's terms, a rise in the variance of expected profits (because of exchange-rate fluctuations) will tend to diminish the attractiveness of a foreign undertaking and, accordingly, to induce some resources to be transferred from foreign-currency to purely domestic-currency activities until the balance in the rates of return between the two types of activities is restored. A reduction in this risk will tend to divert resources from domestic to foreign enterprises. Because resources cannot always be regarded as readily shiftable in the short run, an entrepreneur might prefer to avoid a business in which his scale of output would have to expand or contract in response to short-term variations in exchange rates, even if profit expectations were competitive with other activities.

Furthermore, the risk-averting entrepreneur might prefer to avoid the long-term commitment of his capital and know-how to a foreign undertaking because of uncertainty about future exchange-risk, however profitable it might appear to be in the near term.

Under both fixed and flexible rates, the entrepreneur must accept the exchange-risk as a cost of foreign operations. It does not follow that, merely because market quotations may fluctuate more from day to day, exchange-rate uncertainties will necessarily be larger under flexible than under fixed rates. As advocates of flexible rates have maintained, there are neither a priori grounds nor measurable evidence to support the view that they will be less over time because exchange rates are fixed.

Equally important, however, exchange-risks can be identical in the aggregate and still differ in economically significant respects as between the two exchange-rate arrangements. In particular, they differ in (i) the form of exchange-risk; and (ii) the distribution of that risk among major participants in the foreign-exchange market. Three groups -- private entrepreneurs, commercial banks and central banks -- play roles in rate-determination under both systems. Our analysis will suggest that the entrepreneur has reasons for assessing his private exchange-risks differently under them. To the extent that he regards his uncertainties to be greater under flexible than under fixed rates, his willingness to make a long-term commitment of capital and know-how between foreign and local-currency enterprises would no

longer be identical. Because of the differences in the entrepreneur's perception of exchange-risk under them, the two exchange-rate systems imply different patterns of resource-allocation as between foreign and domestic undertakings and, as a consequence, efficiency gains and losses for the national economy as a unit. These differing implications for resources-allocation should be recognized as one of the principal considerations in the choice between fixed- and flexible-rate arrangements.

Rate-determination in the foreign-exchange market

The main participants in the foreign-exchange market are: (i) private entrepreneurs who constitute the day-to-day demand and supply of foreign currencies; (ii) the commercial banks which deal on a customer-to-bank basis at the retail level and on a bank-to-bank basis with financial institutions at home and abroad in wholesale amounts at a "world" price, at least for major currencies, quoted within only fractional spreads by foreign-exchange specialists all over the world; and (iii) central banks which may or may not intervene in the exchange market to influence quotations. The role each of these participants plays in rate-determination in the exchange market will be reviewed first, under flexible- and, then, under fixed exchange-rate arrangements.

Risk-avoidance by commercial banks - The first point to stress is that commercial banks cannot be depended upon to assume any significant

exchange-risk either under fixed or under flexible rates. Their holdings of foreign currencies for exchange-market purposes are intended to facilitate transfers on behalf of customers and are ordinarily subject to clearly-defined limits imposed by top management. To be sure, many banks have also become accustomed to hold money-market assets abroad in substantial amounts, especially in the New York, London and Euro-dollar markets; but these funds are to be regarded as portfolio investments, based on comparative covered interest-rate and liquidity considerations and not as exchange-market transactions. As investment decisions, such money-market placements are not related to the bank's intermediary activities as a wholesale dealer in the world-wide market for foreign currencies.

As is well-known, the exchange-traders in most financial institutions are subject to limits (called "lines") which specify maximum long and short positions they can take on behalf of the bank in the various foreign currencies. There are, to be sure, substantial differences in practice from bank to bank within a country and between banks in different countries. The central bank in some countries also places limits on the positions commercial banks can hold in foreign currencies.

Banks as "professional risk-bearers" - The traditional argument has been that banks would seek, as a matter of operational prudence, to balance current purchases of spot and forward sales of foreign currencies, in the aggregate or even in each currency, because they should

not expose the funds of depositors to fluctuations in the exchange market. On the other hand, Professor Stein has placed much emphasis in his essay on the foreign-exchange market on the role of the banks as "professional risk-bearers."^{1/} In his view, the efficiency of that market is profoundly influenced by their activities in that capacity.

However, this emphasis of banks as risk-bearers in foreign-exchange trading needs to be qualified. Officials of the larger banks would regard their foreign-currency operations as a purely service -- and not a risk-bearing -- function. On the other hand, the foreign departments usually cannot cover their expenses solely on profits from the spread between their bid-and-ask prices for foreign currencies, as Stein has pointed out. (p. 15.) In order to improve earnings from foreign-exchange operations, the exchange-traders in most institutions are usually given some freedom to maintain unbalanced positions in foreign currencies, and they may at times even be permitted to enlarge their positions in a particular currency during a period when a parity may be suspect; in Stein's words, such "position-taking involves risks." (p. 15.)

The significance of this risk-taking function can be interpreted quite differently, depending upon the particular point of view. The trading can be regarded as a marginal contribution to the efficiency

^{1/} Jerome L. Stein, The Nature and Efficiency of the Foreign Exchange Market, Princeton Essays in International Finance No. 40, October 1962 especially pp. 15-23.

of the exchange-market when it brings spot and forward maturities into a better balance and as a stabilizing influence when it cushions excessive buying or selling pressures on individual currencies in disturbed periods. This position-taking can also be regarded by the exchange-traders as a substantial test of their technical skill, particularly when the profits from these endeavors become the decisive element between a loss and a profit for the department. Because the bank's own resources are put to risk, the exchange-trader must regard this challenge as a particularly serious responsibility.

But the changes from day to day in net bank positions in foreign currencies can also be measured against the exchange-market's daily turnover. Statistics on the net positions of commercial banks have never been made public, and there is no published evidence on how substantial the day-to-day net changes in the aggregate would be for the banks in any major financial center. Even though the limits in effect for the commercial banks, as imposed by senior bank officials or by the central bank, have never been made public, it is commonly thought that their cumulative totals are small; if this supposition is accurate, then the net swings from day to day would be an even more limited proportion of normal daily turnover in the exchange market. The availability of banking resources for exchange trading may have been even further reduced by the severe credit stringencies in recent years, just as commitments of funds for other banking activities have been cut back.

