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Corporate Exchange Risk Management: Theme and Aberrations

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FOR ALMOST A DECADE, commencing with the Nixon devaluation in late 1971, controversy has surrounded the role of the U.S. multinational corporations (MNC's) vis a vis the exchange position of the dollar. Arguments range from whether the firms can affect exchange rates, whether they have affected exchange rates, to whether one should care if they do affect exchange rates.

In this paper, I will briefly summarize a continuing study involving both extensive and repeated interviews with the chief international financial officers of major U.S. MNC's and the evaluation of financial data regarding the foreign exchange (FX) positions of the firms. Then, I will focus on the firms during five "crisis" periods in the foreign exchange markets, investigating whether the firms' currency levels and changes in those levels for various currencies can be seen as reinforcing or smoothing exchange rate fluctuations.

I. *Methodology*

I conducted personal interviews with the financial officers of seventy U.S. multinationals, having selected the firms from among the Fortune 500 for their substantial involvement in Europe and Japan. I interviewed these companies primarily during the Spring of 1974, and reinterviewed most of the companies in Summer, 1977.

The quantitative data used in this study were obtained from thirty-six U.S. multinationals, a subset of the seventy companies interviewed. These data represent the major European and Japanese subsidiaries for each of the thirty-six companies. Finance subsidiaries, when present, were also included in the sample, for a total of approximately 288 subsidiaries. For each subsidiary, data were collected for separate accounts in each currency. The period intended to be covered was 1967-74, although in some companies the earliest years' data were not available.

The data gathered allowed me to study the behavior of these multinationals over this period, reviewing both the patterns of currency allocation in various nations as well as the changes in those currency levels.¹ In order to evaluate the

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¹ Essentially, balance sheet data for these firms and the subsidiaries, as well as foreign exchange contract positions, had to be tabulated for each currency involved in a given company. Typically, there were 64,000 pieces of datum for each of the thirty-six MNC's involved.

For further discussion of the methodology, a list of the firms involved, and the questionnaire used in both sets of interviews, see Rita M. Rodriguez, (2), Chapter 1 and Appendices A-C.

behavior in relation to the nature of the currencies, I next chose to categorize the major currencies as strong or weak using exchange rate, forward rate, and interest rate data.

Strong currencies were those where the majority of quarters provided an incentive for investing in those currencies on a *covered basis*. That is, the exchange controls on the domestic markets for those currencies often produced domestic interest rates higher than the corresponding Euro-rates. MNCs or anybody with access to both markets could have profited by borrowing, let's say, Eurodollars and investing in the domestic market for these currencies while fixing the future exchange rate, the forward rate, for the reversal of the transaction in the Euromarkets. The currencies where most quarters provided this opportunity are the Belgian franc, the French franc, the German mark, the guilder, the Swiss franc, and the Japanese yen. In all strong currencies, the incentive was clearly to invest in them. However, among the depreciating or weak currencies (the pound, the lira, and the Canadian dollar) only the pound had a dominant number of quarters making it profitable to borrow domestic pounds and invest the proceeds in the Euromarkets on a covered basis. For the period as a whole, labeling the Canadian dollar and the lira as weak currencies is somewhat arguable. The main contribution of this classification is to separate the stronger currencies from the other currencies.²

II. MNC's Financial Officers' Attitudes

Although this paper will focus on the crisis periods and the behavior of the MNC's in those periods, it is useful to note other areas which were examined, and to discuss the findings in those areas. These areas involve the attitudes of MNC international financial officers toward various aspects of exposure to exchange risk as obtained from the interviews with these officers and from the quantitative data about the behavior of the MNC's evaluated during the whole period, 1967-74.

During the 1974 interviews, *translation* exposure for the current reporting period was used almost exclusively as the measure of exposure to exchange risk and as the basis for hedging this risk in these companies. By 1977, *transaction* exposure was followed simultaneously in most of the companies. And when the decision was whether to hedge an exposure, only 20% of the companies interviewed in 1977 based their hedging decisions *solely* on translation exposure. Although Statement No. 8 of the Financial Accounting Standards Board (FASB #8) imposing a single method for computing translation exposure became effective January, 1976, most companies used either transaction exposure, a modified FASB #8 measure or various combinations of measures when contemplating hedging policies.³

² The yen could not be examined directly since an external yen market did not exist during the period of study. However, the appreciating nature of that currency and the strong government controls in that country warrant including the yen with the other strong currencies.

