

**THE FOREIGN  
EXCHANGE MARKET:  
A DESCRIPTIVE STUDY**

**Claude Tygier**

***Program on Information Resources Policy***

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THE FOREIGN EXCHANGE MARKET: A DESCRIPTIVE STUDY

Claude Tygier

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Project Director: Oswald H. Ganley

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Claude Tygier is president of Berier Financial Services, Inc., specializing in foreign exchange, following an 18-year career as an interbank foreign exchange trader in New York.

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#### AUTHOR'S NOTE

This study was essentially written in the fall of 1984. I have found it necessary to add a postscript describing some of the changes that have taken place since.

Claude Tygier

New York, March 1986

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Claude Tygier

## EXECUTIVE SUMMARY

- . The foreign exchange market is a worldwide network of banks, brokers, multinational corporations, and central banks, all of whom buy and sell currencies. These market participants are linked by communications systems that allow instant knowledge of factors that affect the market and of rates as they are quoted around the world. The market functions practically on a 24-hour basis and is not restricted to opening and closing hours in one particular center.
- . The foreign exchange market is centered around the interbank market -- a large group of international commercial banks whose transactions form the major part of the daily turnover. Central banks occupy a key place in the market as they implement the foreign exchange policies of their governments.
- . Major issues confronting the market are:
  - Could a new system satisfactorily replace floating?
  - Should the market remain basically unregulated or should central banks exert more control?
  - Will the trend toward free trade and unrestricted capital flows continue?
- . Between the end of World War II and 1973, the foreign exchange market operated under a fixed-rate system. Since 1973, the market has worked under a floating-rate system. The abandonment of the fixed-rate system has led to increased exchange rate volatility. Market participants, including governments, have become increasingly disenchanted with the floating rate system because of the volatility that it engenders.
- . Two major factors responsible for the expansion of the market are deregulation of local capital markets and promotion of free trade, and technological advances in electronics, computer sciences, and communications. Deregulation and trade expansion have brought the world economies to an increased state of interdependence. Improved technology has permitted the evolution of the foreign exchange market into a global worldwide market.
- . The increases in oil prices in 1973 and 1978 resulted in huge transfers of wealth from oil consumers to oil producers and to high inflation in the late 1970s. The anti-inflationary stance of the Federal Reserve Bank brought high interest rates, a sharp recession in 1982, and an international debt crisis.
- . Exchange rate movements are a function of tangible and intangible factors. Economic performance, inflation, productivity, and confidence are major elements that determine trends. Government policies toward exchange rates, either unilateral or multilateral, are important market factors regardless of their success.

. Deregulation has brought in new players, most notably futures markets, non-commercial banks, and non-bank financial institutions. The growth of international investors in a freer capital environment has made capital transactions, as opposed to commercial transactions, an increased factor in the market. New products, such as options, futures, and swaps, have also brought new dimensions to the market.

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## FOREWORD

To most people, the arena where the world's major currencies fluctuate against each other remains very much of a mystery. The only apparent certainty to casual observers of the foreign exchange market is that the currencies' rates of exchange move constantly, but few who watch seem to fathom why. On those frequent occasions when developments make headlines, experts and commentators cite some reasons for the particular behavior of one or several currencies, but a cynical spectator would be quick to point out that these reasons appear suspiciously vague and are often contradictory. Currencies seem to defy their predicted course.

Official statements on foreign exchange do little to clarify matters. Governments are prone either to blame speculators or to consider the evolution of exchange rates to be outside of their control. The observer is left with the impression that things drift on their own at the whim of the participants.

The structure of the market itself is diffuse. It is not an organized market like a stock exchange, with easily identifiable members wearing colored jackets and a badge. In fact, there is no physical marketplace where foreign exchange is transacted, with the exception of the currency pits of commodity markets in Chicago, London, and Singapore -- where only a small fraction of the overall volume gets traded -- and daily sessions in some of the foreign centers where a fixing is determined. The vast majority of the business is done by traders who work for banks and other financial institutions. These traders are empowered by their management to exchange large amounts of currencies with other institutions or clients.

The evolution of the foreign exchange market has been so rapid in the past 10 to 15 years that studies have quickly become obsolete. The body of literature devoted to the market itself, as opposed to the nature of foreign exchange and the theories of currency behavior, is very small.<sup>1</sup> In recent years, articles have been written about new developments and about some of the more influential players, but a general descriptive study of the foreign exchange market is still lacking.

The purpose of this book is to analyze the current state of the market, describe its participants, how they operate and why, and discuss issues that are confronting it internally as well as externally and that have an impact on its evolution. I have essentially relied on my own experience and on that of my former colleagues in the market. Rather than prepare a study as seen from an outside "above the melee" standpoint, I offer the outlook of an insider, and have interviewed the actual practitioners -- central bankers, commercial bank traders and other participants -- rather than the policymakers. The latter have always found a forum to express their views, but those who operate in the trenches and bear the brunt of these policies are seldom heard.

Since so much that pertains to today's market is rooted in the past, I have included a historical section. But rather than relate what has taken place in the international monetary scene since World War II in the usual chronological order, I have underscored only the salient developments that have contributed to the current environment.

I emphasize central banks and central bank policies because these institutions carry out the directives of their governments and either actively or passively bear responsibility for what takes place in the

market. Central banks have an unenviable role. They have to implement policies that they do not necessarily agree with, and they are caught between governments and the market. While they are scrutinized by both, they have to maintain the dialogue on both sides and are exposed to criticism for policies that they are not responsible for, criticism not only from the market but from other central banks as well. Yet their presence, real or perceived, is an essential ingredient of the market.

The trader is probably the most mysterious element of the market, at least for outsiders. Traders have been glorified and vilified. The description of a trader's activities makes good reading in a feature article, as does the definition of a trader's personality. The truth is more prosaic. Traders are professionals who develop certain characteristics because of the nature of their job and their environment but are not blessed with some super senses or extraordinary abilities. They are prone to error, and like everyone else they feel great when things go their way and are truly miserable when they are on the wrong side of the market. Whether traders are born and not made, as some claim, is debatable, but the major point is that certain qualities are essential for a trader to be successful, most notably the ability to know when one is wrong and the honesty to admit it.

There is a fundamental difference in perspective between those who have an interest in the market, but who do not participate in it directly and who derive their knowledge of it only through other parties, and the market participants. The former include all officials above the "working stiff" level -- that is, above the dealing function -- who have the responsibility of initiating and implementing policies, and yet who derive their information through others and who tend to look

at the market from their vantage point through their own prejudices. That is not to say that one side or the other is the sole possessor of the true perspective; traders have their prejudices as well, and the case can be made that the views of an insider are narrow and lack objectivity precisely because he is an insider. Nevertheless, important issues are too often ignored because they are not aired outside the market.

Many participants, especially those who have been in the market for a number of years, have expressed concern with such developments as exchange rate volatility, the role of governments and central banks as market participants, the pros and cons of floating rates vs. fixed rates, the professional quality of the younger generation of traders, the impact of technology in the market, and the development of new trading tools such as futures and options. These concerns are also shared by many of the central bankers and other policymakers. They relate to the market itself and to certain official policies and may appear relatively unimportant to outsiders, but to the extent that they have an impact on what has been happening in the market they are relevant and should be further examined.

## INTRODUCTION

Foreign exchange trading rooms today bear little resemblance to their counterparts of 15 or 20 years ago.<sup>2</sup> A typical foreign exchange department in the 1960s was located in a remote part of its organization's headquarters and consisted of a smallish room furnished with desks and a series of teletype machines. Each desk had one or several multibutton telephones and a calculator. The desks were usually arranged so that they were adjacent to each other, either side by side or facing. Staffs varied between small two-person operations and larger teams of 30 or so traders. Responsibility for the operation of the department fell under the International Banking department, and the function of the trading room was essentially that of a specialized service, and secondarily that of a profit center.

The profession itself was obscure, removed from the mainstream of banking. In the entire United States, the total number of trading rooms in 1967 was not greater than 40, with a grand total of some 200 traders.<sup>3</sup> The business between banks was handled by six brokers, whose entire staffs consisted of 15 men.<sup>4</sup> Almost all the traders had gotten into the business purely by chance and had difficulty explaining their work not only to their friends and relatives, but often to their own superiors. In Europe, which had by far the greater share of the market, there was more understanding of the business but that understanding was still confined to a relatively small portion of the financial community. In the Far East or the Middle East, the business, at least in relation to banking, was practically non-existent.

The main function of a foreign exchange department, then as now, consisted of the exchange of currencies through transfers from one

account to another on a predetermined date and at a rate of exchange that was fixed at the time of the transaction. Beyond that, there is little similarity between what took place in those early days and what is happening now. A significant portion of the transfers, most of them related to international trade operations, took place through air mail delivery, and the amounts transacted were considerably smaller than what is commonly dealt with in the present marketplace.<sup>5</sup> The forward markets, where currencies were exchanged for delivery beyond the set spot date, were still in a process of development, and the pricing was far more imprecise than it is today. On the other hand, convertibility, or the free exchange of currencies, was the exception rather than the rule, especially for capital transactions. Traders needed considerable knowledge of then-existing regulations pertaining to the purchase or sale of local or foreign currencies.<sup>6</sup> There are no known studies of what the gross amount of foreign exchange activities -- the turnover -- totalled, nor which currencies were the most actively traded, but the pace of trading was certainly much slower than it is today.<sup>7</sup> The most efficient means of communication internationally was the teletype, which was used sparingly because of its relatively high cost of operation. International telephone communications were slow and erratic, even within Europe.

To increase the efficiency of each marketplace, the Europeans had borrowed a feature from other financial markets and most centers had a formal meeting place -- usually at the local stock exchange -- where market participants could trade face to face and match orders to fix a rate of exchange that would be the result of the balance between supply and demand. Such a fixing was an easy way to determine the day's buy

and sell rates for customers, since it was assumed that there would be relatively few rate fluctuations thereafter. Such practices, established by gentlemen's agreements, precluded what market participants could have considered unfair competition and price cutting in order to attract client business. The practice of fixing sessions underscored the almost self-contained nature of each center. The two notable exceptions to this were London and New York. In the United Kingdom, which was then the world's leading trading center, activities in Sterling pounds were limited by regulations, and the Bank of England preferred to monitor the trading patterns in other ways. The North American market, which was then -- as now -- completely unregulated, could not organize fixing sessions because of possible violations of antitrust laws.



PART I

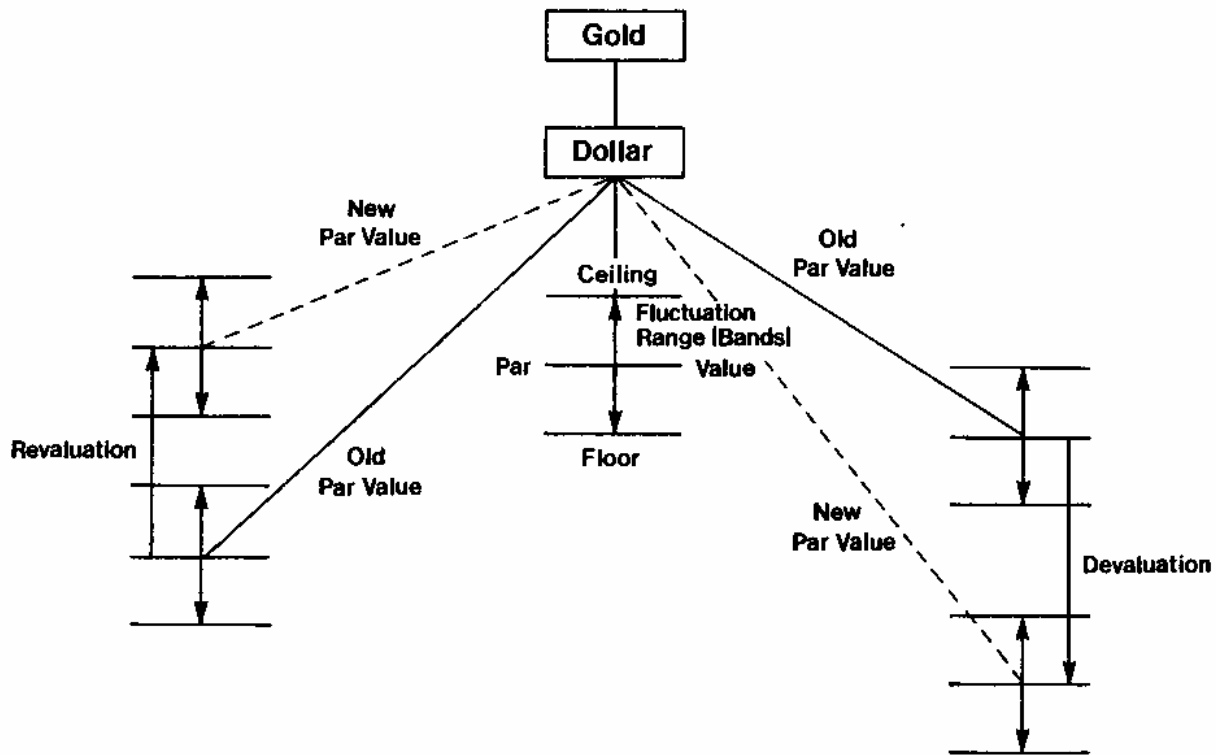
CONTRIBUTING FACTORS TO THE MODERN FOREIGN EXCHANGE MARKET



## FROM BRETTON WOODS TO THE SMITHSONIAN AGREEMENT TO FLOATING

### The Bretton Woods Agreement

The major difference between the post-World War II foreign exchange market until 1971 (the year of the Smithsonian agreement) and the modern market is the system under which they operated.<sup>1</sup> In 1944, an international conference held in Bretton Woods, N.H., worked out an agreement under which the currencies of the free market economies would be fixed against each other under a system of par-values. This agreement facilitated the rebirth of international trade after the war by formalizing a multilateral monetary system under which the values of currencies could fluctuate within a narrow band, thereby making the risks for importers or exporters relatively small. At the same time, it was recognized that different economies would behave sometimes in divergent patterns and that there should therefore be flexibility to allow for strains. For that reason, the International Monetary Fund (IMF), the supra-national organization that the Bretton Woods conference organized to supervise the implementation of the system, would authorize occasional changes in par-values (See Figure 1). In conjunction with the IMF, the conference created a bank (the International Bank for Reconstruction and Development, now known as the World Bank) that would help in putting the devastated economies of Europe and Asia back on their feet.<sup>2</sup>



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Figure 1

### Fixed Rate System

The key to the Bretton Woods system was the pegging of all the currencies of the participants to gold, and by inference to the U.S. dollar, whose value was officially fixed at \$35 per ounce. Each currency was therefore worth a fixed amount of U.S. dollars, which was called the par-value -- and of course a fixed amount of gold. In recognition of the changing nature of supply and demand in the marketplace, currencies were allowed to fluctuate by a small percentage around the par-value -- the band -- before reaching their permissible "floors" or "ceilings." If pressures forced a currency upward or downward, the central bank of that country then had the responsibility to go into the

market and buy or sell its own currency against the dollar in order to keep it within the band.<sup>3</sup> This type of official market activity became known as intervention. While interventions could take many forms, the object was to equalize supply and demand.

In the heavily regulated world of the late 1940s and 1950s (convertibility became fully established in Europe in 1961 and in Japan in 1964), currency flows were almost exclusively determined by trade -- and to a small extent by unilateral transfers such as foreign aid, and tourism. Therefore, those countries with the ability to export more than they imported were able to accumulate reserves of foreign currencies either officially or privately. The accumulation of reserves was initially a useful step for the further development of trade and also gave governments the flexibility to use the reserves for investment purposes. In addition, the Marshall Plan, a program set up by the Truman administration for the reconstruction of the devastated European economies, allowed many countries to obtain large amounts of dollars, which they also used as reserves.

Three factors contributed to the de facto role of the U.S. dollar as a major reserve currency:

1. the American economy itself, which was by far the most powerful in the world, and whose currency was considered the strongest;
2. the Bretton Woods agreement, which consecrated the dollar as the key currency in the system; and
3. the international expansion of the U.S., through foreign aid, foreign investments and foreign loans.

Until the war, the major reserve currency -- that is, the currency most used as an international medium of exchange -- had been the pound

Sterling, because of the preponderance of the British Empire in international trade and the vast areas that it controlled. The British were the first to undergo decolonization; within 10 years after the war their sphere of influence had diminished dramatically. The pound still was held as a reserve currency in many countries, but this anachronism was to correct itself gradually over the years, with adverse consequences for the British. While the City of London would keep its role as a major financial center, the British economy and its currency would undergo dramatic changes.

Control of par-value changes. The mechanism set up by the Bretton Woods conference in order to relieve strains caused by trade imbalances was that of par-value changes, under the form of either revaluations or devaluations. The basic principle that allowed the system to work was the notion of national responsibility. The authorities of a country were solely accountable for keeping their currency within the established levels and could not unilaterally change the par-values. This could be done only with prior approval of the IMF, after consultation.<sup>4</sup> While the desired goal of the Bretton Woods conference was a state of convertibility and a removal of regulations with respect to currencies internationally, there would be no interference with the internal policies of the member countries, unless they requested help in the form of financial assistance from the IMF. Thus, the process of deregulation went on slowly and at a different pace depending on the countries. At the same time, certain patterns of trade developed and various currencies emerged as "strong," while others acquired the stigma of "weak" currencies.<sup>5</sup> The former were obviously the currencies whose countries were emerging as strong economies with great exporting

capacity. The latter were currencies whose countries were experiencing economic difficulties.

One important point, however, had not been considered when the system had been set up: The assumption of responsibility did not allow for freedom of action to react to events outside of one's control. Economic developments are not purely a function of a country's intrinsic capacity, but depend on the human factor, on political events, and on other intangibles. It was therefore inevitable that in time, first the spirit of Bretton Woods and then its rules would be violated and finally discarded. The system carried the seeds of its own demise but in the meantime was instrumental in the economic rebirth of the post-World War II world.

International payments systems. The system of fixed exchange rates lasted from 1945 to 1971. This in itself is a testimony to its creators, who did not envision the extent to which the industrial world would grow from the ashes of the war, and could not imagine the technological changes that would take place in the meantime. As Europe and the Pacific basin struggled to put their economies back into shape, a system of international payments was first put into place under the auspices of the Union Postale Universelle (UPU), a loose confederation of the various postal systems. At that time, the great majority of the postal organizations, largely under government control, had a monopoly on communications, with the notable exception of the United States. Typical of such organizations was the French PTT (Postes, Telegraphes et Telephones), whose system supervised all known methods of telecommunication. In fact, several countries developed through the postal network a system of accounts (known as the Giro-system abroad) that could be

used for making payments domestically or internationally. It was through the loose umbrella organization of the UPU that the first efficient post-war network of international payments was devised.

Initial failure of convertibility. Since the first task of the developed countries was to put their economies back into shape, the international capital flows were tightly regulated. Purchases or sales of foreign currencies had to be justified by documentation that proved that the transactions were of a commercial nature. Even though parities had been fixed against gold and the dollar, the international payment system was generally bilateral. For example, the pound could be bought or sold for a Deutschmark account, underscoring the bilateral nature of the transaction even though the currencies were commonly quoted against dollars in the market. Transactions of a non-commercial nature were discouraged through a series of regulations and restrictions, and as a result, at least in the first years, there were black -- or parallel -- markets in dollars or Swiss francs throughout Europe. Between 1945 and 1950, several countries, most notably France and Great Britain (at the urging and with the help of the United States) tried to restore convertibility but failed when their foreign exchange reserves drained rapidly. In 1950, the dollar shortage was so severe that there were successive drastic devaluations throughout the world.

Role of the dollar in post-war Europe. Two financial marketplaces had escaped from the havoc of the war -- and had even benefited from it: New York and Zurich. The American economy was emerging from the war as the strongest in the world, and most of the major manufacturing companies were impatient to participate in the reconstruction of Europe and the Far East by investing in those various countries. The Marshall

Plan helped them in that task. One result was heavy inflows of badly needed dollars, especially in Europe. The emergence of the Cold War promoted a basic U.S. foreign policy of strong financial and economic support of any country that was willing to oppose the Russian bloc, and large sums of dollars were extended to the rest of the "free world." Since the United States was the leader of the non-communist world, and also since the U.S. dollar was the linchpin of the Bretton Woods system, it was natural that the U.S. currency would become the medium of exchange. In addition, most of the money poured into Europe found its way into official foreign exchange reserves of the local countries, and many corporations found it easier for their international payments to invoice in dollars, especially if payments were to be made or received in countries whose currency was not convertible. Thus, many of the major commodities such as oil came to be invoiced and paid for in dollars (some oil exporters accepted pounds for parts of the payments until the mid-1970s).

Growth of the Swiss banking systems. Switzerland had remained neutral during the war and its banking centers had prospered from flight capital. (After the war, the Swiss decided to uphold their traditional neutrality by refusing to join such organizations as the IMF, and increased their role as a capital refuge center by retaining their banking secrecy laws).<sup>6</sup> However, the Swiss capital markets were far too small to absorb the amount of money that found its way into the country -- Switzerland is a nation of savers and the investment possibilities are limited -- and the Swiss banks had to look for outside markets in order to invest their excess funds. The result was a strong drive toward international banking, as Swiss bankers projected for clients in

foreign countries, and the beginning of a pattern of "capital exports" or foreign lending which would have a great influence on the course of the Swiss franc in the 1970s.

In the meantime, the Swiss franc was well backed by the enormous resources of the Swiss banking system and continued to be considered "good as gold," which it was, since anyone could freely convert francs into gold without restriction. (In addition, the law prescribed that the issuance of Swiss currency be determined by the amount of gold held at the National Bank.)<sup>7</sup> Such freedom did not then exist in the United States.<sup>8</sup>

Major economies in Europe and Asia after World War II. Three major economic powers had the potential to dominate Western Europe after the war: France, the U.K., and West Germany. In the late 1940s, England was probably in the better shape, since both France and Germany had been more ravaged by the demands of the war economy and had had much of their industrial capacity physically destroyed. However, the U.K. had to cope with the dismantling of its huge colonial empire, which it had not prepared for, and the nation was unable to adjust to the economic and social changes that this brought about. In addition, the British industry had been less touched by the war's destruction and soon became too obsolete and inefficient to compete with the more modern plants being built in other countries. The French also were to see their colonial empire disappear but tried to resist the loss and were soon embroiled in costly wars which lasted from 1946 to 1962. The impact on the potentially strong French economy was disastrous. The colonial wars drained the resources of the country, tore at its political and social fabric, and left it incapable to assume any leadership role in Western

Europe. Economically, that role was soon assumed by Germany, which achieved an "economic miracle" within 10 years after the end of the war. The United States, mindful of the disastrous impact of the Versailles Treaty after World War I,<sup>9</sup> was committed to help in the reconstruction of their former enemies' economies. In Germany, as in Japan, the immense scale of destruction helped in rebuilding a totally modern industrial base. Thus, from the onset, these countries were assured a more competitive advantage against other economies -- including that of the United States. In addition, the tradition of discipline and hard work did not disappear with the demise of the dictatorships, and Germany as well as Japan benefited from an absence of social strife.

The foreign exchange market in the immediate post-war period. The beginning of the modern foreign exchange market was not formalized by any treaty or agreement other than the Bretton Woods conference. As the financial centers went back into a peace footing and as the need for a foreign exchange market arose, banks opened foreign exchange operations with the help of pre-war professionals, who also acted as advisors to central banks. There could have been alternatives to banks as foreign exchange participants, such as trading firms or postal systems. However, it was the banks that soon assumed a quasi-monopoly in the market, for two reasons: First, the central banks were not about to relinquish the control of their currencies to entities that they could not monitor properly. They found it therefore easier to allow banks to transact foreign exchange, since they were already under their supervision. Second, since foreign exchange transactions involve transfers between accounts, the banks were better prepared to handle the

operations than were other financial entities. The only problem at the time was that they would depend on outside sources for communications.

The year 1955 can be considered the true beginning of the foreign exchange market as we know it. It marks the creation of the Association Cambiste Internationale, more popularly known as the "Forex," a loose confederation of national foreign exchange trader societies. In a symbolic way, the Forex consecrated the rebirth of the interbank market after the long hiatus caused by the war, but it also added a new element of international interdependence and planted the first seed of a global market.

As the system of fixed rates went into effect, it soon became apparent that the established par-values would have to be modified. As patterns of trade were established and while the world went through a post-war recovery, the various economies of the major industrialized countries went in different directions, and tensions soon arose. Between 1950 and 1965, at a time when most Western countries had restored convertibility to their currencies, several major devaluations and revaluations took place. At the same time, a natural selection process whittled down the number of convertible currencies to no more than about two dozen. All the state-run economies and most of the newly independent countries instituted severe restrictions to prevent capital flight and to protect arbitrarily pegged exchange rates. Some countries, most notably in Latin America, embarked in programs of competitive devaluations -- planned debasements of the currency in order to spur domestic growth and achieve better international competitiveness.

It was soon found, however, that simple currency changes could not resolve most of the problems encountered by the weaker economies. In fact, the debasement of currencies brought along with it a flight of capital, because confidence was lacking internally as well as externally. Devaluations had to be accompanied by hikes in interest rates, in order to make the currencies more attractive -- or more expensive to sell short -- and because of a lack of investors and an overabundance of borrowers. Thus, the "vicious circle" described by Swiss National Bank president Fritz Leutwiller took on characteristics that would prevail until today.<sup>10</sup>

On the other side, countries whose currency was widely held as being "strong" had to cope with revaluation pressures, most evident in the form of capital inflows and great external demand. In the case of countries like Switzerland, where the central bank had to police a relatively small monetary mass, external demand created intolerable pressures on money supply, as the authorities had to print more money to satisfy the demand. There was a natural reluctance to abandon the policies that had made the currency so desirable and to adopt an easy monetary stance in order to stop the pressures. The alternative would be some form of restrictions and controls on capital flows in order to insulate the currency from excessive demand.

The system of checks and balances put in place at the Bretton Woods conference to implement the new international monetary order had certain goals. First, it was assumed that currency parities would be determined by trade patterns, and that trade itself would eventually take place in a free market environment where prices would be the major factor in the competition. To that effect, a number of international conferences were

held under the auspices of GATT (General Agreement on Tariffs and Trade) between 1947 and 1979. This theory proved to be simplistic: Trade barriers always existed under one form or another, many governments chose some form of protectionism either through special privileges for the export industries or through advantageous financing mechanisms for exporters, and several major trade items turned out to depend as much on proper marketing as on simple pricing. Second, the mechanism of devaluations and revaluations was thought to be the answer to problems of trade and capital flow imbalances, but too little thought was given to the domestic impact of drastic currency rate changes. Third, far too little importance was attached to international capital flows.

In retrospect, it can be said that the Bretton Woods conference viewed the world in the same manner as generals at a war game, and did not go far enough in either considering the human factor, or in trying to understand the causes and effects of exchange rate movements. By 1967, the strains in the system were evident, as outside pressures rather than careful planning caused a devaluation of the world's second reserve currency -- the British pound. The next four years would see a series of crises -- the revaluation of the German mark, the devaluation of the French franc, the worldwide demand for gold which led to a decline in the U.S. gold stock, the massive capital inflows into Germany and the subsequent closing of the market in Frankfurt, the floating of several major currencies -- which culminated in heavy sales of U.S. dollars for gold by foreign central banks, an event which caused President Nixon to close the "gold window." This action, which meant that the U.S. government no longer was willing to sell gold to foreign central banks at a fixed price, or indeed at any price against dollars, spelled the end of the Bretton Woods system (see Figures 2 and 3).<sup>11</sup>

### The Smithsonian Agreement and Floating

The change from a fixed rate environment to floating took two years. This period can be referred to as the "Smithsonian interim," since it coincided with the implementation and subsequent abandonment of a modified fixed rate system. Under an agreement reached in November 1971 after a series of meetings concluded at the Smithsonian Institute in Washington, gold was revalued to \$42.20, all the major currencies were repegged under new "central rates" -- the term "par-values" was purposely abandoned -- and new bands of 2.25% around these central rates were established. This realignment of parities consisted in revaluing certain currencies, such as the mark and the yen, and devaluing others such as the lira. By implication, the dollar was still the keystone of the system, but the U.S. had no obligation to support its rate other than redeeming gold for dollars that other central banks may wish to sell: The "gold window" had been reopened. The participants of the agreement hoped that the intrinsic structure of the Bretton Woods system would hold with these modifications.

In 1971, floating was anathema to the central banks, who viewed it as an abandonment of what they considered their responsibilities with respect to exchange rates. During two years of experimentation with the Smithsonian system, several countries, most notably the U.K., found it necessary to let their currencies float in order to avoid total depletion of their foreign exchange reserves. Participants realized that this accommodation would not work and that no overall agreement could be reached toward the implementation of another international monetary system. In the meantime, there was a growing trend of opinion among market participants, theoreticians, and some governments toward floating as a principle and as a system.

The demise of the fixed exchange rate for the dollar was finally accepted by many governments who had found it increasingly burdensome to try to adhere to fiscal discipline and to be bound to a rigid system laid out by a supranational entity. The rise in the price of gold from the early level of \$35 per ounce to the Smithsonian levels of \$38 and \$42.20, and then to the free market rate of well over \$100 by the time the Bretton Woods system disappeared, was in fact a huge debasement of all currencies and an early signal to commodity producers that the time for price adjustments was overdue. It was an introduction to the era of high inflation, deficit financing, and in general the abdication by governments of fiscal and monetary discipline, something for which the U.S. bears much responsibility. There was a failure to address the problems which had made the previous system obsolete, such as who would assume responsibility for exchange imbalances, and what should be the criteria that determine exchange rates. In effect, the Smithsonian agreement was a stop-gap measure whose authors hoped to calm the market forces that had been pressing for changes. This was not to be. By then, the evolution of the capital markets had brought about new elements that central banks were not prepared to fight.

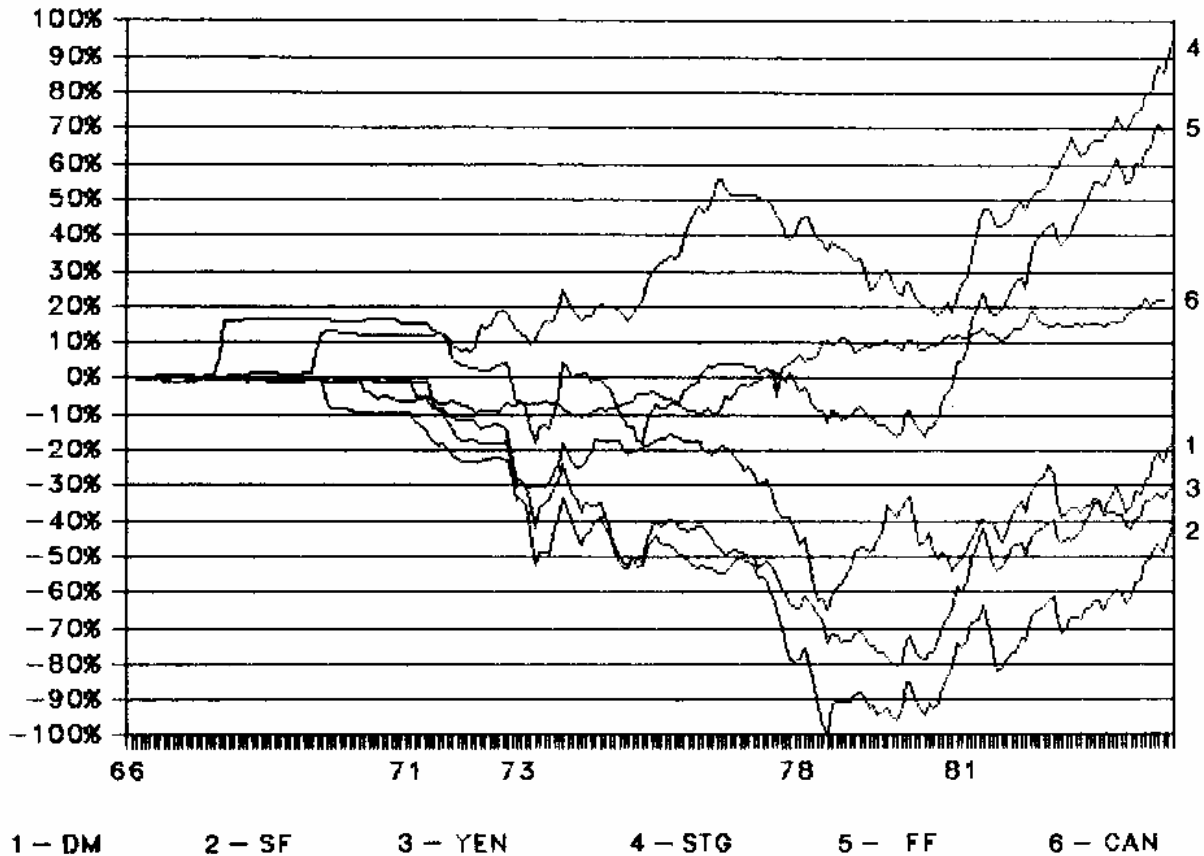
Throughout this period of upheavals, the nature of the market changed quickly. For as long as the structure of fixed rates remained intact, the professionals made their money either by taking outright forward positions whenever interest rate differentials were such that the forward rates were outside the authorized bands and when a parity change did not immediately threaten;<sup>12</sup> or they sought profits by playing on devaluations or revaluations. The successive shocks that hit the markets from 1967 onward put more pressure on trading rooms as clients

found themselves facing exchange risks that they were not accustomed to. Business increased dramatically, as did volatility (see Figures 2 and 3). The position of the traders was not made any easier by politicians who found them an easy target to blame for their own mistakes, from Prime Minister Wilson with his now-famous comment about the "gnomes of Zurich" to President de Gaulle who blamed the 1968 upheavals in France and the run on the French franc on "illusions, blackmail and cowardice."

Most of the literature on international monetary matters in the period between the Bretton Woods conference and the advent of floating surveys the events with the benefit of hindsight and gives them an aura of inevitability. The fact is that with the exception of the Bretton Woods conference, whose express purpose was the implementation of a peacetime economic order, most, if not all, official actions were taken under the pressure of unforeseen and generally unwanted developments. Few governments or central banks had the vision to predict the near future, and the market participants who did were called speculators in a manner not meant to be complimentary.

Faced with dramatically new conditions, traders had to learn the rules fast because they were operating in uncharted waters. As uncertainties grew, so did the perceived risks. Their sources of information were still relatively scarce; therefore they had to rely on their own judgment. If they had to earn their money, they would have to do it the hard way since governments always derived some satisfaction out of punishing the speculators. The lessons learned were often expensive (the "bear squeeze"<sup>13</sup> of November 1967 was never forgotten by those who lived through it), but traders by necessity must be fast learners. No one knew at the onset of floating what the result of the

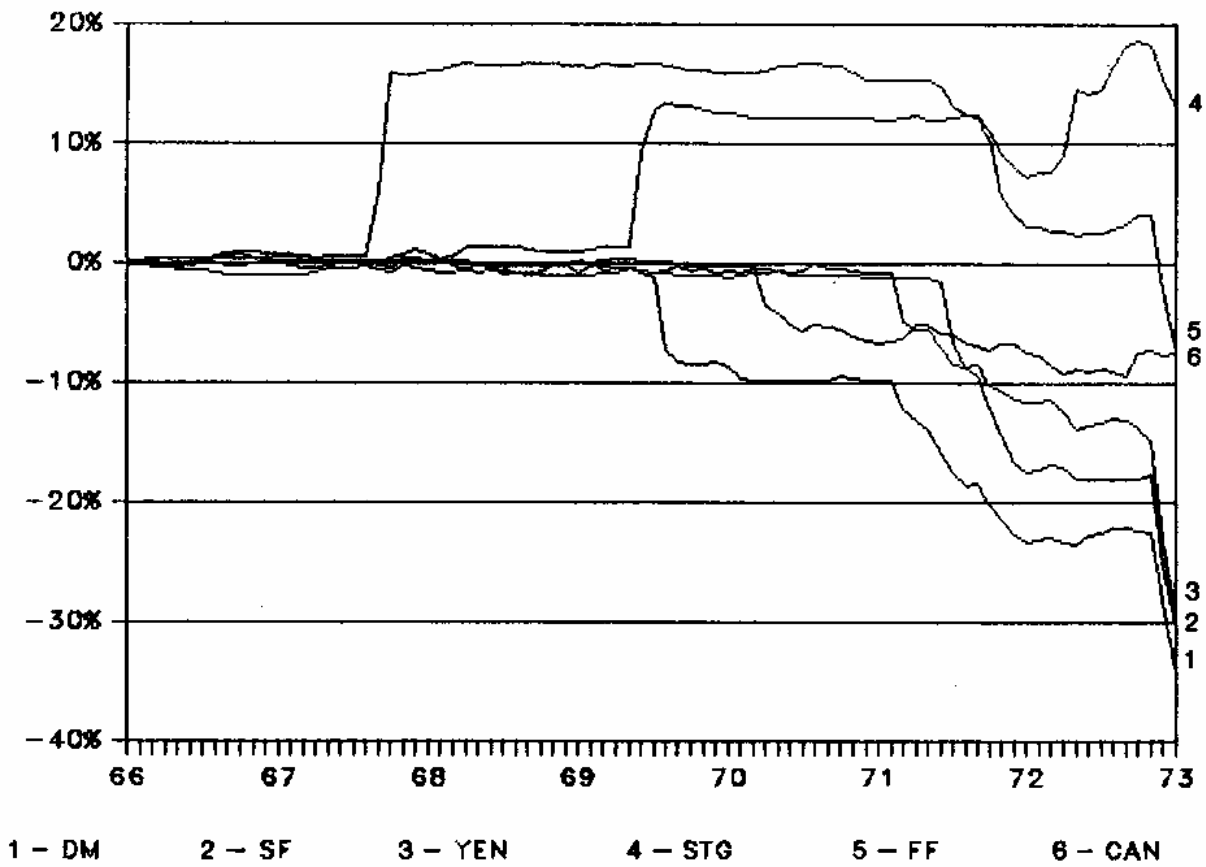
new regime would be -- to this day, the debate between advocates of floating and fixed exchange rates still goes on -- but the turmoil of 1967-1971 had prepared a generation of traders for the havoc that would follow.



Source: IMF

Figure 2

The Dollar vs. Six Currencies:  
Monthly Percent Changes 1966-1984



Source: IMF

Figure 3

The Dollar vs. Six Currencies:  
Monthly Percent Changes 1966-1973

DEREGULATION AND CONVERTIBILITY: GROWTH OF THE EUROMARKETS  
AND OFFSHORE CENTERS

At the onset of the Cold War, soon after World War II, the assets that Eastern Bloc countries maintained in U.S. banks were frozen because of litigations. The Russians withdrew from American banks the dollars that they had obtained under Lend Lease for fear that they would be blocked, and deposited them with their own European subsidiaries as well as with other banks in Europe. As the demand for credit and financing grew in the 1960s, these dollars and other currencies that had been laying idle began to be used, and a market developed in Europe whose source was funds that were not being deposited in their country of origin.<sup>14</sup> In the late 1950s, the term "Euromarket" was coined to refer to this offshore market, where currencies were outside of the range of regulatory authorities. A Eurosterling market started in Paris, and the City of London saw the beginning of a Euromark market, but the biggest market by far was the Eurodollar market, which grew fast as American capital kept flowing into foreign countries in the form of investments and foreign aid.<sup>15</sup>

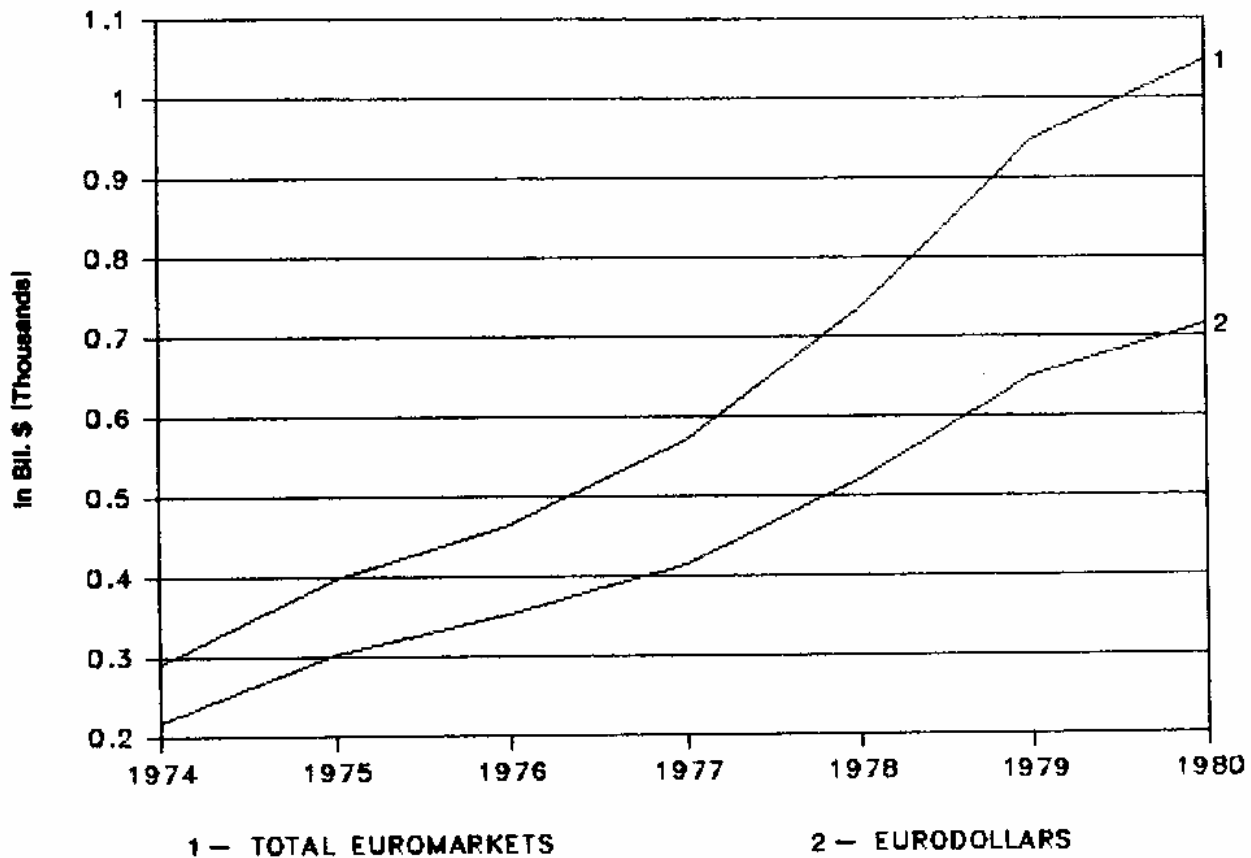
Deregulation

The efforts toward breaking down trade barriers and the onset of the European Economic Community were accompanied by a trend toward deregulation of capital flows. This trend was hesitant and was often reversed as domestic crises buffeted countries such as France or the United Kingdom, but nevertheless the expansion of international trade prompted banks to open foreign branches in order to take advantage of this additional business. In the 1960s, all the major banks began to

establish branch networks in the main financial centers, but soon found that local domestic regulations were restricting their access to credit. Consequently, they began to turn more actively toward alternate sources, and the Euromarkets really took off in the late 1960s. As American capital kept flowing out of the U.S., the dollar increased its importance in international finance; even though it began to fall dramatically on foreign exchange markets, the demand for dollars never flagged. In fact, many borrowers liked the idea of financing themselves in dollars, since they were convinced that further drops of the U.S. currency would ultimately cheapen their borrowing costs when repayments would have to be made. When the Nixon administration closed the gold window there were fears in the market that some capital restrictions may be imposed. Large amounts of funds were switched into offshore accounts in the London market, thus contributing to more growth of the Euro-markets. (See Figure 4.)

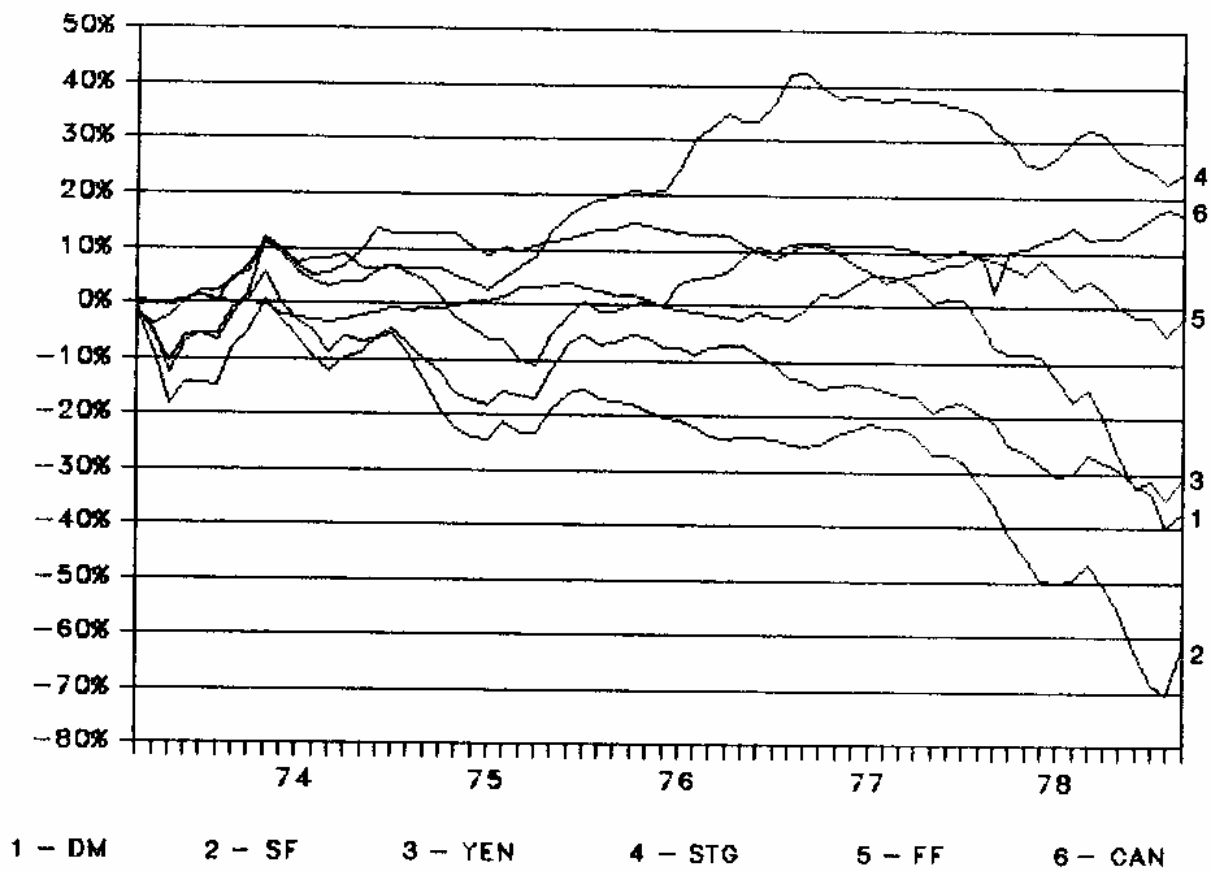
Central banks did not particularly like the idea of markets working outside of their control but the benefits for international trade were so obvious that no action was ever taken to regulate the Euromarkets.<sup>16</sup> (See Figure 5.) In fact, for a time some central banks were themselves making use of the Eurodollar market when the U.S. currency was under pressure, investing their reserves short-term after intervening. In addition, countries such as Great Britain, while strictly controlling their domestic capital flows, were greatly benefiting from the existence of the Euromarkets. The City of London continued to remain a major financial center precisely because of a benevolent climate with regard to offshore deposit markets<sup>17</sup> -- as long as they were not in pounds. The small country of Luxembourg began to attract banks because of a

liberal tax system and soon flourished as subsidiaries were established during the 1970s, especially from German banks. This growth had bypassed the U.S. financial markets until the early 1970s when offshore centers began to develop in the Bahamas and the Cayman Islands.<sup>18</sup>



Source: IMF

Figure 4  
External (Eurocurrency) Markets 1974-1980



Source: IMF

Figure 5  
The Dollar vs. Six Currencies:  
Monthly Percent Changes 1973-1978

### Offshore Centers

The beginning of the overnight deposit market in New York took place almost by accident. Members of the Federal Reserve system who were subject to reserve requirements would deal with each other in order to square their positions toward the end of the bi-weekly reporting period and borrow or lend Federal funds, as overnight domestic money was called. Until 1980, overnight markets in the U.S. were complicated by a double structure, where funds needed one day to clear and become Fed funds. This had led to technical adjustments ahead of weekends and holidays and had created distortions known as "Friday starts" and "Friday ends."<sup>19</sup> Foreign agencies not subjected to reserve requirements began to see arbitrage opportunities between the Federal funds market and the overnight Eurodollar market. These short-term deposit markets took off fast. As arbitrage opportunities began to dwindle because of the increased number of participants, they made up in volume what they were losing in spread. In the meantime, the Federal Reserve used the Fed funds market to fine-tune money growth, an action which consecrated the existence of this market.