How exchange quotations are determined - If the foreign-exchange traders keep their institution's short and long positions in foreign currencies within established limits, and if those lines are as small as they are thought to be, then the day-to-day changes in the net commercial bank holdings of foreign-exchange would be too limited directly to affect either the level or the direction of market quotations as an independent factor. Even though this proposition cannot be verified by published evidence, it is supported by the tradition which makes bankers cautious about exposing deposit funds to any high-risk employment, including holdings of foreign currencies. Watts, himself a practicing banker, further supports this hypothesis in writing of the "almost inconsequential" role played by the private professional speculator in the foreign-exchange market and of the need, if this role is to be expanded, for

"an acceptance in the commercial banking community ... of the view that taking positions in foreign exchange is neither rash nor immoral, but is desirable, and could be done in a professional manner, with controlled levels of risk." 1/

On both conjectural and traditional grounds, it is suggested, the commercial banks would not be expected to be willing, under either fixed or flexible exchange rates, to take positions in foreign currencies substantial enough to influence market quotations. If this hypothesis is in fact valid, then the determination of market quotations would be

1/ Approaches to Greater Flexibility of Exchange Rates, op. cit., p. 175.

left to the trading activities of the two remaining major market participants: private entrepreneurs and central banks. The decisions by entrepreneurs to buy and sell foreign currencies are based in part upon their current business needs and in part upon their expected future requirements; they largely determine the private day-to-day demand-and-supply position in the market. But the price-effects of their decisions can be determined only after the intervention strategy of the central bank has been clarified. The central bank's intervention strategy will first be explored under a system of flexible, and then under one of fixed, rates.

Exchange-risk under flexible rates

Role of central bank - Advocates have recognized that the central bank could appropriately intervene in the exchange market under a system of flexible rates. Some of them, in fact, have recognized the need for such intervention to reduce technical and random variations in market quotations or even to counter inefficient private speculative activities.^{1/} But the intervention would have to have the limited objective of helping "to ensure orderly conditions in the foreign-exchange market": it would not attempt "to reverse persistent trends but only to smooth out excessive short-run fluctuations."^{2/}

^{1/} See, for example, Johnson, op. cit., pages 12 and 17.

^{2/} Canada, House of Commons Debates, February 19, 1953, p. 2120. See also Debates, June 25, 1952, p. 3692.

In short, the central bank would avoid any attempt to have an independent influence on the level or direction of market quotations. This strategy was illustrated by the Canadian experience with a floating rate between 1950 and 1962: in this period, the Bank of Canada attempted only "to exercise a cushioning influence on a moderate scale"^{1/} by slowing down excessive market movements. The authorities sold U.S. dollars when the American dollar began to rise and to sell Canadian dollars when the Canadian currency rose in price. But these operations were conducted on only a limited scale. If the movement in the exchange-quotations continued in the face of moderate official offerings, it would be regarded as more than a momentary fluctuation in the market^{2/} and official transactions would be terminated. In this way, intervention helped to maintain orderly conditions without preventing basic supply and demand factors from determining the level of the rate.^{3/}

As a practical matter, the Canadian authorities focused upon changes in official reserves as the key variable in carrying out their intervention strategy. They took the position that, regardless of the gross scale of official purchases and sales of foreign currencies (for exchange-market purposes), the intervention would have a neutral impact

^{1/} Governor Graham Towers, Bank of Canada, before the Standing Committee, on Banking and Commerce, March 16, 1954, p. 694.

^{2/} Sidney Turk, "Foreign Exchange Market in Canada," The Canadian Chartered Accountant, August 1953, p. 66.

^{3/} Foreign Exchange Control Board Annual Report, 1951 (Ottawa, 1951), p. 19.

on market quotations so long as there were no significant net changes in official reserves.^{1/} Mellish's statistical investigation concluded that, up to 1961, the official intervention was, on the whole, of a stabilizing character on the basis of correlations between the levels of (i) the daily exchange rate and (ii) the first differences in the rate with (iii) official reserves.^{2/} He found that the contribution to that stability of official intervention was small, the major role being played by private capital movements.

Exchange-risk and the private entrepreneur - Under a system of flexible rates, as we have defined it and as was the Canadian experience up to 1961, exchange quotations would be determined primarily by the balance of transactions among private entrepreneurs. Any central bank intervention which might occur would be designed to have a rate-smoothing -- but never a rate-determining -- effect on exchange rates; in addition, commercial banks would not actively intervene in an attempt by themselves and on their own accounts to alter the course of market prices.

^{1/} The pattern of official Canadian intervention between 1950 and 1954, and its rationale, is reviewed in some detail in my article, "Le dollar Canadien et le cours de change fluctuant," Bulletin D'Information et de Documentation, Banque Nationale de Belgique, May 1955, esp. pp. 6-8.

^{2/} G. Hartley Mellish and Robert G. Hawkins, The Stability of Flexible Rates - The Canadian Experience, The Bulletin, Institute of Finance, New York University, No. 50-51, July 1968, pp. 5-27.

It must be quickly added, however, that the absence of official intervention does not necessarily mean that the exchange-risk would be larger with flexible, than with fixed, rates; nor does it mean that there would necessarily be large or erratic fluctuations in market rates. On the contrary, market quotations would merely reflect the underlying factors of demand and supply and would be erratic only when underlying payments developments were themselves erratic.

In general terms, the same payments disequilibria which produced reserve changes under fixed rates would produce market fluctuations under flexible rates. Three different types of disequilibrium are identified in Table 1: (i) where the disequilibrium is small and the currency is regarded as strong and well-managed (Case 1); (ii) where the disequilibrium is large but the currency is well-managed in the sense that the exchange-rate fluctuations are supported by appropriate policies of domestic stabilization (Case 2); and (iii) where the disequilibrium is large and the currency is not well-managed, as evidenced by a steady and substantial depreciation in its foreign value over time (Case 3). (See Table 1.) Case 3 is related to an unstable and exceptional situation, particularly among the more developed countries, and is a test-case for domestic policies, rather than for comparative exchange-rate systems.