For supporting data, see Rita M. Rodriguez (2), Chapter 3.

³ The effects of exchange fluctuations on translation exposure appear as exchange gains or losses in the period's income statement. Translation exposure affects earnings per share directly. The effects of exchange fluctuations on the company's future exchange conversions, i.e., transaction exposure, may not even appear on the period's financial reports at all and, therefore, have no impact on current

Among the tools available to cover exposure, leading and lagging payments together with direct money market transfers were the preferred instruments to modify unwanted exposures in the MNC's studied. Forward exchange contracts often were referred to as a measure of last resort.

One rationality for preferring money market instruments over forward exchange contracts involves the differences in reporting interest income and expenses from reporting exchange gains and losses. Interest income and expense associated with hedging an exposure in the money market are reported with all the other income and expense of the company. Gains and losses in forward contracts are reported with foreign exchange gains and losses—a distinct account. Managers' aversion to reporting anything called "exchange losses" may have deterred the use of forward exchange contracts in many cases.⁴

The managers' special preferences also were evident in their responses to the question whether they would hedge a given exposure or not. These managers were asked to assume conditions in the market which represented what is called an efficient market. They were told that the forward rate was the best forecast available of the future spot rate. The comparison of the rate locked-in by the hedging operation with the spot rate expected to prevail in the future should have left these managers indifferent as to whether or not to hedge the given exposures.

In fact, the interviews showed that management was far from being indifferent about the exchange management decision. Either management did not believe the forward rate anticipated the future spot rate, or management based its decisions at least partially on something other than expected values. This "something" appeared to be the sign of the expected outcome.

When an exchange *loss* was expected, and the forward rate was selling at a discount, the majority of these managers preferred to hedge the exposure rather than to leave it open. When an exchange *gain* was expected, and the forward rate was selling at a premium, a minority of these managers chose to hedge the exposure. Because of the assumed conditions, the loss locked-in by the forward contract in the first case equaled the expected loss if the position was left open; and the exchange gain expected in the second case when the position were left open equaled the premium that could be obtained if the exposure were covered.

Management did not appear to analyze the hedging decision in terms of the expected gain or loss. Instead, management showed a particular aversion to reporting exchange losses. If the expectation was for an exchange loss, management was eager to see that a loss larger than the average expected, the forward

earnings per share. Eventually these cash flows will be reflected in future financial statements. For further explanation of accounting exposure see Rita M. Rodriguez and E. Eugene Carter, (4), Chapters 5-7.

⁴ Of course, there is another less rational explanation for the reluctance to use forward exchange contracts. This is the lack of familiarity with the foreign exchange market relative to the better understanding of the traditional financing techniques of borrowing and investing. This attitude is consistent with the practice of companies where forward exchange contracts are given very special attention. An example of such treatment is the company where the assistant treasurer had permission to borrow up to \$250,000 without needing further approval within the company. However, he had to ask permission from the president of the company for engaging in any forward exchange contract in excess of \$10,000. This special significance attached to forward exchange contracts is clear in the cases of several of the managers who stated that they did not use forward exchange contracts because it was not their practice to speculate in the foreign exchange market!

rate, was not realized. On the other hand, if the average expected represented an exchange gain, management was more willing to be exposed to the vagaries of the market.⁵

When I analyzed the quantitative data obtained from the exposure reports of these companies, the results also indicated a reluctance of these managers to report exchange losses. After the financing accounts—cash and debt—were segregated from the other accounts, certain patterns emerged. These financial accounts, which the finance department can be presumed to have more control over, tended to *counteract* the exposure generated by operations when the exposure was likely to generate exchange losses. This was particularly clear in the case of the pound, where financial-account changes tended to reduce the positive exposure generated by the operating accounts; and in the Swiss franc, where the financing accounts tended to counteract a very large negative exposure existing at the beginning of the period because of large borrowings in this currency. In contrast to this pattern, the financing accounts did not show any specific pattern in the currencies which tended to appreciate during the 1967–74 period. However, the movement of the financial variables still left the majority of the exposures in these currencies on the positive side; i.e., exposures likely to generate reported exchange gains.⁶