Through the 1960s American banks had been putting pressure on the Fed to grant them the authorization to establish offshore facilities in order to compete more effectively with the foreign competition. It had always been a sore point with the Americans that foreign banks had no problem establishing operations in the U.S. -- often on almost preferential terms -- while U.S. banks were practically shut off from the home country of these foreign entities (the main culprits then were Canada and Japan). In the late 1960s the Fed gave its approval for the running of Nassau or Cayman Island branches or subsidiaries out of the

U.S. headquarters of the banks that had established them. Thus there was no longer such a need for American banks to go overseas to be active participants in the Euromarkets. The U.S. authorities were not over-enthusiastic about this development, which was putting a great deal of international banking activities out of the reach of their supervision, and feared that problems with foreign loans would arise. But the immediate result was a tremendous increase in the international business of U.S. banks, whose profitability became increasingly influenced by it.

#### Foreign Exchange Centers and Currency Convertibility

As the offshore markets grew, so did the foreign exchange markets. Financing mechanisms were no longer restricted to the various domestic capital markets, and the use of external credit markets increased rapidly. New techniques of foreign currency borrowing involved the use of foreign exchange swap operations<sup>20</sup> for funding or hedging purposes.

The growth and development of the major financial centers has been largely a function of ease of access and participation by non-residents. The deregulation process and currency convertibility have therefore been major factors in allowing the growth of offshore markets. The ability to switch from one currency to another in these markets carries with it certain problematic aspects for central banks. To the extent that foreigners can freely buy and sell, borrow and lend another nation's currency while keeping it abroad, they are nullifying some of the control that the central bank of this nation exerts over its money supply. The major economic powers recognized that to one extent or another their currencies would become internationalized. In effect, other countries would hold the funds publicly or privately, and use them for whatever suited their purposes.

The Germans, although reluctant, had to accept this state of affairs, realizing that especially in Western Europe there was no way of promoting the removal of trade barriers and the growth of a European economic community without allowing the free flow of capital, but they nevertheless subordinated this to their domestic policies for fear that they would not be able to control large capital flows arising from circumstances beyond their control. This is why they were -- and remain -- so vocal about the lack of control that the U.S. authorities have over the vagaries of the dollar in foreign exchange markets. They were compelled to put in some strong restrictions on capital inflows when the whole world seemed to have an insatiable appetite for marks,<sup>21</sup> and there is little doubt that if there ever was a crisis of confidence in their currency, they would take the necessary measures to prevent outflows. This attitude, prevalent in just about every country in the world besides the U.S., has resulted in allowing by default the dollar to remain the linchpin of the international financial system. The Japanese, for instance, have been very reluctant to allow the liberalization of their capital markets and have taken steps in that direction because they had no choice. But they are always mindful of the possible bad side effects of allowing their currency to become a reserve currency -- the major one being a loss of control over the expansion of the money supply.

Thus, the international financial scene has been faced with an intractable situation. Everyone agrees that convertibility and deregulation are essential for the continued growth of international trade, but only the U.S. has assumed the responsibility of allowing its currency to be used internationally with minimal restrictions, in good

times as well as bad. For this, the U.S. has been constantly criticized, and yet if the Americans had taken measures to stabilize the dollar whenever there were pressures in international markets to drive it either up or down, the restrictions would at times have harmed the Euromarkets and could have hampered the growth of international trade and capital markets. In the 1970s, several American administrations were taken to task by their allies for not taking measures to stop the fall of the dollar and restore confidence in the U.S. currency in international markets. Likewise, the failure of the Americans to stop the rise of the dollar in the 1980s encountered heavy criticism; yet the type of policy that would allow such control could potentially lead again to a weak dollar, with the consequences that were seen in the 1970s.

Since no government has ever been able to control the patterns of economic cycles, it is doubtful that any system could be put in place to control currency cycles permanently. So far, deregulation and convertibility have been shown to foster the necessary flexibility that allows the growth of financial markets and economic activity, but also to lead to conditions that create instability by allowing capital to float freely from center to center.

OIL AND CAPITAL: OPEC IN THE 1970S, THE OIL SHOCKS,  
INTERNATIONALIZATION OF THE DOLLAR, AND THE PROCESS OF  
DIVERSIFICATION

The rise in the price of gold in the late 1960s and early 1970s was an early sign that commodity prices had been too low. Throughout the post-war period, there was an enormous increase in consumption of raw materials by the industrialized nations as their economies expanded, yet costs had remained inordinately low, considering the demand. That by itself was a factor for even larger consumption. Economically, it made little sense since inflation, low as it was, was not reflected in the index of commodity prices.

One of the reasons was that the Western powers were still heavily influencing areas of the Third World that produced most of these commodities (the Middle East in particular). In 1956, there had been a warning of possible trouble when the British-French seizure of the Suez Canal prompted an oil embargo to Europe, but it was unfortunately soon forgotten. The consumption of cheap raw materials continued unabated as if it could go on forever. Yet there was a latent fear in Europe that the value of paper money was eroding: hence the appetite for gold. It took the Yom-Kippur War of 1973 and the subsequent oil embargo to bring that point across with full force. No one had been prepared for an instant shortage of energy or of any other form of raw material, and in the ensuing confusion the situation was aggravated as much by distribution problems as by actual scarcity. The rise in oil prices between 1973 and 1974 had as a direct result an enormous transfer of capital from oil consumers to oil producers. It also prompted an immediate shift in demand for dollars, since the consumers outside of

the U.S. had to acquire more dollars to pay for their oil. Thus, in 1974 the fall of the dollar was temporarily halted as demand for the U.S. currency made itself felt in foreign exchange and Euromarkets. It contributed to a sharp rise in demand for credit, and to much higher interest rates, both of which caught a great number of financial institutions by surprise.<sup>22</sup>

The Europeans who had been complaining about the low dollar -- especially exporting countries such as France or Germany, who feared increased U.S. competitiveness -- found that the continuing fall of the U.S. currency was shielding them from the inflationary impact of the oil price rises. Oil prices were at the same time hitting the Americans with full force, because the weaker U.S. currency was mitigating the higher oil costs for those who had to purchase these dollars. Thereafter, until 1978, comments about the dollar by the Europeans would remain muted as the adverse effect on exports from greater American competitiveness was compensated by a lower inflation, while borrowings of Eurodollars were kept cheap by the falling dollar. The "zone of stability" created by a fixed rate system<sup>23</sup> within the European Economic Community was more or less working, although some crises emerged because of periodic pressures on member currencies, such as the pound, the Belgian and French francs, and the lira whose value had to be realigned, or whose country had to leave the system because the government was no longer willing to abide by the rules. Great Britain left permanently, while France left and came back on three different occasions.

#### Currency Zones

Through the 1970s three informal currency zones emerged: the dollar zone, comprising most of the currencies of the Western hemisphere

and a few Asian currencies that had been pegged to the dollar; the mark zone, which included the Western European currencies; and the yen zone, which really involved only the yen and partially the Australian dollar. (Traditionally, currency zones existed for geopolitical reasons. The French franc zone and the Sterling zone included most of the former colonies of these two powers. Currently, a number of countries are pegging their currencies either to a major currency or to a basket of currencies. According to the IMF some 34 countries are pegged on the U.S. dollar, 14 are pegged on the French franc,<sup>24</sup> 11 are pegged on the S.D.R., and 42 on some currency or basket of currencies of their own choice.) To the extent that the yen fluctuated essentially in concert with the European currencies, the major rate movements in foreign exchange markets tended in general to pit the dollar against all other principal currencies, and the general profile of the dollar was judged by its performance against the mark. It still is, to an extent.

This does not mean that all currencies were fluctuating together all the time. The pound, the French franc, or the Canadian dollar, among others, were subjected to pressures of their own -- upward in the case of the Canadian dollar, because of Canada's status as an oil exporter. During the mid-1970s the Swiss franc acquired star status, mainly because of the demand created by repayments of earlier unhedged bond issues<sup>25</sup> and because of capital flight from neighboring countries such as France and Italy.

Even though currencies were supposed to be floating against each other, outside of the European system certain patterns developed over the years. Certain relationships, although never formalized, lasted longer and were more tightly kept than the more visible ones. For

instance, the Swiss franc and the mark never moved by more than 10% against each other from 1974 to 1984. This was not accidental and was due to a conscious policy by the Swiss National Bank who wanted to protect the Swiss export industry whose major outlet is Germany. The Germans never particularly cared about the level of the Swiss franc.

The oil exporters at first kept their dollars and put them in the Euromarkets, or used some portions to help some underdeveloped countries who had been hit hard by the oil price increases. This phenomenon of recycling to some extent helped prevent a liquidity crisis but may have indirectly contributed to other problems: The oil exporters who put their earnings in the Eurodollar market always kept their deposits short term, thereby making it difficult for the banks to provide underdeveloped countries with long-term assistance and forcing them to resort to what used to be a basic taboo in banking -- borrowing short term and lending long term. Other poor countries were somewhat helped by the general increase in commodity prices, which helped pay for their energy needs by boosting their raw material exports. The major oil consumers actively encouraged the development of large industrial projects in the Middle East in order to boost their exports. Thus, the first oil shock had as a net result an increase in world trade, as the OPEC countries began to take advantage of their new-found wealth. As a good part of the trade was with Europe and Japan, the oil producers began to sell their dollars to acquire the currencies that they needed to pay for their imports. In the meantime, inflation and the eroding value of the dollar were eating into their profits, although the continued appetite for oil allowed them to continue increasing the prices in increments.

This situation continued during the Carter administration, while in spite of a weak dollar the trade posture of the United States was not improving.<sup>26</sup> Under pressures from American unions, from congressmen whose constituents were being hurt by the growth of imports, and from theoreticians who believed that a still-lower dollar would eventually lead to a redressment in the trade imbalance, the Carter people made the major mistake of trying to force some currencies up, most notably the yen, in order to accomplish what they had not been able to do during long negotiations with major trading partners of the U.S., most particularly Japan. Over the years, the Japanese had managed to penetrate the American markets with their cars and electronic equipment. The yen had appreciated substantially since 1973, but high Japanese productivity, the relatively low production costs, and a high level of technical and marketing know-how had enabled them to overcome the problems of the higher yen. At the same time, Japanese companies and investors began to put money heavily into the U.S.<sup>27</sup> As a result the trade surpluses were being offset by capital outflows and the yen remained relatively weak. There was a perception, still prevalent today, that the Japanese authorities directly or indirectly controlled the exchange rate of the yen vs. the dollar.

#### Miscalculations

The Carter cabinet members and advisers made two miscalculations: First, they failed to recognize that exchange rates are not the only factor that determine trade flows; and second, they did not understand the adverse impact that a weak currency can have on its own country.<sup>28</sup> In addition, they did not realize that it is easier to start a trend than to stop it. Secretary Blumenthal was successful in talking the

dollar down, but the results were much more dramatic than expected.<sup>29</sup> On the domestic front, the weaker dollar caused a jump in inflation because of the higher cost of imported goods brought by the lower dollar, while imports did not really decline in volume. Internationally, the damage was far more serious. The Carter administration already suffered from lack of confidence, and the perceived bunglings of the Treasury secretary reinforced this impression. Investors -- including Americans -- were getting out of the dollar. At the same time, those who did need dollars were borrowing them instead of buying them. Also, speculators and money managers were borrowing dollars and selling them for other currencies, with the result that international borrowings of the U.S. currency were increasing, putting upward pressure on interest rates.

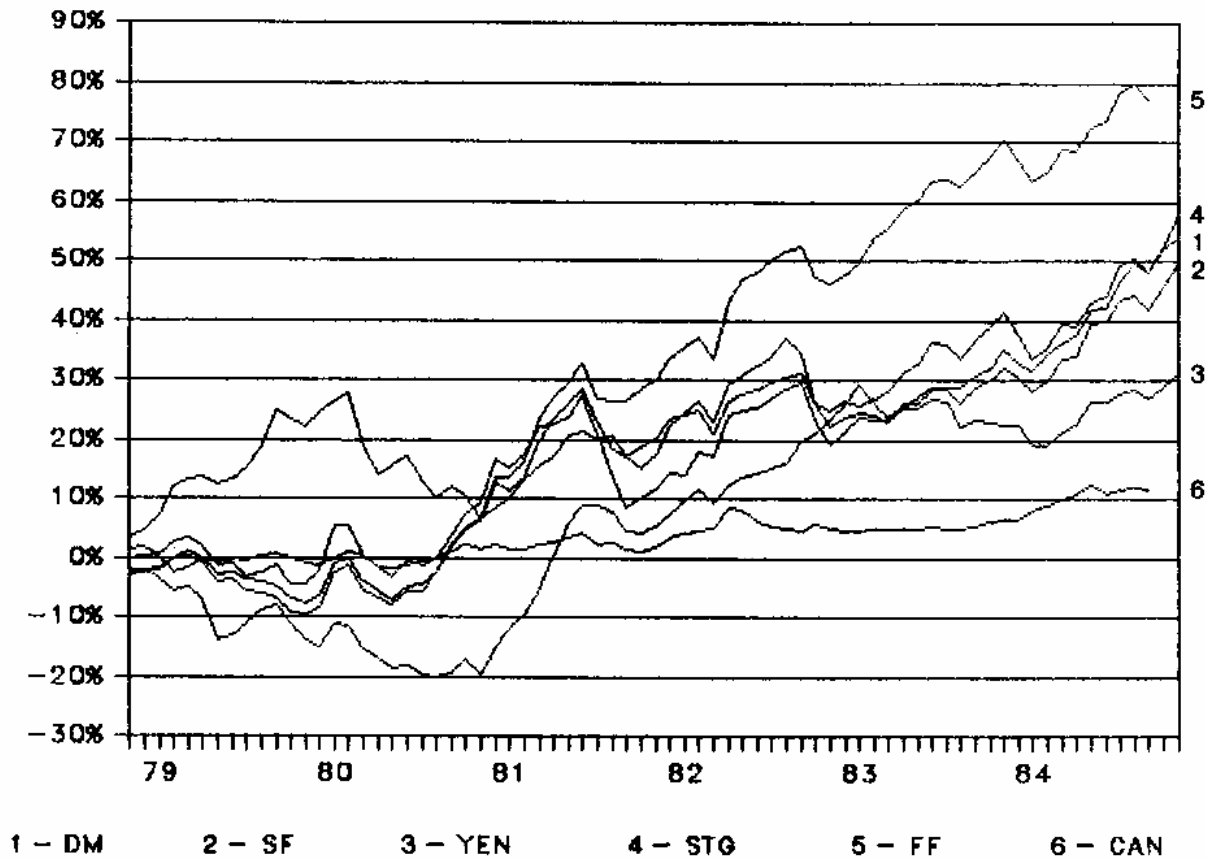
For years, the oil exporters had accumulated large dollar reserves as a result of their current account surpluses. They had purchased some other currencies to accommodate their trade with other countries but had not looked beyond the U.S. or the Eurodollar market for the management of their portfolios. On the advice of their advisors, many central banks as well as private holders of dollars began to switch into other currencies.<sup>30</sup> This process, which accelerated in 1978, became known as diversification. In many ways, it was a self-defeating process for those with substantial dollar reserves, such as some of the OPEC countries, since diversification would have a negative impact on the dollar, which would still remain their major reserve currency. For a while, the OPEC members discussed a reform of oil pricing where either the price or the payments would be made in a basket of currencies, but this project was soon abandoned as too difficult to implement or

control. The only protection against the fall of the dollar was continuing the incremental price increases.

#### The EMS and the Crisis of Confidence

The year 1978 turned out to be a watershed of sorts. (See Figure 6.) The dollar had been weak and under periodic attacks in the first half of the year, but when in August the French and German leaders spearheaded the creation of the European Monetary System (EMS) with a view of reinforcing the concept of a "zone of stability" against the dollar,<sup>31</sup> this was the catalyst for a run on the dollar that culminated in the latter part of the year. Confidence had been further eroded in the meantime by the resignation of Arthur Burns as Fed chairman and his replacement by William Miller, who was perceived by the market as just another Carter man. (At this point, rightly or wrongly, the Carter administration was suffering from a serious lack of confidence in the financial markets, in the U.S. as well as abroad.) Despite the belated U.S. protestations that it would defend its currency in international markets, including statements to that effect by President Carter himself, little was done beyond occasional market interventions by the Federal Reserve Bank. The market believed that the administration was not really concerned about the continuing drop of the dollar. By late October the movement had grown into a full scale crisis of confidence in the U.S. currency. There were reports in the press that hotels in Europe would not accept dollars from tourists, diversification was increasing, central banks were dumping large quantities of dollars in the market, and U.S. corporations were themselves becoming big sellers, with no one willing to absorb these unwanted dollars. The Fed had intervened on several occasions, and sometimes for large amounts, but it

had no support from the Treasury and was really fighting with one arm tied behind its back, with Treasury officials grudgingly giving permission, often too late, to increase the intervention. The problem was also aggravated by the loose monetary policy of the Fed.



Source: IMF

Figure 6

The Dollar vs. Six Currencies:  
Monthly Percent Changes 1978-1984

#### The Carter Package

It took all the strength of persuasion of leading bankers and business leaders, as well as the warnings of foreign central banks and governments, to make the Treasury realize that the markets -- not just the foreign exchange market but all the major financial markets -- were

heading toward a full-blown crisis.<sup>32</sup> Even the New York tabloids had headlines about the free falling dollar -- something unprecedented in the U.S. Finally, the Carter administration gave up and decided to act, and the "Carter package" was announced on November 1, 1978.<sup>33</sup> The announcement, together with massive concerted intervention by a number of central banks, including the Fed, was sufficient to allow the dollar to appreciate by some 7% on that day alone.

There will always be speculation as to whether the concerted intervention was really effective or if it was a catalyst for something which would have taken place anyway. A few things are certain: The major value of the Carter package was that it restored some form of confidence in the dollar, and it stopped a situation that had been unravelling. Even though the U.S. currency may have been undervalued by most standards, there is little doubt that the free fall could have continued, and of course no one knows what the consequences would have been for the financial markets. In fact, the dollar remained at historically low levels, especially against the mark, for another two years (see Figure 6), during which the fed found it necessary to intervene, sometimes heavily, in order to counter strong demand for the german currency. significantly, the prospect of central bank cooperation, even if it turned out to be only partly true, was sufficient to impress the markets much more than all the heavy previous interventions.<sup>34</sup>

the market as a whole did not realize that the dollar had turned the corner, or was about to. the idea of a falling dollar had been so ingrained that it took a long time for many to understand that things had changed. (an entire generation of traders had been taught that the

way to make money was to sell the dollar.) In fact, there were many -- government officials and central bankers, in the U.S. and especially in Europe -- who thought that the dollar was too high when it reached the level of 2 marks a couple of years later.<sup>35</sup>

#### The Volcker Fed

The year 1979 saw two major events among others: the Iranian revolution preceding the second series of large oil price increases, and the appointment of Paul Volcker as Fed chairman. The orgy of commodity price increases that followed the second oil shock was sufficient to push the world into its most severe recession since World War II, and the policies of the Volcker Fed accelerated the process by forcing the price of money to a point where credit became prohibitive. These two factors were at the origin of the rise of the dollar. For years, the whole world had borrowed cheap dollars under the premise that the debasement of the currency would more than compensate for the higher interest rates, but as dollars became scarce and expensive the borrowers had to begin hedging what was suddenly becoming a very costly proposition. The higher oil prices led to an increased demand for dollars. But when the recession hit, demand for commodities began to drop suddenly, and the exporters began to lose income because they were selling less and because eventually they had to drop their prices to create some demand.<sup>36</sup> The recession was the catalyst for the debt crises of 1982, which aggravated the shortage of dollars since the debtors could no longer repay what they owed. The international financial markets had gone from the "dollar overhang" of the 1970s to a serious dollar shortage, which was compounded by a problem of

maldistribution because there no longer was any recycling as holders of dollars began to turn to a safer investment ground: the United States.

The confidence factor switched in favor of the dollar after Chairman Volcker finally convinced the world that he was dead serious in his fight against inflation and that he would not follow the policies of his predecessors. In markets where psychology is so important, once confidence returned international investors found a host of reasons to like the dollar -- even though many of these reasons had existed before. The political stability of the U.S. in an uncertain world, the high interest rates, and the depth of its financial markets were all cited, and still are.

#### Bank Deregulation

Another development created a new dimension in the U.S. financial markets: the process of bank deregulation. This phenomenon, which is still going on, has had complex side effects, some of which are not yet clear, but some of the apparent results were an enormous growth of financial markets and financial instruments, greater competition between commercial banks and other financial institutions, and the consecration of New York as the world's major financial center. In addition, the era of the interest-free deposits came to an end. Financial institutions had to compete hard for the depositor's money and had to pay up. This put upward pressure on rates but also led to a significant rise in the rate of savings in the U.S. The impact in the foreign exchange markets was to increase the attractiveness of the United States as an investment ground and to put the dollar firmly back in a leadership role.

Viewed in retrospect, the events of 1978-1982 convey an important lesson: the crisis of confidence in the dollar was largely the result

of a monetary policy that was inconsistent with the stated goals of shoring up the currency in international markets. Conversely, the policies implemented by the Fed since October 1979 restored credibility and were one of the sources of the rebirth of dollar strength. During that period, the financial markets underwent some heavy strains, as interest rates fluctuated in a manner not seen before in modern times. Volatility was the norm in anything from spot rates to Federal funds, and it is a credit to the markets that they managed to adapt quickly to this new environment and continued to function efficiently.

THE TECHNOLOGICAL REVOLUTION: EXPANSION OF TELECOMMUNICATIONS  
AND COMPUTERS

The foreign exchange markets could not have evolved to what they are today without the technological advances of the 1960s and 1970s. Technology is as important a reason for the growth of the financial markets as any of the economic and political events that have shaped them in recent years.

Appropriately the logo of the Association Cambiste Internationale, the umbrella group of Forex organizations throughout the world, is a telephone superimposed on a globe. To function, the market must have communications, and more efficient telecommunications have been a fundamental factor for the development of the foreign exchange markets.

At the onset of the post-war markets, it was necessary in many centers to put traders together in one place so that transactions could be executed with a modicum of efficiency. International communications were such that it took time to establish links; as a result major centers were somewhat insulated.

Telex

The first breakthrough in communications technology was the teleprinter, or telex, which allowed instant links overseas. The advantage of the telex was that transactions were confirmed immediately because they were printed. Trading rooms were equipped with rows of telexes to enable the traders to contact overseas markets. The teleprinter also permitted the retrieval of up-to-date news from newswires. The Reuters news agency pioneered with a system that would distribute news specifically of interest to financial institutions, and the agency was

very successful in selling it to them. For a number of years, the system had no effective rival in the foreign exchange markets.

#### Electronic Calculators

The advent of electronic calculators was another important breakthrough and contributed to increased efficiency and sophistication in the markets. Until then, even the simplest arithmetic operations took time, with the result that trading from center to center -- especially between New York and Europe since exchange ratios were expressed in different terms -- was slow. The immediate result of the introduction of electronic calculators was the demise of "space arbitrage" -- taking advantage of rate differences between centers<sup>37</sup> -- and exchange rates became far more aligned than they had been previously. Another important fallout was a strong growth in forward swap markets, since swap prices, which are a function of spot prices and Eurocurrency rate differentials, could be computed quickly and accurately.

#### Computerized Operations

The adoption of computerized operations by most banks was a necessary step in the direction of the modern markets. Although foreign exchange back office operations are not that complicated by banking standards, before computers came into play there were definite limitations in the daily volume that could be transacted and processed. On the trading desk, positions had to be kept by hand, limits had to be verified, and the pace of trading was often slowed down considerably whenever differences appeared. Because of the amounts involved, there is no such a thing as a small mistake on a trading desk; the failure to record one transaction can cost tens of thousands of dollars. Computerization allowed a faster and more efficient processing, and liberated

traders from important but time-consuming tasks. The use of in-house systems also permitted traders to find arbitrage opportunities that they may have otherwise missed. The increase in trading volume would have been impossible without the use of computerized operation systems.

Computers have also played a major role in money transfers, domestically as well as internationally. The well-being of the financial system depends on an efficient paying and receiving mechanism. This has been amply demonstrated on many occasions when the Fed funds market has been disrupted and interest rates have taken inexplicable turns because the computers at one of the Federal Reserve banks were down.

#### Direct Communications Systems

With communications satellites, overseas telephone links became more efficient, especially when direct communications systems were established. Some of the major banks were able to establish a direct communications network between the main trading rooms, while brokers also set up direct links putting their offices in all the major trading centers in constant contact with each other. The last traces of insularity disappeared as various centers became able to trade on a constant basis, either directly or through brokers. Today the telex, once the principal instrument for overseas communications, has been relegated to a secondary role and is mainly used to confirm transactions done on the telephone. The telephone is efficient because it is fast. Traders have only to push a button and either get the other party right away or get a rapid-dialing system to obtain the communication in a few seconds. The drawback with the telephone is that with no sure way to identify the party on the other end -- unless the voice is familiar -- the deals have to be reconfirmed. In all the scenarios about sabotaging

the markets, the simplest one is that of a person familiar with the market and market practices going into a telephone booth, calling banks, and doing a series of phony transactions. Although banks and brokers have installed tape systems on the lines where they do their trading, disputes still occur, especially when the dealing volume is heavy and conditions hectic.

#### Video Display Terminals

Reuters introduced to the markets its Monitor in 1972. This video display terminal provided up-to-date general information, background economic information, and data retrieval, and more importantly constant rate updates from banks all over the world.<sup>38</sup> A subscriber to the Monitor no longer had to call someone else in order to find out what the latest market rates were, although most of the banks who provided those rates were quick to point out that these were quotes, and not real markets. Many trading room managers were loath to take on the "screens" because of their fear that their traders would become glued to the terminals, but the advantages of having them far surpassed the inconveniences. Today no self-respecting trading room is without its battery of video display terminals. In the meantime, there have been some marked improvements in the services provided by Reuters and competitors such as Telerate. For information retrieval, the displays now feature automatic changes as certain key rates move; for instance, when the price of a government bond changes, the new effective yield is displayed instantly.<sup>39</sup> Reuters has also successfully marketed a trading system that allows its subscribers to call up on the screen the real markets that are made by other subscribers and to deal through the system. This trading system, which has been in existence for a number of years, has become the first foreign exchange electronic marketplace.

Computers -- At a Cost

The new emphasis on technical analysis<sup>40</sup> and the development of new instruments such as futures and especially options have increased the reliance of trading rooms on computer technology. Pricing and hedging options cannot be done without comprehensive software programs, nor can the monitoring of option positions be adequate without using computers.

The costs associated with running a trading room have soared with banks' increased use of high technology. While the major banks have had no problems in absorbing such costs, smaller operations have been hard hit by it, and there have been questions whether the minor market participants will be able to afford trading rooms in the future.

THE GLOBAL FOREIGN EXCHANGE MARKET: WORLDWIDE INTEGRATION OF  
FOREIGN EXCHANGE CENTERS

Technology has allowed the distance factor to disappear as a reason for insularity between markets. The combination of efficient telecommunications and computer equipment makes one's location irrelevant, at least in terms of being a market participant and being up to date on market developments. To the extent that the interbank market is not operating in a physical marketplace, opening and closing hours are more indicative than real. The schedule of a trading room does not coincide with that of its organization. For years, some of the major banks have maintained expanded trading hours, with teams working in shifts. Moreover, senior dealers conduct business at home after hours or during local holidays. Some even have video display terminals at home.

Each major trading center has kept certain traits that make it distinct from others. The time zone in which it is located, the underlying commercial business, the local currency, and any indigenous characteristics that may exist are all factors that give each center a different flavor. Yet these traits evolve with the times. As markets have become more entwined and more interdependent, these links between markets have themselves been the cause of major changes.

Interaction Across Time Zones

The concept of a 9-to-5 trading room cannot exist unless traders are forced to close their positions at the end of the day. If positions are carried overnight, they are at the mercy of any event that may occur during the off hours, and there must be some measure of protection. This can be done either by having one or several traders monitor the

markets that are open while the local market is closed, or by leaving overnight orders to other branches or other banks. Under more questionable circumstances, if local regulations require a bank to have only certain types of positions at the end of the day, the bank can get around the rules by shifting the position that it wants to keep to other centers where this regulation does not apply.<sup>41</sup> Thus, each market across the time zones assumes a role of conduit for the leftover business of other markets.

For instance, a good part of the early business in the Far East is determined by overnight orders from the U.S. There are times when the late afternoon market in New York is very thin, especially at the end of a hectic session or simply on a Friday or before a holiday. Since there is not sufficient liquidity to allow for normal business, orders are sent to Tokyo, Hong Kong, or Singapore. Just as important, the Far East takes its cues from what has happened in the U.S. when business starts. During the week, there is a hiatus of about two or three hours between the end of trading in the U.S. and the beginning in the Far East, because the West Coast does not have sufficient liquidity to qualify as a bona fide market. Over the weekend, a bridge of sorts is provided by the Middle East markets in Kuwait and Bahrein, but the markets there are quite thin and are not capable of absorbing any sizeable business.<sup>42</sup>

Most of the Europeans begin their trading between 6:00 and 8:00 a.m. (local time) in order to have some overlap with the Far East and the Middle East, although the European centers can create trends rather than follow them, especially trends that originate from the Far East. All the same, a market like Singapore can handle enough volume to

precipitate things. At the end of their trading day, the Europeans use the American markets for their position adjustments and overnight orders. In fact, when the American markets were smaller, the end of the European session used to be a time for hectic trading, because all the business that was being dumped in New York was difficult to handle. The Europeans, well aware of this, used to manipulate the market, secure in the knowledge that they could precipitate a trend by the sheer volume that just could not be fully absorbed. Things have been different in recent years, because the increased importance of the U.S. markets -- interbank as well as futures -- has made the North American market more of a trend setter. Because many of the major rate changes occur in the afternoon in the U.S., most of the active European banks have been forced to work extra hours, usually until 3:00 p.m. New York time after the Chicago IMM has closed.<sup>43</sup> As for the Far Eastern banks who take overnight positions, their senior traders have had to get used to staying awake in the middle of the night because of what happens in the U.S.

How each market influences the others is reflected in the amount of activity that results from interaction between markets. For instance, the European markets tend to be quiet after the first hour or two of activity, and take off again at fixing time (1:00 p.m. local time) and then as New York opens. In the U.S., activity is heaviest during the morning hours when the trading overlaps with Europe, but usually the sharpest movements or the unexpected turns take place after Europe has closed, early in the afternoon when liquidity begins to dry up.

The activities of corporations are not limited to their own local markets. Many multinationals have developed in-house trading

capabilities and make use of other centers just as the banks do. It stands to reason that if a sizeable transaction in a certain currency can be best executed in one market as opposed to another, that is where the corporate client will do it.<sup>44</sup>

#### Toward a Worldwide Continuous Market

Despite local peculiarities, improvements in technology and increased business have put the trend toward a worldwide continuous market well on its way. The opening and closing quotations for interbank markets exist for statistical purposes only, since no one can say precisely when a given center starts or finishes its business. For instance, the New York market begins sometime between 6:00 and 7:30 a.m., and some trading rooms are still active at 8:00 p.m., which is roughly the time when the Far Eastern markets get under way.

In the event that the Middle East markets develop further and become more self-reliant, it will be possible to have a market that functions seven days a week, 24 hours a day all year round. The flow of trading would then be able to pass on without interruption, from the West Pacific and Australia to the rest of the Far East, to the Middle East and Europe, to the East and West coasts of North America and back to the West Pacific.

**PART II**

**THE INTERBANK MARKET: STRUCTURE AND PARTICIPANTS**

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4

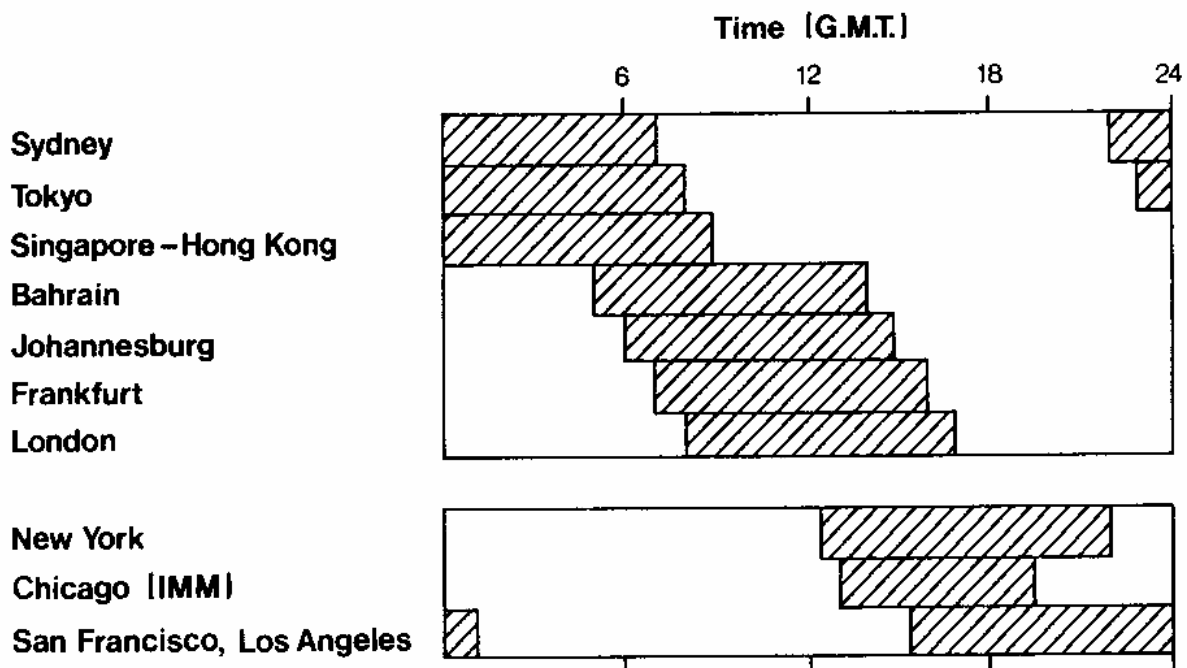
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## MAJOR TRADING CENTERS AROUND THE WORLD<sup>1</sup>

The world's major trading centers are located in three global geographic areas: the Far East, Western Europe, and North America. A major center is classified as such because of the depth of its market, the quality and quantity of its participants, and the influence that it exerts on other centers. It is also an important financial center, with active debt and equity markets. Although each global area is separated from the others by time and distance, it interacts with them and all are interdependent. (See Figure 7.)



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Figure 7

Trading Hours Around the Globe

While all centers share many basic characteristics, each has certain indigenous traits which have not disappeared in spite of the blurring that the efficiency in technology -- especially telecommunications -- has brought.

#### The Far East

The Far East comprises all the markets between the Philippines and Singapore. Major marketplaces include Manila, Tokyo, Hong Kong, Sydney and Melbourne, and Singapore. Preeminent among them are Tokyo, Hong Kong, and Singapore. One characteristic of the Far Eastern markets is that they are not all in the same time zone and therefore open up in staggered fashion.

Tokyo. The Tokyo market deals primarily in dollar/yen; more than 90% of its activities is in these currencies. There is also some business in dollar/mark and sterling/dollar. The interbank activity is dominated by the giant Japanese banks, among which the Bank of Tokyo has always had a very high profile, even though it is not the largest in size. Major participants include among others the Sumitomo Bank, Fuji Bank, Mitsui Bank, Mitsubishi Bank, and Dai-Ichi Kangyo Bank. Foreign branches of American and European banks such as Citibank, Chemical Bank, Bankers Trust, and Swiss Bank Corp. are also quite active. The latter derive a great deal of their activities from orders given to them on an overnight basis by their head office and other foreign branches as well as from foreign customers. Major local participants are the trading companies, export manufacturers of cars, electronic and high technology equipment, and importers such as oil companies. The Tokyo financial markets, which were heavily regulated until recently, are currently undergoing a process of liberalization which is allowing domestic and

foreign interests more involvement in a greater variety of investments and borrowing schemes, although this remains a slow process. In view of the strength of the Japanese economy there has been a great deal of interest on the part of foreigners to invest in Japan, and many believe that the yen is at the moment the only alternative to the dollar as a reserve currency. At the same time, the Japanese themselves continue to invest heavily into the U.S., a factor which has caused major long-term capital outflows and has compensated for the huge trade surpluses that Japan has piled up with the U.S.

Trading activity remains centered around the spot markets, but forward transactions have increased markedly since the relaxation in 1981 of the "rule of underlying transaction," a rule that only allowed forward cover for documented commercial transactions. (Market participants can now use the forward markets for other purposes such as funding loans or hedging foreign exchange exposures.) In recent years, Japanese companies who remain heavy external borrowers have widened their activities and have been raising money in Europe -- especially Switzerland -- as well as in the Eurodollar markets. Insurance companies and pension funds, especially the public employee funds, are big buyers of U.S. securities.

The central bank, the Bank of Japan, has always maintained a posture of active involvement in the market although the frequency and size of its interventions have diminished in the past couple of years, thus raising comments abroad that the Japanese want a weakish yen. In reality, this attitude is more a reflection of the belief that intervention by itself cannot change underlying trends and that it often is counterproductive. The decision making with respect to intervention

rests with the Ministry of Finance, with the Bank of Japan acting as its agent. The attitude of the Japanese toward foreign exchange problems seems to be devoid of the type of emotional involvement which often characterizes the way some of their European counterparts view the market.

Until recently, all banks dealing in Tokyo with local counterparts had to use an authorized foreign exchange broker, but this rule has now been relaxed and direct dealing is authorized in all currencies. There are few regulations pertaining to trading in Tokyo, but there is heavy monitoring by the Japanese authorities. The Tokyo market remains relatively restricted because its trading hours do not really overlap with those of Western Europe.

Hong Kong. The Hong Kong market is the only major trading center that does not operate in a sovereign country. There is therefore no central bank supervision of the markets. Since 1982, the future of Hong Kong has been put in question because of the expiration of the lease of the territory to Great Britain in 1997, and the problems that a takeover by China could bring have weighed heavily in the minds of the local market participants. In the meantime, Hong Kong remains an active marketplace where business continues more or less as usual.

While a great deal of foreign exchange is transacted through Hong Kong, there are no discernible major forces moving the markets. Dealing activities concentrate on the dollar/mark, dollar/Hong Kong dollar, dollar/yen, sterling/dollar and dollar/Swiss franc. There are smaller markets in other European and Asian currencies. The activity in Hong Kong dollars is dominated by the two banks who are the official issuers of the currency: The Hong Kong and Shanghai Banking Corp. and the

Standard and Chartered Bank. Other large local banks and the Asian headquarters of major European and American banks are of course very active, but the market is more diffuse in terms of dominating participants. Movements in Hong Kong are heavily influenced by what takes place in Tokyo and Singapore. One important characteristic of Hong Kong is its gold market, the major gold market in Asia. Trading in the Hong Kong dollar has abated somewhat after the local authorities stopped heavy speculation against it and capital outflows by introducing a scheme that pegs the local currency against the U.S. dollar and regulates the money supply on the liquidity in the foreign exchange market. Besides the banks, major market participants are local trading companies and financial houses.

In spite of its troubled future, Hong Kong remains the choice marketplace of many local and international institutions who are wary of what they consider the heavy-handed methods of the Singapore Monetary Authority (MAS).

Singapore. The Singapore market matches the Hong Kong market in periodic volatility. Unlike Hong Kong, Singapore is a sovereign country and the local authorities have a keen interest in foreign exchange developments. In fact, the Monetary Authority of Singapore has been for a number of years one of the very major market participants. As such, it has encountered a great deal of criticism by other central banks who have pointedly remarked that the MAS behaves more like a commercial bank than like a central bank and often acts in a disruptive manner in the markets because of the volume of its transactions and its high profile. The basic answer of the MAS is that Singapore is poor in resources and

needs to manage its foreign exchange reserves as best it can because there will be times when they will be sorely needed. Ironically, but not surprisingly, the MAS keeps a tight lid on the local currency and would never allow the type of currency trading in the Singapore dollar that it does with the currencies of other countries.

The majority of deals, as in Hong Kong, are in dollar/mark -- which accounts for about 25% of the business -- dollar/yen, dollar/Singapore, sterling/dollar, and to a smaller extent in Swiss, Hong Kong, Australian, and Canadian currencies. There are also active markets in local Asian currencies. Besides the MAS, major participants are foreign branches of Japanese, European, and American banks. While there is relatively less commercial business than in other centers, an active offshore deposit market (centered around the so-called "Asian dollar" market) adds depth to the foreign exchange market.

Early in 1984, a futures market was opened in Singapore. The SIMEX trades under the type of rules that have been set up in the Chicago IMM and the London LIFFE; one of the reasons for its creation was the concept of a round-the-clock futures market. Although its officials claim great success, SIMEX does not have at this time the impact that the IMM has in the foreign exchange market, and activity is still relatively low key.

Australia. The fastest growing center in the Far East has been Australia, thanks to the relaxation of foreign exchange regulations and the slow opening of Australia to foreign banks. The increased role of the Australian dollar as an important currency in the Pacific basin and the foreign expansion of the major Australian banks underscore the potential for further growth of the Australian markets.

Philippines. Political and economic problems have so far limited the growth potential of Manila. In addition, a recent incident has seriously hurt the chances for the development of an international financial market. The Manila branch of Citibank, which had been an active participant in the Eurodollar market, was forbidden by the Philippine authorities to repay maturing Eurodollar borrowings to the foreign banks that had lent the funds, under new local foreign exchange laws. As a result, the international banking community is likely to shun the Philippines for some time.

The Middle East

Between the major Far Eastern and Western European centers, the Middle Eastern markets occupy a special place. Traditionally, the main banking center in the Middle East was Beirut, but the civil war in Lebanon has all but wiped out the existence of Beirut as a financial marketplace. Instead, the centers have shifted to the Gulf region, where Kuwait and Bahrein have slowly developed. Local growth has been somewhat stunted by a series of financial scandals and by the problems that local economies have encountered as a result of the Iran-Iraq war and the drops in oil prices. Nevertheless, the enormous concentration of wealth in the Gulf area has attracted all the giant banks and promoted the growth of the local financial centers. The commercial business is very sizeable, even though many institutions prefer to deal directly with Europe and North America. The Gulf area is open on Saturdays and Sundays, which allows to a limited extent a continuation of the weekly trading in other centers. This was particularly useful in the days when the markets concentrated on the U.S. weekly money supply figures and when these were released on Friday evenings. However, the

Gulf area is intrinsically a limited market and has relatively little depth. Besides the local currencies, the U.S. dollar, the British pound, and the mark are the most actively dealt currencies. There is a smaller amount of trading in yen and Swiss francs. Back in the 1970s when the phenomenon of diversification was in full bloom, the central banks and monetary authorities of the Gulf countries, and more particularly the SAMA, the Saudi monetary authority, were very large market participants because of their active money management. Since the early 1980s, they all have assumed a much lower profile.

#### Western Europe

The foreign exchange market saw its birth and growth in Western Europe,<sup>2</sup> and it is the European banks and bankers who have been instrumental in the worldwide expansion of the markets. While not as preeminent as it used to be, Western Europe still remains the global area where most of the trading takes place. In addition to the four major centers -- Frankfurt, London, Paris, and Zurich -- there are many other important ones: Amsterdam, Brussels, Copenhagen, Dusseldorf, Geneva, Hamburg, Helsinki, Luxembourg, Madrid, Milan, Oslo, Rome, Stockholm, and Vienna. Many countries are involved, all close to each other in terms of time and distance, and each foreign exchange center is also a major financial center.

London. The London market probably still remains the most active of all the world's centers in terms of participants and activity, although New York may be challenging it for supremacy. All the world's large banks have branches or subsidiaries in London, and the activity encompasses trading in any imaginable convertible currency. In addition, London has developed what is by far the largest deposit market

in Eurocurrencies. The only restrictions that the Bank of England has applied to the markets have related to trading in sterling when it was under attack during the 1960s and 1970s. London is also the site of one of the major gold markets in the world.

While British banks have always been and remain major participants, the market is solidly supported by foreign banks. The late 1960s saw a flood of foreign branches, especially from the U.S. Despite some retrenchment of activity in the mid-1970s, the market has essentially kept its liquidity. During the late 1970s there was an enormous rush of investment funds, especially from the Middle East, which contributed to a period of strength for the pound.

