Foreign currency futures: some further aspects

Henry N. Goldstein

> . . . it is not the case that the Japanese monetary authorities have enough influence to control exchange rates. What they have been doing is, at most, mitigating fluctuations in currency markets which are caused largely by Chicago speculators.
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> Oxford T. Matsumoto
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> From a letter in *The Economist*, March 5, 1983, p. 4.

The basic mechanics of buying and selling foreign currency futures on the International Monetary Market (IMM, the division of the Chicago Mercantile Exchange on which financial futures are traded) were described in an earlier article in this review.[1] That article explained the nature of currency futures contracts and showed how such contracts could be used to hedge exchange rate risks arising from commitments to receive or pay foreign currencies at future dates. It also explained how such contracts typically provide enormous leverage for transactors who deliberately seek to assume exchange rate risk, i.e., to speculate on a change in the dollar price of one or more leading foreign currencies, including British pounds, Canadian dollars, Deutsche marks, Japanese yen, Mexican pesos, and Swiss francs.

This article describes the evolution of trading activity in these different currency futures since 1977. It also examines the links between the currency futures market and the broader interbank market for spot and forward exchange in which major banks in financial centers around the world act as the main dealers. Finally, it considers a number of special issues: (1) the impact of IMM currency transactions on the broader U.S. and world-wide interbank markets; (2) the chances that trading in currency futures in other centers will come to rival trading on the IMM; (3) some contrasting aspects of the newly introduced market for *options* on currencies; and (4) the relative concentration of open positions among "large traders."

Market growth, 1977-1982

Although futures contracts in eight currencies are traded on the IMM (see Table 1), in recent years active trading has been largely confined to only five—the British pound, the Canadian dollar, the Deutsche mark, the Japanese yen, and the Swiss franc. The combined trading volume in the other three traded currencies—Mexican pesos, Dutch guilders, and French francs—amounted to less than two percent of total trading in all currency contracts on the IMM during 1982.[2] For all five currencies actively traded on the IMM, an enormous growth in both trading volume and the level of open positions has occurred since 1977. The growth in trading volume is shown in Figure 1; the growth in open-interest positions in Figure 2.

As Figure 2 shows, the average month-end open interest in Canadian dollars during 1981

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[1] Karl V. Chalupa, "Foreign currency futures: reducing foreign exchange risk," *Economic Perspectives*, Winter 1982, Federal Reserve Bank of Chicago, 3-11.

[2] Different reasons account for the negligible volume of trading in these three currencies. Trading in Mexican pesos has been dampened by the very high initial margin requirement imposed by the Exchange, amounting at recent exchange rates to something like two-thirds of the dollar value of each Mexican peso contract. At recent exchange rates, margins required for the other currencies range from about 1.1 percent for Canadian dollar contracts to 4.1 percent for British pound contracts. (These are minimums; brokers may require customers to post higher margins.) Inactivity in trading in guilder futures seems to reflect the closeness with which the dollar price of the guilder varies with the DM: traders prefer the German currency as a speculative and hedging vehicle because the DM market has much greater depth in interbank trading. Reasons for inactivity in French franc futures are less apparent.

Table 1

IMM contract sizes and U.S. dollar value per contract (for June contracts at rates prevailing on March 22, 1983)

Currency	Contract size		Dollar value per contract (June delivery)
Swiss franc	SF	125,000	$60,800
Mexican peso	MP	1,000,000	5,260
Deutsche mark	DM	125,000	52,238
Canadian dollar	CD	100,000	81,710
British pound	BP	25,000	36,750
French franc	FF	250,000	33,888
Dutch guilder	DG	125,000	47,625
Japanese yen	JY	12,500,000	52,150

and 1982 was somewhat less than the open interest in any of the other four actively traded currencies, when measured by the number of outstanding contracts. This measure is somewhat misleading, however, because the U.S. dollar value of the standard Canadian dollar contract (100,000 Canadian dollars) substantially exceeded the U.S. dollar value of a contract in any of the other currencies. As a consequence, when measured in U.S. dollar value terms, the open position in Canadian dollars on the IMM actually exceeded that in any of the other actively traded currencies during 1981 and 1982. Table 2 gives the U.S. dollar values of open positions in the five currencies as of the fourth quarter of 1982.