The two cases where small and large disequilibria are corrected by a combination of exchange-rate variations and appropriate domestic policies differ in the expected amplitude of rate fluctuation. But they

TABLE 1

Exchange risk: Major elements of rate uncertainty under flexible exchange rates

	<u>Long-term average value</u>	<u>Amplitude of Change</u>	<u>Direction of Change</u>	<u>Timing of Change</u>	<u>Predictability of Change</u>
I. With flexible exchange-rates:					
Case 1 (with small variations around existing level)	Mean value	Limited	Two-way	Continuous	Low
Case 2 (with wide variations around mean level)	Mean value	Wide	Two-way	Continuous	Low
Case 3 (with wide variations in one direction)	Declining Mean value	Wide	One-way	Continuous	High

have in common the decisive characteristic of a smoothly-functioning system of flexible rates: that market quotations can be expected to move in either direction from day to day. That is, the exchange market would be cleared each day at prices which balanced the demands of entrepreneurs for foreign currencies, based on their current business needs and on their expectations about the future values of the currencies. The entrepreneur would have no predictable basis -- in those cases where the currencies were regarded as well managed -- for deciding from day to day whether prices would move upward or downward. In formal terms, the expected value of such currencies would be the same as the current value at any time, even in the large-disequilibrium case where there would usually be a variance associated with the current price as the mean value.

It follows, therefore, that the entrepreneur would find a low predictability for exchange values (under Cases 1 and 2) over time. This low predictability implies a high degree of uncertainty or a low degree of confidence in his judgment about expected future values of foreign currencies, whether in making decisions on current payments or on longer-run business matters.

From the entrepreneur's point of view, the exchange-risks which could be covered in the exchange market should be distinguished from those which could not. Current payments on commercial transfers and a range of shorter-term capital and investment transactions could readily be covered through exchange-market facilities. Particularly for

coverable needs for foreign currencies, the entrepreneur could decide:

Option 1. To postpone the purchase (sale);

Option 2. To buy (sell) the foreign exchange forward;
or

Option 3. To buy (sell) the foreign currency spot.

Because there would be a low predictability on future market quotations for each particular transaction, even where the general rate level could be anticipated, the entrepreneur would tend to reject an Option 1 strategy for his readily-coverable transactions (depending on cost); if he chose such a strategy, his profits would be affected, one way or the other, by any subsequent variation in exchange rates. Unless he covered the exchange-risk on current transactions as fully as possible, he would be as much a speculator in foreign currencies as he would be a dealer in a particular range of products.

The fact that entrepreneurs, under flexible rates, would choose to cover the exchange-risk on a current basis would not impose on all of them an added business expense. Some would find this exchange cover to be a cost but, on the other hand, others would find that it added to current receipts. For the exchange-risk is not an insurable risk -- where losses cannot be avoided and are merely being redistributed within a given universe -- but has been compared to a zero-sum game in that one currency's discount is the second currency's premium. That is, exchange-rates are merely price ratios between pairs of national currencies and a rise in the price of A's currency immediately brings about an equal

and opposite movement in B's currency. Furthermore, when A's forward rate is at a discount below the spot rate, B's forward rate will be at an equivalent premium above the spot rate. Consequently, B's importers and A's exporters would find a profit, and B's exporters and A's importers a cost, when they bought or sold the currencies in the forward market.

Watts has challenged the zero-sum game concept as a measure of the costs of forward cover on the grounds that the exporter is not likely to be reconciled to the loss of business on the grounds that importers are making offsetting gains as a result of profits on forward exchange purchases or sales.^{1/} On the other hand, as Machlup has pointed out, these gains and losses do not have a purely random pattern but, in practice, can represent "real adjustment at work."^{2/} In the German experience in 1969, for example, the Bundesbank noted that revaluation had been anticipated before the new parity was set on October 24 "by the high forward discount rates on foreign currencies"; this meant that, after revaluation, "importers now profit less than before ... and conversely exporters (or their customers abroad) incur fewer additional costs" when they attempt to cover their forward exchange risk.^{3/}

^{1/} Watts "Forward Currency 'Costs': A Zero Sum Game" in Approaches to Greater Flexibility, op. cit., p. 307-8.

^{2/} Machlup, "Comments on Mr. Watts Paper," Ibid., p. 309.

^{3/} Monthly Report of the Deutsche Bundesbank, November 1969, p. 37.

Forward quotations and "interest parity" - The entrepreneur who wished to cover an exposed position in foreign currencies would ordinarily prefer not to tie up his working capital by buying spot foreign money-market assets (Option 3) but to make a forward contract with his bank (Option 2). On the other hand, the bank would purchase the foreign currency it had sold its customer either (a) by buying the currency for future delivery; or (b) by buying it spot and placing the funds at interest in the foreign money-market. The bank's choice would depend on whether the forward discount (or premium) was greater or less than the difference in interest-yields at home and abroad.^{1/} Because banks and the few large international private investors would place their funds wherever the interest differential was favorable, their decisions would tend to eliminate discrepancies between interest-rate differentials (on comparable money-market assets) and the forward discount or premium compared to the spot rate (expressed in per cent per annum). Because we would expect that forward covering of ordinary transactions would be more common, we would also expect the forward discount (or premium) to remain closer to interest parity under a hypothetical system of flexible rates than has been the experience under the Fund's par-value system.

^{1/} The mechanics of interest-arbitrage are described in Alan R. Holmes and Francis H. Schott The New York Foreign Exchange Market (Federal Reserve Bank of New York, 1965), esp. pp. 51-64, and in Samuel I. Katz "Yield Differentials in Treasury Bills, 1959-64," Federal Reserve Bulletin, October 1964, esp. pp. 1243-1248 and pp. 1253-54.

Furthermore, the entrepreneur would tend to relate his purchases and sales of foreign currencies closely in time with the underlying flow of commodity and capital transfers, in order to reduce his exposure to losses from exchange-rate variations and in order to have a firm basis for pricing. In contrast to the experience since 1945, he would not be as likely to shift the timing of the exchange transactions temporarily, depending upon his expectations about exchange values. Under the Fund's par-value system, however, the typical entrepreneur has had a different perception of his exchange-risk and has made a common practice of adjusting the timing of his foreign-currency transfers to accord with that perception in ways which we shall proceed to consider.

Exchange-rate under fixed rates

For the entrepreneur, the Fund's par-value system has a low predictability of rate movement when the par-value is regarded as sustainable and a high predictability when it is likely to be altered. The main uncertainty he may face is often a matter of timing: how long the authorities may rely on temporizing measures which do not correct the underlying payments disequilibrium. He often finds a "one-way option" under the adjustable-peg^{1/} when the par-value comes under suspicion

^{1/} A representative summary of this criticism of the Fund's par-value system can be found in L. B. Yeager, International Monetary Relations, (New York: Harper and Row, 1966), pp. 206 ff.

which can be exploited to reduce the exposure to loss of his assets and earnings in a suspect currency, even though he can not eliminate that exposure altogether.