The Bank of England is one of the world's most sophisticated central banks in foreign exchange matters. It maintains an active dealing room and is a constant market participant. Besides the normal involvement that any central bank has in the market, the Bank of England, known to the markets as "The Old Lady," has always expressed a keen interest in the well-being of the market itself. Practically alone among central banks, it keeps tabs on traders in the market and has always been an active participant in the activities of the local Forex association.

The Bank of England is active in the markets as agent for a number of customers, and acts with the same independence as most commercial banks. For instance, it routinely uses the brokers as well as direct dealing and does not confine its activities to the London market. As agent for the British Exchequer, it has frequently intervened in the past, especially when the defense of the pound was considered a matter of national priority. Relations between the Exchequer and the central

bank have not been very good, and there have been numerous, although unpublished clashes over policy matters, but as in most countries the government usually has its way. Under the current government, the free-market philosophy prevails and interventions have been infrequent. The stated policy is that markets should determine the levels and that intervention should be only for "smoothing out" purposes, or to counter "disorderly markets." Some in the government believe that the pound should be lowered in value, especially against other major European currencies in order to promote British exports. Publicly, the government appears more concerned with the level of the pound on a trade-weighted basis<sup>3</sup> than with the performance of the British currency vis-a-vis the dollar. Although nominally members of the European Monetary System, the British have not joined formally -- perhaps to the relief of some of their partners who believe that the pound could create more problems than the system could handle.

Because of its size, the London market sometimes receives and executes extremely large orders. As a result, it can often be a trendsetter, and all other markets watch it closely.

Paris. The Paris market has remained a major center, although its fortunes seem to fluctuate with those of the French franc. It tends to be more of a self-contained market -- the result of years of on-and-off regulations and restrictions -- and becomes really active only when the franc is in the spotlight.

Since the arrival to power of the Socialists, the French banking system has been almost completely nationalized. Most of the major French banks are active market participants, as are branches of other European banks and American banks. The latter have competed

successfully with the French banks for some of the commercial business, which is considerable as France is a major trading country. Among major market players are the finance companies of the car manufacturers, Renault and Peugeot, as well as oil companies. In addition, national companies such as Gaz de France, Electricite de France (the utility monopolies), the national railways (SNCF) and the steel and chemical combines have a heavy interest in foreign exchange.

The Banque de France is an important factor in the market, especially when the franc is under pressure. Relationships with the Ministry of Finance were frosty in the early days of the Mitterand presidency, but have improved. The central bank's involvement in the market in the past years has been more concerned with EMS matters than with the dollar, but since the 1983 realignment its major concern has been the management of France's foreign exchange reserves.

Frankfurt. Although Frankfurt is not the capital of West Germany, it is its financial center and one of the world's largest markets. There are other trading centers in Germany (Dusseldorf, Hamburg, and Munich), but none rivals Frankfurt. The volume of business transacted in Frankfurt reflects the economic power of the country. It is a dynamic market, often a trendsetter, and it can absorb transactions of enormous size.

The Deutsche Bundesbank is by far the most important market participant in Frankfurt. While it acts as agent for the German government and must abide by its foreign exchange policies, the central bank enjoys a greater degree of autonomy than most of the other major central banks, and intervention policy is decided by a council of high Bundesbank officials. The "Buba," as the central bank is familiarly

known in the market, is one of the most actively involved central banks and finds itself in the markets almost everyday, especially at the fixing, where a daily series of exchange rates of the mark against other currencies are determined after about an hour of matching buy and sell orders. The Frankfurt fixing is watched mainly for statistical and psychological reasons. Even though most of the real open market interventions are done whenever the Bundesbank deems it necessary, the market keeps a close watch on Bundesbank activities during the fixing session to assess the central bank's intentions.

The Germans have never hidden the fact that for them the behavior of the mark on foreign exchange markets is a matter of national priority, and the active involvement of the Bundesbank in the markets is merely part of that policy. In recent years, a series of political and social events -- the emergence of the "Green" party, the metalworkers' strike of 1984, the problems associated with U.S. missile deployment in Europe -- created uncertainties in the minds of international investors toward Germany, and this worried the German government far more than the rise of the dollar itself. The high dollar benefited the German export industries and contributed to the modest economic growth in 1984. What the Germans want to avoid is a crisis of confidence in the mark, which would have disastrous effects on their capital markets.

The major German banks are among the foremost participants, as are the branches of Japanese, European, and American banks. Among the numerous corporations that provide the bulk of the commercial business, the automaker Volkswagen has frequently had a relatively high profile because of its aggressive posture and because its behavior resembles that of a trading bank more than that of a commercial customer.

The Frankfurt market is far more restricted than London in terms of currencies actively traded. The overwhelming majority of transactions involve the dollar and the mark, with a measure of business in pounds, Swiss francs, yen, and other major European currencies.

Zurich and other Swiss centers. The Zurich market remains the fourth major trading center in Europe, even though the Swiss franc has lost some of the importance that it had back in the 1960s and 1970s. As the major financial center in Switzerland, Zurich is one of the world's foremost precious metal markets. In addition, the Swiss banks manage very large international portfolios and exert considerable influence on the major capital markets as well as on the foreign exchange markets.

The three giant Swiss banks that dominate the financial scene (the Union Bank of Switzerland, the Swiss Bank Corporation, and the Swiss Credit Bank) influence the Swiss economy in a manner difficult for outsiders to comprehend. Their combined resources are greater than the Swiss Gross National Product, and the leaders of all the major Swiss industries sit on their boards.

The Swiss National Bank has the delicate task of managing the money supply and must walk a tightrope between satisfying the demands of the Swiss economy and not overly restricting the role of the Swiss franc as an international currency. The relationship between the National Bank and the private banking system is one of close cooperation and mutual distrust, but the central bank has been successful in achieving its goal of maintaining an orderly growth of money supply. In recent years, it has not intervened to any great extent in the foreign exchange markets because the franc has managed to remain in a steady range against the

mark, a very important factor for the Swiss since Germany is Switzerland's major trading partner.

In addition to the Swiss banks, foreign subsidiaries of European and American banks are active in Switzerland, but in recent years the level of involvement has diminished somewhat. This is also true of such companies as Renault Finance, which once was a major force in the Swiss markets.<sup>4</sup>

Among the other centers in Switzerland, Geneva is important because of the large amount of commercial business transacted there. Its location close to the French border, in the French-speaking part of Switzerland, has made Geneva a favorite haven for fleeing French capital. In addition, Middle East investors prefer Geneva to other Swiss centers.<sup>5</sup> The small city of Lugano, which may have the highest concentration of banks in the world on a per-capita basis, has been to the Italians the haven that Geneva was for the French. Another small town on the Swiss-Italian border, Chiasso, was also a favorite crossing point. The largest gold refineries in Switzerland are located in Chiasso.

Most heavily traded besides the Swiss franc, the mark and the dollar are other major European currencies. During times of crisis, the French franc and the Italian lira can be dealt in considerable size.

#### North America

The emergence of the North American markets as major world markets is relatively recent, dating back to the mid-1970s. Before that time, the markets were rather provincial and self-contained. Until the advent of floating and the fall of the dollar, few Americans were aware of or interested in foreign exchange developments. There was a philosophy of

insularity regarding the U.S. economy, which was felt to be immune from international monetary developments. Concerns about the deteriorating balance of payments situation did exist from the last years of the Eisenhower administration onward, and successive presidents took measures to restrain capital flows (starting with the Kennedy Interest Equalization Tax), or made major policy decisions to protect the U.S. gold stock, but the defense of the dollar was mostly made in speeches.

The U.S. Treasury has ultimate authority on foreign exchange questions, but policy has changed from administration to administration, and even during a given presidency. Outside of the ban on U.S. residents' dealing in gold between 1934 and 1975 and the freezes on assets of countries considered unfriendly, as with Iran in 1979, the U.S. has not engaged in exchange controls. Until the Carter administration, the Federal Reserve Bank seldom allowed international considerations to influence monetary policy.

The fall of the dollar, its impact on the earnings of multinational corporations, and the emergence of New York as a major international financial center in the late 1970s changed these attitudes. It is however the influx of foreign banks in North America and the development of rapid and efficient communications which have catalyzed the explosive growth of the foreign exchange markets in North America. (See Figure 8.)

Statistics compiled by the Federal Reserve Bank of New York show that between April 1977 and March 1980 the gross volume of foreign exchange business transacted in the U.S. market grew by more than four times as Figure 8 indicates. The increase in the number of market participants was just as spectacular, and in a few years, New York has challenged the supremacy of all the other major centers worldwide.

New York. The New York market, even in the days when it had a minor role, always traded a great diversity of currencies (See Figure 9), with an extremely active market in Canadian dollars and some dealing in various Latin American currencies. In that respect, it has always had more similarity with London than with any other major center. There has also been traditionally a good deal of activity in forward markets, in spite of the fact that with the exception of the Eurodollar, the Eurocurrency markets are much smaller than in Europe.

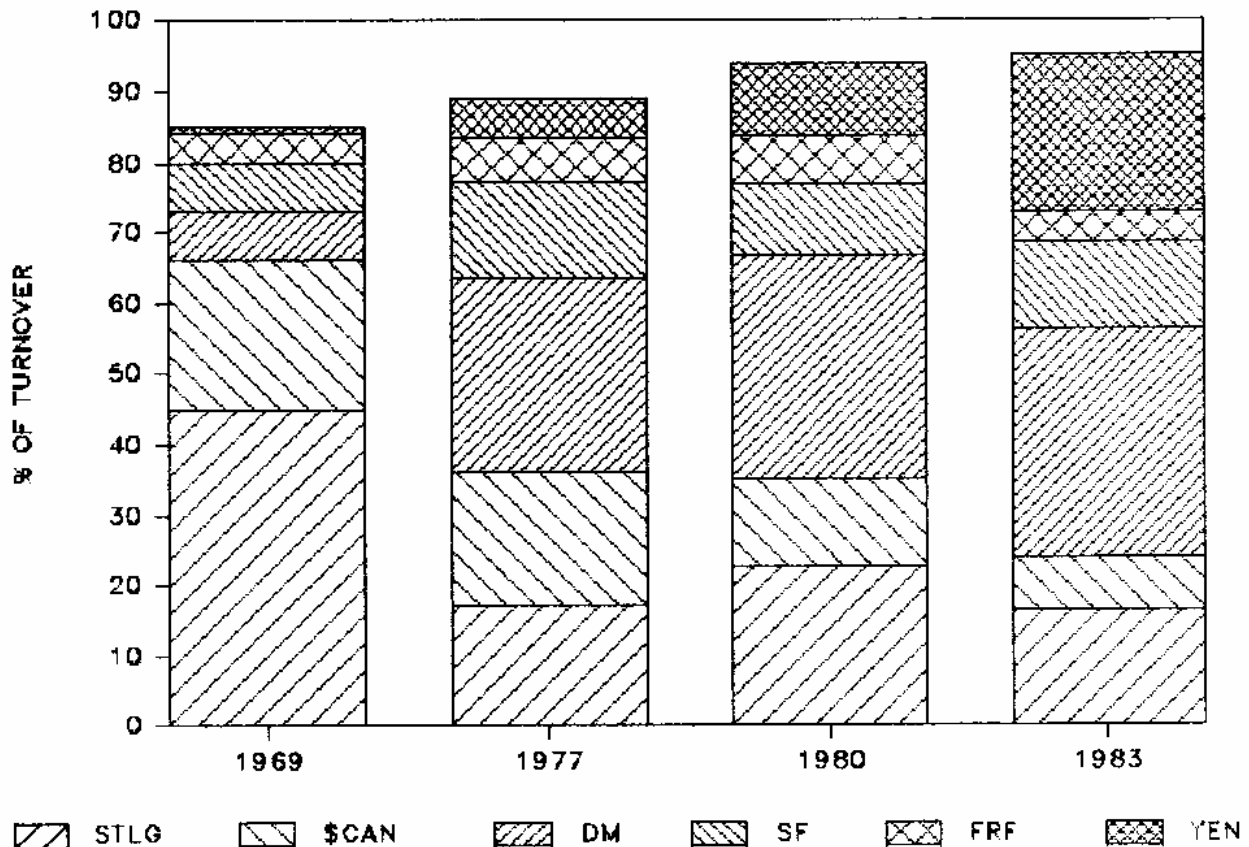
Transactions	Apr 1977 44 Bks	Mar 1980 90 Bks	% Chge	Apr 1983 119 Bks	% Chge
Spot					
Direct (US Bks)		62.4		93.8	50.32
Direct (Bks abroad)		75.5		81.1	7.42
Through Brokers		162.5		224.2	37.97
Total Spot	58.7	300.4	411.75	399.1	32.86
Swaps	42.1	137.8	227.32	204.4	48.33
Outright Fwds	5.6	11.6	107.14	11.4	-1.72
Total	106.4	449.8	322.74	614.9	36.71

Note: A March 1969 survey of 18 banks showed total transactions of \$17 Bil.  
The same banks in 1977 totalled \$53 Bil.

Source: Federal Reserve Bank of New York

Figure 8

Foreign Exchange Turnover Surveys:  
U.S. Market (Bil. \$)



Source: Based on Federal Reserve Bank Surveys

Figure 9

### Turnover by Currency in U.S.

One remarkable feature of the U.S. markets is the total absence of official regulations or restrictions with respect to trading. There is no policing body, and the Federal Reserve Bank has only suggestions and guidelines for trading rooms. Banks report their activities on a weekly basis to the U.S. Treasury, but the reporting is very sketchy and seems to be done purely for statistical purposes. In spite of this absence of regulations -- or perhaps because of it, since the onus of control is placed on the banks themselves -- the American foreign exchange markets have been, with rare exceptions, remarkably efficient and scandal-free.

The New York market is by far the largest and most influential in the U.S. It has a wide component of major market-makers: all the major American banks and the branches of European and Asian banks as well as Edge Act subsidiaries<sup>6</sup> of out-of-town U.S. banks.

The growth of New York as a financial marketplace was spurred during the 1970s by the creation of "offshore" facilities, such as Bahamas and Cayman Island branches -- which are offshore in fiction only since most of the trading takes place right in the head offices in the U.S.<sup>7</sup> -- and has increased recently with the development of financial futures.

The Deutschemark is the most actively traded currency. The Canadian dollar has lost some of its relative market importance in recent years but still remains a major currency, together with the yen, which has grown considerably, and the pound. There are also active markets in Swiss and French francs as well as other major currencies (see Figure 9).

The Federal Reserve Bank of New York, which acts as the sole agent of the U.S. Treasury in international monetary matters, has been an on-and-off market participant. Its authority and the scope of its involvements are very limited, but it does have a policy of watching market developments closely.

The decision by the U.S. Treasury when the Reagan administration took over to abstain from intervention except at time of disorderly conditions has never been popular at the Fed, and relations between the two organizations have been cool to frosty. There is little doubt that on a number of occasions the Fed has tried to persuade the Treasury to allow the buildup of foreign exchange reserves in order to give the U.S.

more flexibility when the time for intervention might be necessary, but the position of the Treasury has remained unchanged. The foreign currency component of U.S. reserves is very small, and if large-scale intervention was ever to be undertaken by the Fed in support of the dollar, they would have to rely again on the foreign exchange facilities established with other major central banks in the mid-1960s. These facilities are known as the "swap network:"<sup>8</sup> the swap facilities are short-term arrangements in which one central bank borrows from another the currency that it needs to sell in the market under obligation to repay within three to six months.

Other U.S. centers. A great variety of commercial and financial business is transacted in New York, and developments are closely watched all over the world. In recent years, the increased interest in non-dollar investments has led to a rise in foreign exchange business among investment banks and major brokerage houses. On the East Coast, there are market centers in Boston and Philadelphia who are closely linked to New York.

The Chicago market, long a satellite of New York, has evolved essentially because of the ascendance of the International Monetary Market, but also because of the influx of foreign banks and Edge Act subsidiaries. There is a great deal of commercial business originating in the Midwest, and local banks have competed successfully with New York for a substantial proportion of that business.

California, with its two centers in Los Angeles and San Francisco, has yet to develop the volume of business and the liquidity that would make it a true market, although the many out-of-state banks which have opened subsidiaries hope it will. It is of course a natural bridge

between the New York and the Western Pacific markets, and there is also a great deal of commercial business originating from the West Coast. While there is optimism that activity will pick up, over the years meaningful trading among local banks has not really materialized.

Toronto. The financial center of Toronto, which has taken over from Montreal since the late 1970s,<sup>9</sup> has an active foreign exchange market dominated by the giant Canadian banks. Trading is primarily in Canadian and U.S. dollars, but also in pounds, marks, and yen. The Bank of Canada has been active in the market, especially since the early 1980s when the Canadian dollar came under pressure. An influx of foreign banks, mostly American and European, has added new depth to the market during this decade. The Toronto market maintains a very close relationship with the New York and Chicago markets, and to a degree with London.

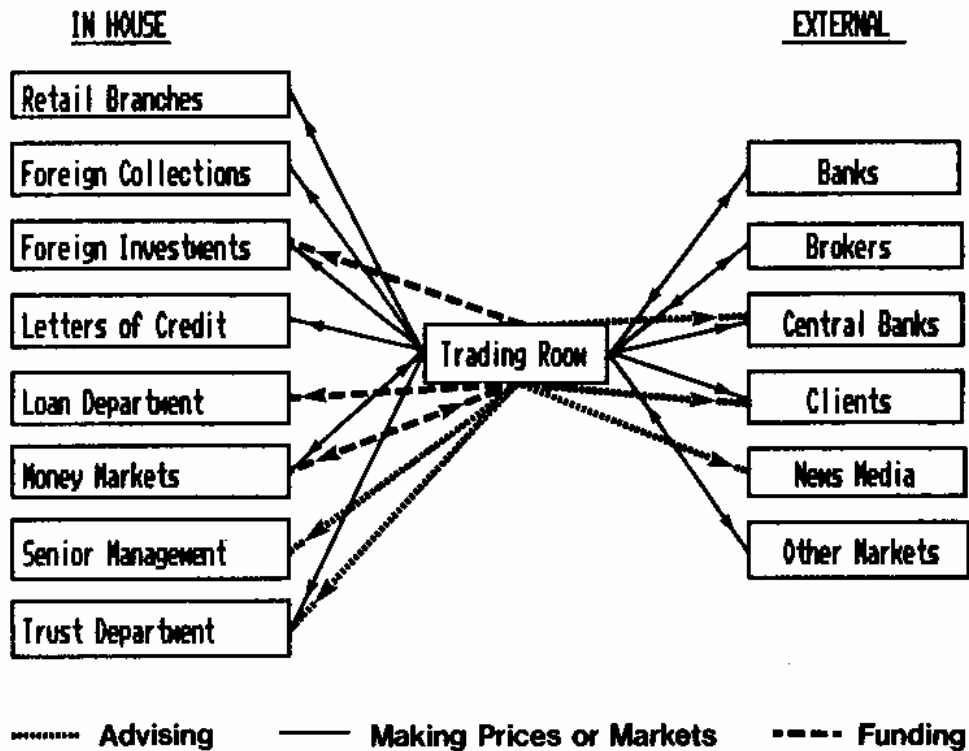
## COMMERCIAL BANKS AND OTHER FINANCIAL INSTITUTIONS

Banks have been the conduit for a majority of the foreign exchange transactional business because they are uniquely equipped to handle all operational aspects of such transactions. A typical deal involves two transfers of funds at a predetermined rate of exchange and time. Each of these transfers consists of debiting one account and crediting another, either in the same bank or from one bank to another. Through correspondent relationships or through their own branch networks, banks can routinely make these transfers. Banks assume the responsibility of making sure that funds are received and delivered at the right time and the right place.

The business of foreign exchange depends on the efficiency of the banking system; therefore it is normal that these institutions should be at its center. Trading rooms have developed and grown as the need for a foreign exchange market has become more pressing. The increase in foreign trade and the growth of international capital markets have been primary factors in the development of the modern foreign exchange markets, and the banks have been at the forefront of this development.

Any type of transaction that involves a movement of funds from one country to another ultimately results in a foreign exchange deal, and sooner or later passes through a bank. The conduct and management of foreign exchange varies with each bank but in essence a trading room performs either or both of two functions: It provides a service and operates as a profit center. How important each of these functions is depends on the nature of the bank's business. For instance, a bank that transacts only domestically oriented business does not really have any

claim for having a foreign exchange department other than trying to derive profits from trading on the goals that its management has set. There are banks whose international operations are vast and varied -- and therefore who have a natural reason for having an active foreign exchange department -- and yet who refuse to consider the trading room a profit center (see Figure 10). For them, the trading function provides a service in the same sense that international paying and receiving provides a service. Some banks even prefer to refer their foreign exchange business to other banks because they do not want to assume the risks connected with foreign exchange trading. However, a majority of the large institutions that have active international business devote a great deal of resources to the maintenance of a foreign exchange department.



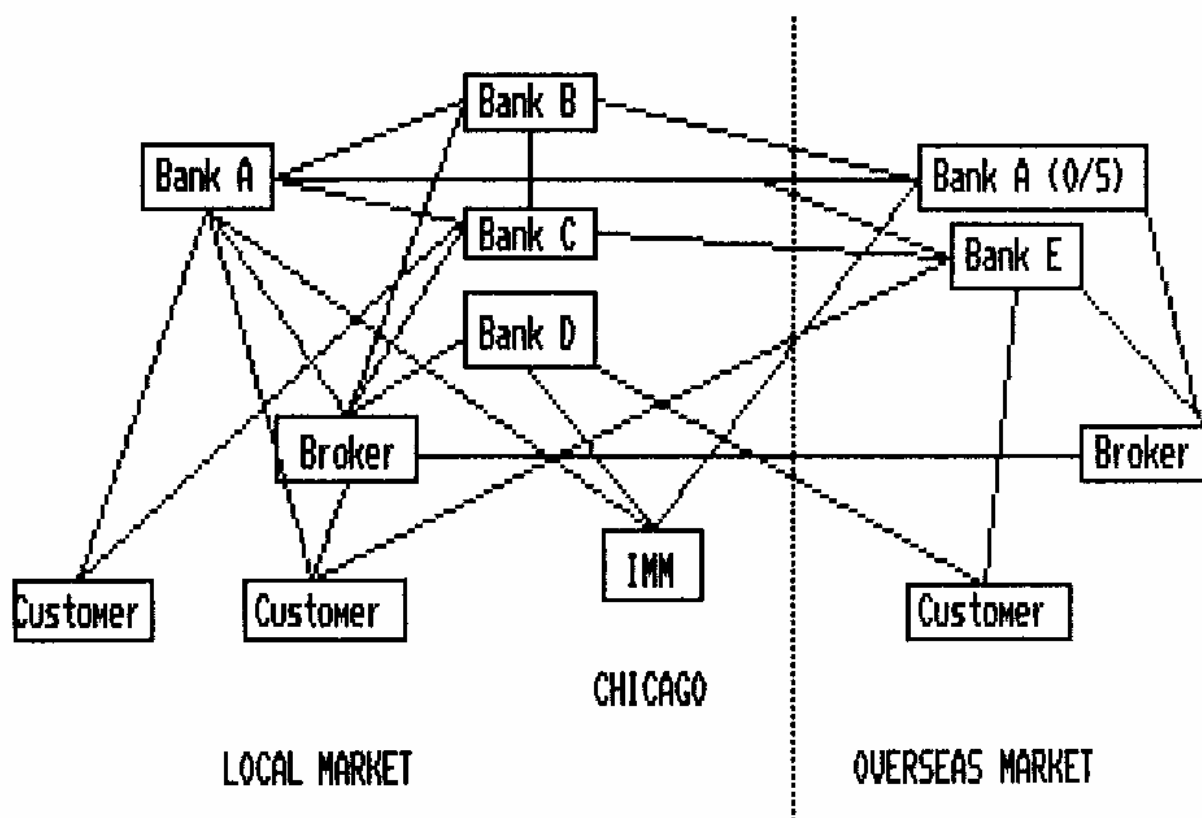
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Figure 10

### Trading Room Activities and Services

#### The Foreign Exchange Market

The foreign exchange market is not associated with a formal location in the sense of a stock exchange or a futures exchange. Most transactions are executed not face-to-face but through the telephone or through other means of telecommunications. The foreign exchange market -- commonly referred to as the interbank market, or as the cash market as opposed to the futures market -- consists of a worldwide communications network that links hundreds of banks who transact their business directly with each other or with customers, other financial institutions, central banks or through foreign exchange brokers. (see Figure 11.)



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Figure 11

The Interbank Market:  
A Complex Worldwide Communications Network

Because of the number of participants in the interbank market and the variety of reasons why banks are active in the market, it is not possible to make a rigorous classification of the banks in terms of their importance or the degree of influence that they exert, but certain distinctions and characteristics can be pinpointed to clarify how the market functions.

The amount of business that a bank can transact in the market is primarily a function of the willingness of counterparts to do business with it.<sup>10</sup> In theory, traders can buy or sell as much as time and communications will allow, but in practice they are restricted by the

guidelines that are imposed on them and by the amounts that other banks are ready to transact with their organizations. Therefore, the ability of any bank to be in the market depends on how other banks view it as a risk. Only very large organizations with impeccable credentials or those who are perceived as so important that the risks involved in trading with them are considered minimal can transact very large amounts. This does not mean that all the giant banks are major market participants, but it does indicate that the size and reputation of a bank are an essential part of its ability to be active in the market.

In many local marketplaces, regulations restrict trading; although there has been a trend toward deregulation, these still exist in some places. However, the global nature of the market allows many banks to circumvent these problems by shifting their positions from one marketplace to another. This is especially true of banks with large international branch networks.

#### The Market-Makers

There is at the center of the interbank market a relatively small number of major banks who by virtue of their size and the sheer amount of business that they transact occupy a place of prime importance. They tend to do the bulk of their business among themselves, because they are prepared to accommodate each other for more than normal amounts. Among these banks stand the market-makers -- organizations that are prepared to provide a direction to the market by setting their own prices and stand ready to make these prices to their own customers or to other banks that call them. The role of market-maker is of prime importance, because it is a determinant, a personification of market forces. It is a leadership role, sometimes one of high visibility, but not necessarily a profitable one. There are market-makers among all tiers of the

interbank market, from the largest to the medium-sized banks, but the first group exerts the most visible influence on the market.

There are a number of reasons why some banks assume the leadership of the market: The amount of business directed at the trading room, the desire to attract even more business, and aggressiveness on the part of management or the traders. Being a leading market-maker has its advantages but also can be counterproductive. Among the former is a better understanding of the market, in the sense that more information flows toward those who are at the core of the market. But even those leaders can be on the wrong side because of the complex nature of market forces and the simple fact that analytical judgment does not always prevail, even among the largest trading rooms. Nevertheless, to the extent that a major part of the overall foreign exchange business is directed toward the principal market-makers, they tend to have better information than most of their counterparts and therefore are better equipped to provide a direction.

Who they are. In each important center, small groups of banks are considered the major market-makers. Most of them tend to assume a high profile, sometimes purposely, and their actions are closely watched by the rest of the market. In Tokyo, Bank of Tokyo and Sumitomo Bank fall into that category. Hong Kong can be dominated by Hong Kong and Shanghai Banking Corp. and Standard and Chartered Bank. In Germany, Deutsche Bank, Dresdner Bank, and Commerzbank; in Switzerland, the Union Bank of Switzerland, Swiss Bank Corp., and Credit Suisse; in France, Banque Nationale de Paris, Caisse Nationale du Credit Agricole, Societe Generale, and Credit Lyonnais; in Holland, Algemene Bank, Amrobank, and Rabobank; in Belgium, Societe Generale de Banque, Kredietbank, and

Banque de Bruxelles Lambert; in London the clearers, National Westminster Bank, Barclays Bank, Lloyds Bank, and Midland Bank; in Italy, Credito Italiano, Banca Nazionale del Lavoro, and Banca Commerciale Italiana; Scandinavian banks like Svenska Enskilda Bank, Den Danske Landmansbank, or Den Norske; in the U.S., Citibank, Morgan Guaranty, Bank of America, Chase Manhattan Bank, Bankers Trust; in Canada, Royal Bank of Canada, Bank of Nova Scotia, or Bank of Montreal are all among banks that fit into this category. In addition, these banks have very active branches that often compete in other centers for a portion of the business with the local giants, such as Citibank in London and Frankfurt, Swiss Bank Corp in New York, or Midland Bank in Paris.

The trading room of a major bank is a large and sophisticated operation. There are few such trading rooms with fewer than 10 traders, and the number can be as large as 40 or 50, or more. These traders have at their disposal the latest in communications equipment and computer technology. In fact, the operation of such organizations runs into the millions of dollars per annum. In terms of daily volume, several hundred contracts are transacted -- a foreign exchange deal is called a contract -- and the turnover, the total business transacted daily,<sup>11</sup> can amount to several billion dollars.

Manipulation or conspiracy? Two questions usually preoccupy market observers with regard to the major market-makers. Do these major participants exert a negative influence on the market by trying to manipulate trends, and are there conspiracies between them to move rates a certain way? There is a natural advantage in getting and executing large orders, and the adage is that when you take care of a client for an amount of, say \$200 million, the first \$20 million is for yourself.<sup>12</sup> Even the knowledge that some very large amounts are to be done in the

market is precious information. However, there is no guarantee that such an order will sway the market, because there could conceivably be one or several orders of even greater size in the opposite direction. Nevertheless, the visible presence of a major participant does have an impact, especially when conditions are uncertain. Some of the largest banks have the resources to take very sizeable positions, and there are times when the market cannot or does not want to resist a certain movement.

More intriguing has been the "conspiracy" question. Can several major trading rooms act in concert and precipitate a trend? There have been many stories in the past about prominent head traders combining forces to push the market, especially in the early 1970s, and there is little doubt that this sort of thing has taken place.<sup>13</sup> However, circumstances by necessity make such occurrences rather rare, because there have to be coincident interests in the first place in a market that thrives on competition. Traders tend to be very individualistic and do not now have the independence that they had 10 years ago. The market has grown in size and complexity; there are few instances when a small group could ever feel that they can move things around. All the same, there is a great deal of interplay among major trading rooms and traders do talk to each other, especially those who deal with each other frequently, exchanging information and ideas, and sometimes trying to influence each other. So the market sometimes sees what appear to be cliques developing between banks and some of their active customers or with banks from other centers.

On balance, there is little chance that anyone can influence the market for more than a short period of time even if amounts that are

being dealt are very sizeable.<sup>14</sup> Anyone is at the mercy of some unforeseen event, and no one has sufficient information to be able consistently to guess short-term as well as long-term trends. The major banks have high visibility and their every moves are always watched, which is one reason why other market participants know that at least in appearance they can be wrong as well as anybody else.

#### The Second Tier

What the major group of banks makes in transactional volume, a second tier of medium-sized banks makes in number. These are the banks with moderate-sized trading rooms, who may not be the trendsetters but are the mainstay of the market and give it its depth. In general, their presence is not all that visible individually -- although there are on occasions banks who for one reason or another decide to assume a very high visibility in the market in spite of their smaller size and lack of genuine business -- but they form the majority of the market, and their actions as a group can have as much or even more influence occasionally than the first tier. As with their giant colleagues, there are market-makers among this group, but there is an equally large number of participants who trade on other people's prices rather than initiate their own prices. They tend to specialize more and in this group are usually found dealing rooms who trade only a selected few currencies. The traders make up in market acumen what they lack in underlying business, and often some of the more forceful personalities in the market are found among second-tier banks. There is more pressure on them because their bank's resources are more limited and in many cases the bulk of the trading derives from position-taking, rather than from activities associated with client business. They must compete more

aggressively for customers and must demonstrate their professionalism in order to get new business. In each market, there are usually approximately 20 or 30 times as many second tier banks as there are first tier. The staff of a medium-sized trading room can range between 5 and 10 traders. Daily activity usually is around 200 or 300 contracts, and daily turnover totals several hundred million dollars. Besides local banks, branches of major foreign banks fall into that category.

#### The Third Tier

Finally, there is a more amorphous group of banks who either because of their relatively small size or because of their lesser involvement are not too active in the market, at least not in the sense that their influence is remarkable. They do occupy a role because as participants they contribute a significant portion of the overall market activity. There are few market-makers in this group and those who are transact too little in terms of volume to be of any market-wide significance. Such trading rooms may be profitable and may contribute to their organizations, but from a market standpoint they tend to be merely statistics. Unlike the trading rooms in the second tier, who constantly interact with the major players, the less active organizations have relationships with the larger banks only as clients, in the sense that they call on them for prices or markets but are not expected to reciprocate. In each marketplace, the third tier is most visible in the lists of trading rooms that appear on Forex membership rolls or on foreign exchange directories and is least visible in the market itself.

#### New Players

For as long as trading was dominated by trade-related business, the commercial banks had an almost complete monopoly in the marketplace.

Two factors have contributed to significant changes: The increased importance of financial-related business and the trend toward banking deregulation, especially in the U.S. Related to the first factor has been the rise of the futures markets, while deregulation has also brought the development of new products, such as interest rate swaps, multi-currency financing, and multicurrency investments. Consequently, investment banks and brokerage and securities houses have developed a greater interest in foreign exchange. Although they at first used commercial banks for their business, they have little by little developed a trading capability of their own. Commodities houses have also been spurred by the growth of the IMM to rely less on the banks and more on their own trading capabilities -- some are prepared to take sizeable positions on occasion -- and to compete in the development of new instruments such as foreign exchange put and call options. This is an uncharted area of the market, and a somewhat worrisome development for central banks. These houses are outside of bank auditing and supervisory procedures and can leverage on the futures markets and with banks. Over-the-counter options can be huge risk positions, not fully reported on financial statements.

Whether a non-commercial bank chooses to compete directly with banks in the market is a matter of choice. For many, the risks associated with trading are not worth the involvement, and they prefer to generate the fees from their client business and lay the foreign exchange transactions on the banks. In that sense, they may not provide any real competition to the classic players, but they do add to the market liquidity by providing new sources of business.

FOREIGN EXCHANGE CUSTOMERS: LEGITIMATE AND SPECULATIVE  
BUSINESS

According to many surveys of foreign exchange activity, the average proportion of commercial business to overall turnover amounts to approximately 10%. At first sight, the commercial portion appears to be relatively insignificant in terms of the total market activity, but in actuality the commercial business determines the market trends:

Commercial business is that part of the transactional activity that truly changes the supply and demand situation. Whether as a result of commercial or financial deals, currencies that have to be bought or sold either permanently enter the market or are permanently taken out; trading activity, in contrast, is transitory, since the object of trading -- buying low and selling high as the adage goes -- is to realize a profit by cutting<sup>15</sup> a position, hopefully at a better level. In this respect, a great deal of market turnover is a zero-sum game, because what has originally been bought will be sold back, and vice versa. Therefore, the professional market -- the traders -- can only carry trends so far. It is the underlying business, small as it might look in terms of overall activity, that provides the impetus necessary for rate changes and market trends.

Banks and Their Customers

Bank clientele can be divided into two categories: Commercial or financial business, and speculative or trading business. Within the first category fall those individuals or institutions whose activities involve in one form or another purchases or sales, borrowing or lending of foreign currencies in relation to the underlying business. The

second category consists of individuals or institutions who have no basic business that would necessitate an involvement with foreign exchange beyond the profit potential that currency fluctuations create.

There is no such thing as a typical client, as Figure 12 suggests. The gamut ranges from the small import-export business that buys or sells the currencies that it needs or owns as payments are settled to giant multinationals with complex cash flow problems, from the tourist who buys his currency in paper money to the wealthy individual who has a diversified multicurrency portfolio.<sup>16</sup> The transactions that banks execute on behalf of their clients can be as varied as spot transactions, swaps, forward outright, or even options, and the amounts can be as low as a few thousands of currency or as high as hundreds of millions.

Any business whose activities involve foreign exchange must learn to cope with foreign exchange risks, interest rate risks, any possible regulations relating to the purchase or sale of currencies, accounting and tax rules. For the average small businesses, this is too much to absorb and they rely on banks to advise them. This type of service is usually provided by a "commercial desk" in the trading room. On this desk, the "corporate traders" are individuals whose function is to take care of a bank's customers, communicate with them as needed, handle their orders, and prospect for new customers. Corporate traders walk a delicate tightrope between their clients and their colleagues on the trading desk because of conflicting interests.<sup>17</sup>

Individuals	<ul style="list-style-type: none"> <li>o Tourists, international travelers</li> <li>o Persons making or receiving payments to or from foreign countries (remittances, gifts, inheritances)</li> <li>o Foreign workers sending money home</li> <li>o Persons with foreign assets or liabilities</li> <li>o Speculators -- individuals who buy or sell foreign currencies in the hope of profiting from appreciation or depreciation of these currencies</li> </ul>
Companies	<ul style="list-style-type: none"> <li>o Importers and exporters</li> <li>o Multinational corporations</li> <li>o Commercial banks</li> <li>o Investment and merchant banks</li> <li>o Stockbrokers and securities houses</li> <li>o Insurance companies</li> <li>o Airlines and shipping companies</li> </ul>
Official Entities	<ul style="list-style-type: none"> <li>o Central banks or monetary authorities</li> <li>o Government ministries or departments</li> <li>o Nationalized companies</li> </ul>
Supranational Institutions	<ul style="list-style-type: none"> <li>o International monetary fund</li> <li>o Bank for international settlements</li> <li>o World bank</li> <li>o United Nations and related international agencies</li> </ul>

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Figure 12

### Who Uses the Foreign Exchange Market

Client relationships. Relationships between banks and their clients are usually complicated by a lack of mutual confidence. The traders often feel that they are being used by their clients, who only look for the best prices and do not seem to accept the fact that traders must earn something for their efforts. On the other hand, clients believe that the traders are taking undue margins on the business that they give them and are more concerned with their own positions than with those of the clients. There may be some truth on both sides, but it

is preferable that both parties work in the belief that in most ways their interests coincide.

A typical client order, if there is such thing, can be given in a number of ways. Certain companies tend to "shop" -- to call several banks in order to obtain the best possible price. When the amount involved is larger than usual, this creates ill-will on the part of traders, especially when market conditions are volatile, because the traders have to wait after they give their price for a reply from the client who is busy checking with other banks. In the meantime, the price may very well have changed. Normal market ethics dictate that traders should stick to their prices unless market conditions change drastically, but they also dictate that the recipients of these prices should either deal on them or decline to, as fast as possible. Traders also feel that they are being used -- and in truth, there are corporations who try to get better prices by pretending that some competitor was indicating a better price. Ideally, when a corporation has to transact a sizeable amount, it should tell its bank what it is trying to do and let the traders work by themselves. For this situation the corporation must fully trust the bank and the professionalism of its traders, but common sense dictates that if such an order is bungled, it will probably be the last time the bank will receive this type of order from the client. Since most companies now have the means to get market information as fast as the banks, levels and market happenings are easy to check, unlike the days when most clients had to rely on the next day's newspaper for quotes. Orders that allow a trader some measure of leeway in the execution are called "best" orders or "limit" orders. In the first case, the trader will execute the order as best he can,

without limitations with regard to rate levels. In the second case, the client provides certain guidelines, usually a minimum acceptable rate at which the order may be executed.

Trader's perspective. From a trader's standpoint, executing a client's order and commercial business in general is not necessarily a money-making proposition.<sup>18</sup> The one obvious advantage is that normally the transaction is done at the trader's price, but unless there is an implied agreement that there should be an automatic markup -- a rather rare occurrence in today's highly competitive environment -- the trader must handle the deal in the same manner as any other portion of his position and finds himself at the mercy of market changes. There is therefore no implied profitability. From the bank's standpoint, the outlook may be quite different since the relationships with the client usually extend well beyond the foreign exchange business. For instance, the transaction itself can be the result of some form of multicurrency financing arranged by the bank. There are often cases when foreign exchange is considered a "loss leader" and when the bank is willing to accept taking a loss for such transactions because it can attract the client to a profitable overall relationship with the bank. This is sometimes called "putting a name on the books."

It is considered important for a bank that handles a great deal of commercial business to be active in the market, because such an involvement provides a better feel of the market and presumably is helpful in servicing the clients.

#### Multinationals

Many of the major multinationals have found it necessary to develop their own foreign exchange departments because of the importance that

foreign exchange developments have on their balance sheet and earnings. Often, their trading operations do not look much different from those of the banks -- many in fact hire former bank traders -- and the scope of their activities rivals that of the active market participants. However, in most cases, these corporations are not market-makers. They still rely on the banks -- either directly or through brokers -- for prices, but only in rare cases are themselves willing to make prices to others. Some of these corporations have assumed a rather high profile in the markets because of their activities and the size that they trade.<sup>19</sup>

Most multinationals, especially those whose main activity is manufacturing, claim that their involvement in the foreign exchange business is derived purely from their normal business ventures and firmly deny that they trade for "speculative" reasons. Whether their claims are true or not depends on the definition of "speculative activities," as opposed to "legitimate" business.

Speculation. This is a favorite target of governments who try to explain why their currency is not behaving the way it should, in their eyes. By these politicians' definition, the speculator is one who takes advantage of a developing situation and acts to aggravate it in order to gain by it. Therefore, the term has a pejorative sense attached to it. However, such a definition is one-dimensional. Is the French investor who fears that the depreciation of his currency will wipe out his net worth and therefore who takes measures to protect himself a speculator? Can a corporation that modifies its cash flow policy based on its outlook for the various currencies that it needs or owns be accused of speculation?

Without going into the moral aspects of the question and stating that speculation is good or bad, a simple definition of speculative activity in foreign exchange is: buying currencies that are not and will not be needed or selling currencies that are not and will not be owned. This implies a range of activities that are motivated purely by profit potential and are not related to any of one's normal business activities. Using this definition, the corporation that actively manages its cash flows cannot be accused of engaging in currency speculation. This does not mean that corporations have restricted their foreign exchange transactions to purely business-related activities. Since the advent of floating rates there has been a trend toward greater market involvement by many corporations although in most cases such involvement began accidentally. The importer from Italy who discovered that it was profitable to sell the Italian lira or the exporter to Germany who made a lot of money by holding on to his marks often found it so easy to derive extra profits painlessly that the transaction was a prelude to greater participation in the market. (These attitudes are generally described as leads and lags.) A number of corporations found early on that things were not that simple and that the risk is never one-sided, but others, hurt in their normal business activities by currency fluctuations, have become active position-takers and consider their foreign exchange department a profit center in the same manner as a bank would, although few, if any, would state so publicly.

#### Activity Level

The activities and level of involvement of customers in the market depend partly upon certain key regulations or rules. For instance, accounting rules have been a big factor in the U.S. after the Financial

Accounting Standards Boards introduced a rule (known as FASB/8, which became effective at the beginning of 1976) that treated differently the translation (i.e., the exchange rate) of long-term or fixed assets in foreign countries and that of current operations on a company balance sheet. In view of the sharp changes and wide fluctuations that currencies had undergone since the late 1960s, the translation rule had sometimes as great an impact on earning as the conduct of business did. Such a rule was a major factor in the development of foreign exchange business in the U.S., just as its changes a few years later in 1981 (FAS 52) led to a marked decrease of foreign exchange activities on the part of many corporations who felt they no longer needed to be as involved as they had been. In addition, to the extent that the valuation of foreign exchange exposures impacts on the earning figures, tax considerations must be taken into account; similarly, when the translation of foreign assets or liabilities impacts the balance sheet a company must worry about the possible consequences that may be derived from a credit standpoint. This is especially true in the case of FAS 52. This accounting rule does not force a company to report changes in the foreign book value of assets or liabilities as profits or losses, but it does require that they be reported as changes in the net worth of the company. For instance, if a company has substantial assets abroad, its net worth can decline dramatically if the dollar strengthens considerably.

Technology. Technology has been also a prime factor in the evolution of commercial business. The existence of video display terminals allows corporations to be as up-to-date on market developments as active trading rooms. In addition, computer technology has permitted

the development of new sophisticated models that help in cash flow projections and in determining alternate financing or investment sources.

#### Traders as Customers

A number of bank customers, either wealthy individuals or investment companies, are traders themselves. They usually have large limits at their disposal and tend to deal in very sizeable amounts. These clients do not really contribute to the liquidity of the market; that is, they do not add new underlying business because they are in-and-out traders, but they do exert an influence on short-term trends by virtue of their transactional volume. Many such clients, especially organizations who actively manage large international portfolios, have an aggressive posture in the market. They tend to be highly visible and are often more prone to do their business in an active manner, making competitive bids and offers and trying to influence trends, than in a passive fashion, just accepting prices or markets made to them.

Others may be relatively small companies that have at their disposal "managed accounts," that is, large sums entrusted to them by clients, used to secure considerable credit lines. These smaller companies are equally active and are noticeable because of the amounts that they trade and the positions that they take. It is not easy to check on their business since the scope of their activities is international and therefore not subjected to the control of any central bank, and yet they are a concern to central banks because of their occasional influence. They do not limit their operations to the interbank market; in fact, they are also active in the futures markets.

A small group of these companies can truly be considered major market participants and have the same type of influence as the major banks, with the difference that they are not market-makers. They are well known to the banks with whom they do their business but are usually away from the market limelight, since they have relatively few counterparts in the interbank market.

## FOREIGN EXCHANGE BROKERS

A foreign exchange brokerage firm specializes exclusively in the business of receiving orders to buy, sell, or swap currencies and of trying to execute them through the interbank markets.<sup>20</sup> The majority of its clients are banks, but in recent years foreign exchange brokers have also serviced corporations that normally have access to the interbank market. Foreign exchange brokers act only as intermediaries and not as principals.<sup>21</sup>

Brokers play a major role in the interbank market. They bring together buyers and sellers in an efficient manner. Banks with business to transact would find it cumbersome and time consuming to call other banks until they find someone who is willing to trade at a price that suits them, especially in a fast-moving market. But brokers have the facilities and the personnel which allow them to contact the maximum number of clients in the minimum time. Foreign exchange brokers have grown together with the markets. As they received more business, they have been able to provide a greater range of service. A major step was taken in the late 1970s when brokers established direct overseas links between their offices in the major trading centers. This led to some profound changes, especially in New York. Today, a bank dealing through its broker in New York is as likely to get the name of a London or a Frankfurt bank as that of another New York bank. International brokering has been one important step toward a global foreign exchange market.

A broker is linked to his clients by direct telephone lines — often open lines. Through these lines he communicates the bids and

offers and acts as a go-between whenever deals are struck. Most brokers have extensive staffs divided into sections that specialize in one or several currencies, and in the type of deal -- spot or forward -- that banks usually transact. The most active sections are by far those who deal in dollar/mark, with the exception of Tokyo, where the dollar/yen occupies center stage. Business as a broker can be frenetic. Some brokers estimate that in their dollar/mark section as much as a dozen transactions can take place every second, especially when the markets become very active. Communication between brokers and their clients is by voice only and at busy times the din is almost unbearable. It is a tribute to the industry that relatively few disputes arise over deals and that business continues to develop in spite of the increased complexity of the market. Nevertheless, the relationship between brokers and traders is not always an easy one, and there are some problems attached to it.