Over the six years 1977-1982, the rise in average daily volume of trading has been much more substantial than the rise in open interest in all currencies except the Canadian dollar.[3] This development suggests that the growth of "day-trading" (in-and-out trading on the same day) has accounted for a significant part of the rise in trading volume.

Interestingly, the Swiss franc, the most actively traded currency on the IMM in 1982, is a currency in which U.S. residents have slight foreign exchange exposure as a result of ordinary trade flows—U.S. trade with Switzerland is minuscule relative to its trade with Germany, Japan,

[3]This differential increase was particularly great for the Swiss franc: in 1977, average daily trading volume in Swiss francs amounted to 21 percent of the average open interest in that currency; by 1982, this figure had reached nearly 70 percent.

Figure 1

Led by the Swiss franc, futures for the five major trading currencies hit major highs on the International Money Market in mid 1982.

Figure 2

Open-interest levels grew less rapidly than daily trading volume, suggesting an increase of in-and-out "day trading."

Table 2

Approximate U.S. dollar value of open positions in five currencies on the IMM during 4th quarter 1982

Canadian dollars	$1.2 billion
British pounds	$0.6 billion
Japanese yen	$0.8 billion
German marks	$0.8 billion
Swiss francs	$1.0 billion

Britain, or Canada. The recent rapid growth of trading in Swiss franc futures thus seems to reflect mainly speculative motives.

The relative importance of IMM transactions

Activity in IMM currency futures, whether measured by trading volume or by open-position

Some differences in the two markets

The interbank market involves spot and forward transactions among the major dealer banks and among these banks and their corporate customers. Smaller business firms and individuals who seek to buy and sell currencies at favorable rates for forward delivery in relatively small amounts—i.e., less than $500,000 for leading currencies—have only limited access to the interbank market. In contrast, the IMM produces ready hedging and speculative opportunities to the small trader.

In the interbank market, contracts are tailored to specific customer requirements both as to amount and maturity date. In contrast, delivery dates on IMM contracts are standardized on a regular cycle with delivery generally on the third Wednesday of March, June, September, and December. Contracts for each traded currency are also standardized by size, although contract values in terms of U.S. dollars differ substantially across currencies. Table 1 shows the set of standard IMM contract sizes and the U.S. dollar value of June-delivery contracts as of March 22, 1983.

Trading is done by telephone or telex in the interbank markets and, at any given moment, buy-and-sell quotations by different dealer banks may vary slightly from one another. On the IMM, in contrast, trading is through "open outcry" of bids, offers, and amounts in a single arena. Thus, finding the most favorable price at which to buy or sell may sometimes prove more difficult in the interbank market than in the futures market where bids and offers are continuously revealed at a central place.

Trading is on a principal-to-principal basis in the interbank market; participants always know the party on the other side of the trade. On the IMM, transactors deal through exchange members authorized to do business on the floor; they neither know nor care about the identity of the party on the other side because the Exchange Clearing House guarantees contract performance. Some slight risk of non-performance thus exists in the interbank market but not in the futures market (assuming a zero probability that the Exchange itself would "fail").

All participants on the IMM must post initial cash margins but no such requirement is usually made in the interbank market. Gains and losses on position values are accrued to settlement date on forward trades in the interbank market but are settled daily ("marked to market") on the IMM.*

To transact on the IMM, customers pay a negotiated "round-trip" commission to broker firms. This fee covers both the purchase of a contract and its subsequent sale (or the sale of a contract and its subsequent liquidation). Except for dealings through foreign exchange brokers, no explicit commission is charged on the interbank market, although dealers obtain an implicit commission through the spread between their buying and selling rates.

No limit exists on the range of daily price movements in the interbank market, but such limits do exist for IMM contracts. This creates the possibility that, on occasion, traders in futures contracts may be unable to reverse their positions readily, except by recourse to the interbank market, which many traders may not possess.