III. *Crisis Period Behavior*

The periods of crisis in the foreign exchange markets during which the changes in the MNCs' accounts were measured are centered around the following dates and events:

- June 1971— Several European currencies are upvalued, and the German mark is allowed to float in value in the foreign exchange markets.
- Dec. 1971— The Smithsonian Agreement establishes new parities for major currencies against the U.S. dollar. These rates are well above the rates existing in August 1971 when the value of the U.S. dollar was allowed to float.
- June 1972— The pound sterling is allowed to float (and sink) in the exchange markets.
- March 1973— This date is the end of a quarter that began with the upvaluation of the Swiss franc and the Japanese yen, leading to the devaluation of the U.S. dollar against the major currencies.
- June 1973— After a short period of tranquility in April and May, upvaluations of the major European currencies against the U.S. dollar occurred throughout the Summer of 1973.⁷

⁵ A more detailed discussion of the managers' answers to the questions on hedging practices in efficient markets is presented in Rita M. Rodriguez, (3).

⁶ For the specific results and levels of statistical significance, see Rita M. Rodriguez, (2) Chapter 4.

⁷ Although the climaxes of the specific crisis periods did not always occur at the end of a calendar quarter—as the above benchmark dates suggest—the company data were collected on this basis. This fact constrained the selection of the critical periods. Given the relatively short period of time covered by each observation, and the a priori uncertainty as to the climax of the crisis, this inaccuracy should not bias the analysis. It has been argued that to see the true cash movements of a company one would need daily, and even intra-day, data. I think this may be the case if one wishes to analyze the behavior of an exchange trader. However, none of the companies interviewed perceived itself as a trader in the market, nor did it appear to behave as one.

Three summary statistics were computed for the quarterly data around each crisis period. These statistics were computed for each account, for each currency, in each company. They are: the average level of the account, the average value of the positive percentage changes, and the average value of the negative percentage changes. The summary statistics for each currency were then grouped into strong and weak currencies, thus generating a total of six measurements for each account during these periods; i.e., the three summary statistics each for the strong currencies and for the weak currencies. Finally, the data for each company were then pooled, with the same weight given to each company.

Testing the Consistency of MNCs Behavior with Exchange Market Movements

A rationality in which the MNCs moved their funds in sympathy with the exchange markets would have the companies holding more assets in appreciating currencies than in depreciating ones and increasing their holdings of assets in appreciating currencies while decreasing debt in those currencies. The following flows in appreciating currencies could be expected:

1. Increase in the holdings of cash and marketable securities, accounts receivable, and inventory; purchases of forward foreign exchange contracts;
2. Decrease in short-term debt, accounts payable, and long-term debt; sales of forward exchange contracts;
3. Movement toward a more positive or less negative net exposure position.

In terms of measurements discussed, MNCs would be moving funds in the same direction as the trends in the exchange markets if those movements achieved the following for asset accounts:

1. Average level of the account for strong currencies is larger than the average level for weak currencies.
2. Average of positive percentage changes in strong currencies is larger than the average negative percentage change in those currencies.
3. Average of positive percentage changes in weak currencies is less than the average negative percentage change in those currencies.
4. Average of positive percentage changes in strong currencies is larger than in weak currencies.
5. Average of negative percentage changes in strong currencies is less than in weak currencies.

For liability accounts the opposite relationships would be postulated.

The presence of the postulated relationships as well as the opposite ones is summarized in Exhibit 1. In the *headings* of this exhibit strong currencies are indicated by an "S" and weak currencies by a "W." The direction of change is noted by arrows; upward arrows denote positive changes, and downward arrows indicate negative changes. There are no arrows at the head of the first column on the left because that column refers to the comparison of the average *levels* of the account between strong and weak currencies.