#### Brokers/Traders: Issues

Commission pressures. Brokers derive their income from commissions earned every time they conclude a deal. The commission, which varies according to centers, is based on a percentage of the value of the deal. For instance, the maximum commission for a spot transaction in dollar/marks in New York amounts to \$12.50 per DM1,000,000, to be split equally between the buyer and the seller.<sup>22</sup> This may not seem like much, but a very average spot transaction is for \$3 million, which at a rate of exchange of DM3.00/\$1.00 amounts to a commission of \$112.50. In the course of a moderately busy hour, 1000 such transactions may take place, resulting in \$112,500 in commissions, just in one currency. A broker will naturally tend to favor his bigger clients and protect their

interests, sometimes at the expense of the smaller ones, who tend to resent this treatment. Brokers are in a unique position, at the center of the market. Because of obvious conflict-of-interest considerations, they are not supposed to take positions themselves, and ethics dictate that they keep the business of their clients confidential.

Professionalism. The most common complaints among brokers concern the lack of professionalism of certain traders, who use the wrong terminology and thereby create confusion, who forget orders that they had given, or in more extreme cases who behave in an unethical manner by refusing to honor certain trades because the market has turned against them. Brokers also complain of being coerced by threats of withdrawal of business if certain deals are not agreed to, and they claim that they have to absorb unjustified losses in order to maintain certain relationships.

Representation. Traders, on their side, claim that sometimes brokers show them markets that do not exist or try to manipulate rates in the way they present markets that are made known to them. The smaller banks tend to be the most vocal critics, often saying that their needs are being ignored, that markets are not being shown to them, and that in general they are not being properly serviced.

#### Improvements and Changes in the System

There is some truth on both sides. The pressures of the business sometimes prompt questionable actions, and market conditions are such that on occasion problems can arise where no one is really right or wrong -- at least not in bad faith. In marketplaces such as New York, there is no official arbitration body that problems can be referred to;

disputants have to settle among themselves or through a mutually agreeable third party.

Yet in spite of occasional strains, the system works well. Certain precautions have been taken in recent years to avoid some of the major potential problems: Many banks as well as brokers now have taping systems on their telephone lines. Brokers provide written confirmation of a day's transactions by telex at the end of the trading session. Names of counterparts are given right away at the conclusion of a deal to check for potential credit line problems.

In earlier years, the activities of brokers were limited in some marketplaces by an unspoken agreement. The brokers would only accept commercial banks as clients, and the banks would deal with other banks on that marketplace only through brokers. This was the case in New York, for instance. More recently, banks have scrapped this type of understanding -- because for many larger institutions the cost of commissions was becoming too high -- and are dealing directly with other local banks. On their side, brokers have begun actively to solicit commercial business. While some banks have tried to resist this change, they must recognize that in a free marketplace brokers have the right to try to expand the range of their services.

There are a few major brokerage houses who have offices in almost all the important trading centers and who also provide services in various euro- and domestic deposit markets. Most of them are British-owned. The recognized leaders are Exco, whose major brokerage company is Astley & Pearce, and Mercantile House, owners of Lasser-Marshall. Other important companies are Tullett & Tokyo, R.P. Martin, and Harlow Meyer.<sup>23</sup> In addition, there are active companies

that operate on a more localized basis. Some of them are now linked in some ways to the major houses. Brokers such as Mueller and Bierbaum in Germany; Cosmorex and Tradition in Switzerland; Roussin and Debeausse in Paris are important parts of their local markets.

RELATED MARKETS: CURRENCY FUTURES AND CURRENCY OPTIONS<sup>24</sup>

A major adjunct to the interbank market is the Chicago International Monetary Market (IMM). The IMM deals in currency futures<sup>25</sup> -- commitments to buy or sell currencies against dollars at a specified date for a specified price, akin to a commodity future contract. The currency futures are for five active currencies: the mark, Swiss franc, pound, Canadian dollar, and yen; and for three inactive ones: the Mexican peso, the French franc, and the guilder. While the standardized contract size is small in comparison with average deals in the interbank market,<sup>26</sup> trades are usually made in blocks that can be of considerable size.

At its inception, the IMM was supposed to fulfill a role that banks were not prepared to accept -- that of taking care of the small client, investor, or speculator, who had been barred from the foreign exchange markets.

Anyone capable of paying the necessary margin and the commissions can take a currency position with a decent leverage. The advantage is that the delivery dates are standard and that in effect a position can be increased or offset at any time, or can even be rolled over to another date. In true speculative fashion, one does not have to take delivery or actually sell unless one wants to, and the Chicago Mercantile Exchange (CME), parent of the IMM, guarantees as an entity the credit of its members.

From Skepticism to Acceptance

The major reason for the success of the IMM is that it was launched at the right time, when the fixed rate system was unraveling and the

beginning of floating was accompanied by violent convulsions in the foreign exchange markets. For the first couple of years, very few interbank traders either accepted the existence of the futures market or were willing to do business with it. They had serious reservations about the professionalism of the local participants and their knowledge of the foreign exchange market, and they feared the possible disruptive impact of a purely speculative market. In fact, many banks tried to pressure the Fed to restrict the growth of the IMM, something that the central bank was never willing to do because it does not have jurisdiction over it and because of its basic belief in free markets. Yet, right at the onset it was understood that the IMM needed the interbank market because it did not have enough intrinsic liquidity and because it had to have an outlet for whenever demand exceeded its capacity. The major Chicago banks were already providing clearing facilities; they began to do some business with the IMM, together with a few New York banks who were attracted by the arbitrage opportunities. Few interbank traders had had any contacts with the commodities markets, and their methods and practices were alien to them. In time, each of the two markets has learned from the other, and most interbank traders are now familiar with technical analysis and charts, while IMM traders are now fully versed in fundamental analysis.

#### Participants

Market participants in Chicago can be divided into three categories, but such a division is more a function of activity than of organization. There are locals, or scalpers, who trade for their own account and essentially try to arbitrage small market variations and who take positions for very short periods of time. There are other locals

who are position-takers and whose size ranges from insignificant in market terms to very large. They rely on their technical models and take positions for more than a few days, based on these models, which can range from simple purchases or sales of one currency to "spreads," which are purchases of one currency against sales of another for one or several maturities. Finally, the brokers execute orders on behalf of their clients.

The first category does not really influence the market and plays generally a minor role. The second occupies a similar role to that of professional traders in the interbank market, taking positions based on their view of the market. They trade on the IMM but also have relationships with banks that allow them to hedge themselves when the IMM is closed or if events do not give them a chance to trade in the futures market. The third category is akin to the large banks with heavy commercial business in the interbank market, with the difference that theirs is strictly a commission business. They can be most influential when they execute very large orders. They can, of course, take positions for their own account.

#### Functioning

Unlike the interbank market, which does not have a physical marketplace and whose turnover and volume is not recorded, the IMM is a typical open-auction market, where participants are face to face in each pit.<sup>27</sup> It is relatively easy for observers to get a quick idea of who is buying or selling, and for how much. Each day, statistics are provided on the trading volume and the open interest.<sup>28</sup>

It is difficult to analyze which portion of the overall volume is what, and where it comes from. It can be assumed that a great propor-

tion is purely speculative, but there is also a measure of commercial and financial business. In fact, in recent years, foreign as well as domestic banks have become on occasions active participants in the IMM, either openly or through some of the large commodities houses. The lines between the markets have become blurred. There are times when there is more liquidity in the IMM than in the interbank market, particularly on Fridays or right before a holiday, and there have even been instances when the futures market has been a trendsetter for the interbank market.

#### Limitations

The IMM does have some limitations, but these have become relatively minor. First, it is a legally regulated market, subject to rules and requirements of the Commodity Futures Trading Commission (CFTC) based in Washington. Second, the number of currencies traded is small, although they encompass the major currencies of the interbank market and there are only four standard maturity dates per year.<sup>29</sup> Third, this is not a 24-hour market, and those who would use the IMM exclusively would put themselves at the mercy of any changes that take place between sessions. However, the major brokers and players have access to other markets and they can effectively protect their clients after hours.

#### Expansion

Thus far, only the Chicago IMM has developed into a significant market outside of the interbank market. The London futures market -- LIFFE -- and the newly formed Singapore futures exchange -- SIMEX -- are still young markets finding their way slowly. The existence of these two new markets comes as much from an effort to create a 24-hour futures

market where orders can be switched from marketplace to marketplace as in the interbank market, as from a desire to tap more local business.

The futures markets in general and the currency futures in particular have enjoyed a tremendous growth since their inception. This is due primarily to the volatility that has characterized floating and to the uncertainties with regard to future trends, and is also a consequence of the deregulation process.

The degree of success of participants is unknown. Some brokers certainly have done quite well, but not all. It is a tough, competitive business. The increased reliance on technical analysis would indicate that those who for one reason or another have an interest in the market lack confidence in their own judgment or in that of their advisors.

To the extent that in the foreseeable future uncertain conditions are likely to prevail and considering how badly recent currency forecasts have fared, it can be assumed that in the U.S. the IMM will continue to prosper, especially if exchange rates continue to fluctuate widely. Whether the links with LIFFE or SIMEX can be tightened depends upon the reliability of the systems of communications between exchanges and on mutual confidence. Whether these new futures exchanges can in time attract the type of local clientele that the IMM caters to and be as successful is more problematic, because in Europe and Asia the interbank market is far more accessible to individuals than it is in the U.S. There would have to be sufficient incentive to make potential customers shift from one market to the other.

#### The Instruments

Currency futures. Technically, a currency future is not a distinctive instrument from a regular foreign exchange contract. The

fact that it is priced in the case of all currencies except for the pound in a different way from in the interbank market -- it is reciprocal, to be exact<sup>30</sup> -- is a mere accident of history. When the IMM began in the early 1970s the interbank market in the U.S. was still quoting rates in U.S. cents per currency -- American terms. It began to quote in currencies per U.S. dollar -- European terms -- and thereby joined the rest of the interbank community when brokers started their direct links with overseas markets, but the Chicago traders kept the old pricing system. Logic would seem to be on the side of the IMM, since foreign currencies in the U.S. are anything but the dollar, and since it makes little sense to say that an American bank is long dollars (it had better be) unless the implication is that it is short of other currencies. The American interbank market has adopted the "European terms"<sup>31</sup> system for practical reasons.

The starting price of a currency future is the equivalent of the current spot price in the interbank market plus or minus the swap price for the dates between spot delivery and the particular future delivery date. It is therefore the equivalent of a forward outright price and obeys the same rules of interest differentials that exist in the interbank markets. There can be in theory arbitrage opportunities when a sudden and large shift in supply and demand creates a swift movement in one of the markets, but the links between interbank and futures markets are so close that these opportunities are few and far between during normal business hours. The only time when large shifts may occur is around closing time in Chicago, if sizeable positions have to be closed for one reason or another.

Options. Options are an altogether different type of instrument. An option gives its owner the right, but not the obligation, to purchase (Call option) or sell (Put option) a currency at a certain price over a certain period of time -- the life of the option. A European option, which is infrequently used in the U.S., allows the option to be exercised only on the maturity date, while an American option allows the option to be exercised any time between its purchase and the maturity date. The purchase of an option involves payment of a premium up front to the seller in recognition of the risk that the seller incurs.<sup>32</sup> That premium is the only foreign exchange risk incurred by the buyer. If rates don't go his way, he does not exercise the option and forfeits the premium. On the other hand, if things go his way the profit potential is only limited by the possible rate changes.<sup>33</sup> This is what makes options so interesting for those who have, or may have, a foreign exchange risk. Unlike any other foreign exchange instrument, the risk in buying an option is definitely limited. Whether an option is an attractive alternative or not depends of course on the premium that has to be paid. The risk falls on the seller, who has an immediate and definite gain -- the premium -- but who incurs a foreign exchange risk limited only by the possible rate changes during the life of the option.

Options pricing is a function of the underlying value of the currency (for example, pounds Sterling at 1.10 or 1.05, also known as the "strike price"), the time value of the option (how long the option can be exercised), and the volatility of the currency (the degree of rate fluctuation over a certain time period). Therefore, there are only marginal similarities between option prices and forward rates, since

they are dependent on different factors, and as a result options do represent a truly alternate hedging mechanism.

During the past few years, customers have been mounting pressure on banks to come up with option programs, for obvious reasons. While there was no history to draw from in the foreign exchange markets, options have existed for a long time in the stock and bond markets as well as in some commodities markets. History buffs can refer to options markets as early as the 17th century, but will be also quick to point out that the highly leveraged nature of the market and the risk distribution has led to excesses, scandals, and failures, and that options markets have been periodically outlawed as recently as the 1920s. In recent years programs and models have been developed to assist option sellers in hedging themselves against the risks that they might incur. While aware that formulas generally accepted in bond options had to be modified -- unlike the bond and stock markets, the foreign exchange market does not have a finite quantity of available instruments, and foreign exchange rates are ratios of two interest-carrying currencies -- many banks believed that they had sufficient hardware and technology to allow them to develop their own systems of "fair pricing," providing them with the right premium and the correct hedge for a given option. As this informal "over-the-counter" options market began between banks and some selected clients, the Philadelphia Stock Exchange started its foreign currency options early in 1983.<sup>34</sup> This formal market, patterned after other options markets and using futures delivery dates, was soon followed by a Deutschemark options market in Chicago. There are also small options markets in Canada and in Holland.<sup>35</sup>

The Philadelphia and Chicago markets have encountered moderate success thus far. The appeal of options for speculators as well as for investors and corporations in need of a hedging mechanism has only been tempered by the general lack of public knowledge of these new instruments.

The over-the-counter options have a much more checkered history. As early as 1982, some large American banks began to write options for their large corporate clients. There was pressure from the clients and the appeal of what appeared to be substantial upfront fees, but several of these banks soon discovered that they had not prepared their hedging policies sufficiently to avoid what turned out to be large losses when exchange rates took unexpected and sizeable turns. There have never been any published reports of such instances, but there have been numerous unconfirmed rumors that American banks had very big problems with their options programs. Although most options program directors put up a brave front publicly and claim that they have been successful, it appears at this time that this is not the case in general and that banks are not yet ready to market options routinely at reasonable prices. There is little doubt that options will become an increasingly important factor in the foreign exchange market, but this still appears to be in the future.

CENTRAL BANKS

Although central banks have probably the smallest number of participants in the interbank market, they are the most closely watched and exert a major, and occasionally controversial, influence. Central bank activities in the market range from executing orders on behalf of clients -- local governmental agencies, supranational institutions, nationalized companies, other central banks -- to active trading on their own behalf, to taking action to correct certain market movements, in other words, intervening. The first category may comprise the most common activities of central banks, but it is the least interesting to the rest of the market because such business is usually handled discreetly, unnoticed by a majority of participants.

Most central banks who trade on their own behalf, (which includes banks outside of the "Group of 10" -- the U.S., Canada, West Germany, Japan, France, Italy, the Netherlands, Belgium, Britain, and Sweden) or at least those who appear to do so, normally have a fairly high visibility, especially when they use commercial banks as counterparts. In the mid- and late 1970s, a time when oil exporters were diversifying out of their dollar portfolios and the U.S. currency was under strong attack, most of the central banks or monetary authorities of oil exporting countries were very large sellers of dollars.<sup>36</sup> While Middle East and North African central banks did most of their business in Europe, the Latin American central banks mostly used New York. Most of their business was connected to portfolio adjustments. While the amounts that they dealt were of more than average size, traders had no problems with the banks because they were primarily sellers of dollars. Among

these were the Saudi Arabia Monetary Authority (SAMA), the central banks of Iraq, Libya and Algeria, and the Banco Central de Venezuela. However, there were also central banks that seemed to have developed a taste for position trading. Notorious among these were the Handlowy Bank of Warsaw, whose activities used to give headaches to European traders, the Banco Central do Brasil, the Russian Vneshtorgbank (Bank for Foreign Trade), and the Monetary Authority of Singapore. The debt crises of the early 1980s and the fall in oil prices took care of most of the petroleum exporters, other Third World countries, and the Eastern European central banks, but the Bank for Foreign Trade and the MAS have remained among the major market participants.

#### U.S.S.R.

Western governments have been very preoccupied with the role that the Russians play in the foreign exchange market as well as with their potential for disrupting the market<sup>37</sup> or for using it as another tool of foreign policy. Some of the major European central banks try to monitor their activities as closely as possible, concerned that the Russians are up to no good. A scenario in which the Bank for Foreign Trade could act in a manner that would bring chaos and disorder is a strong possibility for many. Some are more concerned about such things as warfare against the currency of a country that has displeased the Soviet Union. For instance, there has been speculation that the Russians were heavy sellers of marks against dollars when the controversy of U.S. missile deployment in Europe was growing, just to put some pressure on the Germans.

There is no question that the Bank for Foreign Trade is extremely active in the market, and there is also little doubt that it often

trades in the same manner as any professional operation, but in much larger amounts. It should also be understood that the Soviet Union, the second largest economy in the world and a major importer and exporter, has very few outlets to handle its foreign exchange operations. Outside of its own country, it owns a few medium to small-sized banks: the Moscow Narodny Bank in London with a branch in Singapore that achieved a notoriety of sorts during a real estate scandal, the Banque Commerciale pour l'Europe du Nord in Paris, the Ost-West Handelsbank in Frankfurt, and the Wozchod Handelsbank in Zurich.<sup>38</sup> These banks do not have the size or business to handle large foreign exchange activities, and banks have moderately sized limits for them. In fact, with the exception of Moscow Narodny on occasions, and Wozchod in gold operations, all these banks keep a low profile in the market.

Most of the international activities of the Russians are handled through the Bank for Foreign Trade. Although it is easy to imagine that there is enough underlying activity to keep a good-sized trading room busy, in fact, the trading room has fewer than five traders. The Russian traders have been trained in Western Europe; from all accounts by those who know them, they are very good, knowledgeable, and market-oriented traders. Thus far, there has been no concrete evidence that their activities and their impact on the market are different from those of any other major participant. Even among central banks, there are differences of opinion about their potential for making trouble, even though there is unanimity in recognizing their rather strong presence.

If the Russian traders take positions based on their views of the market, it is difficult to imagine that they would have a better insight

than most of their colleagues anywhere else, unless they were provided with some intelligence that would allow them to know the positions of some of the other major players. There is no doubt that the advance knowledge of some important deal (such as a grain contract) or event could give them an edge, and one could make the case that a country that needs hard currency as badly as the Soviet Union would jump at the chance to realize big profits on the foreign exchange markets. But this is not something that can only be pinned on the Russians.<sup>39</sup> In spite of laws and unwritten agreements, inside information accounts for a great deal of the so-called market acumen.

What must be borne in mind is that the only reason the Bank for Foreign Trade is able to have such a role in the marketplace is that there are enough banks who are ready and willing to trade such large amounts with them. The surest way to handle what may be perceived as a potentially disruptive trading operation is to act so that credit lines are tightened.

A number of East European banks are also active in the market: The East Germans, Hungarians, and Czechs have on occasion assumed a high profile.

#### Other Players

Singapore. Another source of concern in the early 1980s has been the Monetary Authority of Singapore (MAS). No one is imputing to them the political motives that the behavior of the Russians evokes, but in the opinion of many central banks, the MAS is sometimes a disruptive factor and acts in a manner more befitting a professional trading operation than a central bank.

South Africa. Another large player has been the Reserve Bank of South Africa. Some of the major South African banks who seem to be acting on its behalf, such as Nedbank and Volkskas Bank, have become very active market participants, to the extent that several European central banks have questioned the reasons behind and nature of their involvement. Whether the South Africans are trying to acquire badly needed foreign exchange reserves at a time when precious metals are soft or are actively managing their foreign investments as they seem to claim, is unclear, but they have been an important market factor. In market jargon, where major participants acquire nicknames, the Bank for Foreign Trade is known as "the Russian" or "the Red man," the MAS is referred to as "the Yellow man," and with no small degree of irony the South Africans are called "the Black man."

High profiles. It is often difficult to make a distinction between fact and fiction when describing the market activities of central banks, for the simple reason that they seldom advertise what they do, or why. The Russians have a high visibility because they tend to rely on brokers for a good part of their business and usually deal in very large amounts.<sup>40</sup> This may simply be due to the fact that they consider this method the more efficient one, but it is impossible to know whether they sometimes want other participants to be impressed by the very fact that they are in the market. If a central bank decides for some reason to call 10 banks and sell \$5 million to each, the total amount done is relatively small, yet the rumor mill is capable of magnifying this action several fold. The same bank could have called one bank and could have sold them the \$50 million with a caution about keeping it quiet, and in all likelihood no one would be the wiser. It is fair to say that

the activities of a market participant with a high profile tend to be exaggerated and that many of the sins laid at the door of the Russians, the MAS, or the South Africans are probably not theirs. But at the same time it must be understood that these organizations are in great part responsible for their high profile because there are many instances where they could act more discreetly.

### Intervention

The most visible and most talked about activities of central banks are interventions, when one or several central banks act in order to counteract or modify certain trends. The purpose of intervention is always interpreted in a different way by the central banks themselves and by the market.<sup>41</sup>

Central bankers have repeatedly stated that their studies of intervention indicate that they do not change market trends, nor do they substitute adequately for other measures that would have more of an impact on exchange rates.<sup>42</sup> What they are saying is that they cannot effectively counteract movements that are often the result of the policies of their respective governments.<sup>43</sup> However, there are differences of opinion regarding the presence of central banks in the markets. While the argument that intervention does not accomplish much in terms of lasting impact may be correct, the fact that central banks do have a responsibility to police foreign exchange markets in the same way that they police their respective domestic markets is equally true.

The authorities of the major industrialized powers have tried since 1973 to come to grips, individually and in common, with the question of the advisability of intervention, and in particular why and when they should intervene. In the course of common discussions, it was quickly

realized that the parameters under which common actions could be taken would have to be broad enough to avoid narrow issues that would make any accord impossible to achieve. In particular, any aspect of the market relating to the intrinsic question of exchange rates, their level and trend, with the partisan implications, had to be put aside. The central bankers and governments finally decided to concentrate instead on market conditions, which from their standpoint could be considered a non-controversial subject, and came to an agreement at the 1983 Williamsburg economic summit to reaffirm the intention to intervene to counter disorderly markets. This commitment was -- and is -- acceptable to all since in principle it is no more than an endeavor to attack abnormal market conditions and prevent such conditions from spilling over into other financial markets.

The definition of what constitutes a disorderly market was not included in the agreement, which is regrettable since it would possibly have given more credibility to the agreement in the eyes of the market. However, the lack of definition cannot be considered an oversight, since there are many concise and comprehensive ways to describe disorderly conditions.<sup>44</sup> Rather, the vagueness of the agreement should be considered the result of a refusal on the part of some of the participants to bind themselves to a precisely worded pact. In the reality of international politics, the agreement to intervene to counter disorderly markets is something of a red herring, disguising the real intentions of the policymaking bodies or their views regarding either rate levels or trends.

Since governments have not been willing to come to some agreement on what constitutes a disorderly market, they have contributed to market

volatility by not allowing central banks to be in the market when things were clearly getting out of hand. Recently, one of the most evident phenomena has been the relative lack of central bank involvement in the market on a day-to-day basis. This could be partly explained by the fact that there have been no EMS realignment pressures, but it becomes rather glaring when one considers the level of rate volatility.

Suggesting that the authorities should participate in the market on a regular basis does not imply that the life of the traders should be made easier, but it does mean that an efficient market<sup>45</sup> is more beneficial to all its participants. The result of the volatility of 1973 was the huge losses taken in 1974; many believe that prolonged periods of volatility may lead to the same results.

Although national priorities often must take precedence over other factors, especially when the power of a central bank is limited by its own government, a certain logic dictates that if interventions are no deterrent to longer-term trends, they should be of no harm to anyone if they constitute a more effective way of preventing excessive rate fluctuations in the market. The fear that there could be foreign exchange losses as a result of market activities can easily be alleviated by the extension of swap agreements that nullify these risks. In spite of what some may claim, a more efficient market must be conducive to a more orderly processing of business. The authorities -- particularly the U.S. Treasury -- must be held partly responsible for the volatile and difficult markets that have prevailed recently, because of their failure to exert what should be an obvious responsibility. The motives of the Treasury have become more obvious since the summer of

1984, when it was made clear that the administration wanted a strong dollar. Yet this may turn out to be a short-sighted policy since intervention works both ways, for upside as well as for downside movements. By generating controversy and creating ill-will among its allies because of its refusal to slow down the sharp rise of the dollar, the Treasury may get little help from abroad if it tries to support the dollar when it falls.

### Relationships

Relationships between major central banks have generally been good but leave something to be desired in some cases. Technically, major central banks have the means to be in almost constant contact. They have direct communication links and usually have daily telephone conferences where they discuss market happenings and explain the scope of their activities to each other -- at least with regard to their interventions. However, different perceptions of the markets and differences in working methods have sometimes created clashes. In the early 1980s, the relations between the Federal Reserve and the Bundesbank have been rather frosty. This state of affairs has been basically a reflection of mutual frustration with U.S. Treasury policy, which neither central bank agrees with but which the Federal Reserve must adhere to and occasionally defend in order to maintain a modicum of good relations with certain Treasury officials. Some of the differences that separate these organizations may be very valid points. In the past, the U.S. and German authorities have both benefited from a climate of better relations where they engaged in a dialogue rather than complaining about each other.

PART III

CAUSES AND EFFECTS OF CURRENCY FLUCTUATIONS



## FLOATING RATES: THEORY AND REALITY

The transition from a fixed rate system to the floating rate environment was not a prearranged and deliberate decision. Rather, it was an event dictated by circumstances and only accepted because no one could come up with a better solution. The decision by the Nixon administration to close the "gold window" may have been the final blow to the Bretton Woods system, but in effect the Europeans and the Japanese, by their decision systematically to reduce their dollar holdings and to buy as much gold as they could from the U.S., had precipitated the issue. In retrospect, it is doubtful that any system could have subsequently survived the massive shock waves precipitated by the oil crises of the 1970s.

### Basic Theory: Floating Rates

Put to its most basic, the theory of floating rates is an expression of confidence in the mechanics of the free marketplace: It suggests that the market forces should alone determine the rate levels, and that imbalances that result from varied economic performances are corrected by "natural" movements of exchange rates. In effect, under floating the laws of supply and demand determine exchange rates.

The advantages of a floating system were very seductive at first, especially for governments. The risks and costs of currency fluctuations would be transferred from central banks to the market operators, most notably the speculators. Each country, free from the constraints of a fixed rate system, would be able to concentrate on domestic policies and would let international considerations take second place. From a more technical standpoint, central banks were no longer

at the mercy of the market in that their intervention policies, if any, were no longer necessarily apparent and predetermined by fixed rules.

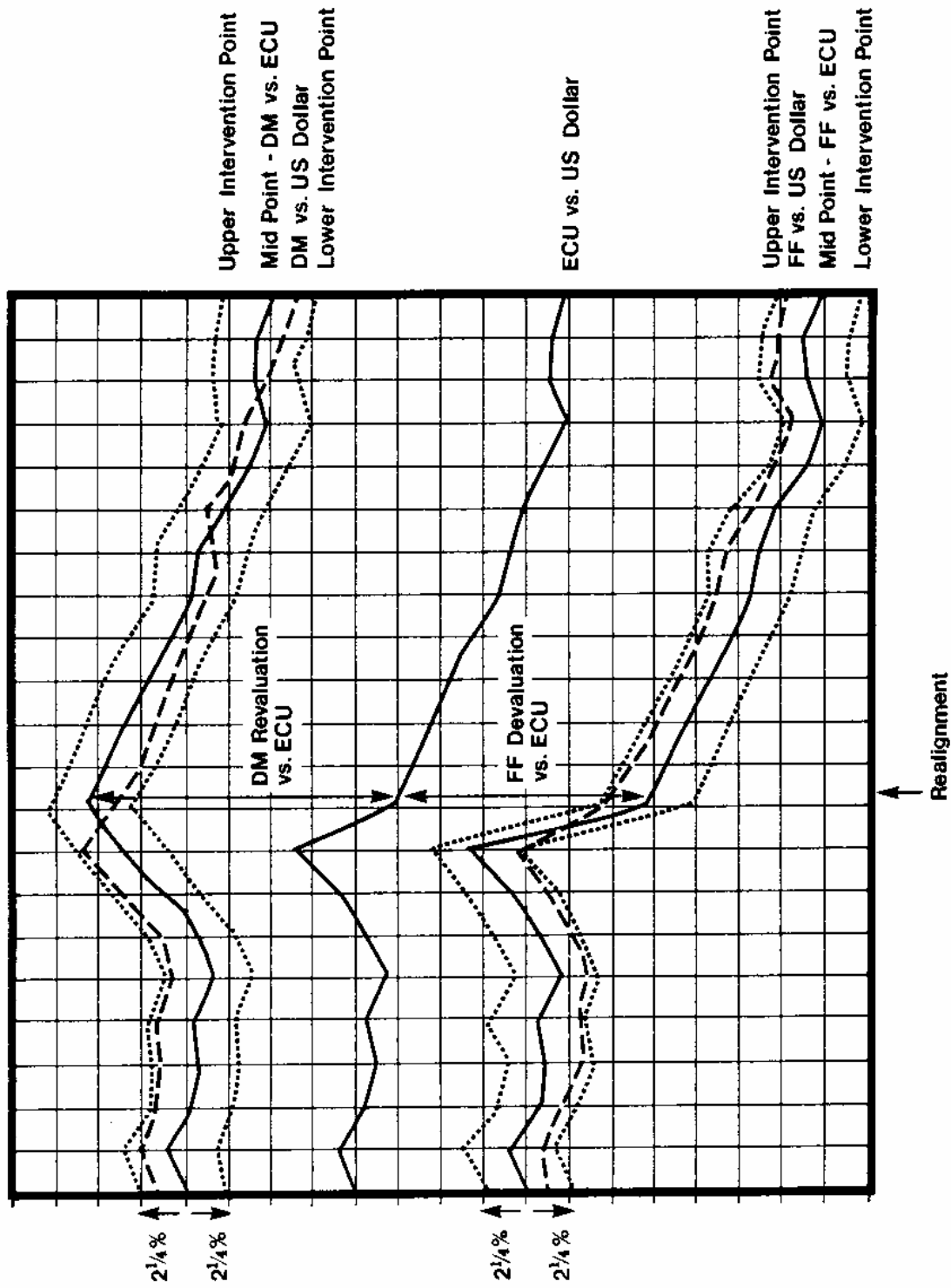
Problems with Floating

In spite of the official expressions of optimism that accompanied the onset of floating rates, certain events confirmed the serious reservations that many governments had about the floating rate system. The members of the European Economic Community decided early on to form a regional system of fixed rates, modeled partially on the Smithsonian agreement, but with the difference that there would be no single key currency and that the defense of parities would be a multilateral affair.<sup>1</sup> After many changes, this system exists today as the European Monetary System (EMS). (See Figures 13 and 14.)

	Belgium	Denmark	France	Italy	Netherlands	Ireland	West-Germany
100 FB Belgium		17.7270 18.1312 18.5430	14.9700 15.3106 15.6590	2943.80 3125.76 3318.90	5.50050 5.62561 5.75350	1.58030 1.61621 1.65300	4.88200 4.99288 5.10600
100 Dkr. Denmark	539.300 551.536 564.100		82.5650 84.4432 86.3650	16236.00 17239.70 18305.00	30.3375 31.0273 31.7325	8.71570 8.91396 9.11680	26.9250 27.5375 28.1650
100 FF France	638.600 653.144 668.000	115.780 118.423 121.110		19227.00 20415.70 21677.00	35.9250 36.7434 37.5800	10.3214 10.5562 10.7964	31.8850 32.6107 33.3500
100 Lire Italy	3.01300 3.19922 3.39700	0.546300 0.580057 0.615900	0.461300 0.489819 0.520100		0.169500 0.179976 0.191100	0.0486968 0.0517061 0.0549015	0.150400 0.159733 0.169600
100 Hfl. Netherlands	1738.00 1777.58 1818.00	315.130 322.297 329.630	266.100 272.158 278.360	52329.00 55583.00 58997.00		28.0904 28.7295 29.3820	86.7800 88.7526 90.7700
1 £ Ireland	60.4965 61.8732 63.2810	10.9687 11.2184 11.4735	9.26250 9.47313 9.68850	1821.45 1934.01 2053.53	3.40300 3.48075 3.56000		3.02100 3.08925 3.16000
100 DM West-Germany	1958.50 2002.85 2048.35	355.060 363.141 371.400	299.850 306.648 313.630	58960.00 62604.30 66473.00	110.1675 112.6730 115.2350	31.6455 32.3703 33.1015	
Central point against ECU	44.3662	8.04412	6.79271	1386.78	2.49587	0.71705	2.21515

Figure 13

Central Rates and Intervention Points between the European Countries  
Participating in the European Monetary System (EMS) as of 3/21/83



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Figure 14

The European Monetary System: A Group of Currencies Pegged on the ECU and Floating vs. the Dollar

The dollar. One problem that was recognized early was that of the U.S. dollar and its role, which far transcended its function as the currency of the United States. The dollar had been an international medium of exchange, often involving countries or entities which were not American. The dollar had replaced the British pound after the war as the major reserve currency in the coffers of the world's central banks, and a floating rate system had more chances to operate efficiently if the importance of the dollar could be diminished and if other major currencies could also attain the role of reserve currencies. The IMF attempted to create a new multicurrency unit, the Special Drawing Right (SDR), which would be a mix of its major contributors and would therefore replace any single currency as an international financial medium of exchange.<sup>2</sup> Unfortunately, the experiment did not succeed and the dollar remained the major international currency, thereby subjecting the markets to fluctuations determined by the international supply and demand in U.S. dollars.

The primary reasons why the dollar kept its role were the unwillingness by exporters of raw materials, especially oil, to modify the pricing and invoicing mechanism for their products and the reluctance of other major economic powers to accept a greater international reserve role for their own domestic currencies. No one can be faulted for this, since a multicurrency pricing system for raw materials, after being studied for a long time (OPEC instituted a commission for that precise purpose), was finally held to be impractical, because of both its complexity and the likelihood that this would not necessarily shield the producers from currency fluctuations. As for the question of allowing other currencies to become international reserves, most central banks

concluded that the result would be a de facto surrender of their policing power over their respective currencies and would not only make their monetary policies impossible to implement with any degree of efficiency, but would also potentially put them at the mercy of external holders of the currency, something which is politically unacceptable.

Other problems. Thus, faced with intractable problems even as it began, the era of floating rates was in effect a tunnel without light where a path forward would be difficult and unpredictable. From the onset, the implicit rule of non-intervention in floating markets by central banks was violated as many governments found it necessary to try to modify the market pressures. Countries whose currency had appreciated and were favored by international investors found that these external upward pressures exerted an undue influence on their international trading competitive position, while intervention resulted in the accumulation of unwanted foreign exchange reserves and in excessive money supply growth to satisfy the external demand for the currency. Since the countries whose currency was considered strong were all major exporters, they were concerned more about their export industries and the possible import penetration of goods from countries whose currency was depreciating than about the beneficial impact that a higher currency had on inflation, while fearing at the same time that money supply growth itself would fuel inflation at home. Inversely, the governments of countries whose currency was under downward pressure were faced with capital outflows and inflationary pressures, and were losing their foreign exchange reserves fast because of intervention.

To protect their own internal policies and in response to the outcries of the various lobbies who found themselves adversely affected

by currency fluctuations, the governments of the major economic powers in Europe and Asia had to resort to various forms of interventions in the market, which became known as "dirty floating."

Dirty floating was a Pandora's box which once opened could not be contained. For one reason or another, central banks were interfering in the marketplace, either directly through open market operations or indirectly through interest rate manipulations or regulations or restrictions. The interdependent nature of the market made things more difficult for official authorities, because the actions of one central bank often had a direct impact on someone else's currency.

A good case in point was the Italian decision early in 1973 to create a two-tiered market<sup>3</sup> for the lira in order to stem the capital outflows from Italy. This seemingly local action -- which was the occasion for the now-famous Nixon expletive about his lack of concern for the Italian lira -- triggered a massive flow of capital from Italy to Switzerland, forcing the Swiss authorities to allow the franc to float upward. This action was a catalyst for capital inflows from other countries, not only into Switzerland but also into Germany and any other country whose currency was perceived as being strong. The most accessible currency to borrow or sell in order to buy francs or marks was the dollar, and the action of the Swiss government, soon followed by that of others, such as the Germans, created an urgency to buy these currencies before they appreciated too much, triggered enormous sales of U.S. dollars against various European currencies, and created a volatility still unparalleled to date. Obviously, the Italians had not foreseen the consequences of their actions. Equally apparent is the fact that, if not for the lira, other developments would have triggered

what subsequently happened, because with the benefit of hindsight the inevitability of such a movement is unmistakable.

### Conclusions

Certain conclusions can be drawn with respect to a floating rate system: The first is that "true" floating, i.e., a market where supply and demand are determined by market participants without government interference, is an impossibility. Any development that a government deems important enough to justify intervention will trigger official actions. Such were the cases when President Kennedy was assassinated and more recently when President Reagan was shot. Intervention can also be the result of developments in the marketplace, as when it was revealed that Continental Illinois was in serious trouble. In more general terms, central banks are given the responsibility of formulating and implementing a monetary policy, and this extends beyond the domestic markets. The case of the Reagan administration's non-intervention policy is a special one, just as the role of the U.S. dollar in foreign exchange is special. The fact remains that if the time came when foreign exchange developments had a direct and drastic impact on the U.S. domestic markets, as they did in 1978 when a full-scale run on the dollar occurred, the current policy of non-interference in foreign exchange markets would be quickly abandoned.

The second conclusion is that floating does not by itself bring stability to the markets. The need, real or imagined, for official intervention, and the intrinsically unstable nature of the foreign exchange markets themselves create conditions where the forces of supply and demand are constantly altered by intangibles such as "market psychology" (the anticipation of trends, short as well as long term),

rumors (a reflection of uncertainties), and tangible factors which derive from the constantly changing nature of the markets themselves because of new political, financial, and economic developments worldwide. Stability is always elusive and can only be achieved temporarily at the expense of the free interplay of market forces -- through an imposed discipline brought about by restrictions or regulations, or through fears of official interventions.

Questions have been raised as to whether wide currency fluctuations create conditions that hamper trade. Common sense certainly would indicate that it is so. Importers and exporters who operate on relatively slim profit margins are faced with additional problems that they presumably have no way to anticipate when coping with exchange risks. In reality, the marketplace provides sufficient mechanisms to enable those who incur currency risks to take measures to hedge those risks. Forward markets provide ample protection and ensure a fixed cost for those who use them. Studies on the subject, most notably by the OECD, using broad aggregates, have concluded that floating -- and wide currency fluctuations -- have not had a significant impact on international transactions. This argument is also bolstered by the fact that international trade has grown sharply since floating came into being, although no one would make a case that growth was the result of floating.

In fact, commentators often forget that the impact of wide changes is rarely immediate, because few businesses settle their transactions on a spot basis, especially those who do not have a specific view on currency trends. Another point is that a given change in rates may be detrimental to some but can be beneficial to others, of course assuming

that exchange rates are the only factors that play a role in international trade, while in reality they are only one of many. Attempts to link patterns of trade with currency trends have never established a true cause-and-effect relationship; in the complex world of international transactions, factors such as terms of financing, marketing, and government subsidies have as much importance as exchange rates.<sup>4</sup>

The question of "overvaluation" or "undervaluation" nevertheless remains an important topic and goes far beyond the realm of the marketplace or that of academic arguments. In the U.S., entire sectors of the economy have been affected in recent years by the rise of the dollar in international markets, and Chairman Volcker himself has raised the alarm at the widening gap between domestic economic growth and domestic consumption. Naturally, the impact of the high dollar has not been one-sided. The American consumer has benefited from lower-priced imports and from their competitive pressure on domestic products. An entire service industry that markets and sells imports has prospered. The influx of foreign capital has prevented a credit crunch by avoiding a "crowding out" of the credit markets by the Treasury. Less tangibly, the U.S. has derived considerable prestige from the strength of its currency. But, as is normal in such cases, the sectors of the U.S. economy that rightly or wrongly believe that they have found themselves adversely affected by the strong dollar have been vocal in raising cries of alarm. From agriculture to textiles, from automotive to steel, from Caterpillar tractors to Harley Davidson motorcycles, American companies claim that they have been shut out of export markets and are competing on increasingly unfavorable terms with foreign imports into the U.S. As a result, constant pressures are put on the authorities to take various

measures ranging from protectionism or retaliation for unfair trading practices to forcing the dollar down. In a choice between protectionism and intervention in the foreign exchange market, there is little doubt that the latter would seem to be the sensible course, since protectionism invariably invites retaliation and ultimately results in a contraction of international trade. The problem is that no one familiar with the market can possibly make a case that official intervention by itself achieves the purpose of correcting "wrong" exchange rates, or that forcing changes in market rates solves trade imbalance problems.

## LONG-TERM FACTORS AFFECTING EXCHANGE RATES

Since the late 1970s the foreign exchange market has used the term "fundamentals" for what are commonly considered the basic factors affecting the behavior of currencies -- elements that are practically immutable and that have a lasting impact, as opposed to short-term and temporary factors. Ironically enough, 1970s Treasury Secretary W. Michael Blumenthal was first to use the term extensively in its current sense.

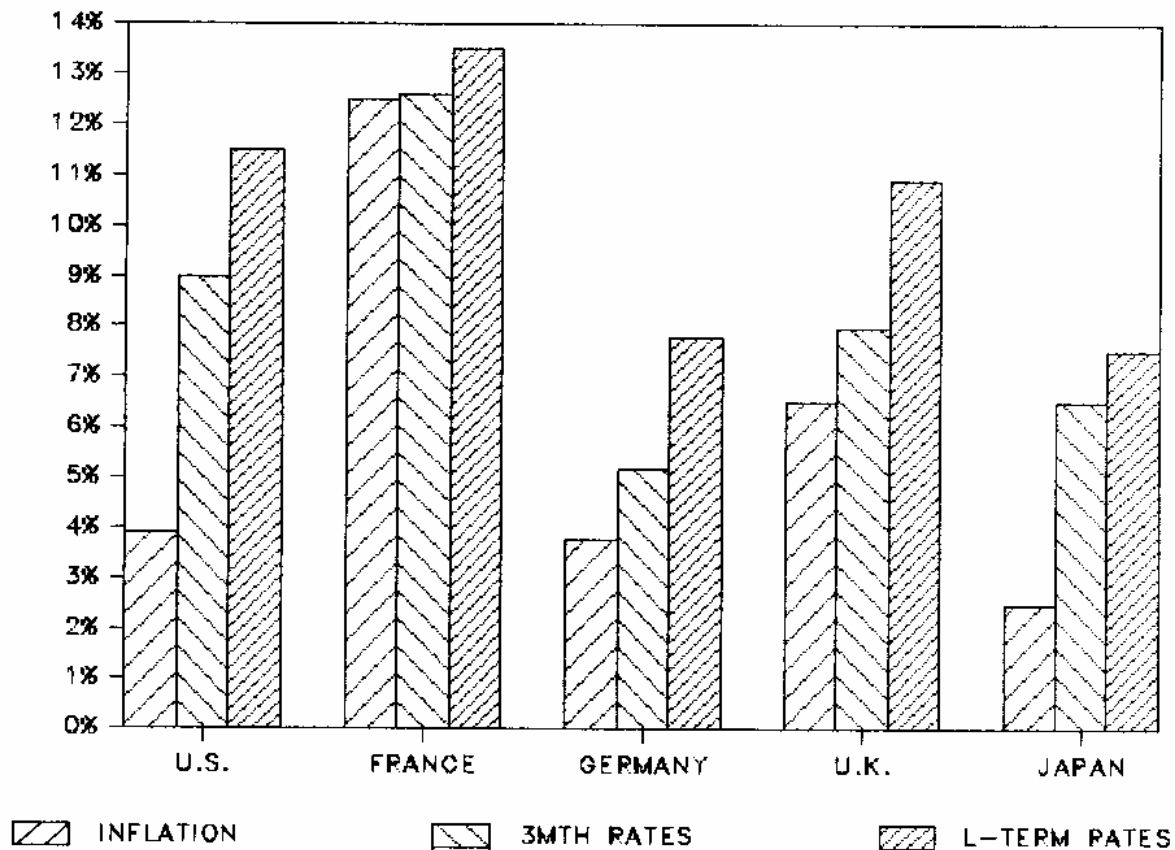
### The Question of Fundamentals

The analysis of fundamentals has in practice little or nothing to do with the markets themselves. It is a study of the comparative economic and political developments in the major countries, with the understanding that the impact of these developments determines in the long run the course of exchange rates.

In theory, the knowledge of the economic and political evolution of the countries whose currencies are actively traded should be sufficient to predict what will happen to these currencies. During the Bretton Woods era, it was relatively easy to define "strong" or "weak" currencies, as well as to classify the symptoms and behavior patterns of these groups. A strong currency was that of a country that had a surplus in its current account -- although in those days more attention was paid to merchandise trade since it accounted for most of the current account transactions -- and that achieved growth with relatively low inflation, good productivity, low money supply growth, fiscal discipline, and economic as well as political stability domestically.

The German economy. The German Federal Republic of the 1960s and 1970s is a perfect example of such a case. Economically, the Germans had established themselves as the strongest Western European power, achieving prosperity while maintaining fiscal and monetary discipline. The politics of "consensus" — labor and management working together rather than confronting each other -- helped maintain a tranquil social climate and low inflation, thereby allowing for strong competitiveness in international markets.<sup>5</sup> Prosperity even necessitated the hiring of foreign help to cope with a labor shortage. German products sold internationally were a symbol of quality and reliable workmanship at reasonable prices. Thus, Germany attracted capital because it was considered a good investment opportunity short and long term. Politically, the two-party system seemed to function as well as that of other major democracies, especially because differences between the domestic and foreign policies of both parties were often difficult to distinguish. The advent of detente in the 1960s also minimized the geographic position of West Germany, so close to the Eastern European borders.

It is no surprise that the Deutsche mark began to appreciate. There was demand for the German currency not only because of the country's trade surpluses but also because foreigners wanted to invest in Germany. The relative scarcity of Dmarks because of the Bundesbank's monetary policies tended to aggravate the upward pressures in contrast with the comparative oversupply of weaker currencies. (See Figure 15.)