*For example, on February 8, 1983, Mr. Jones sells one IMM futures contract for delivery of 25,000 British pounds for value September 21, 1983 at the closing price of $1.5270 per pound. On February 9, this contract settles at the higher dollar price of $1.5340 per pound, giving Jones a loss of $175 on his contract (equal to 25,000 times (1.5340 - 1.5270)). Jones must post this additional sum with his broker who in turn will have to post the same amount with the Clearing House on the Exchange. Simultaneously, some trader with an opposite position will be entitled to have $175 paid *into* his account by his broker who will be receiving funds from the Clearing House.

levels, has mushroomed in recent years. But has it become large enough to have a significant independent impact on the level of exchange rates in the broader interbank market? In a short-run sense, the answer would appear to be yes. Although Mr. Matsumoto's judgement, cited at the beginning of this article, that "fluctuations in currency markets . . . are caused largely by Chicago speculators" seems an exaggeration, it is indeed apparent that during the afternoon in the United States—when trading in Europe has ended—surges of net buying or selling pressure on a given currency on the IMM do occasionally occur. And as this pressure is transmitted to the interbank market, rates there can be pushed appreciably higher or lower in the immediate short run. In a broader sense, however, the available volume figures suggest that the IMM plays a generally subordinate role to the interbank market. Table 3 shows comparative measures of the volume of gross trading on the IMM relative to gross trading in the U.S. interbank market during March 1980, using special survey data for that month collected by the Federal Reserve Bank of New York from 90 banks. This Federal Reserve survey also included data on outright forward transactions by the 90 banks with arbitrage members of the IMM. Table 4 shows some relevant ratios.

Table 3 suggests that IMM transactions during March 1980, measured in gross volume terms, were small compared with gross U.S. interbank trading inclusive of spot transactions. However, Table 4 suggests that the share of outright forward transactions in the U.S. market done with IMM arbitragers was fairly substantial, particularly in Swiss francs where it amounted to 43 percent.

Because they exclude interbank trading outside the United States, the percentage figures in Tables 3 and 4 undoubtedly exaggerate the importance of IMM transactions in the determination of exchange rates. Trade and capital transactions between U.S. and foreign residents are more likely to require "settlement" in dollars than in non-dollar currencies.[4] As a consequence, the task of currency conversion more often rests with foreign residents than U.S. residents. But foreign residents needing to convert currencies are more likely to deal with banks located in their own financial centers than with banks located in the United States. Thus foreign exchange trading in centers abroad, and in particular trading which affects the dollar price of the five currencies most actively traded on the IMM, is likely to exceed trading in the U.S. interbank market by a wide margin.

One rough clue to the world-wide role played by the IMM is provided by comparing monthly open positions on the IMM for the five actively traded currencies with the values of exports-plus-imports of goods and services for the countries in question. Table 5 shows the ratio of month-end IMM positions (in dollar-value terms) to average *monthly* exports plus imports (also in dollar-value terms) of the rele-

Table 3

Relative trading volume in five currencies: IMM vs. U.S. interbank

Currency	IMM volume relative to turnover by 90 banks in the interbank market*
British pounds	8.0%
Canadian dollars	16.5
Deutsche marks	3.8
Japanese yen	4.6
Swiss francs	10.0
All five currencies	7.5

SOURCES: Federal Reserve Bank of New York, Public Information Release No. 1371 of June 23, 1980, Table C; IMM Statistical Department, Monthly Information Bulletin for March 1980.

*Turnover of the 90 banks includes the volume of their outright spot and forward transactions—thus it excluded their swap transactions, which are matched offsetting spot and forward trades. The dollar value of IMM was estimated by multiplying foreign currency contract values by the daily average spot exchange rate for the month.

[4]Trade between non-U.S. residents may also call for payment in dollars. And even when, for example, a German importer is paying sterling into the account of a British exporter, the banks handling the arrangements are likely to exchange marks for dollars and dollars for sterling because of the dollar's special role as an intermediary currency.

Table 4

IMM arbitrage as share of U.S. interbank forward trades

Currency	As percent of outright transactions with customers	As percent of all outright forward transactions (including interbank transactions)*
Deutsche marks	38.1	18.1
British pounds	39.1	24.4
Swiss francs	62.5	42.8
Japanese yen	37.8	24.2
Canadian dollars	30.3	25.6
All five currencies	39.3	24.8

SOURCES: Federal Reserve Bank of New York, Public Information Release No. 1371 of June 23, 1980, Table C; IMM Statistical Department, Monthly Information Bulletin for March 1980.