The entrepreneur reduces his exchange-risk - Under the Fund's rules, each member establishes a par-value for the currency (\$2.40 for the U.K. pound) and spot quotations can fluctuate only between the central bank's buying (\$2.38) and selling (\$2.42) prices, fixed within 1% of the parity. So long as the par-value is regarded as sustainable (Case 1), exchange markets must recognize that exchange rates can move in either of two directions and that there is, within the official spread, a low predictability about the direction of change. (See Table 2.) From the point of view of exchange-risk, in fact, the elements of risk in the Case 1 situation are comparable, though not identical, under fixed and flexible rates. They are alike in the narrow amplitude, uncertain direction and low predictability of change; they differ chiefly in that, under flexible rates, the amplitude is not limited by public commitment and the mean value will not be held over time around a declared par-value but can drift in one direction or another from year to year.

But the par-value system becomes quite different from the flexible one as soon as the country's balance of payments weakens (strengthens) enough to raise doubts about the par-value. Once the spot rate has drifted toward the central bank's support price, the par-value is not likely to be appreciated (depreciated). On the contrary,

TABLE 2

Exchange-risk: Major elements of rate uncertainty under fixed and flexible exchange rates

	<u>Long-term average value</u>	<u>Amplitude of Change</u>	<u>Direction of Change</u>	<u>Timing of Change</u>	<u>Predictability of Change</u>
I. With fixed exchange-rates:					
Case 1 (with sustainable parity)	Parity	+ 1 %	Two-way	Continuous	Low
Case 2 (with uncertain parity)	Parity	+ 1 %, unless par-value is altered	One-way	Delayed	High
II. With flexible exchange-rates:					
Case 1 (with small variation around existing level)	Mean value	Limited	Two-way	Continuous	Low
Case 2 (with wide variation around mean level)	Mean value	Wide	Two-way	Continuous	Low
Case 3 (with wide variation in one direction)	Declining Mean value	Wide	One-way	Continuous	High

there are only two possibilities: (i) the currency will be devalued (appreciated), becoming cheaper (dearer) in one large step; or it will be unchanged. In these circumstances, the entrepreneur can perceive a "one-way option" which may lead him to choose to delay needed purchases of a suspect currency -- in a word, to take a short position in it (as compared to the normal timing of his exchange transactions). Consider his alternatives in that situation: if the currency is devalued, he is able to obtain it at a lower price; if it is not devalued, he can buy it at any time and is likely to do so as soon as his doubts about the sustainability of the par value have been even temporarily allayed. Even as a maximum, the spot exchange rate could rise by no more than 2% under the Fund's rules and by no more than 1-1/2% under the present practice of most industrial countries.

The probability of a large one-step change in par-value becomes the critical element in the entrepreneur's financing strategy. His probability of financial loss rises in step with his assessment of the risk that the parity will -- or will have to -- be changed. The prospective amount of change, adjusted by a range of probability factors, must then be weighed against the cost to him of protective financial adjustments. When interest costs in the weak currency are roughly comparable to those in his home currency, the additional cost of a delay in purchasing the weak currency may be trivial and is, in any case, likely to be small. For this reason, the entrepreneur often comes to regard an open position in a weak currency as a precautionary speculation which

does not increase but reduces his private exposure to exchange-rate uncertainties.

Such short positions by entrepreneurs reduce the current demand for the weakened currency, contributing to a decline in market quotations. Eventually, the central bank is likely to be forced to bid for the currency in the exchange market to replace the temporarily-deferred purchases by private entrepreneurs. This is the sense in which the private sector is able to shift onto the official reserves some part of the risk of exchange-rate uncertainty under the par-value system. If the parity is devalued, the official reserves will receive a smaller amount of foreign currency at the time the entrepreneur does make his deferred purchase to close his spot position. If there is no devaluation, the entrepreneur has limited his exchange risks at a cheap price and can even regard the costs as an insurance premium against a much greater loss.

Through such precautionary speculative financing adjustments, private entrepreneurs shift to the official reserves some -- and often a significant -- part of their exposure to exchange-risk. To this extent, they place upon the monetary authorities a part of the real cost of exchange-rate uncertainty. The forms such precautionary speculation can take can be identified under three general headings:

- a. "Leads and lags" in the financing of commercial transactions;
- b. Shifts in net exposed current assets; and
- c. Offsets to long-term fixed assets.

These three categories will be treated separately for analytical purposes even though they may in practice often be interrelated.

"Leads and lags" in commercial payments - The distinctive characteristic of adjustments through "leads and lags" is their close connection with the financing of current exports and imports. "Leads" are produced by a hastening of payments from a weak into a strong currency, either by residents or non-residents. For example, the local importer speeds up his foreign-currency transfer because the local currency may be devalued or the foreign exporter speeds up the transfer of receipts into the strong currency because it may be appreciated. By contrast, "lags" are produced by delays in payments from a strong to a weak currency. For example, the local exporter delays the transfer of foreign receipts into the local currency because it may be devalued or the foreign importer delays his foreign-currency payment because his currency may be appreciated.

A shift of financing through "leads and lags" occurs through changes in the timing of the transfer between the local and the foreign currency. For example, a buyer may delay payment or, alternatively, make payment in funds borrowed in the foreign currency. Credits available for foreign-trade financing can also be used for this purpose, including money-market credits (often based on bills of exchange on staple traded commodities which are accepted in major financial centers as a prime liquid asset after endorsement by a local institution) and

trade credits (customarily extended by exporters which can often be stretched out or reduced in duration).

Even in the early post-World War II years when trade and financial transactions were still widely controlled, the authorities found it difficult to limit the capital shifts through "leads and lags." For this reason, the first estimate of these speculative capital flows in the professional literature was exclusively trade-related: it compared the timing-fluctuations in Britain's trade balance and in foreign-currency receipts on a month-by-month basis as a measure of speculation against (and in favor of) the pound during critical episodes.^{1/} On the other hand, these "leads and lags" proved to be quickly reversible once the British authorities had taken appropriate measures to defend the parity.