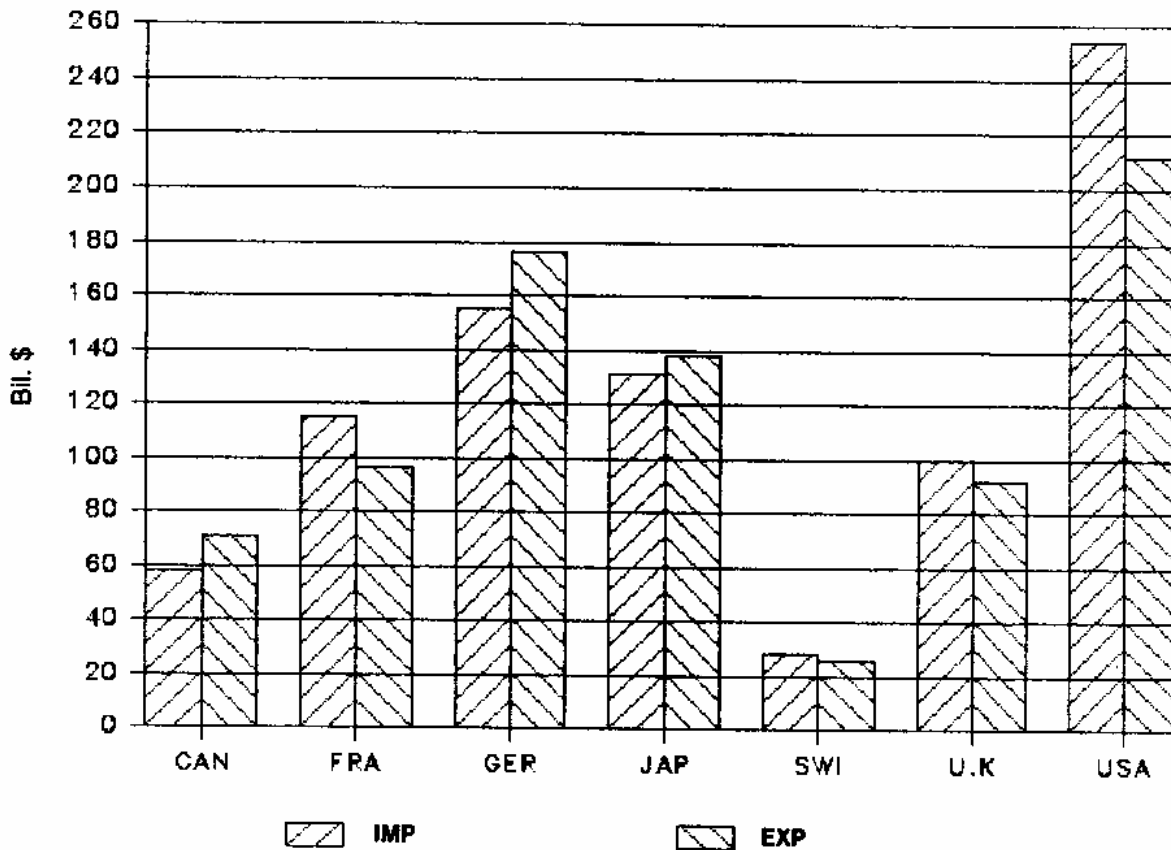
Source: IMF

Figure 15

#### Inflation and Interest Rates (1982)

Other cases. Conversely, countries such as France or Great Britain suffered from problems that made their currencies weak. In France, for instance, the intrinsically strong economy had not fully recovered from World War II and had been sapped for almost two decades afterward by ruinous and divisive colonial wars. France was also racked by political instability and by a social climate of confrontation between labor and management. Under these pressures, inflation was high and monetary and fiscal discipline nonexistent. French competitiveness was eroded by inflation as well as by an antiquated production system. In many respects, the situation in the U.K. was similar, with the added problem

that the pound was still a reserve currency in many countries even though Great Britain was no longer the great imperial power it had once been. (See Figure 16.)



Source: IMF

Figure 16  
1982 Trade Figures

A special case was that of Switzerland. Economically, this small European country cannot be counted among the giants even though it had achieved significant developments in various industries. In fact, Switzerland had -- and still has -- a chronic trade deficit. However, the political factor far outweighed other disadvantages. The country's neutrality had been respected by the major powers since the Congress of Vienna in 1815, with the result that Switzerland had not known war since

that time. The stability of its institutions and its way of life, a function of its small size and of its prosperity as a neutral country, had made it a role of haven in times of uncertainty; consequently it developed a powerful banking system that thrived because of the nation's conservative and discreet image. The proximity of Switzerland to countries undergoing financial turmoil in the 1960s -- especially France and Italy -- made the rise of the Swiss franc inevitable, although at the time the Swiss did not perceive their currency as being "strong" because it reflected a small economy. In fact, the rise of the Swiss franc and its emergence as a major financial currency took place only at the time of the final breakup of the fixed rate system, more than five years after the first convulsions of the 1967 pound devaluation and several years after the ascendance of the Dmark.<sup>6</sup>

The rise of the Swiss franc should be considered an important lesson because it did not occur as the result of economic developments in Switzerland. It was essentially the result of financial considerations brought about, of course, by political as well as by financial factors. "Capital exports," i.e., external lendings, also made an important contribution to the rise of the franc. Swiss interest rates have always been relatively low, reflecting the good inflation levels in Switzerland, and over the years foreign borrowers have been attracted by the cheaper costs. The Swiss, who have only limited lending capacity domestically because of the small size of the country and the high levels of saving, have encouraged these borrowings. In the '60s and early '70s, large numbers of foreign companies borrowed medium and long term and were subsequently caught by surprise by the enormous appreciation of the franc starting in 1973. The need to hedge those

borrowings -- which had not been apparent when they were undertaken -- or to repay them added considerably to the upward pressures on the franc in the mid-'70s.

History vs. forecasting. In retrospect, what has happened in the past always appears to have been inevitable. The rise of the strong currencies, the devaluations of the weak ones, the fall of the dollar, and the breakup of the fixed rates systems are events that from today's perspective had to take place. For this reason, any study of the markets and analysis of future trends tended in recent years to isolate the factors that were considered determinants of past events, and market observers grouped these factors under the general nomenclature of "fundamentals."

A general classification of these long-term factors would include on the political side: stability of the system, the social climate, how a country is directly or indirectly affected by political developments in neighboring countries or even worldwide, and the leadership qualities -- real or imagined -- of the governing bodies. On the economic side, the most closely watched items are: gross domestic product growth, inflation, unemployment, productivity, trade, and current account patterns. Particular attention is paid to balance of payments figures that include capital flows.<sup>7</sup> Other important items are fiscal and monetary policies -- management of a country's budget and of its money growth. Also significant are factors such as the investment climate, the depth and breadth of local financial markets, and official policies regarding foreign investments in those markets.

These appear to be easily discernible elements that theoretically should make the task of forecasting a simple one, but real considera-

tions complicate the study of fundamentals. First, the compilation of statistics is not uniform worldwide and makes comparisons between countries often meaningless. For instance, the products whose price behavior determines the consumer price index (CPI) may be totally different, or if similar, may account for different percentages of the CPI. Trade figures are sometimes calculated on a customs, insurance, freight (CIF) basis; sometimes freight on board (FOB), with or without items such as insurance, custom duties, etc. Second, the importance of a particular segment of the economy in one country is different from that of others. Certain countries depend on exports to a much greater extent than others. Manufacturing is dominant in one place, while service industries are more important in others. Suffice it to say that the pure compilation of data does not provide by itself a comprehensive picture, nor does it allow for meaningful comparisons. However, this is only part of the problem.

More to the point, released data provide a historical picture, because they depict conditions that prevailed a month ago or more, and do not reflect the future. Even data such as leading economic indicators are sketchy figures that tend to be substantially revised as time goes by. Furthermore, the conclusions sometimes reached on the basis of this type of data are based on econometric models which reflect past economic conditions and often do not take into consideration the secular changes that occur. A case in point is that of the housing industry in the U.S. The conventional wisdom a few years ago was that housing could not grow in an environment of high interest rates because of its dependence on cheap financing. However, the deregulation process of the financial institutions in the U.S. allowed more flexible financing mechanisms both for the borrowers and the lenders, and the

predicted crash in the housing industry at the beginning of the recovery period never materialized.

Another important point is that events with a significant impact in the market do not necessarily create one-sided movements. For example, the rise in oil prices in the 1970s did result in higher U.S. trade deficits (a negative impact on the dollar), but also led to more international demand for dollars by oil consumers (a positive side-effect on the dollar). Likewise, a weaker economic performance in the U.S. may mean lower interest rates and therefore less attractiveness for the U.S. currency, but it also may result in less demand for imports, and a better trade posture.

Most political analyses are clear only with hindsight and are very problematic when used for the future, the more so because lobbies or special interests often wish to muddy the picture. Even when one can predict more accurately the course of political events, few observers also have the insight or wisdom to fathom the consequences. Recent history is replete with major happenings which few, especially among the experts on the subject, ever foresaw. The evolution of oil prices since 1979 is a perfect example of such a failure.<sup>8</sup>

#### Long-Term Factors

Even if fundamentals, or what the markets perceive to be so, are seldom indicators of clear-cut trends, the questions must still be asked whether ultimately there are long-term factors that determine currency trends, and if these factors are identifiable. Certainly the attention that the markets pay to certain items changes with the times. Data whose publication holds the market in a trance one year are completely ignored the next year. Notwithstanding the fact that what may preoccupy

the market is not necessarily what is going to be important in the longer run, the question remains whether currencies fluctuate for reasons that turn out to be transitory.

In today's market, the terms "strong" or "weak" currency no longer apply, at least in the sense of the definitions and characteristics of 20 years ago. While a strong currency is one in great demand and inversely a weak one is a currency that no one wants to hold, the reasons that a currency falls into either category are far more diffuse and can be better described for the past than for the future. However, there are certain basic -- truly unchanging -- factors that most analysts tend to ignore or are prone to forget when looking at the foreign exchange market.

Supply. First and foremost is the simple question of the supply of various currencies in the marketplace and the capacity of their banking systems either to absorb or to redirect them, domestically as well as internationally. There are, of course, considerable differences between the masses of dollars floating around, within the U.S. and abroad, and the masses of domestic and Euro-yen, marks, francs and other major convertible currencies. Therefore, the markets suffer at the onset from instability, which can be further aggravated by the variations in the monetary policies of the various central banks.

Demand. The second element -- the demand -- is probably even more complex because of the multitude of factors that determine it, and because of intangible elements such as market expectations which can sway demand even if underneath it remains constant.

In sum, foreign exchange rates, which are currency ratios, are determined by drastically unequal supplies and ever-changing demand.

There is therefore an intrinsic instability in the markets. The only entities capable of dealing with this instability are the central banks, who can expand or restrict monetary growth and who can also regulate credit growth. No other market participant has the means to do so. Under this assumption, the early basic policy of the Reagan administration with respect to exchange rates made as much sense as that of forcing the Fed to abandon the control of money supply and to let "market forces" decide what the money growth shall be.<sup>9</sup>

Other basic and relative factors. Other basic factors have also remained unchanged. The very existence of a floating rate environment is the result of the recognition that assigning fixed ratios to currencies is akin to comparing apples and oranges. Theories such as purchasing power parity<sup>10</sup> were always arbitrary because of the exaggerated importance that they gave to relatively narrow sets of statistics and their lack of recognition of historical and social differences between countries. The portion of personal income spent on food in different countries may be difficult to compare since it can be a function of the type of diet or even of the importance attached to good eating in different cultures. The use of a privately owned car may be a necessity in the U.S., an important part of one's leisure in France, and a luxury in Portugal. Inflation itself, even if it could be better defined especially as a comparison tool, does not really provide such a meaningful source of information because for historical, social, and economic reasons, a good inflation level in one country is a bad one in another country.<sup>11</sup>

Those who claim that a currency is "overvalued" or "undervalued" against others are making a statement that can be supported at best by a

relatively narrow set of facts. Such claims are more expressions of belief than reflections of an absolute truth. Of course, certain indisputable elements can support such claims. Price competitiveness in international trade is one. On a less exact yet more real scale, patterns of tourism and travel as well as international investments are usually good indicators. For example, there have been times in Europe when French housewives would do their shopping in Dover, or when Europeans would find a vacation in the U.S. cheaper than in Europe. Because of the strong dollar, Americans find travel abroad a bargain and engage in shopping sprees when visiting foreign countries because of the strength of the dollar. From a strict price comparison standpoint, these patterns of travel and tourism are indicators of "overshooting," but no rule stipulates that such seeming imbalances must be corrected or that they have a primary influence on the behavior of currencies.<sup>12</sup>

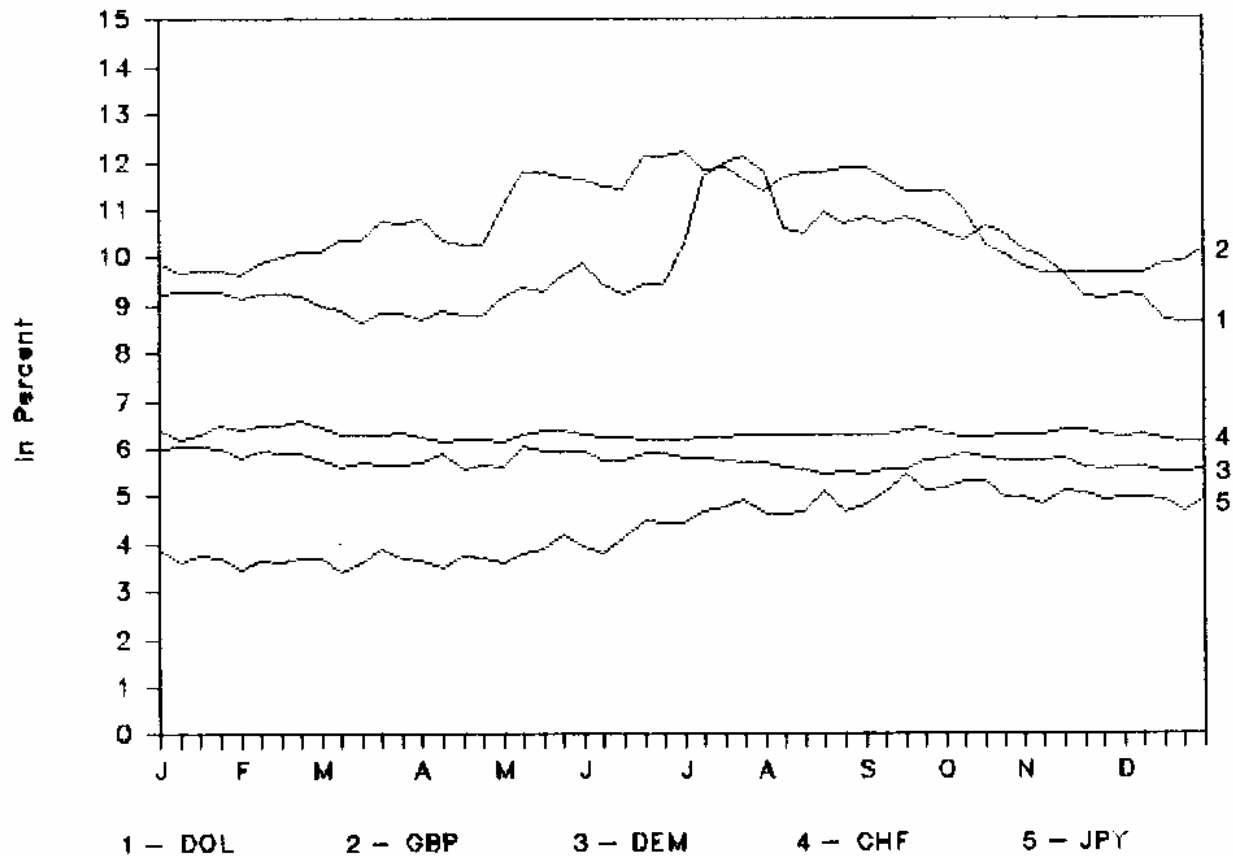
The views of governments and experts with respect to rate levels are usually as imprecise as those of ordinary tourists, but official views are also tinged with a bias about their own currencies. It is obvious that no public officials directly responsible for foreign exchange policy would admit that their own currency is too high -- with the occasional notable exception of the U.S., the British, and the Canadians -- for fear of precipitating adverse speculation. And it is equally true that most officials have further aims in mind when making statements about foreign exchange. In general, officials prefer to complain about the behavior of currencies other than their own, or to blame other countries for their problems.

The notion of what constitutes a "correct" level changes. Back in 1980, many believed that the dollar was too strong against the mark at

DM 2.0000. In 1984, the same people were stating that the correct level should be in the neighborhood of DM 2.5000. Does that mean that the general environment justifies a drop of some 25% for the mark vis-a-vis the dollar in four years? There seem to be few economic factors or fundamentals such as money growth, inflation, or current account performance in either country that would justify such a depreciation. The only factor that can be used for this purpose is the "real" rate of return for international investors -- nominal interest rates adjusted for inflation -- which was consistently higher for the dollar than for the mark between 1980 and 1984. This is why in the early '80s interest rates have been such an important factor in the market's determination of exchange rates. (See Figure 17.)

A use for fundamentals. From this generally negative view of the intrinsic value of fundamentals for trying to determine long-term trends, one could conclude that using them for trend analysis makes little sense. Or so many market participants have decided, growing increasingly estranged from forecasters who rely on econometric models to predict the course of currencies, and from economists in general.

However, this tendency may be shortsighted for a number of reasons. First, those who have a direct interest in the market -- the importers and exporters, the international investors and borrowers, and the governments -- do use fundamental analysis when preparing their strategies. Second, economic induction along with induction of a country's socio-political trends are building blocks for market expectations and are the basic components of what is either an expression of confidence, marked by the willingness of market participants to hold or invest into the currency of that country, or an expression of non-confidence, with the opposite result.



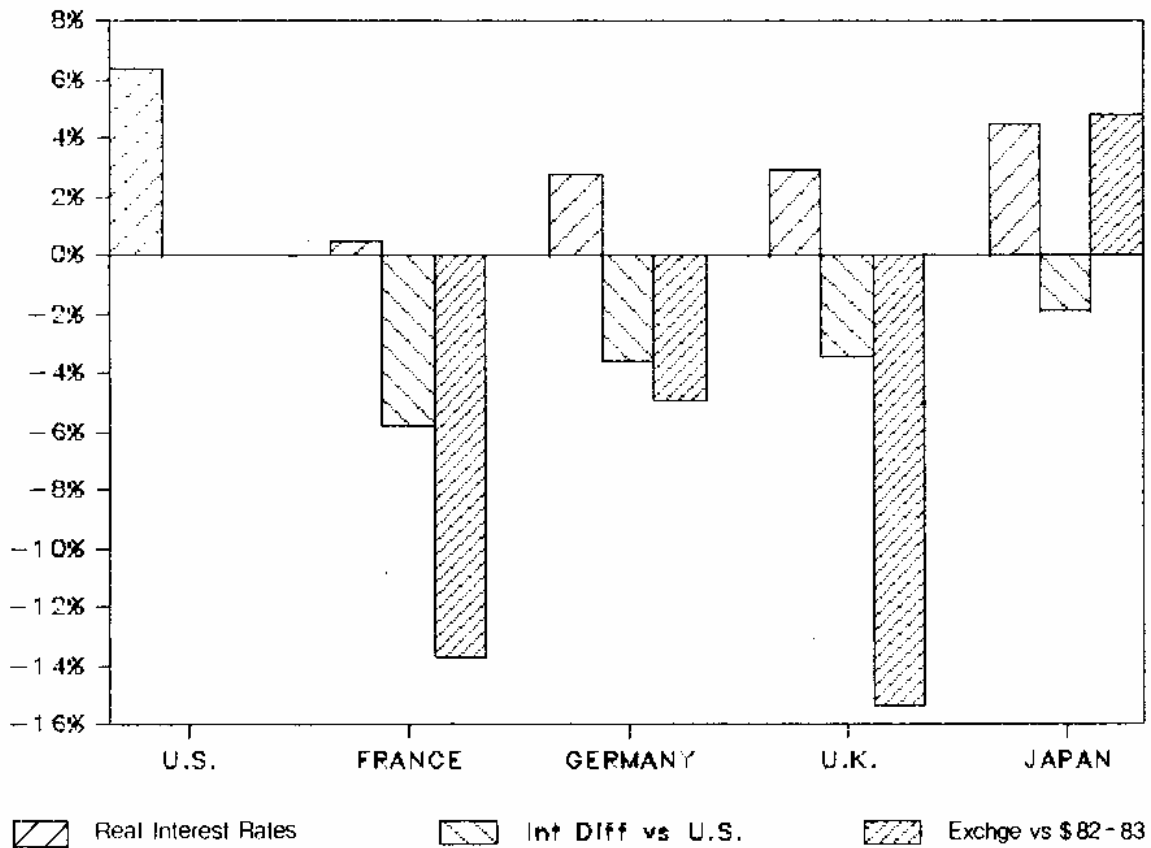
Source: IMF

Figure 17

### Three-Month Eurocurrency Rates

Unlike traders, who make their living by taking advantage of moment-to-moment fluctuations and who are in constant touch with the markets, entities or individuals who are involved in trading goods and services and in international investments must take actions and make decisions which are longer lasting. To put it in a different perspective, they must take a calculated risk based on evaluations of known facts and future estimates. As the past has always proven, these strategies are not always right and more important are not always timely; once taken, they cannot be reversed so fast. However, it is the constant reevaluation of such strategies in the light of developing

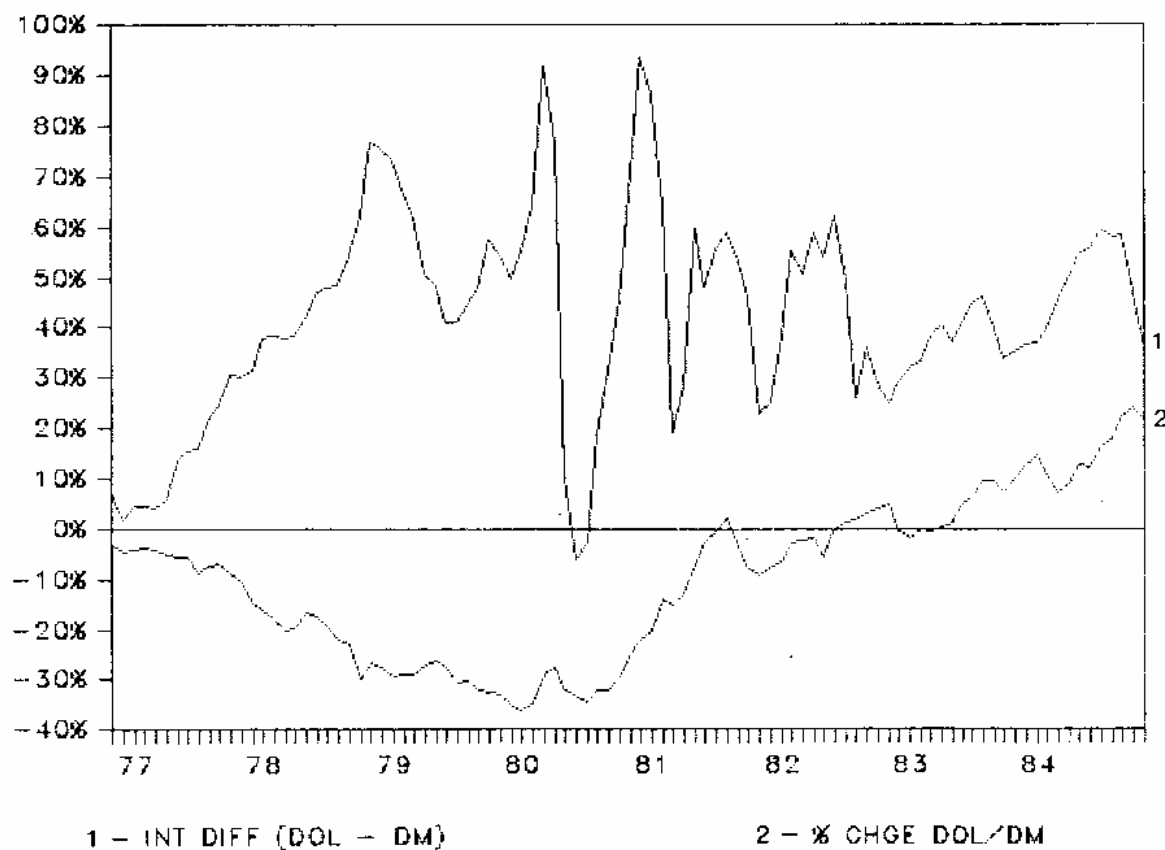
events that in the final analysis provides the longer trend of exchange rates. In fact, the professionals -- traders and advisors -- are often the last to realize the trend changes because they are not faced with the longer-term problems of their clients. (See Figures 18 and 19.)



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Figure 18

Interest Rates and Exchange Rates 1983  
(Real Interest Rates -- Adjusted for Inflation)



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Figure 19

Comparison of Monthly Percent Changes  
Between Three-Month Euro-Dollar/Three-Month Euro-Dm  
Differential and Exchange Rate of the Dol/Dm (1977-1984)

### SHORT-TERM FACTORS AFFECTING EXCHANGE RATES

The analysis of day-to-day trends and developments involves a great deal of semantics. Markets are: dead, quiet, narrowly mixed, nervous, hectic, erratic, disorderly -- to quote a few commonly used expressions. Yet none of these descriptions precisely qualifies or quantifies the events they relate to.

#### Leads and Lags

Market expectations are underlined by the phenomenon of leads and lags. Leads and lags are the patterns of foreign exchange transactions that result from trend expectations. Importers who need to purchase foreign currencies in order to settle their bills will first buy those currencies that they expect will soon appreciate, while delaying the purchase of the currencies that they think will depreciate. Likewise, the exporters who receive currencies for their goods or services will hold on to the currencies that they feel are prone to appreciate while getting rid as fast as possible of those that are under downward pressures. This phenomenon at the same time mirrors market expectations and by itself tends to become a self-fulfilling prophecy, if only on a temporary basis. In some respects, leads and lags can be described as a short- and medium-term maldistribution.

#### Multilateral Nature of Transactions

Exchange rate behavior is complicated by the multilateral nature of many foreign exchange transactions. Although it often appears that everything fluctuates against the dollar, the reality is far different in the sense that trade and capital flows involve other parties. This is most obvious when there are parity changes within the European

Monetary System, but even on a daily basis hundreds of transactions involve the dollar only in a very indirect manner, if at all. Yet to the extent that market mechanics made it relatively more efficient to use the dollar as a medium to move from one currency to another, any rate fluctuation almost invariably affects other rates. For instance, large capital flows from France to Germany would involve sales of French francs and purchases of Deutsche marks. Even if banks are willing to make cross rates (Dmarks/Ffrancs) to their clients, these transactions will sooner or later be treated by the banks as purchases of francs against dollars and sales of marks against dollars. Depending on their current feelings about the franc, the mark, and the dollar, the banks would match the operations done with their clients in the markets in the order of preference, often leaving part of these positions intact. In other words, such capital flows would probably have an impact on the dollar even though the transactions initially concerned only francs against marks. In fact, this has occurred every time there has been a realignment of EMS currencies.

Thus, directly or indirectly, capital flows result in rate changes in areas often distantly related. In general, it can be said that substantial rate changes have far-reaching repercussions throughout the market.

#### Subjectivity and Constant Change

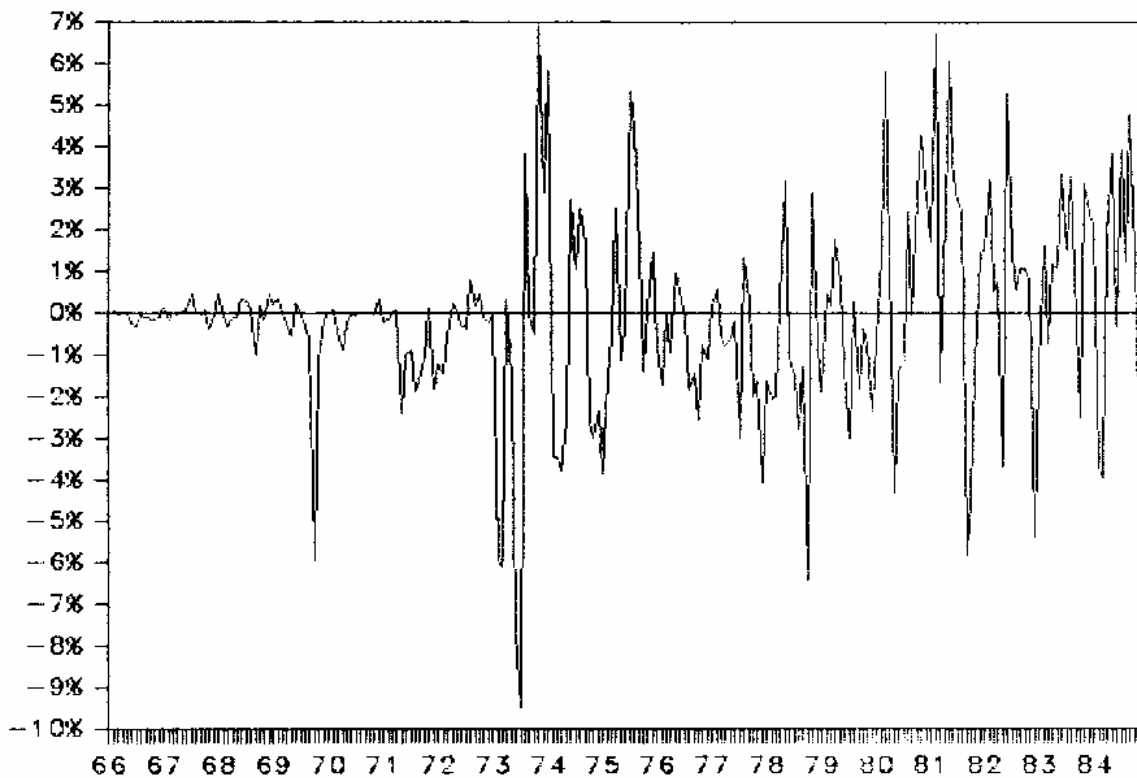
For years central bankers have declared that they would routinely intervene to restore order under disorderly conditions, but any trader with more than a few months' experience would claim that they do not do so. Nor are they generally likely to take action when market participants call heatedly and wonder where are the authorities when in their

view the market is going crazy. One's definition of market conditions, according to many observers, depends very much on whether one is on the right or the wrong side of the market, and one person's bad market is another's dream come true. Therefore, how one views market developments is very subjective. Recently, a central banker pointedly remarked, "The U.S. Treasury does not find the rise of the dollar against the mark by 27 pfennigs in 14 trading sessions disorderly, but is very unhappy when it falls by 10 pfennigs during the 15th session," meaning that the first movement surely created conditions for the reaction that ensued.

The foreign exchange market, as a global marketplace, encompasses thousands of participants who at the same moment conclude transactions all over the world. As a result, rates change constantly, often every second. For example, if one bank in New York averages about 50 spot transactions with other banks involving the purchase or sale of dollars against marks between 7:30 a.m. and 5:00 p.m. -- and this is probably a relatively low transactional level -- it averages one transaction every 6 minutes. There are at least 100 "active" banks in New York, which would make the overall average one transaction every 3 seconds. Include the hundreds of banks abroad who deal at least with the same frequency and the result is several dozen transactions worldwide per second, especially when the market hours overlap. This description does not include transactions involving swaps or outright forwards, or quotes made to clients as well as transactions with these clients. Although the dollar/mark is the most heavily traded exchange rate, its transactional volume accounts only for part of the market turnover. To the extent that every major currency affects even indirectly other

currencies, it can be easily seen how the sheer volume of transactions creates almost continuously changing rates.

As was pointed out earlier, the reasons for the transactions and the amounts traded vary immensely. The end result is a complexity such that at a given time it is practically impossible to determine what is happening and why. Yet traders must execute their client's orders in a manner satisfactory both for the customers and for their own institutions. In addition, they must derive profits from the positions that they take based on their market views and must in many cases stand ready to accommodate other traders who call on them for markets. Under the best circumstances, the complexity of the markets creates an aura of uncertainty. At the same time, "good" market conditions -- an efficient market, according to Scott Pardee's definition, is one that has depth, breadth, and resiliency<sup>13</sup> -- provide a sufficient equilibrium to partially offset this uncertainty. (An exchange rate at a given moment is by definition an expression of market equilibrium. Since exchange rates vary constantly, so does the equilibrium.) Unfortunately, such conditions do not always exist and in fact tend to be the exception rather than the rule, because at random it is only by coincidence that supply matches demand. (See Figure 20.)



Source: IMF

Figure 20

Exchange Rate Volatility:  
Monthly Variations (Percent) of the Dollar/DMark (1966-1984)

### Traders' Tools

In order to cope with this uncertainty, traders rely on several tools so that they do not find themselves totally at the mercy of factors that they don't recognize or understand.

Informal networks. Besides the general release of news through information media (discussed elsewhere) information is relayed through informal networks within the market. The marketplace, although large, is a fraternity of professionals engaged in basically the same pursuits, and acquaintance as well as friendship develop rapidly. In spite of the swift pace of trading, most participants make a point to talk to each

other and exchange ideas as well as information -- or rumors. Depending on one's point of view, informal networks or cliques exist in the market. On the negative side, some participants try to influence others by being selective in their comments, but much more often they do exchange views and insights on what they believe is happening. Information can range from a "feel" of what others are thinking, or what their positions are, to hard facts such as types of orders that they have to execute. The latter can be as specific as amounts being bought or sold by certain organizations, or inside and advanced knowledge of upcoming events or news. The exchange of information is a touchy subject in view of the confidential nature of most transactions between banks and their clients. Nevertheless, traders do relate some of this information to their most trusted colleagues in the belief that such information, when treated with the proper discretion, can do no harm to their clients and will elicit other information that will help them in turn. In general this type of intelligence rarely goes beyond the market participants themselves and can seldom qualify as hard news because of its generally imprecise and even gossipy nature. Yet it remains an essential ingredient of the marketplace. For traders, this is akin to gathering pieces of a puzzle which may not make much sense picked separately but which one must have to complete the picture.

Instinct. As traders gain experience, they unconsciously accumulate information on market behavior, usually as a result of adverse occurrences which they are unlikely to forget. With experience, they develop an instinct which helps them analyze market conditions. At the same time, they acquire a flexibility that allows them to accept the changing nature of things, and they continue to work usefully as long as

they apply their experience and recognize that their understanding of market forces remains by necessity limited. In many ways, the learning process never stops.

News. The major factor that normally affects the market movements is the constant release of political, financial, and economic news.<sup>14</sup> News can broadly fall into two categories: the expected and the unexpected. In the first case, the market is faced with the regular releases of important economic data, elections, and official meetings of national and supranational organizations, etc. Everyone knows that on a given day at a known time something will be announced. What the market does not know until it happens is the real content of the announcement; until the actual release everyone tries to analyze what it will be, to assess both the meaning of it in terms of future trends and, more importantly, what reaction it will provoke. Thus, it is not the news itself that counts, but how it compares with market expectations -- at least in the short run. This distinction is in marked contrast with markets of the past when news evinced almost standard reactions that centered on the substance of what was reported. The quicker pace of the present markets and the speed at which news becomes known make it imperative for traders to be as fast as possible in order to stay ahead of the rest of the market -- and have a chance to be at the start of a trend -- and provokes a need to anticipate, to outguess the competition. The result is that the intrinsic value of news is often ignored at the expense of its immediate impact on the market.<sup>15</sup>

Unexpected news, whether of a general nature or of more precise economic or financial content, can have a profound impact, often in proportion to the degree of unexpectedness. Little time is allowed for

analysis, and those who have positions or risks must assess quickly the impact the news will have on the market, and how it will affect their exposure. This judgment is not easy, especially when the import of unexpected events is difficult to estimate. News organizations are sometimes at a quandary themselves when reporting some major news, either because at a given moment no one knows what is happening or because the information itself is coming out in confused circumstances. A good example is what took place when Egyptian president Sadat was assassinated: For a few hours, there were reports that contradicted each other, stating that Sadat had died or had been slightly wounded. The market was totally confused, both because it did not know what the consequences -- if any -- of the tragedy would be, and because it could not get the right information for a long time.

Although certain events can be reasonably expected to have a clear impact on the market and provoke an identifiable reaction, others are not so easy to read. The same type of news has been known to have widely different effects, depending on such intangibles as market psychology. At one point, what used to trigger sales of dollars can easily do the opposite. The complex nature of events or developments often defies analysis, especially instant analysis. This is particularly true in the economic field, where the ultimate effect of some news can be multi-sided. The reception that the market gives to such news and the reactions it elicits are usually a good indication of where the market preoccupations of the moment are and of the underlying market mood. In other words, traders operate with a subjective outlook which is determined by their basic views -- at the time -- of where currencies are headed. This market psychology is intuitive and derives

from a perception of a large segment of the trading community that influences the position-taking at the moment. Another important point is that news can be repetitive and that what impacts most at first tends to lose its effect as time goes by. When the market is subjected to a series of news that is bullish for the dollar, for instance, the first release that is bearish will have far more impact than other positive items.

Market psychology is evident in the way the market treats certain news. When it ignores events that normally would trigger certain reactions, the bias becomes apparent. The dynamics of rate fluctuations are also a tell-tale sign: On one side, rates move tentatively and rather slowly, while in the other direction rates change swiftly and even gap.

Rumors. Another important short-term factor that the market must deal with is rumors. Rumors always abound in an environment where uncertainty is the norm. The frequency of rumors and the way the market reacts to them can be a good indication of its mood. Generally speaking, the number and substance of rumors is a direct symptom of the nervousness of market participants. A highly volatile market is ready to take note of the most outlandish gossip, which under different circumstances would be totally ignored. For example, back in 1981 the "news" that Russian tanks were rolling on Warsaw was spread many times.

Naturally, rumors are often used as a tool by operators who try to influence the market. They are seldom successful because the type of gossip they try to spread is usually rather crude and transparent, but under the right conditions a rumor may strike a raw nerve in the market and precipitate a movement. Authorities have tried on many occasions to

trace the source of self-serving rumors, especially when they were of the vicious kind that implicate people or companies by name -- an illegal activity in the U.S. and certainly an immoral one anywhere.

Focus on Market Liquidity

It is easier to detect the bias of a market at a given time from the symptoms than to define the reasons for this bias, because the preoccupation of traders with short-term trends forces them to concentrate essentially on one factor -- market liquidity, or the supply and demand ratio at a given moment. The well-worn cliché -- the currency went up because there were more buyers than sellers -- does reflect the ultimate preoccupation of day-to-day traders with the determination of market forces for the short-term, be it the next minute, hour, or day. Needless to say, short-term forces are not easy to detect, because of the complexity of the market and of the various interests at work. As mentioned above, traders rely on intuition borne by experience and on inside information in order to assess the market liquidity. Even then, most market participants will admit that being right is often as much a matter of luck as a matter of skill. But in reality what is important for traders who pit themselves against the market is not necessarily to be right, but to recognize quickly when they are wrong, and to act accordingly.

Inexact, often defensive. What must be recognized -- and is understood by a majority of the market -- is that trading, or understanding currency trends, is not an exact science. Very often, movements occur as a direct or indirect result of miscalculations and errors in judgment. Among traders, the instinct to protect one's position is often as strong, and sometimes stronger, than the desire to make a

profit, which explains the panics that occur when something unexpected takes place. This is difficult for some observers to understand and often leads to comments that markets are "crazy" and "irrational." Traders operate under the most powerful rationale: Their goal is to make money, or not to lose any.

Technical analysis. In recent years, the foreign exchange community has borrowed a tool from the stock and commodities markets to help in its analysis of market liquidity: technical analysis.<sup>16</sup> A general, empirical methodology, technical analysis encompasses many forms such as charts and momentum models, often in combination. Historical data on currency movements are gathered according to a variety of predetermined models, and present patterns of market behavior are compared with historical ones, thus extrapolating probable future trends.

Technical analysis endeavors to arrive at the same conclusions as would an experienced market participant also using prior happenings, but presumably in a more systematic way. More importantly, the virtue of technical analysis is that (in the eyes of its proponents) no emotion is attached to it, because it concerns itself only with market behavior, rather than with the causes of the behavior.

The foreign exchange market discovered technical analysis because of the Chicago IMM.<sup>17</sup> Traders there were at the onset commodity traders who had been using those tools for years. The interbank market reacted at first with total skepticism when confronted with charts sometime in the mid-1970s, but the market has come in time to use them with increasing frequency. There are several reasons for this: First, the demise of "fundamental" analysis as a useful method of currency forecasting created a vacuum. Second, continued market uncertainties

created a demand for some form of analytical tool. Third, in an age preoccupied with technology there is a seductiveness in a methodology that professes to be above such human factors as intuition and subjective reasoning. Graphs are attractive; the old adage that one picture is worth a thousand words is taken seriously in the financial community.

One noticeable problem with technical analysis is that the models depict accurately past conditions and are exact up to the latest data. The extrapolations that are then made to forecast the future are conjectural, just as momentum models change constantly with new input and are a perfect reflection of the past but really tell a problematic tale for the future.

Fourth, its popularity has become the biggest boost for technical analysis. There is the pervasive feeling that since so many market participants are following and using technical analysis as a trading tool, it has become a significant factor in determining market behavior and that therefore, regardless of its intrinsic value, it is something to be reckoned with.

This is demonstrated by the importance that chart points have acquired in the market. Chart points are rate levels that presumably trigger new trends. Interestingly enough, if technical analysis were used by few operators, it could be more accurate, if one presumes that its analysis of market behavior is correct, because the market patterns are not affected by related considerations. On the other hand, to the extent that few would act on what their charts or models tell them, their influence would not be overly felt by the market. In other words, if everyone in the market followed the same model, it would become

self-fulfilling as every move predicted by the model would trigger the same response. The current situation is quite different, although all models are not uniform and there is often some imprecision as to what constitutes a chart point at a given time.<sup>18</sup> In practice, interbank traders tend to rely on their judgment above everything else, and few will admit to relying implicitly on the technical analysis used by their organization. However, everyone in the market is aware to one extent or another of what the models are indicating. There is no demonstrable proof that those who use technical analysis at the exclusion of everything else are doing better than those who don't. Although closely watched, levels that presumably indicate some upcoming trends are not necessarily trigger points, and there have been times when traders have been trapped taking positions based on such information. No one at present denies the value of keeping in touch with what technical analysis seems to predict, but its intrinsic value and its worthiness as a primary forecasting tool remain questionable.<sup>19</sup>

An important fallout from the practice of paying close attention to chart points is the increased use of stop-loss orders<sup>20</sup> by operators who wish to protect their positions in case of an adverse movement. What is becoming increasingly evident is that the practice of stop-loss orders is by itself disruptive to the market and does not necessarily protect those who use it. The reason is that at the onset the execution of such an order -- or the need for its execution -- presupposes adverse market conditions. Under such circumstances, it can be assumed that the markets will not be so efficient that the order can be executed at the desired level. For instance, if a bank has an order from a client to sell dollars on his behalf at a rate of DM2.90 while the current

prevailing level is DM2.95, the assumption is that close attention should be paid to the client's wishes if the dollar should begin to drop sharply. The problem is that if that happens and rates are, say, around DM2.91 in a very short time span, the bank may feel inclined to protect the client by getting him out of his current position at DM2.91. But at that time no one knows whether after going to DM2.91 the dollar will continue to tumble further or will turn about and go back to DM2.96. In the first case, it is doubtful that the bank would be able to execute the client at the desired DM2.90 rate and could cover itself at the same time in the market at this price, because in such situations the movements are very swift and rates tend to gap with no prices in between. Moreover, it can be assumed that this is not the only such order in the market. Finally, because stop-loss orders tend to be all on the same side of the market, their very existence tends to precipitate the movement toward these levels, but once they are executed there is nothing to prevent the market from turning around. Add to this the unpleasant fact that some use these orders to manipulate the markets for their own ends, using the inside knowledge of these orders as a crutch for their positioning strategies.<sup>21</sup>

Many traders and central bankers have stated, fairly, that the foreign exchange markets have recently acquired many of the characteristics and behavioral patterns of the commodity markets, precisely because they have adopted so many of the tools and practices used in commodity trading.

NEWS MEDIA AND INFORMATION SERVICES:  
HOW THEY INFLUENCE THE MARKET

The gathering and absorption of news is an essential part of the conduct of business in the foreign exchange market. With the exception of those who rely purely on technical analysis to formulate their strategies -- and they are few -- market participants have to be aware of the latest developments and of background news that affect the market.

Back in the 1960s, a typical trading room had a Reuters or Dow Jones<sup>22</sup> teleprinter -- as in a small newsroom -- and relied on the general press and a few financial dailies and magazines for information. A major change occurred in the early 1970s with the introduction of the Reuters Monitor, a video display screen that could provide the subscriber with up-to-the minute news as on a teleprinter, but also with data and current rates provided by contributing financial institutions.<sup>23</sup> Soon, Reuters was followed in the U.S. by Telerate, a similar system, and by the mid-1970s no trading room was without its batteries of screens.

Wire Services

The most influential services in the dissemination of news throughout the market are two wire services: Reuters and Dow Jones. They provide constant updates received instantly by their subscribers, no matter where these subscribers are located. Reuters, which is the older in terms of the market and probably still the most commonly watched, once had a monopoly on news updates, and many market participants resented what they considered the biased way in which news was

reported.<sup>24</sup> Dow Jones was probably able to make large inroads because traders wanted more balanced reporting. Also, as U.S. developments became more important for the market, the American company was able to compete effectively against its British rival.<sup>25</sup>

Anyone actively involved in the market on a constant basis must have a wire service; being without one would constitute an insurmountable disadvantage. The markets react swiftly to news; not knowing what is happening, at least from the standpoint of news developments, is akin to being blind. There has always been a great deal of discussion on the question of the wire services' reporting. In the same manner as the press, the wire services divide their reports into straight news stories and feature articles that provide more background information and rely on other sources for their reports. Dow Jones routinely prints selected articles from the Wall Street Journal. The wire services compete intensely for the "scoop," even though nowadays the winner has at most a minute or two's edge over the competition. In so doing, they rely heavily on the "flash" -- the headline of an unfolding important story, heralded by bells -- which is a feature of the daily routine in the trading room. When a flash comes on, trading halts for a couple of seconds as everybody looks up the news and tries to assess how it will impact the market.

Keeping up with the output of the wire services is a task in itself, because of the large amount of releases. During the day, headlines, articles, and data releases come out continuously, and in the morning there is a backlog of overnight news that has to be scanned. Market participants must decide what is important and what can be ignored -- and those with experience know that often significant news

are buried rather than highlighted -- because the wire services either do not make this distinction for them or do not discern what is important in the same manner as the market does. The thoroughness of reporting is at the same time a blessing and a curse, as it allows the subscribers to be very well informed but buries them under a mass of information that they have difficulty digesting, especially when it comes out during the trading session.