The body of the exhibit indicates whether the relationship between the given numbers is as postulated. If it is, the outcome is called a right ("R") one, if not, the outcome is called a wrong ("W") one. The four columns in each sequence of comparisons indicates, from left to right, the comparisons for:

- a. Two quarters before the benchmark date;

Exhibit 1
Account Levels and Changes: Relationships between Strong and Weak Currencies Compared
during Foreign-Exchange Crises

	Level		Level				↑S > ↑W				↓S < ↓W				↑S > ↓S				↑W < ↓W			
	1	2	3	4	W	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Assets																						
Cash																						
June 1971	R*	R*	R*	R*		R	R	R	W*	W			R*	R	R*	R	R	W	W*	W*	W*	W*
December 1971	R*	R*	R*	R*		R	R	R	W*	W			R	R	R	R*	R*	W	W	R	W	W*
June 1972	W*	W	W*	W*		R	—	W	R	W			R*	R*	R*	R*	R*	W	W*	W*	W	W*
March 1973	R*	R*	R*	R*		R	R*	R	R	W			R*	R	R*	R	R	R	W	R	W*	W
June 1973	R*	R*	R*	R*		R	R	R	R	R			R*	R	R	R	R	R	W	W	R	W
Forward Contracts																						
June 1971	W*	W*	W*	W*		W	—	—	—	—			—	—	—	—	—	R	—	R	R	R
December 1971	W*	W*	R*	R*		R	—	—	R	W			—	R*	R	R*	R*	R	R	W	W	—
June 1972	R*	R*	R*	R*		R	W	—	—	—			R	—	R	—	R	W	W	R	R	R
March 1973	R	R*	R*	R*		W	—	—	R	R			—	R	—	R	R	R	R	R	R	R
June 1973	R*	R*	R*	R*		R	R	R	W	R			R	R	R	R	R	R	R	W	W	R*
Accounts Receivable																						
June 1971	W*	W*	W*	W*		R	—	W	W	W*			R	R	—	R	R	W	W*	W	W	W
December 1971	R*	W*	W*	W		R	W*	W*	—	W			R	R	R	R	R	W	W	W	R	W
June 1972	W*	W*	W*	W*		R	W	W	W	W*			R	R	R	W	R	W	W	W	W	W*
March 1973	W*	W*	W*	W*		R	W	W	R	—			R	R	W	R	R	W*	W	W	W	W
June 1973	W*	W	W*	W*		W	W	R	W	R			R	R	R	R*	R*	W*	W*	W	W	W
Inventory																						
June 1971	W*	W*	W*	W*		R*	W	W	—	—			W	W	W	R	R*	W	W	W	W	W
December 1971	W*	W*	W*	W*		R	W	—	—	R*			R*	R	—	—	R	W*	W*	W	W	W
June 1972	W*	W*	W*	W*		R	W	—	R*	R			R*	R	R*	R*	R	W*	W*	—	W	R
March 1973	W*	W*	W*	W*		W	W	—	—	W			R*	R	R*	R	R	W	R*	W	W*	W*
June 1973	W*	W*	W*	W*		W	W	—	W	R			R	W	—	R	R	—	W	W	W	W

Liabilities

Short-Term Debt

June 1971	R*	R*	R	R*	W	—	W	W	W	W*	W	R	R*	R
December 1971	R	R*	R*	R*	R	R	W	W	W*	W	W*	R	W	W
June 1972	R*	R*	R*	R*	W*	W	—	W	W*	W	W*	R	R	R
March 1973	R*	R*	W*	W*	—	R	W	W	W	W*	W*	R*	W	R
June 1973	W	W*	W*	W*	—	W	W*	W	R	W*	W	R*	W	R

Long-Term Debt

June 1971	R*	R*	R*	R	R	R	W	W	W	—	W	—	R	W
December 1971	R*	R*	R*	R*	W*	W	R	R	W	W	W	R	R	W
June 1972	R*	R*	R*	R*	—	—	W	W	W	W	—	R	W	W*
March 1973	W*	W*	W*	W*	—	R	R	R	—	W	W*	—	W*	R
June 1973	W*	W*	W*	W*	R	R	W	W	W	W*	W	R	R	W