*Outright forward transactions by the banks were only about one-fifth as large as their forward transactions matched with offsetting spot trades in so-called "swap transactions."

vant five countries for 1981.[5]

These percentages are relatively small. Moreover, enormous amounts of speculative and interest-sensitive capital also generate currency transactions in the interbank market. If anything, therefore, the figures in Table 5 almost certainly exaggerate the impact of IMM transactions on

Table 5

IMM open positions in national currencies as fraction of national average monthly trade flows

Canadian	4.6%
United Kingdom	2.7
Japan	1.7
Germany	1.8
Switzerland	9.6

the balance of supply and demand for the currencies of these five countries. Despite their impressive recent growth, IMM transactions as yet amount to only a small fraction of total demand and supply in the worldwide foreign exchange markets.

More fundamentally, it may be misleading even to ask whether the IMM market ever "drives" the interbank market, or vice-versa. Traders in both markets have access to essentially the same information about the economic fundamentals that presumably determine exchange-rate levels; accordingly, "news" that makes them more optimistic or pessimistic about a given currency should have a roughly equivalent impact on their net positioning decisions—regardless of whether these decisions are effected through one channel or another.

How the futures market is linked to the interbank market

Both the futures market and the interbank market deal in contracts to receive or deliver bank balances denominated in foreign currencies at specified dates in the future. Hence, prices in the two markets should move in close tandem with each other through some arbitrage mechanism whereby changes in the net demand or supply pressure in one market are transmitted almost instantaneously to the other market.[6]

[5]Dividing the level of IMM positions by *monthly* trade figures may substantially overstate the influence of IMM positions. The level of open positions at any given time, insofar as it is generated by hedging or speculative transactions linked to trade payments, presumably relates to trade flows scheduled for the coming three to 12 months. Accordingly, it might be more reasonable to compare the level of outstanding contracts with gross trade flows for the coming three months or the coming year. Such comparisons would, of course, generate percentages roughly 1/3rd to 1/12th as large as those shown in Table 5.

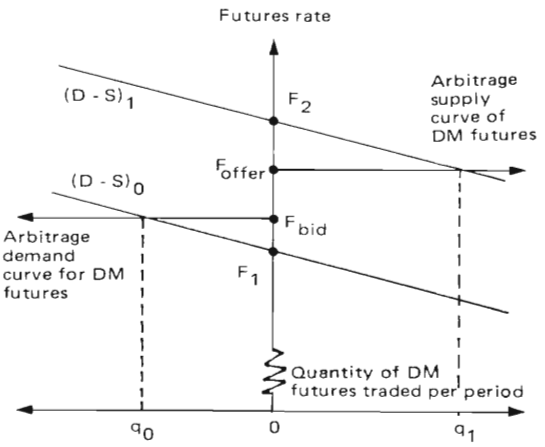
[6]*Arbitrage* refers to the simultaneous buying and selling of an identical or similar good to take advantage of *known* price discrepancies. In contrast, *speculation* refers to the buying and selling of a commodity to profit from anticipated but uncertain price differences. Arbitrage is a sure thing; speculation a gamble.

In fact, soon after its inception in 1972, the IMM took deliberate steps to create an effective arbitrage mechanism by authorizing regular Class A Clearing Members of the Exchange to create special affiliates, known as "Class B Clearing Firms." Each such Class B affiliate is permitted to deal with one specific commercial bank engaged in active foreign exchange trading and with no one else. The counterparty bank agrees to buy and sell forward exchange with the Class B firm on a continuous basis during the trading day—and a direct telephone tieline promotes rapid and repeated transactions whenever justified by rate differentials in the two markets.

Every morning the Exchange provides each counterparty bank with a "hard copy" of the long or short position in currency futures of each Class B trader with whom it deals. Because the

How arbitrage links the two markets

The vertical axis in the figure below plots the current futures rate on the Exchange for a specific DM futures contract; the horizontal axis the quantity of such futures demanded and supplied per period. Distances on the horizontal axis to the right of the origin denote a net demand for DM futures by *non-arbitrageurs*; distances to the left, a net supply.