Screens are now ubiquitous. Every self-respecting trading room has at least two screens for those traders who can watch them without changing seats and often individual traders have a battery of screens at their disposal, allowing them to monitor the latest news as well as rates posted by other institutions in a variety of financial markets. The dependence on screens is such that when there is a technical failure and screens go blank, the market tends to falter as if traders had gone suddenly blind, and brokers find themselves without bids and offers.

#### The Daily Press

Next to the wire services, it is the daily press that provides the market with its information. Traders tend to focus on the financial press and on the business section of the "serious" newspapers. Although on balance each center relies on its own press, certain publications have an impact well beyond their own national border. Such is the Financial Times of London, whose thorough reporting is closely followed in all centers, and the Wall Street Journal, through its international editions. The International Herald Tribune, which uses the wire services of The New York Times and the Washington Post, also has a wide

following in Europe, the Middle East, and Far East, because of what is considered a well-balanced capsuled reporting of U.S. developments.

Traders who can read foreign publications do so for another view from a different perspective, not only for financial news but also for general news. Foreign publications also help them understand how other countries' viewpoints differ from their own: In spite of the efficiency of news services and the abundance of news releases, there are often major gaps in understanding between countries. For this reason, the first call a trader in New York makes in the morning will be to traders in Europe who are up to date and can interpret the latest developments there.

The quality of news reporting in general, and financial news in particular, is often debated in the market. In the U.S., many traders take a very dim view of the way reporters write about the foreign exchange market, often claiming that the reporting is inaccurate and superficial. Even if there is some truth in that, the responsibility falls as much on the writers as on their sources, which are the traders themselves. There are those who talk to reporters on the record and do not mind being quoted, but the vast majority refuses to communicate with the press, either on instruction from their superiors or simply for fear of being misquoted. Reporters have complained that too few traders are willing to provide solid information for background. While there seems to be a communication problem, it also appears that traders should be willing to cooperate with the press, even to the extent of spending time in some form of education in order to induce better reporting. On the other hand, to explain what is happening, reporters should be interested in more than filling space with facile sentences. In the U.S. at least,

reporting on foreign exchange developments leaves a lot to be desired. For instance, The New York Times does not even do its own reporting of daily foreign exchange developments and relies on a wire service instead. Since the great majority of the public -- at least those who are interested -- gets its information from the press, it should come as no surprise that there is not a great deal of knowledge about foreign exchange among the public at large.

#### Television News

In recent years, the television news reporting in the U.S. has begun to pay more attention to foreign exchange developments because of their perceived impact on certain sectors of the U.S. economy. The brevity of television news makes it impossible to provide meaningful reporting, although the time devoted to business news has markedly improved. At the very least, there are daily reports -- usually in the morning -- of foreign exchange developments abroad, and there are occasional features on certain networks that specialize in general news, or in business news, such as CNN and FNN. The same comments can be made with respect to radio news, although the radio news networks are much sketchier in their reporting than are their television counterparts. The general quality of TV and radio coverage of the foreign exchange markets is poor. Reporters and anchormen seem to have no idea what they are talking about, and they are often blatantly inaccurate. Usually, foreign exchange and gold are lumped together, with the greater emphasis put on gold. What irks traders most is the blissfull ignorance that there is a foreign exchange market in the U.S., when the morning news describes rate changes from the previous European session without even mentioning what may have taken place after Europe closed.

### Weekly Magazines

Weekly magazines -- especially the business publications -- provide most of the background material and the best in-depth analysis. In the opinion of traders, the standout among such publications is the British The Economist, a no-nonsense right-of-center weekly. Other commonly cited magazines include the U.S. Business Week, Money, and Forbes.

### Monthlies

Finally, there are monthly publications that specialize either in general business news, such as Fortune, or in international banking. In the latter category, the two rivals are the British Euromoney and the American Institutional Investor. Traders have mixed feelings about these publications. On the one hand, they are attracted by the slightly gossipy bias in the reporting, while on the other hand they tend to disparage the glamorized tint that these magazines give to the business. There are, however, often some very good background articles that pertain to some facets of the market, but it is difficult for outsiders to differentiate the factual from the fictional.

### Specialized Services

Besides the news media, there are hundreds of specialized services that provide all types of information pertaining to the markets freely or on a fee basis. Twenty years ago, only two major services issued weekly publications relating to the foreign exchange markets: International Reports and Rundt's Reports. Today, they would be too numerous to be mentioned. In terms of classification, most large financial institutions publish some printed material which originates from their research departments. Among the most widely followed are the weekly Comments on Credit by Dr. Henry Kaufman of Salomon Brothers. The

statistical publications of the Morgan Guaranty Bank of New York are commonly used in research, especially their work on the Euromarkets.<sup>26</sup> Most of these publications are available free, although some institutions provide them only to their clients, while others request a subscription fee. The increased interest in foreign exchange and the advent of technical analysis have given rise to an industry of forecasting services, whose output ranges from general writeups on the financial markets to specialized publications with charts and models. Initially, these services provided their material through mailed print but the technological advances made by the communications industry have allowed these services to use telecommunications equipment in availing their clients of their products. The gamut ranges from telexes to screens, with some services even providing their own communications equipment. Ironically, even though many large institutions have also developed their own information and technical services, these are seldom used by their own trading rooms.

#### Impact on Decision Making

It is difficult to estimate precisely how much the markets are influenced by news and information services, but there is no doubt that they are an important part of the decision-making process. The wire services, by virtue of the fact that traders rely so heavily on them for the stream of moment-to-moment information, are extremely influential. There have been instances when a wrongly worded headline provoked a short-lived reaction -- and high tempers -- but on balance when one considers the time pressures that wire services have to contend with, the system is remarkably efficient.

A problem in the market is that traders are so pressed for time that often they have no chance to look at anything but headlines. Observers have a chance to analyze news more carefully and tend to be scornful of certain market reactions, not realizing that traders seldom can afford the luxury of reading everything in depth. The existence of more than just one wire service assures a measure of balanced reporting, since any pronounced bias in the selection of reported news or the way it is reported would be noticed right away. The influence of the daily press is more subtle, and tends to be more pronounced among commercial clients, who read their newspapers before going to work, than among traders who are more concerned with immediate issues. Insofar as the reporting of foreign exchange developments in the press is concerned, it is past history for the traders and relates to something which is no longer of concern. Another important factor in the markets is the technical analysis community which distributes daily its projections based on its models. Since a large segment of the foreign exchange community pays close attention to technical analysis, projections of new trends, especially among the services that are well subscribed and have large clients, are considered important.

The efficiency of telecommunications is such that market participants have the means to be as well informed of what is happening all over the world as any press or government agency. No one has the edge over someone else in the market in that sense. How participants interpret the news they receive, or how closely they read the news, are what often make the difference between those who are better informed and those who are not.

## IMPACT OF FOREIGN EXCHANGE DEVELOPMENTS ON DOMESTIC ECONOMIES

For a very long time, to the irritation of their European allies, American administrations paid only scant and occasional attention to the foreign exchange markets. The American rationale was that if rate fluctuations affected other countries, it was their problem and not that of the United States, whose dollar was the center of the system and therefore immune to fluctuations. Moreover, it was not felt that foreign exchange developments had any particular influence on the U.S. economy beyond the export sector.<sup>27</sup> Even there, the emphasis was more on trade negotiation than on rates of exchange, at least until the Carter administration. It was only in the late 1970s that the Federal Reserve for the first time changed its monetary policies because of international considerations for the first time (although it never admitted it), but it was more moved to act because of financial concern than because of economic considerations. This attitude of benign neglect has changed somewhat -- perhaps not to the extent that the U.S. Treasury would be prompted to ask the Fed to intervene in the market routinely, but at least to the extent that it is now realized that rate levels do have an impact on the U.S. economy, as Figure 21 summarizes. The American public has been made somewhat aware of the influence of foreign exchange rates on jobs and on inflation, even though there are vast areas of differences in estimating this influence in quantitative terms.

Consumer Prices	The price of all imported products is directly affected by currency fluctuations in most countries. A significant proportion of consumer goods are imports.
Employment	Inflation and export competitiveness may have a strong influence on employment in the export sector. Import competitiveness impacts on domestic production.
Export Sector	The behavior of the home currency in international markets is an important factor in determining the growth and competitiveness of exports.
Inflation	Import prices have a great influence on the level of inflation.
Interest Rates	Foreign exchange influences monetary policies and therefore interest rates.
Investor Confidence	Patterns of savings and investments in the domestic economy are affected by the degree of domestic and international confidence in the home currency.
Leisure and Tourism	Patterns of tourism can be directly influenced by currency fluctuations.
Monetary Policies	International capital flows and to a lesser extent central bank interventions may influence domestic money supply and therefore monetary policies.
Wholesale Prices	Staples and raw materials, from food to oil and steel, are major imports and subject to price fluctuations because of currency changes.

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Figure 21

### How Foreign Exchange Affects the Economy

#### Comparative Prices and Inflation

The most obvious way in which currency rates impact an economy is in the price structure of domestic products vs. the same imported products. When the latter become more attractive because the currency of their country of origin has been debased against the domestic currency, this adversely impacts the production of that domestic product with a result of lower profits for the manufacturer and potential unemployment if the manufacturer has to cut production because he is not selling well. On the other side, the lower price of the imported

product benefits the consumer and has a positive impact on inflation, and it also forces domestic competitors to keep their prices low in order not to lose more share of the market. In the same manner, export industries who operate on relatively slim margin because the elasticity of demand for their products is high are directly impacted by currency fluctuations. In the case of an appreciating currency, the profit margin must often be cut in order to retain some competitiveness, with the result that the exporter suffers. The opposite is true in the case of a depreciating currency, where the exporter is given an extra profit margin. A rise in imports resulting from currency appreciation tends to benefit the service industries who market and distribute the imported products.

In the longer run, however, inflation differentials, especially as they relate to productivity, tend to negate these trends, as low inflation is a usual characteristic of countries with strong currencies. And factors other than foreign exchange rates also figure in the changed performance of an imported or exported item, because marketing and advertising also play an important role.<sup>28</sup> In addition, in countries other than the U.S. the level of the dollar is extremely important because major commodities are priced in dollars -- especially oil. The fall of the U.S. currency in the 1970s enabled the Europeans and Japanese to absorb the oil price increases much more easily than the Americans did. Inversely, they have not benefited as much from the general decline in commodity prices in recent years because of the high dollar.

### International Impacts

Beyond the visible impact that currency fluctuations have on inflation and economic activity, there are more indirect consequences that influence the policies of importers and exporters. Countries who are big importers of raw materials and exporters of finished products find a way to counterbalance the impact of currency changes on their inflation by reexporting this inflation, which they usually manage to do because in general the prices of commodities and the level of the dollar tend to move in inverse directions. Thus, countries such as Germany and Japan have managed to live with unstable currency levels, although in the case of Germany exports of low-priced cars have just about disappeared because of increased Japanese competition. Although the high dollar has been blamed for the record trade deficits incurred by the U.S. since 1983, the argument is somewhat weakened by the fact that U.S. exports have not dropped to any great extent, in spite of the sharp import cutback by Latin American countries because of the debt crisis. Likewise, the high level of competition offered by foreign products in the U.S. can be traced sometimes to the comparative productivity of the foreign manufacturers in contrast with their American counterparts or to unfavorable terms of trade that have nothing to do with exchange rates. It should be noted in this respect that the prices of Japanese cars in the U.S. went up sharply back in the late 1970s when the yen was appreciating against the dollar, but never went down when the yen weakened.

Any country whose GNP depends more heavily on international trade will pay closer attention to the foreign exchange markets. A perfect case in point is Switzerland, where trade accounts for more than 50% of the Gross Domestic Product. The export industries have always been a

powerful lobby against excessive upward fluctuations of the franc, especially against the mark because West Germany is Switzerland's major trading partner. The Swiss authorities have always considered a stable exchange rate of the franc vs. the mark as essential to the economic well being of their country.

#### Policy Impacts

Because of the impact that exchange rates have on trade, countries have been tempted to manipulate them in order to achieve results that they considered desirable. Two types of policies emerge: the first is competitive devaluations, which are closely related to "beggar thy neighbor" policies. The rationale for such attitudes is that in order to make exports more competitive and to make imports more expensive -- and therefore less attractive -- one's currency should be debased against that of one's major trading partners. The result, presumably, is a redressment in the balance of trade and by implication in the balance of payments. Usually, such policies are accompanied by high interest rates, which are supposed to attract foreign capital while deterring domestic outflows. Such policies rarely work, because while imports become more expensive -- and adversely impact on inflation -- they do not necessarily come down, while inflation usually eats up the competitiveness gained in exports.<sup>29</sup> More important, foreign capital is never attracted to currencies that are devaluation-prone, in spite of the apparent attractiveness of prevailing interest rates, and domestic capital can be prevented from flowing out only through restrictions or because internal conditions become such that it has to be repatriated. Governments have found in the past that devaluations become a never-ending process.

Other countries have found it more advantageous to maintain a strong posture with respect to the level of their currency in international markets. They are willing to put up with the problems that a high exchange rate poses with trade because of the benefits that arise from lower inflation and a favorable level of capital flows. The U.S. Treasury discovered the benefits of having a strong currency in 1984, when foreign capital inflows allayed fears that its needs for money to finance the budget deficit would "crowd out" corporate borrowers and thus lead to higher interest rates.

Since the mid-1970s, the majority of foreign exchange transactions have been related to capital flows rather than to trade; in the mid-1980s, the proportion according to some is roughly nine to one.<sup>30</sup> Therefore, foreign exchange has a strong impact on many aspects of a country's monetary posture. In the case of a currency perceived as strong, foreign demand forces more growth in money supply in order to accommodate that demand and tends to have a downward impact on interest rates since there are presumably more lenders than borrowers. Inversely, capital outflows create a situation where a central bank absorbs big amounts of local currency and therefore creates a scarcity of funds, with the result that interest rates are pushed higher.<sup>31</sup> In theory, under a floating rate system a central bank has no obligation to intervene in order to accommodate demand, but when the monetary policies of a country are threatened by developments in the foreign exchange market most central banks find that they are obligated to take action. In Western Europe, member countries of the European Monetary System must intervene whenever certain exchange rate levels between member currencies are reached, regardless of whether it suits them.

Since the 1960s countries have come to rely increasingly on external markets to finance their deficits, because of two factors: the continued liberalization of capital markets and the growth of external -- Euro -- markets. Also, in many cases growing deficits have challenged the ability of many domestic markets to provide sufficient funds for their financing. As a result, foreign exchange developments have had an increasing impact economically because of fiscal considerations. For instance, those countries who have borrowed substantial amounts of dollars have found their debt servicing enormously increased because of the appreciation of the dollar against their own currency, a factor which has contributed to the rise of the dollar in recent years. This increase has been extremely painful in the case of countries who were at the same time experiencing capital outflows and who had to rely increasingly on external markets in order to finance their deficits. Such countries range from underdeveloped ones such as Bolivia to industrial powers such as France. On the other hand, the United States has greatly benefited from the high dollar by attracting large amounts of foreign capital, which has permitted the huge deficits to be financed without forcing the Treasury to crowd out other U.S. borrowers. In a world where capital can move rapidly from one center to another with a minimum of regulatory problems, the health of the domestic capital markets -- and therefore the ability of governments, corporations and individuals to have access to credit -- depends upon the behavior of one's currency in the foreign exchange market and the market's confidence in it.

OFFICIAL INTERACTION WITH FOREIGN EXCHANGE MARKETS:  
INTERVENTION, REGULATIONS, RESTRICTIONS

Central banks have been a major presence in the foreign exchange market in terms of the influence that they wield and the size of their transactions. The roles that central banks can play in the markets are varied. They can act, as any other financial institution, on behalf of their clients, and in this respect they are not different from commercial banks. In certain cases, they actively manage their foreign exchange reserves, which again is a role that other institutions assume in the market. The difference is that central banks are managing substantially larger amounts than are most institutions. However, it is in their role as central banks, entrusted with the responsibility for managing the money supply, that they assume their highest profile.

Not all central banks have the same scope of responsibility in the management of a currency in the foreign exchange markets. In fact, in most cases, the central banks are acting as agents for their respective governments and therefore act on orders from the ruling government or administration. This state of affairs tends to restrict the ability of central banks to act in the manner that they would deem to be best, and often subordinates them to matters of political expediency. This in turn leads to conflicts between central banks and governments. The latter always win but the resulting ill feelings are not conducive to the efficient implementation of their policies. Such situations have existed in the U.K. a number of times, most notably under the premiership of Harold Wilson and in the early part of the Thatcher

government. They have been prevalent in France in the first two years of the Mitterand presidency.

Among the central banks who have been significant market participants are those of the major industrialized nations whose currencies are the most commonly traded on foreign exchange markets: in Asia, the Bank of Japan; in Europe, the Bank of England, the Banque de France, the Deutsche Bundesbank, the Banque Nationale Suisse, the Banca d'Italia, the Nederlandsche Bank, and the Banque Nationale de Belgique; in North America, the Federal Reserve Bank of New York and the Bank of Canada. All these institutions have had -- and for the most part continue to have -- a major role in coping with problems of exchange rate fluctuations.

In most countries, to the extent that foreign exchange is considered extremely important in terms of its impact on domestic economies, central banks keep a close eye on what goes on in the market in order to be prepared to act if certain situations that are deemed undesirable develop. Although there are great differences in opinion and policies among the various central banks, all agree that when the markets cease to function with a minimum of efficiency they have to take action to remedy the situation. The best known instance of such concerted action took place on November 1, 1973, when most of the major central banks intervened in the market to prop up the dollar. In truth, such international agreements are extremely rare and occur only when the very fabric of the international financial markets seems to be unraveling. Under more ordinary circumstances, national interests tend to prevail and lead to real, if unpublicized, clashes. For instance, when the European Monetary System has had to undergo realignments, there

have usually been sharp differences of opinion among the members as to who must devalue, who must revalue, and by how much. This disagreement may be due, of course, to the policies of the various governments involved, but each central bank has definite ideas as to who bears responsibility for existing problems and who should sacrifice the most: usually the other countries.

### Intervention

Fundamentally, two questions confront central banks: Should they interfere with the markets in order to correct situations that they deem undesirable, and does intervention work? Chairman Volcker tried to answer both questions a number of times by stating that the most effective way to deal with emerging foreign exchange problems was through domestic policies. This is very nice in principle but it presupposes that countries have an independence from outside events that in reality they do not have. Too often, domestic policies are dictated by circumstances that are outside the direct control of the country involved, such as the rise in energy prices in the 1970s.

To intervene or not. The first question is not an easy one to answer, because intervention by itself does not redress fundamental problems, but it does serve a purpose, if only a short-term one. It often provides some breathing space. The most compelling argument in favor of intervention is that it puts a rein on market activities and serves to remind participants that the central bank is aware of what is going on. In extreme circumstances, it may prevent chaos or at least extreme disorder: The case that comes to mind is again that of November 1, 1978. Clearly, intervention is not a panacea and will certainly not compensate for other problems that may be the result of policies that

the markets do not trust or like, but the fact remains that if a country wants to have some form of control over its currency, internationally as well as domestically, it cannot forsake intervention as a policy tool.

Does intervention work? The second question -- does intervention work? -- can be answered only in the context of the goals that interventions are supposed to achieve. In the absolute, it stands to reason that no amount of cajoling or coercion will force investors to go into a currency that they dislike, unless the reasons for this dislike are removed. From that standpoint, intervention is useless and can even be counterproductive, since it may provide the funds that are desired by market participants at better levels than would otherwise be attained. Realistically, if a currency is under strong downward pressure it is better to give way to devaluation and get it over with fast rather than resist and allow pressures to build, which usually means expensive losses of foreign exchange reserves (expensive because they are replenished later at higher prices) and loss of face for the government and the central bank when the market finally has its way. On the other hand, fighting a rear-guard action may be useful, and even desirable, if the impact of the pressures on the currency spills over other sensitive areas of the economy or endangers the well being of other financial markets.

A moderating force. Intervention is most useful when practiced as a moderating force in markets that are getting carried away. Such intervention can achieve two goals: It makes market participants remember that fluctuations are a two-way risk, and it gives market participants a healthy respect for the central bank, thus allowing central bank policy to exert greater influence. The result is that the

authorities are given breathing room and are not forced to act always under pressure. Thus, any policy of intervention must have well-defined and realistic goals and should be designed to address itself to a short-term problem.

Realism means that at the onset the intervention must have a good chance to succeed. A typical example of such a form of intervention is that of the German Bundesbank in the early fall of 1984. Faced with a rapidly rising dollar, the German authorities came to the conclusion that the movement was assuming panic proportions and had the potential of becoming self-feeding if it were not stopped. They allowed the dollar to rise by almost 10% in about three weeks, then came into the market (i.e., intervened by selling dollars) when trading had become thin, and surprised everybody. They did not have to sell too many dollars, as panicky traders did it for them. The immediate result of their action may have been total disorder in the market, but the outcome was a reevaluation of current conditions by traders who had become a bit more sober as the result of their experience. From the standpoint of a trader who got caught on September 21, this was indeed "black Friday," but it turned out to be like a slap that puts a hysterical person in a cooler mood. Notwithstanding the fact that such a reaction would in all likelihood have occurred in time, prompted by the market itself, it is probable that the action of the Bundesbank was in the longer run helpful to the market (although it did not stop the dollar from eventually going to higher levels).<sup>32</sup>

Types of intervention. The most visible form of central bank intervention is open market operations where the bank deals either in the spot market or in the forward outright market.<sup>33</sup> Depending upon

whether it wants to keep a low profile or achieve high visibility, a central bank has the choice of using one or several banks as agents or directly conducting its transactions. In the first case, the central bank will call one or several banks and give them precise instructions as to how the intervention is to be carried out. It may leave it to the banks to do the business under general guidelines or may request that each transaction be done in a specific manner. In the second case, the central bank may either call on commercial banks for markets or tell the market that it stands ready to do business at certain levels. It can also use brokers, directly or through another bank. Finally, it can call on other central banks to act as its agents, if it wishes to intervene in other markets. There has been in the past an unspoken agreement that one central bank would generally confine itself to its own market when intervening, or call on other central banks for intervention in other markets. On those occasions when one central bank intervenes directly on the marketplace of another, it creates ill feelings, and justifiably so.

Intervention in the spot markets is very direct. The central bank buys or sells one currency against another for delivery two business days hence.

When central banks do not want to expend reserves immediately, they intervene on a forward outright basis, which means that they buy and sell for a delivery date beyond the spot date. The maturity may be one week, but it can also be as much as six months -- although in general it does not go beyond three months. Besides the fact that it pushes away in time the obligation to deliver and receive, a forward intervention may be of use to the central bank because it may impact short-term

interest rates. For example, if the Bundesbank intervenes to prop up the mark by selling 1 billion dollars and buying 3 billion marks with a three months' maturity, it will effectively have removed 3 billion marks for the next three months: The banks from whom it buys the forward marks are likely to buy back marks in the spot market to cover what they have done with the Bundesbank, thereby doing a swap operation (buying spot marks and selling forward marks) equivalent to borrowing marks and lending dollars. The result is upward pressure for German interest rates. If the Bundesbank so desired, the intervention could be "sterilized" (that is, any impact on domestic money supply would be negated) by a domestic repurchase agreement where the central bank would provide 3 billion marks for a period of three months. Another reason why a central bank may decide to intervene through outright forward transactions is that such action will not be reflected in the published foreign exchange reserve figures until the transactions mature. Consequently, the amounts will not be revealed to the public. For those countries who do not have the necessary foreign exchange reserves to allow intervention in large quantities, there are a variety of swap agreements among central banks where they can lend currencies to each other for various periods of time. (Such an agreement was extended by the Fed to the Banco de Mexico a few years ago.) During the late 1970s, the Federal Reserve made extensive use of its vast network of swap agreements because neither it nor the Treasury had sufficient foreign exchange reserves to sell to the market.<sup>34</sup> Another such network exists within the European Monetary System.

Whenever a central bank engages in intervention in the market, it is to counter a prevailing condition, and therefore it pits the central

bank against the market forces. While traders may have totally different views from those of central banks with respect to the reasons and goals of intervention, the form which intervention takes forces the central bank to be market-oriented in order to achieve some result.<sup>35</sup>

Intervention rules. There are rules that central banks have to follow if they wish their actions to meet with results. The first rule is that a central bank should not be predictable. In the game of cat-and-mouse that pits the market and the central banks against each other, the latter are at a disadvantage if they are outguessed. The second rule is that it should be flexible and should adapt itself to market circumstances -- be prepared to do more in a heavily traded market, and be more light-footed in a thin market. Ideally, intervention should accomplish maximum effect with minimum of means, but another corollary is that effectiveness is in proportion to the element of surprise. If the market expects the central bank to intervene at a certain level, and that is what happens, then the market will use the intervention as a crutch for its own purpose. This may sometimes suit the central bank but may also turn against it. At its least effective, intervention when the market discerns that the central bank has been beaten and retreats is extremely counterproductive. Not only does it exacerbate the current movement, but it causes the market to lose respect for the central bank, which is an important psychological loss.

There are times when intervention is not feasible. Capital flows can grow to enormous proportions. The experience that the Bundesbank had back in March of 1973 when it opened shop one morning and was flooded in one hour with more than 1 billion dollars could easily be dwarfed today. Further, in order to intervene effectively a central

bank must have the means to do it; that is, it must have ample foreign exchange reserves on hand and be ready to commit large-scale amounts. And even though official statistics are not very meaningful, the market is usually aware of the order of magnitude of means that a given central bank has at its disposal.

### Interest Rates

If intervention fails, the second line of defense for the central banks is interest rates -- especially short-term rates. A central bank hopes to achieve a situation in which financing a short position becomes so expensive that it is no longer worthwhile. In other words, those who sell a currency short must finance this sale. They fund themselves in the short-term markets, especially when they expect the currency to depreciate soon. Rising short-term rates make such financing costly. The use of the "bear squeeze" consists in driving short-term rates to dizzying levels, but this can be done effectively only if domestic rates are insulated from external rates, because a sharp rise in short-term rates can have a serious impact on an economy, if it is done for more than a very short period of time. The most recent, and most extreme, example of a bear squeeze occurred prior to the last EMS realignment in 1983, when overnight eurofranc rates went up to 5000% as the Banque de France suddenly and systematically drained the short-term Eurofranc market.

### Regulations and Restrictions

Regulations and restrictions are a longer-term way for the authorities to fight off pressures. Controls encompass measures that are designed to counter market forces. For instance, a common way to fight leads and lags consists in forcing exporters to sell their foreign

exchange receipts as early as possible and making importers delay the purchase of needed foreign currency as late as possible. In effect, this transfers the burden of currency problems from the central bank to the exporters and importers, which is of course not very useful for the economy. Another commonly used regulation forces travellers to take with them a minimum amount of currency. In democratic countries, this type of measure is extremely unpopular since it indirectly restricts travel abroad. It is also impractical because a great deal of foreign travel is done for business reasons.

A few countries have attempted to cope with problems of capital flows while trying to protect importers and exporters by creating a two-tier exchange rate system. Such a system allows the currency to be traded at different levels, depending on the nature of the transaction. It involves a great deal of controls and paperwork, and of the three European countries that tried it -- Italy, France, and Belgium -- only Belgium still retains it. Another way to deal with capital flows consists in insulating the domestic financial markets from the external -- Euro -- markets. This can be done by forbidding residents to lend to non-residents and by not allowing resident banks dealing with non-residents to sell the local currency in the spot markets and to buy back the forward in the swap markets. Such a measure allows money to flow in but does not let it flow out -- legally. The French still have such a regulation on their books. Likewise, the Danes allow swaps with non-residents beyond a small amount only if such operations are supported by commercial documents. The Italians have similar regulations as those of the French with respect to swaps, but only for short-term swaps.

While we may think of regulations and restrictions only in terms of currencies under downward pressure, problems that derive from excessive appreciation also create conditions that force central banks to act. In the mid-1970s, the Swiss and German economies were faced with inflows of such amplitude that they would have created havoc with their money supply. As a result, both central banks took measures to sterilize these inflows by first restricting investment opportunities for non-residents and second by either imposing a negative-interest charge -- where non-residents had to pay interest to deposit money in those two countries -- or by forcing the banks with whom these capitals were deposited to place them interest-free with the central bank. In the case of Switzerland, the negative interest charge for amounts in excess of certain quotas in non-resident accounts was 40% per annum. In addition, the Swiss introduced swap restrictions similar to those of the French and Italians, but of course on the other side -- restricting swaps where residents would buy the spot Swiss francs and sell the forward to non-residents, thereby making the ownership of Swiss francs by foreigners that much more difficult, since they could not keep them on account, because of the negative interest rule, or swap them out.

Regulations can take many more forms. Governments may use tax laws to encourage or discourage outflows or inflows, and they may make use of new accounting rules. In general, the introduction of regulations is a rear-guard action to try to circumvent existing conditions and as such these regulations are not very effective; in many cases they are akin to closing the proverbial stable after the horses are gone.<sup>36</sup>

# PROBLEMS OF FORECASTS VS. REALITY

Nothing can better illustrate the changing nature of the markets than the behavior of the dollar in 1984 and how that behavior differed from what had been widely expected.<sup>37</sup> The U.S. currency had already come a long way from the lows reached between 1978 and 1980. Against the mark, the dollar stood at DM2.80 at the beginning of the year, a smart recovery from the 1980 level of DM1.75. It had performed equally well against other major currencies such as the Swiss franc, the yen, and the pound.

The consensus among experts was that the dollar had gone up too far and sometime in the spring would begin to drop. In fact, many predicted that the drop might be severe in view of what they considered the excessive appreciation of the dollar. Among the major arguments cited for such an outlook were the growing U.S. trade deficit and the projections of a huge current account gap, and the probability that the Federal Reserve would have to ease its monetary policies. The latter was predicted not only because the economy would slow down but more importantly because high interest rates, by increasing the burden on debtors, were jeopardizing any hope that the international debt problems would be contained. There were serious questions about the viability of the U.S. banking system and whether it could withstand the burden of foreign bad loans. The large capital inflows and the waves of foreign investments would not keep the pace of 1983 and sooner or later foreigners would take their profits.<sup>38</sup> One of the major arguments was that the shadow cast by the budgetary problems and the inability of either the administration or Congress to do something about the huge

budget deficit would create uncertainty and distrust for the U.S. There were also political uncertainties because of the upcoming presidential elections.

Almost 10 months later, most of these arguments were still valid and were still being used to forecast what would happen to the dollar, but the dollar was higher. In the meantime, after a period in February-March when the U.S. currency had undergone some strong downward pressure, it had come back with a vengeance, then had settled back again as the Continental Illinois problems hit the markets, and finally had roared back to hit its highs for the year in the period between Labor Day and the middle of October.

#### The Importance of the Unexpected

There is no doubt that one of the main reasons why the dollar performed so well is that few expected it to do so. Corporations and investors had prepared strategies that would take into account a drop of the dollar, and had to revise those strategies when this did not take place. The performance of the dollar in September, when it rose strongly and hit new highs for the year, probably resulted in part from such strategy shifts.

With the benefit of hindsight, it must be recognized that certain events that took place during the year could not have been foreseen, yet had a great influence on the course of rate trends. One such event was the metalworker strike in Germany, which shook strongly the international confidence in the mark and provoked a great deal of second thoughts about the sociopolitical climate of the Federal Republic. Another development was a lopsided U.S. presidential campaign in which the Democratic candidate never was given a chance, thereby erasing the

element of political uncertainty. Finally, the U.S. economy performed far better than had been anticipated and the Federal Reserve did not change its basic monetary stance, even when Continental Illinois' problems seemed to make an easing almost mandatory. The international debt crisis appeared to be contained as deadlines for interest payments and reschedulings were met with a minimum of suspense, and there were no major strains in the fabric of the international financial markets.

The question then is: Did the intervening events change market conditions, and therefore was it impossible at the beginning of the year to predict what would take place later on? The answer must be an unqualified no, since as late as June there had been no fundamental change in the way experts were forecasting the dollar's near-term future. In fact, factors that turned out to be in favor of the dollar were not much different from events that had taken place in earlier years. For instance, it can be claimed that the metalworkers strike did to the mark in 1984 what the crisis in Poland had done in earlier years.<sup>39</sup> As far as the direction of the U.S. economy or the Fed's monetary policies, both had been wrongly guessed before.

#### Intuitive, Empirical

If one were to use the models or standards that traditionally were the tools for longer-term forecasting, the results would have no relation to reality. Everyone now realizes that, but no one has come up with a better system; in the meantime forecasting remains intuitive or empirical rather than an exact science.<sup>40</sup> For years, many market observers have fallen into a trap by thinking that forward prices are the reflection of market expectations, and that they indicate in some ways where rates are going. Technically, forward prices -- as opposed

to spot prices -- are a function of four variable factors: the spot price, the time period, and the rate of interest carried by each of the two currencies whose ratio makes up the spot. Consequently, the calculation of a forward price is simply the ratio that results from owning one currency (and investing it) for a given time period and borrowing the other (and financing it) for the same time period, each principal amount of currency being determined by the spot rate. Naturally, one can make a case that yield curves do reflect to an extent market expectations, but in the current environment interest rates are primarily influenced by the central bank's monetary policies and external rates -- which are rates on which forward markets are primarily based since they are unencumbered by domestic considerations such as reserve requirements and taxes -- are still determined by their domestic equivalents.

To stretch a point, if the course of exchange rates was purely determined by a comparison of economic performances, and if these performances were reflected in lower interest rates for the stronger economies and higher interest rates for the weaker ones, forward rates would be trend indicators, although not necessarily perfect ones since the trend of exchange rates could not possibly coincide with interest rate differentials between countries.

In reality, one can find no correlation between forward rates and exchange rate trends. As a point of fact, since German and Swiss interest rates, among others, have been consistently lower than U.S. rates for the past couple of years, forward marks and Swiss francs have continuously been at premiums over their spot prices, presumably -- but quite falsely -- indicating a lower dollar.

PART IV

MANAGEMENT OF FOREIGN EXCHANGE RISKS



## IDENTIFYING AND DEFINING THE RISKS: LINES AND LIMITS

Anyone who needs to buy or sell a foreign currency for any purpose incurs a risk associated with the fluctuations of that currency. An American tourist on his way to Europe may debate whether he should buy his French francs right away or wait until his departure. The difference in timing may mean a meal at a Paris three-star restaurant. For the earnings of an importer of German cars, the proper cover of his mark obligation may end up being as important as his markup. The American investor who purchases Japanese bonds cannot estimate his real return until he has reconverted the yen into dollars. They all incur a foreign exchange risk, as does a trader who takes a position based on his market views or who is saddled with some client business.

In a fixed rate environment, the exchange risk can be more easily quantified than in a floating rate world. Rate fluctuations are limited by rule to fairly narrow bands, usually about 5% or less. The catch, of course, is that devaluations or revaluations do take place. Also, the rules of the game can be quickly changed. One such occurrence took place in 1970 when the Canadian dollar was under strong upward pressure. Many traders were taking short Canadian positions on a forward basis because the price was above the ceiling -- the top permitted level -- in the hope that they would buy the currency back cheaper when it came into spot. This worked fine until a weekend when the Canadians decided to let the dollar float upward.

Parity changes in fixed rate systems do not take place without warning, but the circumstances may not be what the markets expect, since the final decision and the mechanics of devaluation or revaluation,

while prompted by economic or financial reasons, are usually made with political considerations in mind.

Parity adjustments have run from minimal 2 or 3% changes to 10 or 15% among the major currencies, but there have been instances of maxi-devaluations of 25% or more.<sup>1</sup> In most cases, even before the formal changes, market conditions make it expensive to take defensive measures when a currency undergoes pressures. The cost of financing a position often turns out to be as high as that of not doing anything. In other words, the only effective way to hedge an exposure in a currency that may revalue or devalue is to do it before the pressures start. For instance, back in 1967 the British pound was under attack, and toward the end of the year the feeling mounted that the pound, at a parity of \$2.80, would have to be devalued. Consequently, those who owned pounds sold them and many who were foreseeing a devaluation sold the pound short,<sup>2</sup> financing these short positions through short-term and medium-term swaps. Suddenly, the Bank of England increased dramatically the levels of short-term rates and the cost of financing a short position became prohibitive: Rates ran as high as 400% per annum per day. The pound was finally devalued, from \$2.80 to \$2.40, but for many the gains made through the exchange rate change were wiped out by the financing costs. Of course, those who had sold pounds that they had were not hurt, but they had forsaken the possibility of earning high interest in the deposit markets. Needless to say, until the last moment the British authorities had repeatedly contended that the pound would not be devalued. That is not to say that governments act out of duplicity. More than likely, they did want to hold the parity but at

the end had to realize that it could not be done, or that doing so would be too expensive a proposition.

#### The Certainty of Uncertainty

There are several lessons to be drawn from this example: First, even if some change seems certain to occur, taking a position with a view that it will occur does not guarantee a profit. Second, governments are often as uncertain about the future as anybody else, and even if they know that something is about to happen, they are not likely to advertise it. Therefore, their public announcements should never be taken as absolute truth. Third, things look certain only in retrospect. It is easy to second guess with hindsight, but the factors that lead to most events are never inevitable, at least in the way things eventually happen. The 1967 sterling devaluation could have taken place a month earlier, or a month later, under different circumstances. Under a multilateral system such as the EMS, things are complicated by the fact that decisions are made by several nations and that the process of realignment involves delicate negotiations where national interests come into play. Naturally, when the decisions have to be made under pressure, as they usually are, the process becomes even more involved.

#### The Foreign Exchange Risk

Before the advent of floating, the foreign exchange risk, i.e., the potential for change of a currency over a period of one year, was commonly estimated at 10% of the face value of the exposure -- something very manageable. All this changed by 1971, as pressures for changes brought more realignments. As volatility increased, so did the foreign exchange risk.

Today, it is no longer possible to put a percentage value on volatility or potential for change, because rate movements are not only much wider but also more unpredictable. Daily fluctuations of 1% are common, not necessarily in the same direction, and trends are often confused, even with hindsight. For instance, the year 1984 has been described as a period of strength for the dollar, and yet the average rate of about 2.80 marks per dollar in January was not regained until July, and in the meantime the dollar plunged to below 2.60 marks in March. A sharp rise from 2.90 marks in early September to a high of 3.17 marks by September 21 compares to a fall from 3.07 marks to 2.93 marks in the last week of October. In percentage terms, the dollar dropped between January and March by almost 12%, then rose back by the same 12% until July, continued to climb by another 12% to its high of September 21, dropped by 4% on the same day, and dropped again by 6% in the last two weeks of October. In combination, the major changes total almost 50%. This, of course, does not take into consideration the daily zigzags and other short-term fluctuations. It is therefore not an exaggeration to consider the foreign exchange risk as a risk that can be as high as 50% of one's exposure, even for as short a time span as six months, if that exposure is actively traded.

Position limits. In recognition of the exchange risk, trading rooms are provided with position limits that they are not supposed to exceed, in addition to the regulations that may be imposed in certain centers by the authorities. The limits are imposed by management and are intended to be consistent with the bank's trading activities. In principle, limits have to be such that they protect the bank against excessive losses, but at the same time allow the traders to do their

business without undue constraints.<sup>3</sup> Trading limits vary widely. Most banks have "overnight" and "intraday" limits. The first are the maximum positions that can be carried at the end of a trading session, and the latter are the maximum positions that can be held at any time. Limits may be flexible in terms of individual currencies, or they may be rigid. For instance, a bank may have a position limit of \$50 million, which may be taken in any currency or currencies, while another bank with the same total limit may only have individual limits of \$10 million for five major currencies. Limits can be gross (all the exposures added together) or net (the exposures added algebraically) depending on how the risk is being viewed. For instance, a bank may view a long mark-short Swiss position for a similar dollar equivalent as a minimal risk, since the dollar exposure is nil, but such reasoning can be dangerous since presumably the traders could take very large-scale positions. Foreign exchange limits do not guarantee greater profits, nor are they an insurance against losses. Trading entails risks whenever positions are taken, and limits can only make the risks manageable.

#### Interest Risk

When a currency exposure is held for more than one day, interest rates have to be taken into consideration, because the position has to be financed. (Funds are borrowed in the case of a short position, and lent in the case of a long position.) In the past, interest rates in the major financial centers were generally quite stable and yearly movements of 1% were considered sizeable, but since the mid-1970s and especially since 1979, interest rates have been extremely volatile and prone to unexpected turns. Consequently, the interest risk, which was

considered minimal for a long time, has to be taken into consideration as a potential risk, the more so since forward positions are affected by two interest rates rather than one. In the early 1980s, this factor has been mitigated by the fact that on balance interest rates have tended to move in the same direction, a result of the importance that U.S. rates have assumed since 1979, but at times the interest rates of major currencies have moved in opposite directions, thereby creating wide swings in swap rates. To exemplify the interest rate risk, consider that a 1% change in interest differentials on a six-months swap means a profit or loss of \$5000 for a \$1 million position. A forward position of \$100 million is usually considered modest. There are other considerations, since sharp changes in spot rates also have an impact on forward rates.

Limits. Limits on forward transactions are similar in intent to the foreign exchange limits discussed above, but are more generous because it is generally felt that the interest rate risk is much more manageable than the foreign exchange risk, and because a swap exposure is different in nature from a spot exposure, since swap changes, while partially caused by spot fluctuations, depend much more on interest rate movements.<sup>4</sup> Also, limits on forwards have to be somewhat more flexible than spot limits since the transactions remain on the books for longer periods of time.

#### Credit Risk

The third risk incurred when trading in foreign exchange is a credit risk. A foreign exchange transaction is a contract, usually a verbal one at first, but later confirmed in writing. The confirmation stipulates that on a specified date, both parties to the contract will

deliver to each other specific amounts of currency in designated banks for the account of a specified beneficiary. The risks associated with the contract, assuming that all the stipulations have been agreed to by both parties concerned, are that one counterpart may be unwilling or unable to execute his side of the contract before the due date, or on the due date. Failure of execution -- not considering late payments or wrong deliveries, which can be settled through the payment of overdraft penalties -- usually arises as a result of involuntary occurrences, such as bankruptcy or government regulations.

The risk associated with defaulting on a foreign exchange contract is a credit risk, because each party makes the delivery of currency on the due date in good faith, assuming that the other party is doing the same thing. In most cases involving interbank transactions, no guarantees or collaterals are required. As such, the credit of each counterpart in a foreign exchange transaction is reviewed by a bank's credit officers.

#### Delivery Risks

There are two distinct risks associated with default on a foreign exchange contract: The first occurs when the failure to deliver is known before the due date of the contract. In that case, the risk becomes a foreign exchange risk since the contract that has been voided by the default must be replaced at current rates<sup>5</sup> or at some future time between the default announcement and the original due date. In such situations, the injured party does not necessarily incur a loss, since prevailing exchange rates may be more favorable than the initial contract rates, but in cases of bankruptcies, judicial considerations may hinder the collection of extra profits. The second delivery risk

occurs when failure to deliver is not known before the delivery date and one party executes the contract but gets nothing in return. This is sometimes known as the "Herstatt risk," in reference to the notorious bankruptcy of a small German bank in 1974. This bankruptcy was declared during business hours in Frankfurt, after many banks had made delivery of funds that were due under foreign exchange contracts. The bank did not honor its side of the contracts, and it took a long time for the injured parties to recoup their money.

The default on a contract on the delivery date can result in a loss of capital -- in fact, loss of the whole face value of the contract -- in addition to the foreign exchange risk. Therefore, the transfer risk, as the Herstatt risk is usually known, is a capital risk, similar to a default on a loan. Time differences can aggravate the risk or alleviate it. If the default is known before a payment is made, the payment may be withheld. For instance, in the U.S., payment orders on foreign currencies to Europe and Asia are sent one day before the U.S. dollars are received. However, dollar payment orders can be sent after the opening of the same business day in Europe and Asia. This means that a greater risk is incurred when currencies are sold against dollars than when currencies are bought against dollars. One practical way to avoid a transfer risk when there are uncertainties as to the honoring of a contract is to withhold payment until proof of receipt is obtained. At worst, this will result in a late payment charge.

Besides the Herstatt case and a couple of bank failures, such as the Luxembourg subsidiary of Banco Ambrosiano, there have been few instances of losses as the result of defaults. This is due in no small part to the efficiency of the credit departments of the banks and also

to the markets themselves, where a close watch is always kept on potential problems.<sup>6</sup> (Franklin National bank was a notable exception because the Federal Reserve Bank of New York assumed responsibility for the settlement of outstanding foreign exchange contracts.)

Sovereign Risk

Another risk that must be assessed is the sovereign, or country risk. There is always a possibility that a country may suddenly regulate outgoing payments or settlements of outstanding contracts. If such occurrences were to take place, there is little that one could do for protection. Consequently, traders should be given guidelines for dealing with particular centers.

## COPING WITH RISK: HEDGING STRATEGIES

Unlike banks and other financial institutions who make a living by taking foreign exchange positions, companies who are facing a foreign exchange risk have to take measures to keep this risk within manageable proportions or to eliminate it entirely.<sup>7</sup> Their strategies have a major impact on the foreign exchange markets.

The simplest possible hedging policy that a corporation with foreign exchange exposures can have is to settle when the bills are due. This may have been a plausible strategy in the days when rates were stable, but in the current environment it leaves the corporation totally defenseless against currency fluctuations, a choice which is clearly unacceptable. Rather than adopting such passive attitudes, those who incur a foreign exchange risk must try either to neutralize it or to turn it to their advantage if possible.

Multinational corporations are faced with the most complex problems since their cash flows reflect exposures in many currencies, some revaluation prone, others devaluation prone, and most of them unpredictable. Consequently, they have to spend a great deal of time and effort in devising strategies and have found it necessary to develop their own trading capabilities in order to keep abreast of the market.

Aside from the major currencies, a number of semi-convertible currencies are actively managed by their own central banks and are either kept at an official rate or are gradually depreciated through periodic adjustments. Most of the Latin American currencies fall into this category. There has always been a heavy involvement by American multinationals in Central and South America, and for quite some time

these companies have had to deal with this problem of constantly depreciating currencies. The solutions have been to neutralize the foreign exchange risk by matching assets with liabilities -- the simplest way being to allow the local company to be as autonomous as possible by letting it do its borrowings internally. Selling these currencies on a forward basis is usually self-defeating since the forwards, when there is a market, are at deep discounts. Usually, it can be taken for granted that the foreign exchange risk will have a negative impact on earnings, but other factors still make the overall operation profitable.