Accounts Payable

June 1971	R*	R*	R*	R*	W	W	W	W	W	W	W*	W	—	R*
December 1971	W*	W*	R*	R*	W	—	W*	R	R	W	W*	R*	R	R
June 1972	R*	R*	R*	W*	—	R	R	R	W	W*	W*	R	R	R
March 1973	R*	R*	R*	R*	R	—	R	R*	R	W	W	R	R*	R*
June 1973	R*	R*	R*	R*	W	W	W*	R	R	R	W	R	W	R

Company Definition of Exposure Plus Forward Contracts

June 1971	W*	W*	W*	W*	R	R	W	W	W	W	W	W	W	W
December 1971	W*	W*	W*	W*	W	W	R	W	W	W	W	W	W	R
June 1972	W*	W*	W*	W*	W	W	W	R	W	R	W	W	W	R
March 1973	R*	R*	R*	R*	W	W	R	W	W	W	R	W	W	W
June 1973	W*	W	W*	R*	R	R	W	R	W	W	W	W	W	W

Source: Rita M. Rodriguez, *Foreign Exchange Management in U.S. Multinationals*, Appendix 5A.

↑ = increase; ↓ = decrease.

S = Strong currencies: Belgian franc, French franc, German mark, guilder, Swiss franc, and yen.

W = Weak currencies: Canadian dollar, lira, and pound.

* The "Student's *t*" distribution was used to test whether the differences between the strong and weak currencies were significantly different from zero. All relationships marked with an asterisk were found to be significant at a 95% confidence level.

Column headings: 1: two quarters before the benchmark date; 2: one quarter before the benchmark date; 3: one quarter after the benchmark date; 4: two quarters after the benchmark date.

R = Right outcome. Relationship between strong and weaker currencies is as postulated.

W = Wrong outcome. Relationship between strong and weaker currencies is opposite to the one postulated.

- b. One quarter before the benchmark date;
- c. One quarter after the benchmark date; and
- d. Two quarters after the benchmark date.

The asterisk accompanying some of the letters indicates those relationships which were significant at a 95% confidence level.⁸

Accounts Affecting the Exchange Market Directly. The *cash account* presents a very vivid picture in which MNCs succeeded in maintaining higher levels of liquid balances in strong currencies than in weak currencies. This success can be traced to the consistently large increases relative to decreases in holdings of strong currencies. Although the holdings of weak currencies also increased (positive changes in weak currencies are also larger than negative changes in those currencies), the average positive increase in strong currencies was usually larger than the average increases in weak currencies. In spite of the bias introduced by the level of strong currencies being greater than for weak currencies (therefore tending to make percentage changes in strong currencies smaller than for weak currencies), the data show positive percentage changes in strong currencies to be significantly larger than in weak currencies.⁹ *The companies in every crisis period were accumulating liquid holdings of strong currencies at a faster rate than holdings of weak currencies.* As a consequence, on the average, their holdings of strong currencies were larger than for weak currencies.¹⁰

The paucity of data on *forward contracts* makes it difficult to reach any conclusion. However with the exception of the comparisons around June 1971, these companies had forward purchases exceeding sales in strong currencies while the opposite was true for weak currencies. This finding in the level of outstanding contracts is substantiated by the comparisons of changes. Positive changes (forward purchases) were always larger than negative changes (forward sales) in strong currencies. That is, increases in long positions (or reductions in short positions) in strong currencies were larger than the decreases in long positions (or increases in short positions) in those currencies. For weak currencies the tendency appears to be for an increase in short positions or a decrease in long positions.

The two accounts in which the impact of MNCs on foreign exchange markets is reflected directly, cash and forward contracts, show that these companies were moving their funds with the tides in that market during *every* foreign exchange crisis. They accumulated funds and maintained long positions in forward contracts in strong currencies to a much larger degree than in weaker currencies.