The practical significance of leads and lags was confirmed officially, probably for the first time, when it was estimated that nearly half Britain's reserve losses during the mid-1957 foreign-exchange crisis was produced by "leads and lags of all kinds, apart from the running down of sterling balances."^{2/} By 1967, Einzig had designated them as "The Main Cause of Devaluation."^{3/} A shift of one week in

^{1/} Samuel I. Katz, "Leads and Lags In Sterling Payments," Review of Economics and Statistics, February 1953, pp. 75-80.

^{2/} Committee on the Working of the Monetary System Report, Cmnd. 827 (London: H.M.S.O., 1959), p. 236, para. 640.

^{3/} Paul Einzig, Leads and Lags (London: Macmillan, 1968), sub-title of book. Perhaps the most readable and concise summary of "leads and lags" is found in his book, Foreign Exchange Crises (London: Macmillan, 1968) Chapter 10.

leads and lags could alter Britain's reserves by £200 million (based on Britain's exports and imports at that time) and one of only a few weeks would be equal to the reported official reserves.

The volume of capital flows of this character expanded as the volume of trade and capital flows increased. In addition, private parties found many new ways to protect the exchange-value of foreign claims after European currencies became convertible at the end of 1958 and restrictions on trade and capital flows were dismantled. In general, entrepreneurs also make their adjustments through changes in: (i) their net current assets and (ii) their long-term assets.

Covering net exposed current assets - For many decades, corporate managers had tried to protect from currency depreciation the fixed-price local financial assets and earnings of subsidiaries operating in countries with chronic inflation. Their approach recognized that the exchange depreciation which reduced the value of such assets in terms of the "profit" currency also reduced the value of equivalent liabilities in that currency. Hence, exchange losses on assets could be offset by equivalent gains on liabilities. As a strategy, then, professional accountants focused on the firm's current account. They recommended that "the ideal position for such a foreign entity would be for its balance sheet to reflect a net current assets position of zero."^{1/}

^{1/} Management Accounting Problems in Foreign Operations, National Association of Accountants Research Report No. 36, New York, N.Y., 1960, pp. 62-63. The quotation refers to an earlier Special Report of the International Management Association.

Later, as management became more experienced, "long-term debt in a foreign currency was increasingly ... treated as an offset to 'exposed' assets."^{1/}

Accounting procedures were established on what has become known as the "Balance Sheet Approach"^{2/} to highlight the subsidiary's net exposed current assets along the lines of the specimen report in Table 3. Attention was focused on net current assets since, as we shall discuss shortly, long-term assets were (and continue to be) regarded as entirely non-exposed. Current assets (especially cash and receivables) were compared with current liabilities (accounts payable and local bank loans). A balance of "net exposed assets" was struck with inventories included and excluded (see Table 3) since only unpaid imported inventories would constitute a possible profit-currency loss upon devaluation.

This same approach could readily be adapted to measure the values of those corporate assets which were "exposed" not to chronic inflation but to the large intermittent one-step changes in parity experienced among the more developed countries after World War II. If

^{1/} Watts, op. cit., footnote 8, p. 174. Formerly, "losses on foreign exchange transactions" reported to the public were based on net current assets alone. By this definition, most foreign subsidiaries would have a long position in a local currency, and would need to be hedged. By the newer method, many subsidiaries will measure even, or short, in the local currency and apparent hedging needs would be smaller.

^{2/} R. B. Shulman, "Are Foreign Exchange Risks Measurable?," Columbia Journal of World Business, May-June 1970, p. 56.

Table 3. Specimen Accounting Report on Net Exposed

Current Assets of Foreign Subsidiary

(Company and Country)

EXCHANGE EXPOSURE AT DECEMBER 31, 1959

NET ASSETS	Local currency	U.S. dollars	All other currencies expressed in U.S.\$
Cash	800	\$	\$
Receivables less reserves	24,850		
Inventories less reserve	18,950		
Purchases of exchange		7,800	20
Fixed assets less reserve	13,385		
Other assets less reserves	1,050		
Total assets	<u>59,035</u>	<u>7,800</u>	<u>20</u>
Less liabilities and reserves:			
Progress (advance) collections	40		
Due to Parent Co.--current		900	
Borrowings	4,025		
Other liabilities and accruals	3,990		
Deferred income	800		
Sales of exchange	15,600		
Other reserves	2,650		
Total liabilities and reserves	<u>26,665</u>	<u>900</u>	
Net assets	<u><u>32,370</u></u>	<u><u>\$6,000</u></u>	<u><u>\$ 20</u></u>
EXCHANGE EXPOSURE			
Net assets (per above)	32,370	xxx	\$ 20
Less fixed assets less reserve	<u>13,385</u>	<u>xxx</u>	<u>xxx</u>
Exchange exposure excluding fixed assets (maximum exposure)	18,985	xxx	\$ 20
Less inventories less reserve	<u>18,950</u>	<u>xxx</u>	<u>--</u>
Exchange exposure excluding fixed assets and inventory (minimum exposure)	<u>35</u>	<u>xxx</u>	<u>\$ 20</u>

Source: Management Accounting Problems in Foreign Operations, National Association of Accountants Research Report No. 36, New York, N.Y., 1960, p. 66.

we define net exposed assets (NEA) as the difference between local-currency assets and liabilities, then

when $NEA > 0$, devaluation would produce a loss;

$NEA = 0$, perfect hedge; and

$NEA < 0$, devaluation would produce a profit

NEA could be reduced by forward cover, though at a rapidly rising price during periods of crisis; by local-currency borrowings from banks; or by trade credits which were often more flexible and less costly than forward contracts.^{1/}

More recently, corporations have augmented their calculations of NEA by preparing estimates which are based on "corporate projections of future foreign flows of funds."^{2/} This "Cash Flow Approach" is based on future earnings plus future depreciation reserves in local currency. According to Shulman, the recommended measure of exchange exposure would not be an NEA calculation but an "adjusted net worth" combined with projected receipts over a reasonable period. In particular cases, he has recommended that four internal estimates be made: (i) the estimated size of devaluation; (ii) the present probability of occurrence within

^{1/} However, Stevens found, in his study of capital flows associated with the direct foreign investment activities of U.S. firms, that recourse to borrowing in foreign currencies as a devaluation hedge was totally insignificant in his model, at least as related to reported current earnings. (See Guy V. G. Stevens "Capital Mobility and the International Firm," Conference on International Mobility and Movement of Capital, January 30 - February 1, 1970, mimeo., p. 14).