#### Corporate Strategies

Corporations have at their disposal all the resources of the markets for foreign exchange strategies relating to major convertible currencies: spot and forward markets, futures, and options, as well as external and domestic financial markets. There are no set guidelines as to how to manage the risks. Some companies take the approach that forecasting or taking a view on the market is useless and often counterproductive and therefore analyze their cash flow projections as far as they can and do the necessary transactions in order to neutralize the risks. Such a strategy insulates them from any further currency fluctuations and allows them to fix their costs, but on the other hand it may make them vulnerable to competition by more aggressive companies who actively manage their foreign exchange positions by taking a view on the market. The latter are more akin to the bank's trading rooms in the sense that they accept the exchange risk. Few of them, if any, will just rely on longer-term forecasts. Once it is decided that some exposures will be kept open, it becomes necessary to become

market-oriented and to stay in more or less constant contact with the market, especially when something develops that could have an impact on the exposure.

The management of open foreign exchange exposures is a fine line between hedging and trading for a profit. If a company tries to maximize its open positions and strives for an improvement of these positions, it can only do so by trading. For instance, if an importer of Japanese cars in the U.S. decides that the yen will weaken in the short run, he will not cover his exposure at all, or may cover only a small portion. However, when he feels that the yen has come down as far as it will, the importer will buy his yen, but may sell them again if the upward reaction of the yen has been too sharp in his estimation. If the importer has played his cards correctly, he may have substantially improved his position, and the ultimate cost of the yen that he will purchase may be much lower than any rate achieved that year. On the other hand, if he guessed incorrectly he will have added to his costs unnecessarily. Consequently, before such strategic decisions can be made, there has to be a thorough study of what the ultimate cost of the import should be in the local currency, optimally as well as on a worst-case basis.

Other companies tend to adopt a mix of strategies. They do not want to trade aggressively, nor do they necessarily cover their exposures as soon as they know them, but they prefer to try to take advantage of up and down market fluctuations by fixing certain levels at which they will take action. In many ways, this is somewhat similar to active risk taking, since there is no guarantee that these levels will ever be reached. The corollary is that in such strategies, the levels

chosen are best levels as well as worst levels. In other words, equal consideration must be given to worst-case scenarios where protective action must be taken.

While there can be no good or bad way to hedge one's exposures, especially for outsiders, corporate strategies are deeply felt in the markets. When corporations look at certain currency levels to do their hedging operations, regardless of the market environment, it tends to make the markets less volatile, because usually the commercial clients will be buying when the rest of the market is selling, and vice versa. However, when corporations become traders and begin to ride the trends, it adds to volatility, since their actions tend to accentuate trends. This has happened quite frequently in recent years.

The management of foreign exchange risk is not limited to pure rate considerations. Equally important are tax considerations and especially accounting rules. The latter have played a major role in the U.S. in determining the involvement of corporations in hedging. The main features of the two major rules (FASB 8 and FAS 52, discussed earlier) were that at one time the translation of foreign assets and liabilities impacted the earnings of corporations -- with the added complication that assets and liabilities had to be revalued in dollars at different rates, depending on whether they were of a short-term or a long-term nature -- while now they impact on the balance sheet, i.e., the net worth. Initially, many U.S. companies cut down their involvement in foreign exchange when the latter regulation came into being, but they found that with the increasingly strong dollar the value of their overseas investments was diminishing and that the resulting drop in their net worth was impairing their ability to borrow.

### Hedging Foreign Exchange or Interest Rate Risks

Investors with international portfolios incur both a foreign exchange and an interest rate risk. Their hedging strategies depend in great part on the reasons why they invest in a foreign instrument in the first place. If their decision is primarily based on interest rate considerations they try to neutralize the foreign exchange risk by hedging the foreign currency receipts, principal and interest. If exchange rate expectations are the main reason for acquiring the foreign security, it stands to reason that any hedging strategy will be based on either a defensive position in case rates do not behave as expected or on just keeping open positions until the investor feels that a turn is about to take place or simply that the profit is sufficient. An international portfolio is usually managed on the basis of comparative returns. If the investment had been kept in the home currency in an instrument roughly comparable in terms of quality and maturity, it would have provided a return that makes up the basis for comparison. Naturally, considerations such as taxes have to be included.

The dollar has been a favorite of international investors since the late 1970s and early 1980s precisely on the basis of comparative returns. Not only has the U.S. currency appreciated against all the other major currencies, but U.S. instruments carry a high rate of interest, especially when compared with such "strong" currencies as the mark, the yen, or the Swiss franc. Consequently, a great deal of the underlying strength of the dollar has been self-feeding, since the intrinsic attractiveness of investing into the dollar has prompted more capital inflows into dollar-denominated instruments. That same strength of the dollar has created extra problems for non-U.S. dollar borrowers,

who have seen their costs increase as the U.S. unit gained strength and who have had to take measures in order to protect themselves against further losses.

This is why so many central banks are worried about a sharp drop of the dollar, should it begin to lose significant ground. All the foreign capital that has been invested into dollars could move out fast, a factor that would accelerate the drop. Under such circumstances, a "soft landing" for the dollar is difficult to visualize.

## IMPACT OF OFFICIAL REGULATIONS AND RESTRICTIONS

The foreign exchange markets have traditionally lived with official regulations. Even today, the number of currencies whose trading is not limited by rules of one kind or another is very small. Only the U.S. dollar has been essentially free of direct controls, although there have been some controls on capital flows in the form of tax-oriented regulations, while major currencies such as the mark or the yen have been under some controls on occasions.<sup>8</sup> The basic rationale for regulating the foreign exchange markets is that their activities tend to disrupt the domestic economic and monetary policies of the governments who impose these restrictions. The reality is somewhat different. Regulations are one way of trying to stem movements that government policies have prompted, without having to change these policies. They are usually designed to create artificially a situation that free market conditions would never tolerate.

### Currency Pegging

The most obvious form of government interference with the markets is the pegging of a currency at a certain level. This is usually done in order to prevent deterioration, either because of economic or political reasons. Such a situation existed in Hong Kong in 1985. The pegging of the Hong Kong dollar against the U.S. dollar was done in order to stem capital outflows because of uncertainties about the future of the colony. This action may have been successful for the short term, or even for the longer term, but if the reasons for the Hong Kong dollar's coming under pressure in the first place became overriding again, the currency certainly would not hold. In most cases, pegging is

done for economic reasons but tends to be counterproductive. For example, black or parallel markets -- illegal or semi-legal conditions where currencies are exchanged at a rate vastly different from the official one -- exist only in an environment where the local currency is arbitrarily pegged and maintained. In fact, in such environments the actions of a government are viewed skeptically since the maintenance of artificial markets creates a situation where substantial illegal profits can be made by those who are astute and resourceful enough to find a way to do it, arbitraging between the official and the black markets, while the majority of the others suffer. Furthermore, the local economy bears the brunt of the problems created by artificial pegging. It is fair to say that the advantages of currency pegging, such as they are, only exist as short-term expedients for the government.

#### Forcing a Currency Up or Down

Other policies consist in either devaluing a currency excessively or forcing it higher than market forces would otherwise take it. In the first case, governments engage in "competitive devaluations," usually to boost their exports at the expense of other countries. This beggar-thy-neighbor policy is sometimes combined with some form of import restrictions and high interest rates also to attract capital. A 1983 devaluation of the Swedish crown had the earmarks of a competitive devaluation. In the second case, the rationale is that international confidence in a strong currency will lead to capital inflows. The Germans have tried to follow such policies from time to time, although they have used psychology rather than regulations.

The horse trading that takes place when a multilateral system like the European Monetary System undergoes a realignment exemplifies the

importance that governments attach to their exchange rates. The considerations can be political as well as economic. When the French wanted the Germans to revalue, rather than having the franc devalued, they wanted to emphasize to the public -- especially the French public -- that the problem was not with a weak franc, but with a strong mark. To an extent this type of policy is successful, since it deflects criticism on others. In 1984, the strong dollar was faulted on the Americans with near-unanimity in Europe.

### Regulations

The most commonly used regulation consists of restricting the ability of banks to hold a foreign exchange position for more than a few hours -- usually not beyond one trading session. Such a regulation does not correct situations brought about by trade imbalances, since foreign currencies will have to be bought sooner or later, but it prevents leads and lags and of course is designed to stop speculative positions. In the case of major currencies, it only succeeds internally, but it does not provide much help for the currency that it is supposed to protect in international markets.

When governments set up regulations to stop capital flows, it is usually too late to stem the major part of the movement, which has already taken place. Regulations tend to be a last resort, because of the operational problems that they involve. They are seldom so carefully thought out that they will not leave loopholes, or worse create unanticipated conditions. A good example is that of the Italians and French, who decreed back in the 1970s that non-resident accounts could not be overdrawn. This measure, which was designed to prevent short-selling of the currency, was implemented by not allowing

outpayments that were not covered by balances in the non-resident account. The result of this regulation was an operational nightmare, because one single error in the transfer of money from one account to another was sufficient to trigger a never-ending series of nonpayments.<sup>9</sup> After vigorous protests and threats of disruption in the international payments mechanism, the regulation had to be scrapped.

In general, any regulation that involves bank accounts results in operational entanglements and forces the regulatory authorities as well as the banking industry to divert time and personnel for the implementation and control of the regulation. For instance, when the Swiss put in force the "negative interest rule," which stipulated that any amount in excess of a certain ceiling left in a non-resident account would incur a charge of 40% per annum, foreign banks had serious problems in maintaining their accounts because of the inevitable errors that occurred. If a transfer order for SF20 million was not sent properly, someone was getting hit with a charge of SF22,000 per day. The Swiss authorities were generally sympathetic to the plight of those who suffered from legitimate mistakes, but it usually took quite a while until everything could be straightened up. Consequently, activity in the Swiss franc began to decline.

Another example, quite different in nature, is that of the action taken by the Barre government in France to encourage external borrowings to cushion France against the oil price increases and to promote the construction of nuclear facilities by shoring up the value of the franc. The device was quite simple: While domestic credit expansion was restricted, borrowers were encouraged to borrow abroad -- mostly in the Eurodollar markets -- and to convert these external proceeds into French

francs. As a result, there was continuous demand for francs in the Paris foreign exchange markets and the currency looked quite strong for a while. This permitted the Banque de France to accumulate foreign exchange reserves. The problem is that the French foreign debt grew tremendously, and that when the short-term debts had to be repaid the franc underwent some pressures. Thereafter, after the fall of the franc against the dollar, the external debt became that much more expensive.<sup>10</sup>

The major impact that any regulation has on a financial marketplace is to stunt its growth. Since regulations are considered a symptom that things are not going well, outside capital is not likely to be attracted, even if interest rates are relatively high. Even in the case of regulations introduced because of upward pressures, this leaves a bad taste and in the long run tends to be counterproductive. The Swiss understood this quite well when they restricted their domestic markets to foreign investors. Unlike the Germans, who applied their restrictions on foreign capital inflows to the letter and thereby created negative yields on all external German markets<sup>11</sup> (strange as it may sound, you earned interest when borrowing Euromarks and paid interest when lending), the Swiss never pushed their negative interest rule to the extent that Euroswiss deposits would become negative. They wanted only to stem the inflows of small depositors from neighboring countries, but never thought of shutting the Swiss markets completely to foreigners, because they knew that eventually conditions would change. Yet the Swiss franc has not had in recent years the prominence that it had in the 1970s -- something that suits the Swiss National Bank just fine.

The price that Japan and Germany have paid for not allowing the unrestricted access to their capital markets at some time or another is that neither Frankfurt nor Tokyo occupy the place as financial markets that the economies of their countries would justify. Needless to say, financial places such as Paris or Milan have not been the favorite hunting ground for international investors, except for the hardy souls in search of bargains. Even if France or Italy should regain respectability on the international financial scene, the memory of years of restrictions does not die easily.

Regulations are essentially short-term solutions for long-term problems, and they address the symptoms rather than the cause, but from a market standpoint they can be effective. When a new rule is sprung upon the markets, somebody is bound to get hurt. Politicians love to hit at the speculator, who tends to assume the role of messenger of bad news. When the Banque de France created a bear squeeze prior to the last EMS realignment, many market participants were badly hurt by the exorbitant rates that they were being charged for financing short franc positions. Many others made a lot of money. This did not stop a French devaluation, nor did it benefit anyone in the longer run. As a market action, it was effective in the sense that those with longer memories will be a bit more careful when taking a short position the next time the franc is under pressure, but it would not stop speculation against the franc if for any reason the market suspects that it is bound to come down again. Instilling fear or uncertainty in the market usually prompts traders to stay away from the currency: The Swiss franc has suffered for the past 10 years from being perceived as too volatile a currency, which means not only that the franc may be more traded on the

Chicago IMM than in the interbank market, but also that potential borrowers of Swiss francs will think twice before undertaking a Swiss foreign exchange risk.

#### In the Future

In spite of a trend toward deregulation of the markets in major financial centers, it would be unrealistic to believe that regulations and restrictions will eventually disappear. Freer markets by themselves breed the conditions that lead to government interference. Such official actions may even be dictated by benevolent considerations, such as a desire to calm what is considered excessive volatility.

The foreign exchange markets will probably always be confronted by an unsolvable dilemma: Governments cannot allow market forces to dictate their economic and financial policies, especially when these market forces are outside of the country. On the other side, the markets cannot allow governments to subject them to their short-term whims and must act as a check against policies that they perceive as being wrong.

## FOREIGN EXCHANGE PROFITS AND LOSSES

The process of bank deregulation and the debt crisis of 1982 have forced the banking world to shift emphasis from asset management (lending money) to liability management (funding the loans) and to profit centers such as trading and fee-producing services.

The foreign exchange area is not a self-contained world within the confines of a bank's Treasury division. Positions are often funded in the local currency; credit lines are utilized. The activities of the foreign exchange trading room have an impact on a bank's cash flows. This impact is defined by the Profit and Loss statement.

### Determining Profitability

Conceptually, the profitability of a trading operation is easy to grasp. Traders take currency positions and then neutralize them. If the result is a cash inflow, there is a profit. A cash outflow results in a loss. The reality is more complex. To begin with, a position is the result of sometimes hundreds of transactions, undertaken for a variety of reasons within a wide time span. There are deals with clients, in-and-out trades with counterpart banks, spot transactions as well as swaps and forward outright, purchases, and sales in a variety of amounts. Consequently, it is almost impossible to identify precisely the sales that match the purchases. Second, positions are seldom closed out completely, and if so, would be neutralized as a result of market conditions or rate considerations rather than because a P & L is being taken. This is especially true of a bank that has trading rooms in several centers. Third, positions are seldom just spot positions, and usually include forward exposures.

The most commonly used method to evaluate the performance of a trading room is to mark-to-market all the positions, using the principle that if all currency exposures were neutralized at an arbitrary time using current market rates whatever was left in terms of domestic cash flows would be the profit or loss. There are different ways in which this method is used, but in theory the results should be roughly similar.<sup>12</sup>

There are several reasons why "revaluations" -- as P & Ls are commonly called -- are important. Besides establishing profitability, they act as a check on trading activities, ensuring that lines and limits are respected and that the outstanding positions are what they are supposed to be. Through the revaluation, the management of a bank can be fully apprized of what, and how, the foreign exchange department is doing.

The performance of a trading room has to be measured against the guidelines that a bank establishes with respect to the trading function. For instance, if trading is supposed to be purely a service to the clientele, there could be questions raised if the trading room shows a profit, because either the trading limits are not being respected or the clients are being unduly charged.

There is no such thing as a standard trading room, and therefore the operations and guidelines vary according to each institution. Even the definition of what constitutes profitability cannot be established on an industry-wide basis. If a major part of the trading activities derive from customer business, should the corporate traders -- the contacts between the trading desk and the bank's clients -- be given credit for profits that may derive from that business? By the same

token, should they be penalized if the bank suffers a loss as a result? Every organization has the leeway to establish policy as it sees fit, since there are generally no legal or regulatory guidelines.

For that reason, published foreign exchange earning reports should be studied with caution. No bank is obligated to report publicly the result of its trading in any kind of detail, yet many of the major banks have chosen to do so. It is difficult to fathom the reason why, but it appears that in many cases it has been done for publicity value, to impress potential clients and competitors with the scope of foreign exchange activities and the sizeable profits that are derived. Some analysts have become disturbed in recent years by the increased emphasis given to trading profits by some major banks. In their estimation, the very fact that such items are becoming a large part of a bank's overall profitability is a dangerous sign, because it means that the general business of the bank is becoming more risk-oriented and also because the uncertain nature of foreign exchange may mean a very unstable profit picture for the future. Many banks will freely tell financial reporters what their quarterly profit figures are when the press or the wire services write articles about the markets. The figures may be valid for comparison purposes from quarter to quarter but in substance they mean little or nothing. There is usually no explanation as to whether the profits are gross, or net of all expenses, or whether they incorporate all phases of foreign exchange operations or just trading, if indeed trading can be realistically separated from other activities.

The current volatile environment has made steady income from trading more difficult to achieve. Profits from trading derive from position taking, but when the risk becomes greater, so does the

potential for losses. And despite what many may think, the risk in foreign exchange is never one-way. When a bank's management tightens the limits because of increased risks, it also makes it more difficult to increase profits. Therefore, in an uncertain environment, there is a retrenchment that affects both the volume of business and the earnings of the operation.

As a result, banks have increased the scrutiny of the whole foreign exchange function, balancing the increased operational costs deriving essentially from salaries, communications and equipment, and broker's commissions, with the expected results. As this process goes on, there will be more emphasis toward generating income that is "risk-free," i.e., not associated with position-taking. For instance, major trading rooms have tried to develop specialized services that could generate substantial fees, such as matching clients with fitting interests in long-term currency swaps, or creating swaps by using markets other than Euromarkets.

#### Losses

One of the unfortunate facets of the foreign exchange markets -- and one which the public at large is more likely to be aware of -- is the publication of large losses by some institutions. The usual announcement cites "unauthorized trading" by one or several members of the trading room and assures all that this will not happen again. The culprit or culprits are then dismissed and everything is forgotten -- until the next time.

Traders are prone to making mistakes, even serious ones. The great majority of the trading community is composed of young men and women in their 20s and 30s who are given responsibilities far greater than in any

other area of a bank and who constantly work under pressure. The amounts that they transact are so big that they lose fast their sense of proportion. In the course of trading, \$5 million becomes "\$5" and is considered a trading unit rather than a large sum of money. Many traders develop large egos, because the job is considered glamorous, because they work in a different environment than that of the rest of the bank, and because there will be other parties who cater to them for the business that they provide. This is why it is so important for traders to be instilled with a strong sense of ethics and to be supported by a comprehensive system of checks and balances, not to shackle them or make them feel like pariahs, but to allow them to work in a well-ordered environment.

The responsibility for extraordinary losses must rest entirely on management and on the authorities who regulate a bank.<sup>13</sup> No system is foolproof, but anyone who has sufficient knowledge of foreign exchange operations should be in a position to detect quickly something out of the ordinary. If a bank fails to install sufficient checks and balances it must expect that unpleasant things may happen and can only blame those responsible for setting up the system.

Even though it has never been publicly admitted, there are many who suspect that some of the large losses may have been blamed on the traders but were in reality the fault of their management. There are many senior officers in the banking world who know little about trading but who think that they understand the markets and the trends better than their traders, and these people often put pressure on their trading room to take "management positions," which are usually large long-term positions that presumably reap huge profits. These are the kinds of

positions that can result in huge losses because the risk becomes two-way if the positions are not protected. There have been instances in the past when such management positions were ordered at the highest levels of the bank.

Ironically enough, at those times when banks had large losses, the traders have been on the spotlight, but not the auditors who should have detected that something was wrong -- the losses were most often incurred over periods of several months -- and certainly not the management who in many cases either actively encouraged the positions or looked the other way.

These facts should be mentioned because until everyone becomes aware that responsibilities should be shared and distributed in the right manner, such episodes will be bound to recur.

PART V

ISSUES CONFRONTING THE FOREIGN EXCHANGE MARKET



INCREASING ROLE OF NON-COMMERCIAL BANK PARTICIPANTS:  
DEVELOPMENT OF NEW PRODUCTS

The process of deregulation of the banking industry in the U.S. has had two major results: With the definition of what constitutes a bank much more diffuse than it used to be, many financial institutions now compete directly for the commercial bank's traditional business. Second, the removal of interest rate ceilings on various types of savings accounts and in general the liberalization of the money markets have given rise to a highly competitive market where new instruments are being used and new schemes keep being invented. In the foreign exchange market, similar efforts have been made by institutions other than commercial banks to become more actively involved and to take away some of the bank's commercial business. Most successful have been some of the major securities and commodities houses, who are now actively managing the foreign exchange part of their customers' portfolios rather than giving the business to the banks. Investment banks have also become far more active in the market, essentially for the same reasons.<sup>1</sup> In addition, the investment banks have begun to use the foreign exchange markets in order to offer their clients new flexibility in managing their long-term cash flows with long-term interest swaps and long-term currency swaps. In the U.S., such institutions as Salomon Brothers, First Boston Corp., Goldman Sachs, Drexel Burnham Lambert, Morgan Stanley, and Shearson Lehman American Express have become very active and important market participants.

### Non-Bank Financial Institutions

In general, non-bank financial institutions are not quite as active market-makers as commercial banks. They take positions for their own accounts or trade in and out as other participants in the interbank market do, but as a group they do not have the presence of banks, nor do they want to assume that role. Instead, they prefer to present their clients with a total package that includes the execution of whatever foreign exchange transaction is necessary. The reason for this relative lack of involvement in the market is that they tend to avoid the risks associated with foreign exchange fluctuations and the expenses of heavy daily turnover. However, because of the occasional large volume that they handle for their clients, their presence in the market is often noticeable.

Non-bank financial institutions, brokerage, and commodities houses such as Merrill Lynch, Prudential Bache, E.F. Hutton, Dean Whitter, and Refco, also maintain an active presence in the futures markets and are major participants in the Chicago IMM. Contrary to what many market participants believe, few of these institutions take large positions. They work actively on behalf of their clients, preferring the security of a commission to the vagaries of the markets. They do of course actively manage pools of their clients' investments, but many do not assume the foreign exchange risk themselves.

The firms who manage pools of money and take positions for their clients have become major market participants. Some of these firms are very large, at least in terms of the funds at their disposal, and while a number of them may be more prone to taking long-term positions, some trade short-term in the same manner as banks. Because of the very large

amounts that they transact, they can influence the markets, a factor that they are perfectly aware of and use whenever they find it convenient.

Since capital flows are now the dominant factor in determining exchange rates, all activities concerned with large capital transactions have a strong impact on the markets. The major commercial banks may not be directly involved in such business to the extent that they were with trade-related operations, and as a result some of the large transactions that result from portfolio shifts take place without their prior knowledge and have more of an impact because so many participants do not understand what is happening.

#### Impacts on Central Banks

The increased importance of new players has created problems for central banks, who in the majority of cases have the means to check on the activities of the commercial banks or even to control them but who have little if any contacts with other types of institutions. By not being close to an important segment of the market, they lose some of the sense of market feel which is so important if they wish to keep up-to-date with developments.<sup>2</sup>

In fact, one of the major problems that the foreign exchange markets face is that so much that takes place is so little known or understood by so many participants, who either work in the dark, hoping for the best, or tend to manage their positions in a very defensive way and find themselves prone to panic movements when something unexpected occurs. Unlike most other markets, the foreign exchange market does not deal in instruments whose total quantity is well-defined, and the total open interest is unknown. Studies of turnover and type of business in

the markets -- and there have been only few, most notably by the Fed in the U.S. -- may be useful for comparative purposes but in terms of true analysis of market forces and market liquidity they are totally meaningless. The market is amorphous. It expands or contracts for no apparent reason, and the observation of its day-to-day behavior can only be intuitive.

Yet in spite of the increasing complexity of the factors that move rates, trading does not seem to have abated. Whether because they have a sense of obligation to be in the market -- many traders concur that their ability to satisfy their clients is enhanced by their being actively in the market and therefore more aware of what is taking place and better able to advise their customers -- or because they believe that trading can be a solid and constant revenue source, most banks are willing to put up with what might be considered adverse conditions, such as excessive volatility and rising expenses. The reason most often cited for such policies is that foreign exchange is such a fundamental factor for anything that relates to international trade and international capital markets that no major institution can afford to pull away from the market.

#### New Products: Options

The evolution of the foreign exchange market has been shaped by forces that in most cases were independent of the markets themselves. Whether it was the technological revolution, the oil shocks of the 1970s, the growth of the Euromarkets, or such seemingly innocuous things as changes in accounting procedures,<sup>3</sup> the impact of these various events could not possibly have been foreseen. The point is that the evolution of the markets is not a self-contained process and that it depends

primarily on outside events and forces. This makes it difficult to envision what the markets will be like even a few years in the future.

In an era when financial institutions focus constantly on the development of new products and in an environment where many of these institutions believe that it is important to be leaders in this process, it is no surprise that a radically different instrument such as the option should have been such a hot topic in the foreign exchange market. Futures, which have had such a strong impact on the deposit markets in the U.S., were never as exciting a subject in the interbank market because the forward markets are exact equivalents of futures in all technical aspects, including the fact that forwards are not balance sheet items. They are included below the line<sup>4</sup> as "forward commitments" and in fact offer more flexibility than futures. Banks use the currency futures markets only for arbitrage purposes or if they see a possibility to do something that cannot be done on the interbank market at the moment.

Options are something altogether different.<sup>5</sup> To begin with, the principle of an option creates a new dimension for traders. Normally, they either have a position -- long or short -- or they don't. When they buy options, they may have either a money-making position, or they have no position, depending upon the rate trends. When they write options, they incur a risk that must be hedged in some way in order to avoid possible problems. Many of the underlying factors that determine the pricing and the hedging of an option (volatility, time erosion, "in the money," "out of the money") are concepts which do not exist for any other foreign exchange instrument.

Options have been used for quite some time in the stock and bond markets but were a brand new instrument in the foreign exchange market. Moreover, the concepts behind option pricing and option strategies were totally unknown to traders, who for the most part reacted, when they were first approached, with the response that it was impossible to price or hedge successfully a currency option. After further thought, the general attitude was that if options could be traded successfully for other commodities or financial instruments, there was no reason why it could not be done for currencies, and in the period between 1981 and 1983 most of the major banks began to develop option programs.

Since late 1982, several banks in New York have advertized their option programs publicly or only to their clients. Some have offered specially tailored options to fit any client's needs, while others have merely matched the Philadelphia and Chicago currency option markets. The interest in options has not been limited to the U.S. In London as well as on the European continent, banks and other financial institutions have offered some type of option programs, but in general the Americans have been the most aggressive in that field.

The same banks who have been outspoken in marketing their option programs have been very discreet in describing how successful they were, aside from mentioning that they had developed quite a lot of customer business.<sup>6</sup> However, there have been recurring rumors that many of these programs did not provide adequate hedging for the banks and that as a result sizeable losses were incurred on different occasions. None of these rumors was ever officially confirmed, but banks who had been quite active have suddenly withdrawn, and turnover has been high among commercial bank option traders -- although a case could be made that

this could be also a function of the high demand for this esoteric skill.

Most experts agree that options, as they become a more widely used instrument, will exert a profound influence on market behavior. To begin with, hedging strategies will include the use of options; therefore, some commercial business will shift away from the more traditional forms into this new field. However, option writers have to hedge their exposures. This hedging could create considerable new business in the interbank or the futures markets, because the management of an option hedge is active, in the sense that it varies with the fluctuations of the exchange rates. In other words, the total amount of hedging for a position of 10 million marks could add up to several times that amount during the life of the option, even though at any one time the amount covered may be only half or less of the face value of the option.

There may be potential problems ahead for the markets if large option positions have to be hedged at the same time. In fact, there are observers who claim that some of the volatility experienced in 1984 was the result of this type of situation.<sup>7</sup> Large amounts of currency Puts (options to sell currencies) had been written by banks for clients who wanted protection in case the dollar would keep on going up. When the dollar began to rise sharply in early September, positions that had seemed safe deteriorated very fast and banks had to scramble to acquire currencies in order to hedge these Puts. Such an occurrence is likely to be repeated in the future, with the result that as the option market develops new patterns of market volatility will ensue.

There are still a lot of problems associated with options, not least of which is a general lack of understanding of problems created by option writing. For instance, the maintenance of an accounting system is a very sophisticated operation requiring special software. Regulatory authorities for the most part (with the notable exception of the Bank of England) have not yet issued any guidelines for marking options to market, nor have they, or the banks, answered the questions regarding limits and credit risks. Yet credit analysis is essential, since options can create huge contingent liabilities. Currency options still appear to be in their infancy, progress seems slow and marked by setbacks, the more so since institutions are reluctant to advertise their problems, and as a result few seem able to learn from the mistakes of others. Nevertheless, there is little doubt that currency options are here to stay because they answer a need, that the market will grow, and that options will become an indispensable part of the foreign exchange market. At the same time, it is equally certain that the presence of options will impact the foreign exchange market in a very fundamental way and may lead to greater changes in terms of transactions turnover and rates volatility than are currently envisioned.

## HOW NEW TECHNOLOGY IS AFFECTING THE MARKETS

When the video display terminals had just become commonplace in the markets, traders used to joke that you always knew when there was a system breakdown in one of the centers, because trading would suddenly come to a halt. This underlines one of the least addressed problems in today's markets: What is the relationship between traders and the equipment they have at their disposal, and to what degree does the high-tech environment affect trading?

The technological improvements since the 1970s have allowed ease of communication and speed of information, while removing most of the menial tasks traditionally performed on the trading desk. At the same time, many claim that the younger traders have also lost a great deal of initiative and are letting their technological environment dictate their responses. The screens tell them what to do, and the most important skill today is speed of reaction, according to these critics.

It is difficult to establish the validity of such criticism. There is no doubt that the trading environment has been profoundly affected by technology and that market participants have had to adapt to the new circumstances, but the degree to which some have become dependent on their screens and computers varies and may be as much a function of their training and personality as it is a result of a new environment.

### The Training Issue

Yet, ironically enough, the average trader today is on the surface much better prepared for the profession. Until the early 1970s traders had in general little formal education -- very few had gone to college -- and the training was strictly on-the-job. Because the profession was

practically unknown to the public, at least in the U.S., those who got into the business did it by chance. Since that time, banks have recruited business majors and some even require additional background in economics, mathematics, or computer sciences. Also, greater awareness of foreign exchange in the financial community and in the colleges is prompting more potential candidates to apply for the job.

In essence, the problem of the trader confronted with all the new technology is similar to that of the child who learns the basic arithmetic operations by using a pocket calculator rather than by being taught the principles and then the tables. No one would argue that it is preferable to possess both the knowledge of the fundamentals and the skills to use the technology, but in the context of the trading room it is often more expedient to do things the easy way and to consider that all the equipment at the disposal of the traders makes the background training less useful, or even counterproductive. In fact, some senior dealers now believe that to train junior traders to better understand the market mechanics and to spend time explaining to them the socio-economic factors that impact long-term trends is wrong, because it puts them out of tune with the rest of the markets and makes them react the wrong way. According to these same dealers, it is useless to have all the expensive equipment if one does not take full advantage of it, and having it makes it less necessary to spend so much time in training new traders. The market environment is such that he who hesitates is out, and that is why traders have so much at their disposal in terms of communications and information-retrieval equipment.

### Volatility and Other Criticisms

Others contend that this state of affairs is precisely why there is often such volatility in the market. They claim that traders are trained to react like Pavlovian dogs without pausing to think whether their actions make sense or not. The critics joke about professional hazards such as twisted necks and blurred vision -- from looking at too many screens -- and comment on how some are using the available technology to manipulate things for their own end, from the brokers who yell the prices in the speaker-phones in a manner that would make one believe that the end of the world is coming while in reality not much is happening, to the banks who slant the markets on their screens in order to make others think that a certain trend is developing, and to catch them on the wrong foot.

Moreover, they state that the market has become so accustomed to instant reaction to upcoming news that most of the time the traders concentrate more on how the rest of the market is doing than on the news itself. In fact, few market participants even understand the import of what the news may convey. Traders with positions to protect may feel totally different from the rest of the market when news or events trigger certain reactions but have to put first priority on what to do about their positions and how the market reaction may affect them before they consider whether the reaction is correct in their eyes or not.

The older traders bemoan the loss of personal contact and the dehumanization that screens have brought. They complain that the new generation is being taught the art of pressing buttons fast and learn only how to say "Mine" or "Yours"<sup>8</sup> faster than the other fellow. They also claim that the skills necessary for running forward books are being

lost because everyone is too busy chasing spot rates up and down. According to them, intuitive reasoning has been replaced by graphs, charts, and momentum models, and technology is replacing logical thinking.

#### Modern Market Proponents

The proponents of the modern market reply that everything has accelerated and there is no place for the careful thinker, because the dynamics of the markets are such that by the time the slow strategist arrives at a conclusion the movement has already taken place. Right or wrong, they claim, the market has evolved to what it is today and a participant must take it on its own terms, or get out. Good traders -- those who consistently are money makers -- are those who have a feel for the market and who do not let other factors disturb their judgment. They use the tools at their disposal to their advantage, no matter how outlandish this may seem to others. Whether charts are really useful or not is unimportant, as long as the markets consider them a factor. If speed of execution makes a difference, by all means give a trader the means to be faster than the competition.

Thus far, the great majority of the main market participants seems to agree with this view. There are many large banks who offer only a minimum of training to their junior traders and who prefer to rely on the equipment, the technology, and the technical models rather than on the intuition, experience, or professionalism of their traders, because they believe that the markets have now become too complex for them and that without this technical help they would be completely lost.

### New Tools

Constant improvements in technology are bringing new tools to the markets and will probably be a major factor in future developments.<sup>9</sup> Thus far, the majority of video display screens provides only information and data that can be read, but cannot be retrieved and used on-line, that is, instantly, for further analysis such as arbitrage models that can point to possible trading strategies. Some services provide data that enables the creation of on-line charts or momentum models, but their cost (several thousand dollars per month) is still very high. In time, competition and cheaper costs will undoubtedly bring the prices of such services down and consequently make them available to more market participants.

There is also little doubt that in coming years the traditional companies that provide news and market information to the markets are going to be under stiff competition from newcomers and will have to improve the quality and range of their services in order to keep their place. The concept of the electronic marketplace -- an environment where markets are made and dealing takes place through video display terminals and where everything, from market-making to confirming and instructing for delivery, is done through computers, which Reuters put into place in the mid-1970s -- may become an even greater factor in the market.<sup>10</sup> How this would affect the foreign exchange market as a whole is difficult to predict, but there is little doubt that it would have an impact, and that a direct consequence would be a further step in the direction of a fully integrated market.

Will Progress Mean Improvement?

There is no question that under the impact of technological improvements, the market participants have such tools at their disposal that most operational problems should disappear and that the peripheral tasks that used to take so much of a trader's time are now being done by computers, thus allowing the trading room members to fully concentrate on their business. But there remain many nagging doubts as to whether progress truly means improvement. Looking at it from the standpoint of a manager, the question is whether profitability is being enhanced by better technological support and whether the market as a whole has been made more efficient by the greater ease of communications and information retrieval.

Profitability in the trading room depends essentially on position-taking. Trading decisions, whether they pertain to spot positions, forward positions, or both, still remain essentially a matter of judgment and have little to do with using better technology. At best, the efficient use of information technology may provide a clue to more opportunities, but no system can replace the process by which traders reach a judgment. In fact, the judgmental process which leads to original thought -- being a step ahead of the rest of the market -- takes place outside of the realm of screens and machinery which itself is a great equalizer since all have the same means at their disposal. Some traders claim that they would be better off looking at their screens a bit less and not being so influenced by what they see on their video displays. In short, the machinery that traders have on their desks is just that -- a tool in the same sense as their calculator and telephone equipment. As such, it can only be considered a helping

device and cannot be expected to change the earnings picture just because it is there. In the case of more complex equipment, such as software for the pricing and hedging of options, it can be considered a necessity without which the job just cannot be done.

With respect to the market itself, there is no question that traders have now much more at their disposal but the fact that technologically the market is much more efficient does not mean that it functions better. Despite all the technological help, traders can still find themselves completely in the dark, caught by surprise by unexpected developments. Moreover, the advance in obtained data and information has not been matched by increased capacity in digesting it. The time allotted to reading and absorbing the flood of news is limited, and the result is often confusing to those who are subjected to it. This phenomenon, which is of course not limited to the foreign exchange market but which seems to pervade the modern world, makes the need for analytical training that much more pressing.

### MARKET LIQUIDITY IN 1984

No one has any precise idea of the total business transacted in the foreign exchange market. Estimates are at best educated guesses and are not based on any hard evidence. Some central banks, the Fed in particular, have made an effort to analyze the market activities in terms of total turnover, nature of business, and types of transactions, but others have discouraged similar studies in their own markets, stating that the accumulated data would not really provide relevant information and that it was therefore a waste of time and effort.<sup>11</sup>

#### The Current Picture

According to an April 1983 Fed survey, the daily turnover in the U.S. was roughly \$35 billion. On the assumption that activity in other major centers such as London and Frankfurt is similar and that the total of all the remaining marketplaces is about the same as each of these major centers, the global turnover must be in a broad range of \$140 to \$170 billion a day. This overall figure is not very meaningful since it includes a number of transactions that have only relative bearing on currency flows, such as swaps. If one takes the rough rule of thumb that spot and outright forward transactions account for 60% of total transactions, the daily turnover appears to fall somewhere between \$84 and \$102 billion. It is usually estimated that approximately 10% of the interbank business is commercially inspired and that the remainder consists of in-and-out trading and position taking. On that basis, some \$10 billion a day account for trade-related and financial transactions.

All the previous surveys made since the mid-1970s reflected an extremely sharp increase of transactional volume. The major reasons for this phenomenon were the growth in world trade and international credit, and the large increases in capital flows. However, since 1982 the recession and the international debt crisis have caused a slowdown in the growth of the markets. Banks have tightened their credit lines with less-than-impeccable names; some lines with major American banks were cut down in the spring of 1984 at the time of the Continental Illinois crisis. And in view of the volatility of the markets, some trading limits have been cut back. In addition, a number of central banks have just about disappeared from the market, especially those who were so heavily engaged in diversification in the late 1970s. Finally, intervention by major central banks has become more infrequent, primarily as the result of the U.S. Treasury decision to stay out of the markets and because there have not been any pressures for an EMS realignment since 1983.

Throughout the past few years, the shift in commercial business from trade-related transactions to financial transactions has continued. Some banks estimate that only approximately 10% of their customer business can be directly related to trade. The figure may be misleading, since many international loan transactions can be directly attributed to trade financing, but the fact remains that capital transactions now dominate the commercial business.

#### Signs of Shrinkage

Some observers have even mentioned the possibility that there actually was a shrinkage of business in 1984. Even though there is no

available data that would suggest that this was indeed the case, they cite certain signs that in their opinion point in that direction:

Major players' importance. First, the increased importance of a few major players. There have always been some institutions who played a central role in the markets, and whose moves were always watched carefully, but in the early 1980s when the markets were still expanding no one seemed to have the star role that some assumed later on, even though the position-taking was as big -- if not bigger -- than it is today. More striking is the observation made by several central banks in the mid-1980s that these few players are capable of moving the market on short-term trends. Only a few years before, major banks as well as central banks themselves were of the opinion that no one is big enough to sway the market.

Dramatic shrinkage in liquidity periods. Second, the periods of good market liquidity during the average daily session have shrunk dramatically. In New York, for instance, there is heavy market activity between 7:30 a.m. and 11:30 a.m., but for the rest of the day the trading is very spotty. In addition, activity comes to a standstill by Friday noon or before a holiday. Also, the direct business in the U.S. -- that is, direct trading between banks -- has dropped substantially. Banks stop calling each other in the early afternoon or in the late Friday morning. The brokers do not seem to have noticed a comparable increase in business -- which would be the case if activity was simply shifted from direct dealing to dealing through brokers. In fact, many traders have noted that some brokers are beginning to complain about a drop of activity outside of the peak hours.

Lower commercial activity. Third, a number of large banks have commented on the lower commercial activity. The current accounting

standards do not require as active a management of foreign exchange exposures as the previous ones. It also appears that multinationals have decentralized their operations and are therefore less involved in the market, letting their overseas subsidiaries do their own business rather than directing everything from headquarters.

Lower performance by important traders. Finally, there have been occasional rumors concerning the foreign exchange performance of some major participants. The foreign exchange markets are full of rumors, and it is often very difficult to distinguish the hard facts from gossip, but some quarterly reports as well as comments by senior bank officials tend to depict a less-than-satisfactory overall performance by many of the important trading rooms. This should not be too surprising in view of the volatility of the markets in recent times and the unpredictability of exchange rates.

One of the unfortunate but almost inevitable results of erratic markets is large losses. In 1974, a year in which forecasts that U.S. interest rates would go down and that the dollar would tumble proved to be wrong, at least in the first part of the year, published foreign exchange losses totalled over \$1 billion. It would be no surprise if reports of bad losses surface in the near future, nor should it be illogical to assume that some tightening of foreign exchange operations occurs as a result.

#### Time for Pause?

If there is indeed a shrinkage in the markets, there is no reason to assume that it is an unfavorable development. After periods of continuous growth it may be time for a pause. There may be perhaps too many market participants, too many specialists chasing too little

business, and a shake-out may be necessary. The market has grown from isolated centers to the making of a global network that encompasses the entire world. Some new offshore centers may be created in the future, but in all likelihood they could really prosper only as replacements for an existing center that might disappear -- Hong Kong, perhaps. From a standpoint of expansion, there is not much territory left to find. In fact, with the current communications technology, many of the reasons for further branching out are gone. A corporation with headquarters in St. Louis is as far away on the telephone from New York, Frankfurt, or Tokyo as it is from the local bank right around the corner, at least as far as trading is concerned.

The major point that should reassure those who may be concerned that foreign exchange has seen its heydays is that the major reason why the market exists -- the need to finance international transactions -- is not about to disappear, nor are the uncertainties about currency fluctuations ready to fade away. The market has grown in the midst of a technological revolution, but the concepts of what should constitute currency parities are as arcane as ever. In fact, there are many who suspect that these are problems without solutions.

ROLE OF OFFICIAL AUTHORITIES: SHOULD THE FOREIGN EXCHANGE  
MARKETS BE REGULATED?

The turmoil that rocked the financial markets in the spring of 1984 with the near collapse of Continental Illinois was the occasion for heated debates in the U.S. financial community. Should the authorities have let matters take their course and allow Continental to go under, or was it right to try to rescue the troubled bank? Philosophically, the debate may be endless, but in this particular case the issues were practical and had to be resolved very quickly. Obviously, the Fed, the FDIC, and the Comptroller of the Currency made their decision not for the love of Continental or out of sympathy for its depositors but simply because it was felt that the consequences of the bankruptcy of a bank of that size, with the relationships that it had developed in the international financial community, were intolerable. In other words, what prevailed was not the philosophy of government control versus laissez-faire, but realism. The actions of regulators are dictated by the fact that today's financial markets are intricately linked and that what takes place in one market is often bound to have important consequences in other markets.

Lenders of Last Resort and Shock Absorbers

Governments and central banks have been riding the waves of tremendous changes in the financial markets, and no one quite knows where it is all leading to. What is known is that the system must be spared certain strains because no matter how sophisticated things have become, the system still runs on confidence, and lack of confidence creates panic.

The role of central banks and other regulatory authorities in the foreign exchange market is no different from that of the authorities who oversee other financial markets -- the SEC and the CFTC, for example. The central banks in particular act as lenders of last resort, individually and in common, under laws or guidelines that have been established over the years by governments and as the result of international conferences. In that capacity, they insure that the market is spared shocks that could incapacitate it.

#### Arguments For and Against Involvement

Some argue that official involvement and any form of regulation pervert the markets and end up creating more problems than they solve. According to them, market forces are self-correcting and quite capable of handling whatever problems may occur. The past and present suggest otherwise. Markets are neither omnipotent nor self contained; they are often affected by events outside their control. Also, participants in an unregulated marketplace can easily lose their sense of proportion and are more likely to act in an unrestrained manner. In any market, there are those who are prone to making dangerous decisions, either because of greed or simply because of lack of sense of proportion or discipline. As a result, unregulated markets breed conditions that usually lead to scandals and ultimately to restrictions. Further, practicality dictates that when market developments affect what may be considered vital areas of an economy some form of supervision must be maintained.

In general, the evolution of the foreign exchange market has been remarkably trouble-free, in spite of relatively unchecked growth and a background that has been a state of semi-crisis since the late 1960s. The markets have been turbulent, erratic, and sometimes dangerously

close to an out-of-control environment, but somehow things have worked out -- so far. There have been a few scandals here and there, some spectacular losses, a few court actions and legal entanglements, but it has certainly not been any worse than other markets.

This is why many feel that governments should leave well enough alone, since in their opinion the markets are self-policing. The opposite argument is that the markets have worked well precisely because there has always been a certain amount of official restraint, which has prevented dangerous excesses.

Despite its importance and the impact that it has on our daily lives, the foreign exchange market is still one of the least reported, researched, and understood markets, not only by the average individual, but even by members of the financial community, by governments, and sadly enough by many of those whose job is to supervise or manage foreign exchange departments. This lack of interest and the generally casual attitude toward foreign exchange by those who should have closer contact with it have been a cause for some of the problems that have arisen from time to time. For instance, it is doubtful that in 1974 the Bundesbank would have allowed the bankruptcy of Herstatt Bank to occur the way it did, had they realized the implications of their action.

#### Controls for New Developments?

There is no question that there exist ample mechanisms in all the various centers to monitor the activities of most participants. However, several developments put in question the efficiency of the existing controls. First, non-bank participants have gained increased importance but are not subjected to the same scrutiny as banks. Besides the CFTC, which supervises the activities of those involved in futures

and options trading, in the U.S. no organization has legal authority to check what non-banks are doing in the interbank market, nor is there any constraint that limits their activities beyond the willingness of others to deal with them. More importantly, the growth of futures and options -- markets where significant leverage allows the taking of huge positions -- has not yet led to a comprehensive study of the risks associated with these products and to guidelines concerning the booking and revaluing of positions taken in these markets. This is partly due to the fact that open futures and options positions are not balance sheet items, but this does not lessen the fact that lack of guidelines could result in unpleasant developments, especially in a volatile market environment.

Supervision of the market can either be preventive or can arise from crisis management. In both cases, regulations are put into force and official bodies are entrusted with enforcing these regulations not to prevent market forces from expressing themselves, but to do precisely the opposite: The well-being of the market and the assurance for its continued existence depend on preventing or stopping any developments that can seriously disrupt it. The only beneficial outcome of a crisis is that presumably lessons will have been learned and that measures can be taken to ensure it does not recur. However, the victims of such a situation would undoubtedly have preferred its avoidance in the first place.