For a given state of expectations regarding the future level of spot exchange rates, the net excess demand curve for DM futures demanded will be greater at lower prices. Suppose, now, that the initial net demand curve by non-arbitrageurs corresponds to the curve $(D - S)_0$. If no arbitrage mechanism existed, the futures market would have to clear "on its own." In this event, the market-clearing rate would be F_1, where net excess demand by non-arbitrageurs is zero. Now introduce arbitrageurs, willing to absorb a large amount of DM futures at a price just barely below F_{bid}, the prevailing bid in the interbank forward market, and to sell a large amount of DM futures at a price just barely above F_{offer}, the interbank offer rate. This amounts to assuming that the interbank market has much greater "depth" than the IMM market so that—to a close approximation—the relevant aggregate supply and demand curves are infinitely elastic. (Relaxing this assumption would not change the argument significantly.)

Given that the initial non-arbitrage excess demand curve is $(D - S)_0$, the relevant market clearing price will be F_{bid}. At this price, non-arbitrageurs will sell Oq_0 of DM futures to arbitrageurs who, in turn, will sell Oq_0 of DMs, either spot or forward, on the interbank market. Now suppose that the net demand curve for DM futures shifts upward to $(D - S)_1$. In the absence of arbitrage possibilities, the market clearing rate would rise to F_2. But if arbitrageurs are ready to sell a very large amount of futures at F_{offer}, the futures rate cannot exceed that level. Now, non-arbitrageurs buy Oq_1 of DM futures from arbitrageurs who, in turn, buy an equivalent amount of spot or forward DMs from the interbank market.

This example assumes a significant increase in non-arbitrage demand for DM futures (i.e., a rightward shift in the net demand curve) even though the forward rate in the interbank market remains unchanged. In reality, the same political and economic developments that increase non-arbitrage demand for DM futures are also likely to stimulate demand for spot and forward DMs in the broader interbank market. As regards the figure, any significant shift in the $(D - S)$ curve would thus generally be accompanied by a roughly corresponding change in both F_{bid} and F_{offer}. In this event, a general rise (or fall) in the dollar price of the DM over all maturities in both the interbank and futures markets would not necessarily lead to any increase in arbitrage transactions.

bank has its own record of forward contracts with each trader, it can readily verify that the firms it deals with are fully hedged (at least as of the end of each day's trading). Thus the bank runs virtually no risk that a sharp exchange rate fluctuation would affect the ability of its Class B customers to honor their forward contracts.

The hedge achieved by the Class B arbitrageurs is, however, subject to one interesting qualification. Suppose that a given currency persistently rises or falls in value over a series of days and that the net flow of non-arbitrage orders on the Exchange is of a "trendriding" nature. For example, assume that the Swiss franc rises in price over a given period and that IMM traders, exclusive of Class B arbitrageurs, are cumulative net buyers of Swiss franc futures. In this event, the Class B firms would, of necessity, be net sellers of Swiss franc futures while buying a like amount of forward Swiss francs from the interbank market. As the Swiss franc rose in price, the Class B firms would show ever-growing cumulative gains on their forward contracts. But because the Class B firms must "mark to market" daily, they would have to settle their losses with the Exchange day by day. Normally, they would finance these payments by borrowing from the counterparty banks at the prime rate or higher.

Such patterns have frequently occurred during various periods since the IMM's inception in May 1972. Exposure to such interest costs introduces a certain amount of uncertainty into the Class B dealer operations. To some extent, these firms are forced to make educated guesses (1) as to how far the exchange rate movement might go (providing a projection of how much additional "variation settlement" must be paid) and (2) of the relevant prime rate over the period during which their contracts are likely to be outstanding. When their projections indicate an increase in the probable cost of maintaining arbitraged positions, Class B arbitrageurs can respond by widening the spread between the prevailing quotes in the interbank market and their offers to buy or sell futures on the Exchange. In this rather subtle way, expectations of exchange rate and interest rate movements in the future may affect the ruling spread needed to induce arbitrage between the two markets.[7]

In the early days of currency futures trading on the IMM, the large foreign exchange banks avoided active participation in the operations of the Exchange (aside from agreeing to enter into arrangements with Class B arbitrageurs). For one thing, the low volume of trading did not suggest that such participation would be especially profitable. For another, many banks were reluctant to promote trading on the Exchange which, after all, might eat into their own market share and foreign exchange profits, should the volume in fact become significant. Most important, perhaps, was the banks' aversion to engaging openly in a market that had such a speculative aura.