^{2/} Shulman, op. cit., p. 56.

the forecast period; (iii) the probable error of forecast; and (iv) the corporate risk acceptance factor. (p. 59.) On the basis of these estimates, management could "reduce the elements of a corporate cover decision to a set of numbers that represent real risk and the company's attitude toward that risk."

There are no quantitative estimates of capital flows through adjustments in net exposed corporate assets. However, corporations have become more sophisticated both in finding ways to reduce their assets and to build up liabilities in currencies they regard as momentarily vulnerable. The ease under contemporary conditions with which loans can be made abroad as well as at home has undoubtedly made the movements much more substantial than they have ever been. Prior to the 1969 revaluation, for example, despite low internal interest rates, German firms increased their borrowings abroad by DM 4.6 billion between February and the end of September 1969; these corporate borrowings may be compared to added foreign-currency borrowings by German banks of only DM 5.3 billion and to inflows from "leads and lags" and related transactions of (plus) DM 9.0 billion during the same period, according to Bundesbank estimates.^{1/} Foreign borrowings have become so common that the lack of control over direct foreign credits to German industry

^{1/} Monthly Report of the Deutsche Bundesbank, November 1969, p. 35.

is regarded as the major gap in the Bundesbank's armory of monetary instruments.^{1/}

In addition, the large oil companies borrowed whatever they could in French francs during the currency's weakness in 1968 and 1969 and then turned to a second weak currency by asking their Belgian subsidiaries to increase their borrowings.^{2/} These subsidiaries apparently tap credit supplies in one country for use in another, both on interest and exchange-rate grounds, and even propose to pay them off out of future local-currency receipts, rather than a return transfer from abroad.

Covering long-term assets - Accountants have justified the exclusion of long-term assets from the NEA calculations on grounds which the economist finds familiar: "as inflation progresses ..., more local currency units are required to maintain the productive capacity of a plant. If these additional funds are not obtained by increased selling prices, the burden falls upon stockholders and other suppliers of capital."^{3/} This accounting practice is consistent with the point Professor Friedman

^{1/} President Karl Blessing, German Bundesbank, quoted in International Monetary Fund Morning Press, January 7, 1970, as reported in Frankfurter Allgemeine Zeitung of December 29, 1969. These borrowings can of course be used to evade German credit stringencies as well as to protect the value of corporate earnings.

^{2/} T. J. Cunningham, "The oil giants in the Euro-markets," Euromoney, September 1969, pp. 4-7.

^{3/} Management Accounting Problems, op. cit., p. 63.

has stressed: that the fundamental hedging of long-term capital movements between countries, as within a country, comes from the fact that the investment is made in real, and not in nominal, terms and does not depend on recourse to the facilities of the forward market.^{1/}

Even though corporations could anticipate that the local-currency value of their equipment and other long-term assets would rise in price in step with the local inflation, many of them have apparently also covered their long-term assets in the forward market as well, at least during some crisis periods. For example, a reporter's survey after the 1967 devaluation of the pound revealed that "the vast majority of American and Canadian companies have been fully protected -- some of them over-protected"^{2/} by borrowing and hedging operations. At the same time, the oil companies also sold sterling both spot and forward in New York in single amounts of £10 million or its equivalent, according to Cunningham, and they engaged in comparable transactions during the French franc difficulties in late 1968.^{3/}

^{1/} The International Adjustment Mechanism, op. cit., p. 116. In addition, discussants of the Stevens paper at the 1970 Conference on Capital Mobility hypothesized that no fixed assets are affected by changes in exchange rates. However, Stevens reported that his data indicated that a part of fixed-assets changes was hedged and, in fact, that the coefficient for the fixed-asset term was larger than that for the current-asset term, a surprising result and one suggesting the need for further research. (See Stevens, op. cit., footnote 23 on pp. 35-36.)

^{2/} Richard E. Mooney, "Devaluation Hits Few U.S. Concerns," New York Times, November 21, 1967, p. 65.

^{3/} Cunningham, op. cit., p. 6.

The extended delays in taking corrective actions to strengthen the pound and in making a decision about its par-value undoubtedly encouraged private parties to regard a short position in sterling as a speculation with a high predictability. The longer the delay in taking corrective measures, in fact, the larger the probability that exchange-rate action would become unavoidable. There was, in addition, the special factor that the cost of three-month forward pounds remained below 1% per annum from early 1967 until the end of October and reached only 1.73% per annum on November 17, on the eve of devaluation.^{1/}

There is no basis for estimating the extent to which private parties have been prepared to purchase forward cover either against current or fixed assets. For example, Watts reports that "more firms realize that buying currency insurance in the forward market may be a highly unprofitable investment"^{2/} and Shulman noted that a corporate treasurer "might have saved the costs of covering his exposure for 1965, 1966 and the first half of 1967. He would have covered while forward rates were still low in 1967 and would have been covered when the devaluation finally was decided."^{3/}

On the other hand, it was commonly supposed that much forward selling of pounds during critical periods was not directly related to

^{1/} Bank of England Quarterly Bulletin, Table 24, "Exchange rates and Comparative interest rates," March 1968.

^{2/} Watts, op. cit., p. 175.

^{3/} Shulman, op. cit., p. 59.

ordinary business needs. For example, Einzig has reported that official forward operations in the U.K. were undertaken on the assumption that most buyers of forward dollars would not be able to make delivery on maturity unless they first bought sterling for that purpose (so that the two transactions would cancel each other out and the reserves would not suffer).^{1/} Corporations could have made such sales against future receipts from sterling-area operations or against fixed assets denominated in pounds. Perhaps an open position against an asset in the balance sheet was regarded as less speculative than an outright short position in a weak currency; at least, it had the advantage, under most accounting practice, of making the profit and loss account look better if there were a devaluation. For example, one U.S. concern in 1968 reported earnings of \$2.01 per share "excluding a 22¢ extraordinary gain resulting from hedging of the pound sterling."^{2/}

Official support and forward rates - The main purpose of any official support of the forward rate has been to reduce current reserve losses. The widening of the forward rate can deplete official reserves through: (i) withdrawals of money-market placements to foreign centers; (ii) the spot purchase of foreign currencies when cheaper than forward cover; and (iii) the signal effect of the weakening forward rate in alerting financial markets to the weakness of a country's external position.