Other Current Assets: Accounts Receivable and Inventory. There are two other current asset accounts included in this study, receivables and inventory.

⁸ Notice how the pattern of statistical significance in Exhibit 1 resembles the results obtained with traditional regression analysis where the parameters for the *levels* of the variables are usually more statistically significant than the parameters for the *first differences* of the same variables.

⁹ For potential biases in these measures see Rita M. Rodriguez (2), Note 3, p. 89.

¹⁰ The one exception to the case of holding larger balances in strong currencies than in weak currencies occurs around the June 1972 benchmark. In these computations the currencies considered to be weak remain the same for all benchmarks; however, during 1972 the only currency that was clearly weak was the pound sterling. After the Smithsonian Agreement in December 1971, a certain degree of calm returned to the exchange markets with the exception of the pound sterling in the second quarter of 1972.

Whatever impact financial considerations may have had on the level of those accounts, these considerations did not succeed in producing larger balances in strong currencies than in weak currencies. Actually, with almost no exception, the opposite appears to be the case: the levels of weak currencies in these accounts are significantly higher than the levels in strong currencies.

Apparently, the nature of the operations of these businesses produced higher levels for these two accounts in weak currencies than in strong currencies. In the case of accounts receivable, there appears to be an undercurrent to change this situation by having the increases in strong currencies larger than the decreases in those currencies and larger than the increases in weak currencies. However, in spite of these trends, the majority of the accounts receivable remained denominated in weak currencies. In the case of the inventory account I can find no distinguishable trend to move a larger proportion of this account into harder currencies.

Liabilities. There are three liability accounts in this study: accounts payable, short-term debt, and long-term debt. In all of them there is a tendency for the average level of weak currencies to be higher than the average level of the accounts in strong currencies. Also, there is a tendency for the increases in weak currencies to be larger than the decreases in those currencies. However, the positive changes in strong currencies are also larger than the negative changes in those currencies. The comparisons of increases between strong and weak currencies and of decreases between the two groups of currencies produce a mixed picture.

For the two borrowing accounts, short- and long-term debt, for the last two benchmarks the general relationship between the level of debt in strong and weak currencies is reversed. For the comparisons around March and June 1973, the average level of borrowings is larger in strong currencies than in weak currencies. This is in contrast to the comparison for the preceding benchmarks where the opposite relationship was the prevailing one. This is surprising, given that by 1973 the so-called strong currencies were much more recognized for their strength than they had been in earlier periods. However, this possible increase in recognition took place not only among the MNCs but in the financial markets as well. To the extent that the lenders prevailed in these transactions, they would have preferred to lend in strong currencies. These factors, coupled with the lower interest rates associated with loans in the stronger currencies, appear to have switched the larger proportion of the borrowings by these companies from the relatively weak currencies to the relatively strong ones during late 1972 and 1973. Also, by 1972, after the currency realignments of the preceding years, there was a feeling that exchange rate stability would prevail for a while—a feeling which proved to be wrong in 1973.

As mentioned before, borrowings in both strong and weak currencies had large increases relative to the decreases. However, when comparing the size of the increases in weak currencies with those in strong currencies, debt increases in strong currencies are larger than increases in weak currencies. It is true that in this case the bias introduced by comparing two percentage numbers with different bases will tend to produce smaller percentage changes for weak currencies. However, when comparing the decreases in strong currencies with those in weak currencies, I also find a mixed pattern. This piece of information, together with

the fact that during the last two benchmarks the level of borrowings in strong currencies was larger than in weak currencies seems to indicate that borrowing in strong currencies increased faster than it did in weak currencies.

To the extent that companies tried to manage the currency composition of their liabilities to take advantage of fluctuations in the exchange markets, they appear to have been more successful in accomplishing this goal through accounts payable than through borrowings. Borrowing levels had the anticipated relationship between the levels in strong and weak currencies until mid-1972, but not afterwards.

Finally, the relationships examined for "company definition of exposure plus forward contracts" are typically opposite to the ones postulated for flows which are consistent with the fluctuations in the market. Comparisons of changes in this aggregate of accounts are as often consistent as inconsistent with the relationships postulated.