Indeed, it appears that considerable persuasion was required by representatives of the Exchange to induce banks to participate in the Class B trading arrangments, although the large foreign exchange banks in Chicago were relatively willing to enter into such arrangements. The Chicago banks had a long standing tradition of financing transactions on the commodity exchanges on behalf of commodity firms that were now branching out into currency futures, and they were quick to appreciate that they could earn fees from issuing letters of credit to Class B firms, and interest on loans that Class B firms might need to finance cumulative margin calls.

The banks' reluctance to play more than a relatively passive role in the arbitrage process

[7]Conceivably, the alternative scenario might occur. For example, the Swiss franc might experience a rising trend while the net flow of non-arbitrage transactions on the Exchange is such as to resist this trend. In this situation, the Class B arbitrageurs would tend to be buyers of Swiss franc futures on the Exchange and sellers of Swiss franc forwards in the interbank market. Arbitrageurs would then be getting daily "mark-to-market" payments from the Exchange but would not have to settle the accumulating losses on their offsetting forward contracts until they matured or were reversed. In addition to obtaining their normal point spread on discrepancies between contract rates in the two markets, the arbitrageurs could now also earn interest on their interim payments from the Exchange prior to the expiration or reversal of their outstanding contracts. By and large, however, net buying and selling pressure on the Exchange (from all non-arbitrageurs) has tended to be of the "trendriding" type. Accordingly, Class B arbitrageurs have seldom been able to obtain extra returns from taking their profits earlier than their losses.

has recently disappeared. As the volume of trading on the Exchange has increased, the banks have perceived that it would be profitable for them to set up direct telephone facilities linking their foreign exchange trading desks to their own representatives on the floor of the exchange. Their foreign exchange trading desks can then on their own initiative take advantage of rate discrepancies between rates in the futures and interbank markets. Brokerage firms that were members of the Exchange were willing to accommodate the banks with special phone facilities, phone clerks, and other aids to efficient trading because of the large volume of business (and hence fees) likely to result from such customers. Since mid-1980, direct arbitrage participation by the banks has markedly reduced the amount of arbitrage done by Class B firms. And this trend is expected to continue, with many banks likely to become clearing members of the IMM.

Class B arbitrage has also been reduced through the growing arbitrage business conducted by certain nonbank Class A firms. Much of this activity stemmed from large dealers in precious metals whose conventional international operations generated a frequent need to buy and sell foreign currencies. These firms acquired seats on the IMM to facilitate their own currency transactions and, at a fairly early stage after the market's inception, found it profitable to take advantage of rate differences between the IMM and interbank market, often in more flexible ways than the "same-date arbitrage" permitted to Class B firms.

As just noted, Class B firms are limited to buying futures and selling forwards, or selling futures and buying forwards, for exactly matching delivery dates—namely the quarterly settlement dates on outstanding futures contracts. Banks arbitraging at their own initiative through Class A firms, and Class A firms acting as arbitrageurs, are not confined to such simple "same-date" arbitrage. One leading type of "different date" or indirect arbitrage occurs when a bank (or Class A arbitrageur) buys the foreign currency *spot* as an offset to a sale of foreign currency futures or sells the foreign currency *spot* as an offset to a purchase of foreign currency futures. Known as "spot-to-future" arbitrage, this practice is also referred to as "basis trading," where the "basis" refers to the difference between the spot and future rates. On average, the bank will find it profitable to arbitrage in this way whenever the interbank spot rate and IMM futures rate differ by more than the amount indicated by an algebraic formula that has, as a critical input, the spread between the relevant short-term interest rates in the Euro-currency markets.