^{1/} Paul Einzig, Foreign Exchange Crises (London: Macmillan, 1968), p. 149.

^{2/} Fortnightly Review, Loeb, Rhodes and Co., March 21, 1969, p. 3.

But such official intervention also makes it less likely that private speculators will come to the support of a falling forward rate. Both financial institutions and private corporations and investors have been prepared to purchase a weak currency in the forward market -- so long as they had regarded the probability of a parity change to be low. For example, Cunningham reported that the oil companies "bought substantial amounts of sterling during several mini-sterling crises" and did "the same ... in reverse during several ... supposedly imminent Deutsche Mark revaluations." (p. 61) But he added that "this 'stabilizing' behavior only operates within certain limits" (p.6): that is, only when they regarded the fears of devaluation to be "premature" on the basis of "a rather dispassionate ... analysis." Several examples of "professional risk-bearing" by commercial banks which Stein described were also of this character. (p. 17.)

Such private support can be looked upon as an alternative to official intervention. It will yield a profit in terms of the suspected currency -- whenever devaluation or revaluation is avoided -- equal to the per cent per annum discount (premium) of the forward compared to the spot rate. In March 1968, for example, a buyer of 3-month sterling could earn a return of 8.79% per annum in a transaction which did not tie up any of his cash assets. When private parties obtain a profit from such intervention, it does not come through a claim against the official reserves but from those entrepreneurs who are prepared to pay an insurance fee against the larger loss they feared for their firm from a one-step change in par-value.

Concluding observations

Even though the social costs of exchange-rate uncertainties are assumed to be identical under the two arrangements, there are great differences as between flexible and fixed exchange rates in the distribution of exchange-risk among participants in the exchange market. Under either of them, commercial banks are unlikely to assume more than a trivial portion of these costs. Consequently, the burdens fall chiefly on private entrepreneurs and on the monetary authorities under both systems. It is in the allocation of exchange-risks between these two participants that the two exchange-rate systems differ materially. When rates are truly flexible so that the authorities assume no responsibility for the level and direction of change of market quotations, virtually the entire burden of these uncertainties falls upon participants from the private sector. Where exchange rates are fixed, on the other hand, this burden is divided between private participants and the monetary authorities in that the latter assume substantial responsibilities for exchange rates under the par-value system: they affect the level and movement of prices by absorbing reserves from or supplying them to the market, and they establish and maintain an official parity in accordance with IMF procedures.

There are great differences in the vulnerability of individual entrepreneurs to exchange-risk whichever of the two exchange-rate arrangements is in effect. That is, under either system, there are entrepreneurs

who by the nature of their international holdings or transactions will gain and others who lose by whatever fluctuations in market quotations actually occur. As a result, under both arrangements, there are some entrepreneurs who are able to avoid, and others who must pay, the costs of hedging or other precautionary adjustments to reduce outright losses from variations in exchange rates.

When we consider the position of private entrepreneurs in the aggregate, however, we can discern substantial differences in private exchange-risks under the two arrangements. On the basis of the proposition that short-term market fluctuations are likely on the average to be greater when rates are flexible than they are when rates are fixed, we can propose that flexible rates impose a particular burden on entrepreneurs engaged in import-export and in private (chiefly short-term) capital transactions. These entrepreneurs benefit directly from the greater exchange-rate stability they expect to experience in the short-run with fixed rates. This advantage of short-term stability is probably a major reason why private entrepreneurs reportedly have so one-sided a preference for any variant of the fixed-rate system and why they also prefer that the responsible authorities extend the period of rate stability by making essential changes in national policy to defend an existing parity rather than to decide to alter the par-value.

On the other hand, the corollary of the proposition that there is likely to be more short-term exchange-rate stability under the fixed rate system is the likelihood that there will be a greater

instability in the longer run. That is, private entrepreneurs may be exposed to the threat of more substantial private costs or outright losses from the occasional but large one-step changes in parity under the par-value system than they would from the more frequent but smaller changes in market quotations under flexible rates.

From the entrepreneur's point of view, however, there is a characteristic of the par-value system which reduces his exposure to losses from rate fluctuations over the longer term. For the occasional one-step changes in parity under the par-value system have a high degree of predictability of direction and, within a broad time-spectrum, of timing as well. This predictability is enhanced when needed changes in par-value are delayed as much as they have been in recent experience. This predictability provides the entrepreneur with a "one-way option" which he can exploit to reduce somewhat -- even if he cannot entirely avoid -- losses from assets and earnings denominated in the suspect currency.^{1/}

To be sure, there are often costs, even substantial costs, to the entrepreneur in such operations. For example, there are often net additional interest costs to him on financial adjustments of the leads-and-lags type or on borrowings in a weak currency as compared to

^{1/} Perhaps it should be noted that countries with flexible rates which are experiencing rapid inflation also provide a "one-way option" to the entrepreneur as we pointed out as Case 3 in Table 1, p. 16-a. But, according to our argument, the stable forms of flexible rates (identified as Cases 1 and 2 in Table 1) have only a low degree of predictability of direction of rate change.

cheaper credit sources in stronger currencies. There are also costs on forward cover so that, according to Watts, we find that "more firms realize that buying currency insurance in the forward market may be a highly unprofitable investment." (p. 174.)

But we also have evidence that some entrepreneurs can benefit by exploiting this "one-way option" materially to reduce, or even to exceed, the costs of precautionary financial adjustments. These adjustments have mainly been through a variety of purely financial transactions and through leads and lags, the movements being in favor of currencies expected to be revalued and against currencies expected to be devalued. Evidence of gains from this "one-way option" can be found in the wind-fall profits reported in corporate balance sheets as due to exchange adjustments. The substantial official reserve losses which the monetary authorities have experienced on the occasion of both devaluation and revaluation in recent years provide additional evidence that some private entrepreneurs have found ways to reduce potential losses from the longer-term changes in par-values.

Flexible rates and private markets - Accordingly, it is suggested, private entrepreneurs engaged in foreign commerce appear to regard their exchange-risks to be less under a variant of a fixed-rate than under one of a flexible-rate system. This perception may place what critics of the par-value system might regard as an excessive weight on the greater short-term stability and place too little weight on the longer-run vulnerability of the par-value system, as compared with the

situation under flexible rates. But it helps to explain the one-sided preference among businessmen and bankers for fixed rates. In addition, the par-value system is particularly beneficial for one important group of entrepreneurs in every industrial country: those engaged in industries, characterized by marked economies of scale, where external markets are essential to achieve volume production runs. Because the United States provides a unified market large enough to achieve such economies, the U.S. producer is less dependent upon exchange-rate stability than are European or Japanese producers of identical products. The European and Japanese preference for stable rates is further strengthened by their practice of supplying foreign markets out of home-country output of finished products or components and not, as U.S. corporations commonly do, by establishing manufacturing facilities abroad.