Although the financial officers interviewed often placed great importance on the company's exposure as defined for accounting purposes, this group of accounts, as a whole, did not succeed in generating positions which would have produced reported exchange gains or avoided reported exchange losses. When one contrasts these findings with the high conformity of movements between the cash account and the fluctuations in the exchange markets it appears that in practice these managers placed greater importance on the so-called transaction or conversion exposure than on the avowed translation or accounting definition of exposure. And this practice must have begun long before it was recognized during the second round of interviews in 1977.

Sources of Cash in Strong Currencies. The previous data show the cash account to be the most significant case of MNCs managing their accounts in sympathy with the movements in the exchange markets. The average holdings of liquid funds for the sample companies were higher in strong currencies than in weak currencies in every single crisis period. This behavior tended to perpetuate itself as the companies accumulated cash in strong currencies faster than in weak currencies in every crisis. The impact of these cash flows on the foreign exchange market depends on the conduits used to achieve them.

The increase in holdings of strong currencies could have happened in either of three main ways:

1. Transfer of balances borrowed in weak currencies into strong currencies;
2. Internal funds generated in weak currencies and then transferred into strong currencies; and
3. Internal funds generated in strong currencies and allowed to remain in those currencies.

The data presented above suggests the following influences in the observed accumulation of cash in strong currencies:

The conventional use of the money market to alter net exposure is not supported by these data. These companies were not increasing their short-term borrowings in weak currencies to exchange into holdings of harder currencies. To the contrary, these companies more often than not increased their short-term borrowings in strong currencies, not weak ones. Increases in long-term debt were as often in strong as in weak currencies. Thus, the major forces behind the

observed accumulation of cash in stronger currencies are: (1) internal funds generated in weak currencies and converted into strong currencies; and (2) internal funds generated in strong currencies and allowed to remain in those currencies.

IV. *Stabilizing Versus Destabilizing Behavior*

Whether the operations of the MNCs reported above had a “good” or “bad” effect on the exchange markets, depends on whether they tended to stabilize or destabilize these markets. The literature on the effect of speculation on the exchange markets establishes the following conditions for speculation to be stabilizing:¹¹

1. The speculator is “risk neutral.” He or she operates on the basis of *expected values* and is indifferent to the components producing that expected value.
2. There is good forecasting ability so that the speculator can sell when the exchange rate is overvalued and buy when it is undervalued.
3. The speculator is willing to move funds from one currency to another in response to changes in *expected* yields.

The data reported in this paper show that MNCs’ movements of funds across national borders met, at least partially, two of the conditions necessary for these flows of funds to help stabilize the exchange markets. The management of internally generated funds in these companies during exchange crises was consistent with good forecasting ability and these companies were certainly willing to transfer funds from weak into strong currencies. These companies certainly helped to bring about the depreciations and appreciations of the currencies involved. But such a result does not prove that these transfers of funds were necessarily stabilizing. If they helped to accelerate the exchange rate moves which were dictated in any case by economic conditions, these companies helped to stabilize the exchange markets. But, if the flow of funds created by these companies just served to create a “bandwagon” effect where appreciations and depreciations were much larger than justified by general economic conditions, then their funds management proved destabilizing to the market. We cannot judge these companies by making reference to a “true” exchange rate, however, because it is not observable. But we can make some inferences from their behavior.

In the interviews these managers were given conditions where they should have been indifferent between hedging or not hedging their positions. Yet they hedged the positive positions in depreciating currencies more often than the positive exposures in appreciating currencies. Empirically we do not know what these managers thought the expected cost of hedging was relative to the cost of maintaining the positions and reporting an exchange loss. However, their aversions to reporting exchange losses, or lack of risk neutrality, could easily be transferred into a willingness to pay hedging costs higher than the average exchange depreciations anticipated by the market. This willingness to continue selling the currency could bring the rate past what the market would have done otherwise, and help to destabilize the exchange markets.

¹¹ For a brief analysis of this area see Jacques R. Artus and Andrew D. Crockett, (1).