Rival markets

The enormous growth in the volume of trading in currency futures on the IMM has stimulated efforts by other exchanges to offer similar contracts. In the past few years, similar contracts have become available for trading in New York, London, Canada, and Australia. The New York Futures Exchange (NYFE, pronounced "knife") opened as a subsidiary of the New York Stock Exchange in 1980. The London International Financial Futures Exchange (LIFFE, pronounced "life") opened in September 1982. So far the volume of trading in currency futures on the rival exchanges appears to have disappointed their promoters. (In fact, trading in currency futures in New York appears to have virtually ceased.) And, indeed, doubts have been expressed whether activity in currency futures on any of these competing exchanges will ever approach activity in currency futures on the IMM.[8]

A principal reason advanced for the IMM's expected continued dominance in currency futures trading is the presence in Chicago of a broad group of "locals" or "scalpers"—traders with a background in conventional commodities—willing to buy and sell currency futures in response to small, short-term price movements in a way that contributes greatly to the market's depth and pricing continuity. Futures markets in other centers currently appear to suffer from relative scarcity of such traders.[9]

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[8]See "Markets in tomorrows," *The Economist*, September 25, 1982, pp. 99-100.

[9]Over time, of course, a larger body of such traders may develop in these centers. Indeed, because the competition there is less keen, some traders may move to these centers from Chicago. And, in fact, a number of leading trading firms with seats on the IMM have bought seats on LIFFE, in part to exploit arbitrage opportunities between the two markets.

Moreover, Chicago's head start in trading currency futures probably tends to restrain the growth of rival markets. Brokers who accept orders to buy or sell currency futures seek to obtain the best price and quickest execution for their customers. The IMM's established reputation for efficient order execution is bound to inhibit their going through other exchanges. Some observers believe that other exchanges would have a better chance of attracting more business in currency futures if they offered contracts that differ significantly from those on the IMM. So far this has not happened. However, the London and Australian exchanges do provide one special feature: time-zone differences permit their markets to be open when the IMM is closed. Eventually, this feature alone may lead to substantial currency trading on these exchanges—but perhaps more as a complement to trading on the IMM than as a substitute.

Options on currencies

One interesting new vehicle for speculation and hedging in foreign currencies was introduced on the Philadelphia Stock Exchange in late 1982—namely, options on foreign currencies. Put and call options on three-, six-, and nine-month cycles are available on British pounds, Deutsche marks, Canadian dollars, Swiss francs, and Japanese yen. (The put option gives the owners the right to sell a given amount of the specified foreign currency at a given price per unit in U.S. dollars on or before a certain date; the call option gives him the right to buy a given amount at a specified price on or before a certain date.) Contract sizes in the Philadelphia options market are one half the size of corresponding futures contracts on the IMM.

The options vehicle should appeal to the small transactor who wants to speculate on a longer-run exchange-rate movement but limit his downside risk should the spot exchange rate move the "wrong way" in the interim. In combination with a forward or futures contract, an option contract also provides a near perfect hedge against exchange risk to a business firm which must place a competitive bid to perform a specific service abroad. If the bid is successful, the dollar value of the firm's foreign currency receipts is fixed by the futures contract; if the bid is unsuccessful, any loss on the futures contract is largely cancelled out by a corresponding gain on the option contract. As yet, however, it is much too early to judge whether the Philadelphia market in foreign currency options will attract anything like the investor interest that has emerged for currency futures in Chicago.

Concentration of open positions among large traders

All clearing members of the IMM are required to make daily reports to the Commodity Futures Trading Commission (CFTC), the U.S. government agency charged with regulating all futures markets. These reports show the open futures positions of each "large trader," defined as someone holding 25 or more contracts in any one currency future.[10] The CFTC has recently begun publishing a summary of these open position reports as of month-end dates. In these reports, trader positions are classified as either "commercial" (implying that they are used for hedging pre-existing exchange rate risks) or as "noncommercial" (implying that they are speculative in nature).[11] Examination of data in the report for January 31, 1983 reveal the following:

- The number of large traders in the five active currencies ranged from 85 large traders in Canadian dollars to 159 large traders in Swiss francs.
- Depending on the currency, large traders held between 58 and 85 percent of all long positions and between 60 and 85 percent of all short positions.
- Across the five actively traded currencies, the *four largest holders* held between 18 and 44 percent of total long positions and between 11

[10] As of January 31, 1983, the approximate dollar value of 25 futures contracts in each of the five main currencies traded was as follows: Swiss francs ($1.53 million); Japanese yen ($1.29 million); Canadian dollars ($2.02 million); British pounds ($.95 million); DMs ($1.26 million). Thus, at a minimum, large traders had positions ranging from about one to two million dollars, although only a small fraction of these amounts needed to be put up as cash.