If we could imagine the sudden introduction of freely fluctuating exchange rates between the industrial countries, we would expect that European and Japanese entrepreneurs would favor steps toward common financial arrangements, at least with countries with which they had appreciable economic and financial intercourse. On these grounds, the realistic alternative to the Fund's par-value system has probably never been the flexible rate arrangements set out in many economics textbooks but, on the contrary, the consolidation of countries with close geographic or economic ties into common currency areas with exchange rates stable within, and flexible outside, these areas.

For this same reason, the limited domestic markets in practically all the industrial countries outside the United States -- for the industrial products which require volume output and, in particular, for products of advanced technology -- argue against the treatment of fixed exchange rates as a subsidy to foreign business, as Lanyi has suggested. (p. 6.) On the contrary, stability of exchange rates over extended periods of time is necessary to enable the entrepreneur in these countries to exploit the radical advances in communication, transportation, manufacturing technology and business organization now available to him. Furthermore, these economic and technological changes encourage business planning on a global scale; as such, they must necessarily clash with concepts of self-correcting flexible exchange rates between national economic units so common in academic economic analysis. For truly flexible rates between national units would fragment the world economy into too large a number of inadequate-sized markets for an impressive range of industrial products. This model of self-correcting flexible exchange rates between **national economic** units has an additional disadvantage, from the point of view of economic efficiency and of the allocation of resources between domestic and foreign employment: it would place upon each country's foreign-trade sector much of the costs of resource-adjustments to all balance of payments disturbances, regardless of the source of each specific disturbance.

Vulnerability of par-value system - But the technological and economic developments which have given a global sweep to the entrepreneur's

planning strategy have, in turn, clashed with the political realities of national sovereignty. For fixed rates have made it difficult for the industrial countries to reconcile their international and domestic economic objectives in ways which permitted freedom for domestic actions and yet did not conflict with priority objectives of their trading partners. Divergencies in domestic economic trends among them demonstrated during the past decade that, until their national policies are much more fully harmonized, exchange rates cannot be regarded as fixed.

Despite marked differences in economic priorities and in the effectiveness of national demand management, however, officials in the industrial countries attempted for a period to avoid changes in existing par values, either upward or downward, and to limit the role of the exchange rate as a major instrument of adjustment policy. Between 1958 and mid-1967, in fact, there was a rigidity of exchange rates among the industrial countries, as the adjustable-peg system was interpreted in practice, which made the par-value system closely akin to a fixed-rate system of the full-fledged pre-1914 gold-standard model. Even though imbalances were developing in the world economy, exchange-rate actions were resisted and adjustments were delayed, until several changes in parity were eventually made after mid-1967.

The effect of the delays in making changes in parity, even after the need for them had become clear, was to produce what the Fund's Managing Director characterized as "a notorious series of currency

crises"^{1/} after mid-1967. The pattern of disturbance was repeated from crisis to crisis: there would be heavy one-sided selling (or buying) of a currency whose parity was considered to be vulnerable, further aggravating its weakness, (or strength), until the cumulative process was broken by the announcement of a broad-gauged economic stabilization program by the country, usually without, but on occasion with, a change in par-value. This one-sided speculation has been held to confirm a critical weakness in the adjustable peg which made it "the most unsettling system of all ... inferior ... to the old-fashioned gold standard under which exchange rates are creditably fixed and to a floating rate which denies the speculator the one-way option which is offered to him by the adjustable peg."^{2/}

Prompt adjustment of parities - But this emphasis on the structural weaknesses of the Fund arrangements pay too little attention to the consistency of the policy decisions of member countries with the Fund's objectives. The reluctance of members to change their parities, even when there was evidence of a fundamental disequilibrium, was bound to be costly to the member country and to the international payments system as a whole.

^{1/} Pierre-Paul Schweitzer, Managing Director of the IMF, "Bretton Woods, Twenty-Five Years After," International Financial News Survey, June 6, 1969, p. 178.

^{2/} Gottfried Haberler, Money in the International Economy, Institute of Economic Affairs, London, revised edition, 1969, "Introduction," page 5.

This experience demonstrated that the par-value system cannot be expected to function as a stable mechanism of international payments, if financial markets continue to have substantial doubts about the sustainability of the par-values of the more important currencies over a protracted period. It was in an attempt to find ways to avoid such extended periods of uncertainty that the members of the Fund agreed in 1969 to undertake a study of proposals to facilitate needed changes in par values. Unlike the negotiations on Special Drawing Rights, these efforts do not aim at innovations of historic significance. Instead, the study has concentrated on the role of limited exchange-rate flexibility within the par-value system and has been concerned with an evaluation of a number of proposals for a greater, though limited, flexibility in exchange rates under it.

Ultimately, the measure of these efforts will not be the changes introduced in exchange-rate technique but a broader question: whether or not Fund members can find a basis to adjust parities more promptly during the 1970's than was the experience during the 1960's. For there are fears that the Bretton Woods arrangements may not continue to be resilient enough to withstand the turbulence in financial markets which would recur if exchange-rate decisions were once again to be put off and extended periods of uncertainty about the viability of par values return. It would be expected that entrepreneurs would continue to shift from the buy-side of a weak currency to the buy-side of a strong one, whenever they had substantial doubts about an existing parity, and the

amounts of disruptive capital flows could become increasingly difficult to absorb within existing instruments of international financial cooperation. The hope is that these disturbances can be greatly diminished as Fund members come to agree on ways to make the balance-of-payments adjustment process more effective through a limited increase in the flexibility of the exchange rates of the industrial countries within the terms of the system of stable exchange rates agreed to at Bretton Woods in 1944. For, in the words of the Fund report, "the constraint exerted by this exposure to speculation should be maintainable within tolerable bounds provided that adjustments in exchange rates are not excessively delayed."^{1/}

^{1/} The Role of Exchange Rates in the Adjustment of International Payments, International Monetary Fund, Washington, D. C., 1970, p. 54.