The flow of funds reported in this paper could have also been influenced by this risk aversion and, if so, have had a destabilizing impact on the markets. The data show that these companies sold liquid balances in depreciating currencies. The risk aversion found during the interviews could have dictated this behavior even where a reversal of the exchange fluctuation might have been foreseen or when the foregone high interest in the weak currencies dictated otherwise. The concern with current reported exchange losses would have made these managers sell the currency against stronger currencies in spite of the economically unjustified costs. If this was the case, these companies' operations tended to increase the instability in the exchange markets.

V. Summary

During the period studied these companies moved funds in sympathy with the tides in the exchange markets. Their impact on these markets can be summarized as follows:

1. MNCs affected the exchange markets directly by:
 - a. converting funds generated in weak currencies into strong currencies, and
 - b. failing to convert funds generated in strong currencies into weak ones.
2. MNCs *may* have affected the foreign exchange markets indirectly to the extent that there was a tendency to generate funds internally in weak currencies and an apparent desire to convert these funds into strong currencies. If these desires were frustrated by exchange controls, indirect pressure on the exchange markets was generated by these companies.
3. MNC did *not* affect the foreign exchange markets through the money markets in a consistent manner; i.e., by borrowing in weak currencies and investing in harder currencies.

These flows by themselves do not indicate whether MNCs actions were destabilizing. However, the observed financial officers' risk aversion to reporting exchange losses produced an asymmetrical behavior which had the potential to increase the instability in the market. Probably, the larger the expected change, the larger the contribution of instability, as the MNCs' stake in exchange losses became larger.

However, these managers were *not* trying to destabilize the exchange market on purpose, but were responding to the demands of their environment. In the words of one of these managers: "If I generate exchange gains, I am just doing my job; however, if exchange losses have to be reported the roof falls in." Limiting the size of reported exchange losses in this environment is a rational decision—even if a premium must be paid at times.

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DISCUSSION

D. E. LOGUE*: Professors Errunza and Senbet hypothesize that multinational corporations' market values should reflect the capitalized value of either market power, owing to imperfections in foreign products and factor markets, or the capitalized savings on transactions by investors who rationally desire some form of international diversification in their portfolios. In brief, the shares of U.S. based multinational firms should sell at a premium relative to purely domestic firms after adjusting for risk.

Their phrasing of the question in this way leads them to conclude that the appropriate test for the rationale underlying the development of MNCs should be a valuation based test, rather than a standard abnormal performance test on security returns. In my view, this way of asking the question has moved the analysis of MNC's forward. Their actual theoretical and empirical work, alas, has not done us so much good.

Theoretically, they argue that MNC's shares could sell at a premium because product/factor market imperfections will lead to higher than normal cash flow; or alternatively, their shares could sell at a premium because investors bid up their prices to reflect the fact that direct diversification through purchases of shares in foreign companies operating abroad is very costly.

The obvious question anyone would ask at this point is: if MNC shares sell at a premium, then why don't more MNC's start up, sell shares, and capture the valuation premiums for the promoters? Errunza and Senbet address this issue by arguing that supply adjustments become increasingly costly—given a fixed stock of international investment opportunities—so there are no more rents to capture. This seems a contrivance to tighten their valuation theory. Nonetheless, more work on this issue is likely to be illuminating. The authors have outlined a research topic with their conjecture that is worth pursuit.

A second problem that exists in their analysis is its implied suggestion that MNCs' direct investment flows are uni-directional. Either cash flow or investor international diversification rationales suggest that MNC investments will go from countries with more to countries with less efficient product/factor markets or from countries where security transaction costs are low to those where transaction costs are high. This does not explain, for example, how General Motors can make value maximizing decisions to invest in Germany while Volkswagen can almost simultaneously make value maximizing decisions to invest in the U.S. Transportation costs and tariffs alone cannot account for these flows. Some other factors must be operative.

Turning to the empirical work, at best it must be viewed as preliminary. Unfortunately, my knowledge of the available data sources suggests it may be as good as possible, but it still is not entirely satisfactory.

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