[11] Positions held by Class B arbitrageurs are classified as "commercial."

and 56 percent of total short positions while the *eight largest holders* held between 25 and 61 percent of total long positions and between 19 and 70 percent of total short positions.

- Among reporting large traders, speculators held very unbalanced positions in the different currencies as of January 31, 1983. By currency, the ratios of speculative long to short positions on that date were roughly as follows:[12]

Swiss francs	4:1
Japanese yen	5:1
Canadian dollars	1:3
British pounds	1:2
German marks	1:2

Estimates of the average dollar values of the positions taken by the four largest traders on the side of market where speculation was predominant are instructive. These estimates, obtained for January 31, 1983, were on the long side in Swiss francs and yen and the short side in Canadian dollars, British pounds, and German marks. They presumably *exclude* positions of Class B arbitrageurs who are likely to be the opposite side of the market from the predominant speculative interest:

Contract currency	Estimated dollar value
Swiss francs	$100.4 million
Japanese yen	63.9 million
Canadian dollars	107.3 million
British pounds	22.4 million
German marks	60.8 million

These estimates imply that some rather large "players" take speculative positions through the IMM. Such traders might be wealthy individuals, narrowly held trading firms, or foreign or domestic banks. But is is likely that many are commodity funds which place some part of their pooled shareholders funds in speculative positions through the IMM.

Conclusions

Along with Chicago markets in a variety of other financial futures, the markets for foreign currency futures on the IMM, at least in five out of the eight currencies traded, have experienced impressive growth since 1977. Other financial centers in the United States and elsewhere have recently established markets with similar contracts but the IMM will probably remain the leading market in currency futures for some years to come. Through both direct and indirect arbitrage, price movements on IMM currency futures are tightly linked with corresponding movements in the world-wide interbank market. Despite their recent rapid growth, open positions taken through the IMM are probably small relative to those assumed through the world-wide interbank market.

Therefore, it seems unlikely that the IMM is a significant independent source of supply or demand in the worldwide currency markets, although on occasion, a bunching of one-way orders—particularly in the afternoon after the European interbank market has closed—can cause a significant movement in interbank exchange rates. Smaller speculators in exchange markets may be increasingly attracted to the new options market in foreign currencies, which limits the maximum loss that might be incurred.

Even though the IMM offers small- and medium-sized traders in foreign currencies more

[12]Although their validity is difficult to assess, explanations for these divergent ratios are readily available. Thus, as of January 1983, market commentaries suggested that the yen and the Swiss franc—based on "economic fundamentals"—were undervalued relative to the dollar; that the Canadian dollar was vulnerable to some further weakening during 1983 in the light of Canada's persisting inflation, weak markets for commodity exports and uninviting prospects for direct foreign investment; that sterling was weak because of concerns over the impact of a prospective fall in oil prices; and that the DM was under pressure because of uncertainty over the outcome of scheduled general elections. In the absence of exchange market intervention by the central banks, none of these explanations would have been very convincing. For then, the exchange rate would itself presumably move to prevent any massive *net* speculative positioning (much as the price of a common stock "immediately" adjusts to reflect new information, thereby preventing any "obvious" bargain price from materializing). But with the monetary authorities intervening to "lean against the wind," *net* private speculative positioning might well become very large, with speculators, on balance, holding positions just opposite to those of the central banks.

favorable terms than does the larger interbank market, the share of total open positions assumed by "large traders" on the IMM is considerably larger than that assumed by traders holding less than 25 contracts. It is possible, however, that some significant part of such large positions represent the pooled investments of "small traders"—the doctors, dentists, and lawyers from Des Moines and Peoria who are often alleged to play a key role in this market.

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