#### U.S. Foreign Exchange Auditing

In the U.S., the interbank market is not constrained by a specific body of laws.<sup>12</sup> The foreign exchange activities of banks are audited by Fed and state examiners, depending on the charter of banks, whose job

is to check whether the internal guidelines set by management are comprehensive enough -- whether they encompass the general recommendations suggested by the examiners and are being followed by the traders. These yearly audits take the form of an examination of the books and usually include a revaluation of positions at the discretion of the examiners. Compared to other countries, the official supervision of market participants is almost minimal. The Fed does not issue any guidelines with respect to the size of positions that institutions could or should take, the type of activities that a given bank should engage in, nor does it concern itself with the credentials of traders, or their past history. As a legal precedent, the trial for fraud of a number of traders of the Franklin National Bank, which resulted in jail terms for some of them, did uncover illegal practices (hiding contracts, falsifying positions) but focused on clearly illegal activities rather than on dangerous market practices.

Since the foreign exchange market is international in nature, general restrictions on the scope and amount of trading activity in a given center are not very practical, because they cannot be effective. They end up pushing business to other centers and usually are detrimental to the local marketplace. In fact, such restrictions are more designed to influence currency trends than to protect the well-being of the market.

#### Closer Scrutiny

However, there should be closer scrutiny in two areas: 1) the activities of an institution in comparison with its size and underlying business; and 2) the qualifications of its traders. Moreover, this should not be limited to commercial banks, but must encompass all

market-makers in the interbank market. In the U.S., the only institution that logically should be entrusted with such supervision is the Fed.

There is no contradiction between the concept of a free market, where trends are determined by a combination of factors that prompts its participants to act without undue official interference, and the idea that there should be sufficient mechanisms that insure that the market can continue to perform efficiently. In fact, the former cannot exist without the latter. As the foreign exchange market has grown in importance and as its influence on other markets as well as on many facets of the world's economies has increased, its well-being and its ability to function efficiently are more important than ever.

FUTURE TECHNOLOGICAL DEVELOPMENTS: CAN TRADING ROOMS BECOME  
OBSOLETE?

As recently as the early 1970s, a market participant had to be located in or near a major financial center to be able to trade with a reasonable degree of competence. Without efficient communications systems, many parts of the world were more or less cut off from the mainstream of the market. For example, in the U.S. only banks located in the Northeast, Chicago, Dallas, Los Angeles, and San Francisco were able to maintain rapid contact with the rest of the world. Moreover, the working hours were really limited to the time when traders were physically present in the trading room, because even those who had ease of communication from their homes had really no sense of what was going on in the market. Clients had an even worse problem, since they depended completely on their banks for information about the market.

The enormous improvements in communications and information retrieval devices have changed this situation radically. With rare exceptions, anyone can have instant access to the market no matter where from, and those who can afford it can lease a video display terminal that provides them with the latest information and rates pertaining to any major financial market.<sup>1</sup> Many senior dealers now have such equipment in their own homes and are therefore able to monitor their positions around the clock if they so desire. Just as in time the concept of a formal marketplace for the interbank market has disappeared because there was no need for it, the question of the validity or need for a trading room arises.

### How Much Change?

Office location. From the standpoint of an organization such as a bank, the argument that traders can permanently operate from home raises strong objections. Most banks have no problem with senior dealers doing some overnight trading from home but usually make it clear that such activities are more restricted than the normal intraday business. There is a need for direct control of the trading function that no management can disregard. Also, there are operational aspects that cannot be resolved unless there is quick and direct access between the trading room and other departments. Once deals are written, they have to be confirmed and processed, and other departments have to get involved. If the workflow does not proceed efficiently, trading cannot go on.

There is little doubt that some new systems can be devised that may not only eliminate the need for traders to sit in the same building as their management, their back office, or their operation department -- many banks have operated that way for years -- but could also allow members of a trading team to work from different places. In theory, an electronic trading room that does not have one physical location is feasible, but it is unrealistic to assume that any organization would push for such a development, for control and management reasons. What would also be lost is the sense of teamwork that is so important for a trading room. Another important reason for a centralized trading room is the obligation to service customers efficiently.

Adaptation. The major problem that market participants will continue to confront, when faced with increasingly sophisticated technology, is one of adaptation. The tendency to rely excessively on the screens, or to be unduly influenced by them, which is a phenomenon

that every senior trader in this market never fails to bemoan, is a symptom of a basic problem that exists in any environment where major technological advances take place in a short time span.

Turnover and independence. A significant change that may result from increased access to cheaper equipment is the departure of senior traders from their organizations and the rise of small trading operations run by former bank traders. Over the years, one of the major issues that pitted banks against their traders has been the question of whether the latter should be allowed to trade for their own account. In most cases, banks have not permitted it for a number of reasons, acknowledged by the majority of traders: There are always potential conflicts of interest; traders should not spend their working hours worrying about their own positions; there could be an overwhelming temptation to mix personal positions and the bank's positions with a bias toward pushing profits in the former and losses in the latter. Yet the traders have not been very happy about the fact that they cannot use their expertise for personal gain. Traders are very well paid; in the U.S., the yearly base salary of a foreign exchange trader with no more than 3 years' experience in spot trading was somewhere around \$50,000 and up in the early 1980s. But many feel that they could earn even better if they could share a greater part of their profitability.

Traders are a dedicated lot. They work long hours under pressure and cannot leave their work in the office. They constantly worry about their positions and about the market, and those who are profitable contribute a significant part of the profits of their organizations. At the same time, they are very much in demand, even when the market is not

expanding greatly, and the foreign exchange market has always been characterized by a high turnover in personnel.

With the advent of readily available information-retrieval equipment, it is now easy for experienced traders who have confidence in their own ability to set up their own shops. The futures and options markets give them the means to trade for their own account without having to acquire or use a significant amount of capital. More important, these traders can approach potential clients and compete for servicing them with banks or other financial institutions.

The major impact that such a development would have in the market is an increase in personnel turnover and more new managers. This may be somewhat detrimental to the market as experienced personnel are lost, but there is little that banks and other institutions can do to counter this trend, which will undoubtedly continue.

In that sense, the general trend away from centralized marketplaces and the advent of the "electronic cottage" is also beginning to be felt in the foreign exchange market.

WHAT WILL BE THE FOREIGN EXCHANGE ENVIRONMENT, AND WHO WILL  
THE PLAYERS BE?

How the market evolves from its present state not only depends on technical innovations or on the skills of its participants, but is also and primarily a function of the events that will shape the world economic environment in the future. Whether the market and its activities continue to expand, and what form this expansion takes, will be determined by what happens to world trade and by the evolution of the capital markets around the globe. At the same time, the impact of what takes place in the foreign exchange market will influence the policy decisions of the major economic powers. The intricate interdependence of world markets and world economies was never as great and as obvious as it is now.

Importance of Foreign Exchange in the U.S. Economy

One clear sign of this is the sudden importance that foreign exchange matters have assumed in the United States in the 1980s. For a long time after World War II, exchange rates were of little interest to American economists and policymakers. In the 1960s and 1970s there was occasional preoccupation with such issues as the U.S. balance of payments, and of course those involved in areas of the U.S. economy directly affected by exports or imports always paid close attention to the balance of trade, but the impact of currency fluctuations was never considered an important factor for the economy as a whole. How radically things have changed can be readily seen by the attention that other U.S. financial markets pay to foreign exchange developments and by

increased public debates on the role that the Treasury and the Fed should play in the market.

#### The Dollar vs. the ECU

In the past, the dollar has dominated the international monetary scene. The Bretton Woods system was based on pegging currencies to the value of the dollar. In more than 10 years of floating, the fortunes of the dollar were major determinants for the course of exchange rates, and despite efforts by countries and supranational organizations to find additions or substitutes to the dollar as international reserve assets, the U.S. currency continues to function as the major international medium of exchange.

However, in recent years the European community has mounted a strong effort to develop an alternative to the dollar, out of frustration with the refusal by the U.S. to cooperate with its attempts to control more effectively the movements of exchange rates. At the inception of the European Monetary System, its members created a pool of funds drawn from each participating country that could be used as a reserve resource in order to maintain the stability of the system. This pool of funds, known as the European Monetary Cooperation Fund (EMCF), is an international equivalent to a country's reserve assets and is denominated in a basket of 10 currencies known as the European Currency Unit (ECU)<sup>2</sup> -- a pun on a French monetary unit of the past. The role of the ECU has increased dramatically in recent years, a fact which is not surprising since so much trade exists within the EEC; in fact, all members of the European Economic Community are each other's major trading partners. From its initial use which was strictly for official transactions, the ECU has become a vehicle for borrowings by European

companies (who incur a smaller exchange risk than when they borrow in dollars) and for an investment medium. For the first time since World War II, the international financial community has what could turn out to be a genuine alternative to the dollar as an exchange medium. This could profoundly affect the future of the market if the use of the ECU continues to grow, officially as well as privately, and may lead to an international monetary world where rates do not revolve around one pivotal currency -- the dollar -- but two. In the meantime, there is little doubt that the ECU is a perfect vehicle for many international investors and borrowers and that therefore it will assume an increasing role in the market.

There was a time in the 1970s when there was an international effort to promote the use of currencies other than the dollar, such as the mark or the yen, as reserve assets. This effort never really succeeded because of the strong opposition of the German and Japanese authorities, who did not wish to lose control of their monetary policy. There is little prospect that in the near future any single currency besides the dollar or a basket of currencies besides the ECU will be substituted for them. The only serious candidate, the yen, is not a viable alternative because the Japanese capital markets are still restricted and their liberalization is a very slow process. Other alternatives such as the SDR are impractical and of little use to anyone but the IMF in the computation of the reserves of its member countries and of the allocation of resources to them.

#### Deregulation

Since 1979, a major reason for the growth of the market has been the process of deregulation that has gone on in many countries, just as

in the 1960s the removal of tariffs and trade barriers had given it a huge boost. How far deregulation goes and what progress is being made in continuing to dismantle the rules that limit trade and capital flows will determine what happens to the market. Despite the complaints that importers, exporters, and international investors are hurt by currency fluctuations, the free expression of market forces is an essential condition for the well-being of the market. In that sense, as long as progress is being made in allowing the free flow of goods and money between countries the market will benefit and grow.

#### Increased Access

As a result of its sustained expansion, the market has reached the point where anyone, whether it is a private individual or an entity of any size, has access to it and can use a variety of instruments that suit just about any purpose. There are few potential marketplaces that have not developed yet because of conditions other than the local political or regulatory environment. The vagaries of exchange rates may still be arcane to many, but the information is there at anyone's disposal. There are futures markets for the small, or large, speculator in the U.S., the U.K., and Singapore, and if the latter two are successful in time, there will be more. Options markets are being developed in the U.S. and will exist in other parts of the world in the future. Therefore, foreign exchange has passed the boundaries of the world's banking systems. Yet, the interbank market will remain its center, and the future of the market remains intricately linked to the viability and health of the banking world.

Basic Structure Persists

The market has certainly evolved in size and complexity, yet its structure is not very different from what it was in the 1960s. The role of the central banks, commercial banks, and clients is essentially the same. There have been changes, of course. For instance, it is no longer so easy to define a commercial bank as opposed to an investment bank or a merchant bank or a non-bank bank. The activities of central banks, commercial banks, or clients cannot easily be classified, and the concept of what constitute "legitimate" or "speculative" transactions is a hard one to define. Yet there is also continuity. Some participants come and go. Certain institutions, like flashing stars, are very visible in the market one day and disappear the next day. The importance of various centers increases or decreases, just as the market itself focuses on ever-changing factors. This is an ever-going process, which does not detract from the fact that basically the order or importance of the various players as groups has remained essentially the same and is not likely to change in the foreseeable future.

## CAN THERE BE AN INTERNATIONAL MONETARY SYSTEM AGAIN?

The demise of the fixed rate system and more than 10 years of floating have not laid to rest the debate over the need for or desirability of an international monetary system. In fact, every recurring period of market instability has brought forth more cries for reform of the current system -- or non-system, as its opponents call it.

Historically, the only attempt to create a global modified fixed-rate system to replace the one instituted at Bretton Woods was a dismal failure: The Smithsonian agreement never really worked, and the conditions under which it was terminated and what ensued were for a long time considered sufficient reasons for not trying to go back to such a system.

In the U.S., a number of politicians and economists have periodically called for a return to the gold standard, to ensure that in the future the country's fiscal policy would not be predicated on deficits, but they have little following and few believe that such proposals are either practical or feasible.

Abroad, the French government among others has repeatedly demanded the convening of an international conference whose purpose would be to recommend a comprehensive international monetary agreement.

Such requests have found little support among officials of other major economic powers and within the foreign exchange community. In their eyes, floating may not be a very good state of affairs, but as Churchill said about democracy, it is the best the world has. There is strong opposition to the reestablishment of a global fixed rate system both on ideological and on practical grounds.

The rules that are the basis of any fixed rate system impose on its members the obligation to support the predetermined levels through intervention. Whether such intervention is unilateral or multilateral, the result has always been a loss of funds for the central banks involved whenever there was an adjustment of parities.<sup>3</sup> More fundamentally, fixed rates are established on the premise that there are permanent or semi-permanent levels at which currencies can be pegged against each other. This may be partially true in the case of individual currencies, or small groups of currencies, but in the context of the global system it is difficult to reconcile such a notion with the course that exchange rates have taken since 1973, especially in an environment where capital flows much more freely between centers than it did then. Consequently, the chances of returning to a worldwide fixed exchange rate system are poor at best.

A major reason behind demands for reform of the current system is that floating has failed to deliver what its proponents claimed it could achieve: an equilibrium where market forces would naturally push the exchange rates.<sup>4</sup> Instead, rates have remained unstable, and forecasting currency trends is as chancy as it has ever been. To that, the advocates of floating would reply that if governments left the market alone, their theories would prove to be correct. Whether this is true or not is immaterial, since there will always be official interference with the market.

#### Modest Change?

While no one expects that an international agreement would result in the implementation of some new system, many governments and central bankers are looking for more modest, but more practical measures that

could spare the world some of the instability that exchange rates have exhibited in the past. Proposals have ranged from more active concerted intervention to targetting "zones" within which currencies would be free to fluctuate but that would be maintained through intervention, with general international agreements to coordinate economic policies, including fiscal and monetary policies.

Counterforces. Despite extensive preparatory work in all these areas by individual central banks, governments, and by international teams, there is little chance for any of these proposals to be adopted because they clash with national policies. To begin with, it is unrealistic to expect any form of international agreement that would force each country to surrender to any extent the conduct of its economic policies to a supranational body. Second, as has already been demonstrated by the failure to achieve a meaningful agreement on joint action to counteract disorderly markets at the 1983 Williamsburg summit, there are such deep-seated philosophical differences with respect to intervention that putting this subject on any agenda is likely to prompt more arguments rather than elicit a solution. Third, despite official protests to the contrary, each country has definite views as to what constitutes a "correct" level for its currency, even if that view changes with the times, and is more interested in promoting conditions that would favor it than to work in the spirit of international cooperation. As can be imagined, these views are not only radically different but often are opposite each other.

Even such a vague concept as target zones is nothing but a modification or an enlargement of a fixed rate system in the view of its opponents and does not propose any solution for the problems that led to

the breakup of fixed rates in the first place. This is the American view, and it is highly unlikely that the Treasury would entertain the idea of fixed bands, no matter how wide, and automatic intervention to protect those bands. As far as an agreement to coordinate monetary and fiscal policies, it is nothing but a pipe dream and would not be worth the paper it would be written on.

Thus, there is no chance that any reform of the current monetary system can be achieved in the near future, and the odds are that the status quo will be maintained for want of a better thing.

#### Reasons for Concern: Control of Volatility

Yet there are legitimate reasons for governments, central banks, and market participants to be concerned with the state of the market in general and with the volatility of exchange rate movements. Moreover, although the public statements by various central bankers about close contacts and cooperation are partly exaggerated, it would be wrong to assume that there are no grounds where countries work in harmony.

Certainly, in case of extreme political disruptions -- such as the assassination of a public figure, or a sudden crisis in East-West relations, or of a breakdown of the market for technical reasons, such as a massive power failure in one of the major centers, or some act of market sabotage -- all the governments and central banks of the industrialized world would stand ready to cooperate in taking whatever actions are necessary to allow the market to function properly. The reason is that all have an equal stake in preserving the market. This is so fundamentally true that there is no need of an international conference or discussions to enforce such an agreement. It is almost taken for granted, and historical precedents not only confirm that joint

actions have taken place, such as when President Kennedy was assassinated or during the Cuban missile crisis, but they also were effective in calming the market.

In this context, it becomes obvious that international cooperation can only be reached in areas where all parties concerned cannot detect any conflict with their own national interests or their basic policies. As this relates to the market, one area in which a formal international agreement can be attained is in the control of volatility -- that is, the extent to which rates fluctuate within a given time-span.

The question of market volatility is a serious one for all participants. As the past has proven, basic trends will benefit some and hurt others, and whether the level of a currency is correct, too high, or too low, is always a matter of endless debates. But the speed at which rate changes have been occurring is helping no one except those market participants who are quick enough to catch the trend, jump in, and take their profit quickly. It hurts the commercials, who cannot act like traders and who are often confronted with unanticipated situations without having the time to protect themselves; it makes the job of their banks more difficult because counseling the clients and acting on their behalf becomes almost crisis management; it is a constant headache for central banks who end up reducing their strategies to short-term actions; and it leaves the market groping for clues that are often not found until after a movement has taken place. In fact, the experience of the market since 1981 is that volatility breeds volatility and creates increasingly unstable conditions. Traders are expected to have a short time horizon in their foreign exchange strategies, but

corporations and governments cannot afford to, yet have little choice under current market conditions.

Feasibility of volatility control. The inevitable conclusion is that rather than try to look for impractical solutions to problems whose scope no one agrees on, there should be an international effort on the part of the major economic powers and their central banks to reach an agreement that deals strictly with market volatility. As a topic, it is narrow in scope and its technical nature does not involve potential ideological conflicts, nor does it clash with national considerations.

The research for the study of rate volatility is fairly simple and straightforward, since it involves only the compilation and analysis of exchange rates since 1970. The policies that can be drawn from such a study are equally clear, providing that only the technical aspects of rate movements are considered. And series of agreements can easily be reached that would limit rate variations over certain period of times, be it one day, one week, or one month, to maximum levels, with the stipulation that these agreements in no way imply that any trend is being encouraged or resisted. The agreements can be bilateral in nature, or multilateral, depending on whether central banks would be willing to pool their resources or would simply use their own reserves to enforce them. Provisions would obviously have to be made for special cases when conditions force the rapid appreciation or deterioration of a currency, but this remains a relatively minor point since the spirit of such an accord would be the control of average volatility. As a final point, while such an agreement has to be known to the market at large, there is no reason to spell publicly what the exact parameters would be. In fact, it would probably be better if they were kept confidential.

What makes such an agreement so attractive is that it has short- and long-term benefits for all: It gives governments and central banks a basis for day-to-day cooperation and removes the issue of intervention from the ideological stage without impairing anyone's sovereignty, and it defuses the ever-present conflicts about rate levels. It allows central banks to be active market participants without putting them in a controversial position. It gives some breathing room to all market participants without perverting or falsifying trends, and leaves no doubt in anyone's mind that the well-being of the market is being protected.

This example of a feasible international agreement illustrates a place for future cooperation between countries. The search for a new system or for all-encompassing solutions is not only futile, but counterproductive. Instead, the future of the market depends on a realistic approach to the problems that confront it and on looking for practical answers that address specific issues. The choice that governments and central banks are facing is that of remaining inflexible in sticking to their own ideology, thereby letting market conditions drift to the point where something has to be done in a hurry, or looking for areas where agreement can be reached and preventing potential crises.

## POSTSCRIPT

### MAJOR DEVELOPMENTS FROM 1985 TO MARCH 1986

The major part of this study was written in the fall of 1984, a time when the dollar was on the rise and when international official cooperation in foreign exchange matters was more fiction than fact.

Since then, several important events have taken place in the arena of the foreign exchange market. The market itself and its participants have not undergone any drastic changes, although some of the major participants have changed. For instance, adverse economic or political developments have curtailed the market activities of the Singapore Monetary Authority and the Reserve Bank of South Africa. In the meantime, the role of funds managers seems to have grown, at least from the perception of many interbank traders, who now claim to have clients that are willing to take extremely large positions on occasion. While no recent study of the market turnover has been forthcoming in the past couple of years, the Federal Reserve Bank of New York undertook such a study in April 1986. The results, expected during summer 1986, may give some indications of the evolution of the market.

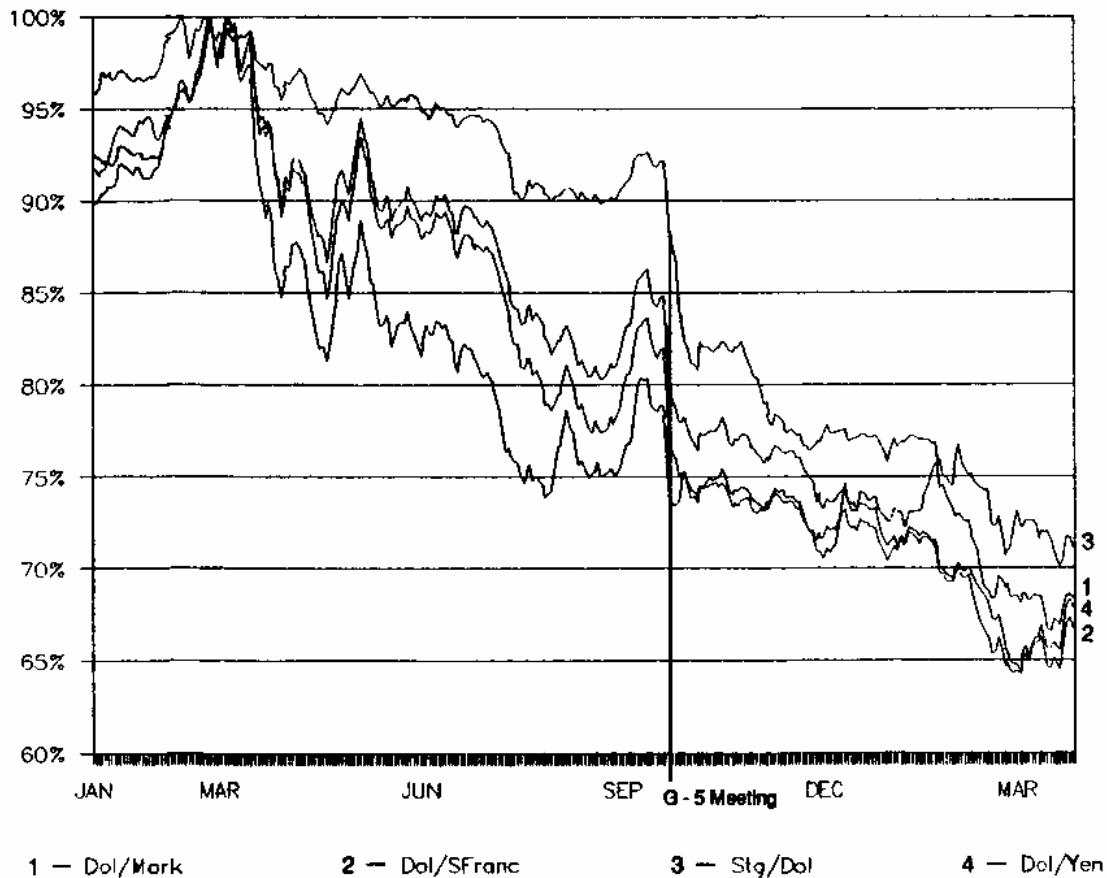
#### The September 1985 G-5 Meeting, Its Aftermath, and the Oil Price War

One of the two most notable events in 1985 was the meeting in New York during the weekend of September 22, 1985, of the finance ministers and central bank governors of France, Germany, Great Britain, Japan, and the United States (known as the Group of Five, or G-5). Sometimes known as the Plaza meeting, from the name of the hotel, this extraordinary gathering was convened because of alarm over a rise in protectionist sentiment in the U.S.: American trade deficits were increasing in the midst of a generally soft economic performance, and the dollar was

perceived as overvalued on the foreign exchange market. Several dozen protectionist bills were pending in Congress, generating fears of a resurgence of the trade wars of the 1930s. Since a major reason for the large trade deficits was held to be the high level of the dollar in the foreign exchange market, the G-5 issued a communication at the end of the meeting restating the goals of the 1983 Williamsburg summit and adding the agreement among all participants of the "desirability" of a lower dollar. Days later, to underscore the point, several major central banks, including the Bundesbank, the Federal Reserve, and the Bank of Japan, intervened openly in the market by selling dollars while various officials reemphasized in public statements their determination to push the dollar to weaker levels.

Timing was what made the G-5 agreement rather unique and gave it so much impact. When the meeting took place, the dollar had substantially declined from its highs achieved in February 1985. (See Figure 22). For instance, the mark had improved from a low of 3.4750 (marks per dollar) to a level of roughly 2.9500. Other European currencies had also strengthened against the dollar, but the Japanese yen had only improved by some 10% in the same period, climbing from a low of about 265 yen per dollar to around 240. The onus was on the Japanese to do something to strengthen the yen, with the pressure coming not only from the Americans, but also from the Europeans. Yet the trend for the dollar was down. The G-5 officials may have feared that the dollar was about to rebound (such rallies had been frequent in past years) which prompted a more forceful approach. The result was a joint intervention by several central banks selling dollars into a market that was at least mildly bearish toward the U.S. currency. Thus, this market action was

unique in that it was not contrary to market trends, probably a major factor in its success. Other possible reasons were the unexpectedness of the meeting, which had not been publicly advertized, and the initial skepticism of the market when the communique was issued at the end of the meeting.



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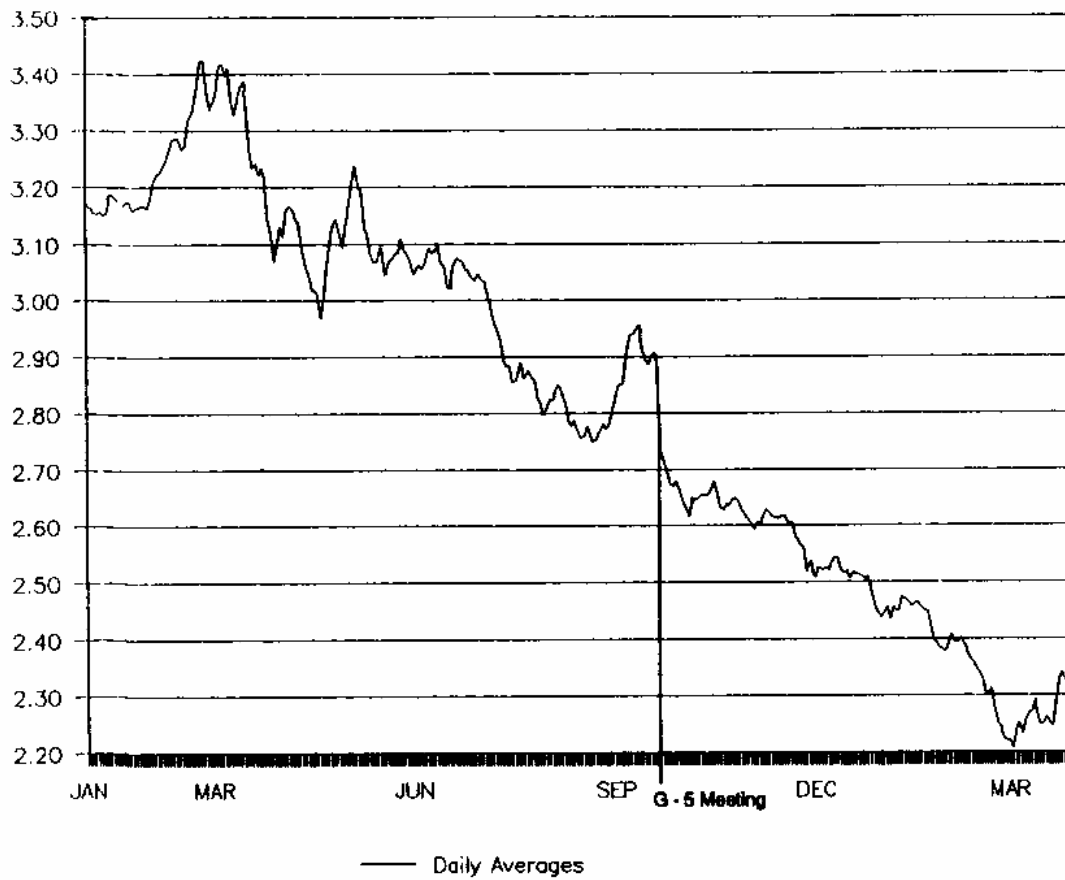
Figure 22

Dollar Changes from Its Highs in 1985  
Daily Percent Changes (1/2/85 - 3/31/86)

The G-5 agreement also marked a major change in the official U.S. attitude toward exchange rates. During the Reagan administration there had been two previous policies regarding the dollar: Under Treasury secretary Regan, the approach had been basically "hands off," but in the

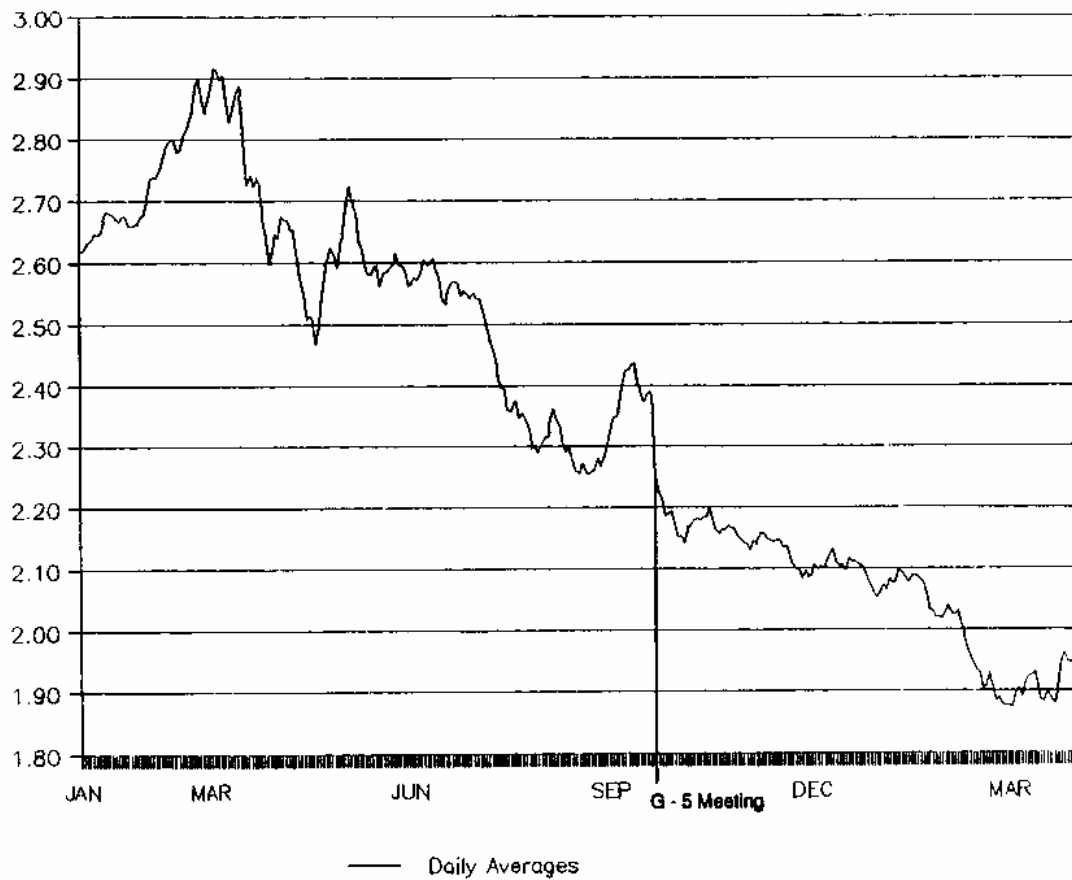
summer of 1984 there was some mild support of the strong dollar, both for political reasons during the presidential campaign and for financial reasons, to encourage inflows of foreign capital at a time when the Treasury was borrowing heavily to finance the budget deficit. Under secretary Baker the approach has been different: There is little doubt that the G-5 meeting was convened primarily at the initiative of the United States. Also, the Treasury has undertaken to study the feasibility of some form of international monetary reform.

The second major factor that impacted the market in late 1985 and early 1986 was the oil price war and the collapse in oil prices. The market treated this event seriously in view of the impact of the rise in oil prices during the 1970s. One of the immediate consequences was more downward pressure on the dollar, since the combination of lower oil consumption and lower oil prices meant less demand for dollars from oil consumers. (See Figures 23 through 26).



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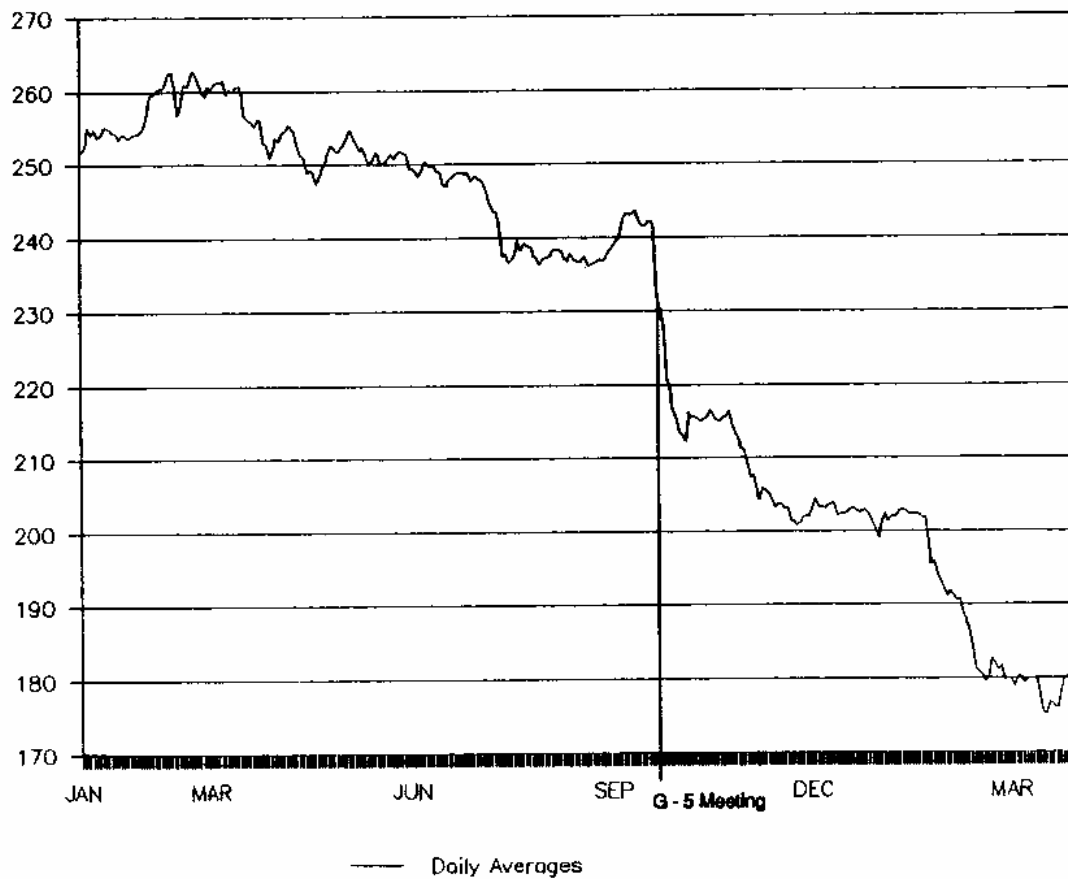
Figure 23  
U.S. Dollar vs. DMark  
(Jan. 2, 1985 - Mar. 31, 1986)



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Figure 24

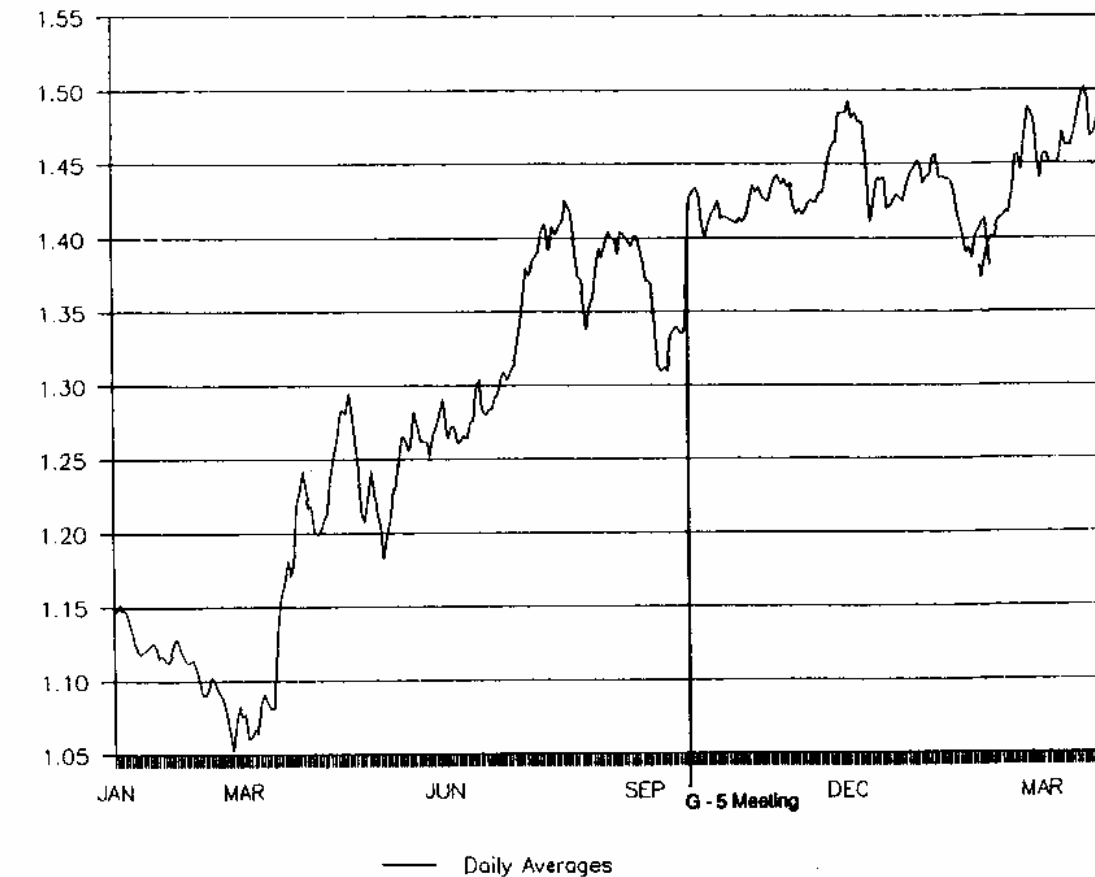
U.S. Dollar vs. Swiss Franc  
(Jan. 2, 1985 - Mar. 31, 1986)



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Figure 25

U.S. Dollar vs. Japanese Yen  
(Jan. 2, 1985 - Mar. 31, 1986)



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Figure 26

Pound Sterling vs. U.S. Dollar  
(Jan. 2, 1985 - Mar. 31, 1986)

The action taken by the G-5 illustrates that circumstances rather than rules dictate official actions and that the validity of historical comparisons can only go so far. Usually, official intervention is associated with a market whose trend is contrary to that desired by governments, but in this instance this was clearly not the case. Interestingly enough, beyond the initial intervention, which according to official accounts and market estimates totalled some \$10 billion (see Federal Reserve Bulletins) and a large number of public statements and speeches, mostly by Japanese and American officials, no other concrete

actions were taken or needed to push the dollar to much lower levels: The market did it itself. In fact, in early 1986 there were expressions of concern by some officials in Japan, Germany, and the United States about the speed and sharpness of the dollar's fall. (In the space of one year, the dollar has lost approximately one third of its value against major currencies such as the German mark, the Swiss franc, the British pound, and the Japanese yen).

#### Toward a New Monetary System?

The G-5 declaration abandoned all pretense that, as a basic policy, central banks were willing to see exchange rates seek their own levels through the free interplay of market forces. In fact, the five industrial powers acted to dictate a trend to the market. This seems to imply that the market may no longer be under a floating regime but rather is being channeled toward some form of "target zones," or bands where exchange rates can more-or-less freely fluctuate but that the central banks would defend if they are breeched. However, no matter how true this may appear, there has been no way to confirm it because the market has not challenged the central banks. Moreover, the G-5 agreement emerged in one of those rare instances of international consensus -- in this case, consensus on the need to avoid protectionism. At some point, the fall of the dollar will cause developments which may well prompt one or several of the industrial powers to change their attitude.

#### Is a New International Monetary System Feasible?

The only lessons that the short history of the modern foreign exchange market have provided thus far are that the trends of the major currencies are cyclical and that in the great majority of cases these

trends are irresistible: Official efforts to stem or stop them do not work. The success of the G-5 program may have encouraged some governments to believe that controlling the foreign exchange market is not as far fetched as the financial community thought in the past decade, but it should be remembered that the attempts to stop the rise of the dollar were not successful. In this context, a truer measure of how well the central banks are now controlling the market would be how they can stem an excessive fall of the dollar if the trend started in 1985 continues unabated.

Permanently formalizing international control over exchange rates needs certain prerequisites:

- . a predetermined common policy that all parties must adhere to;  
Such a policy includes automatic actions that each country would undertake regardless of whether they suit it at that particular moment or not;
- . the establishment of certain criteria that would determine "correct" levels or zones;
- . a "war chest" of currency reserves that can be drawn upon to enforce the policy;
- . a mechanism that allows for changes in rates beyond the initial agreed levels.

While U.S. policy on exchange rates has undergone a basic change under Treasury secretary Baker, this change still appears to have been dictated by expediency rather than by a desire to deal with the market on a permanent basis. Consequently, it can be assumed that whenever circumstances dictate another policy, the current attitude will change as well. This is true not only for the U.S. but also for any other

major power. Moreover, occurrences when national interests do not conflict are the exception rather than the rule.

One element may have permanently changed: the realization that no economy can operate independently of the rest of the world. Because the governments of the industrialized nations are aware of the influence of exchange rates on their economies, they may want to find a way to control or at least to monitor the foreign exchange market.

Yet the goal of a new system that would formally replace floating remains elusive. Although the European Monetary System is still working well, it operates in a relatively narrow zone where all members are each other's major trading partners and still does not include the British pound (although Great Britain is nominally a member of the EMS): Both the British and the other current EMS members seriously fear that the system could not stand the strain of having such a major, and volatile, currency as another component. This makes it difficult to envision a worldwide version of the EMS, especially one that would include the U.S. dollar.

The idea of establishing a system of target zones is more seductive, but unless the fixed bands remain unknown to the market the ultimate effect may not differ from that of an EMS-type system because of the anticipatory nature of the market.

The return to the pegging of currencies to gold or, as some have proposed, to some basket of commodities is even more difficult to envision due to the erratic movements in commodities or precious metals prices in the past two decades, just as it is difficult to imagine a throwback in a country's monetary policy to the times when money supply was contingent on the gold or silver backing of its currency.

The evolution of the market and events that surround it make it imprudent to be absolute in predictions of future developments. Yet even with the hindsight of the aftermath of the G-5 meeting, the odds are still against a new monetary system in the foreseeable future. Broadly speaking, implementation of any international system needs the agreement of all potential participants, which means that they all have to believe that being part of it is in their interests and that the system is realistic and comprehensive enough to have a chance to work -- permanently. At the least, an international consensus would take a long time to develop, given the differences of opinions among experts and countries, and such a consensus could end up being as fleeting as it has been in the past if, as can be expected, the various economies in the world continue to operate in divergent manners.

NOTES

Foreword

- 1 The following 50-page booklet provides a capsule description of the U.S. market together with a quick overview of some fundamental foreign exchange calculations. Major banks such as Chase Manhattan Bank and Swiss Bank Corporation have issued similar booklets:

Roger M. Kubarych, Foreign Exchange Markets in the United States. New York: Federal Reserve Bank of New York, 1978.

Introduction

- 2 Active foreign exchange trading rooms are identified in the annual:

Margaret Wood, Foreign Exchange and Bullion Dealers Directory. London: Hambros Bank.

This directory is distributed exclusively to the banks listed in it. While not always up to date because of the constant changes in the market, it is considered the most reliable guide to the foreign exchange market.

- 3 By comparison, there were some 170 banks listed for the U.S. in Foreign Exchange and Bullion Dealers Directory, 1984, with some 25 known active banks not listed. The membership roll of the U.S. Forex stands at about 1000, with several hundred foreign exchange brokers.
- 4 Until the early 1970s, the foreign exchange market was very much a man's world. To this writer's recollection, in 1967 there were no more than two or three women traders in the U.S. -- and none among brokers. Since that time, things have changed considerably. Even though men still constitute a majority of market participants, a number of women manage trading rooms. Among the new generation, at least in the U.S., there is an almost equal proportion of men and women.
- 5 In 1967, a transaction of \$500,000 was considered sizeable.
- 6 The following International Monetary Fund annual report details regulations and restrictions that pertain to international capital and foreign exchange transactions enforced by each member country:

International Monetary Fund, Annual Report on Exchange Arrangements and Exchange Restrictions. Washington, D.C.: International Monetary Fund, 1979 --. Formerly: Annual Report on Exchange Restrictions.

- 7 Several technological factors have radically changed the pace of trading between the 1960s and the 1980s. The first is communications. Whether traders call their broker or another bank, especially one abroad, it takes only seconds for the communication to go through where 20 years ago it could have taken up to a couple of minutes. The second is calculators. A small electronic calculator can compute instantaneously a series of operations that took sometimes a minute or two with the old electric machines. The third is electronic data processing, which makes it possible to have instant updates of one's position, a job which had to be done by hand in the old days. It is fair to say that a trader can execute 10 transactions today in the time it took to do one 20 years ago.

## Part I

### I.1 Useful books dealing with the period include:

Robert Solomon, The International Monetary System, 1945-1981. (2d. ed.) New York: Harper & Row, 1982.

Charles A. Coombs, The Arena of International Finance. New York: John Wiley & Sons, 1976.

John Williamson, The Failure of World Monetary Reform, 1971-74. New York: New York University Press, 1977.

Robert Solomon, a Federal Reserve Board official, provides a good retrospective of the major events surrounding the birth, life, and demise of the Bretton Woods system, and the subsequent era of floating, from a policymaker's standpoint. The book contains an excellent chronology of major events on the international monetary scene between 1944 and 1976. Charles A. Coombs was in charge of the Federal Reserve Board's foreign exchange desk during the early 1960s and the early 1970s. He relates the events of this turbulent era as seen by a central banker. John Williamson's book is one of the best among those dealing with the breakup of the fixed rate system.

- I.2 For the past two decades, the World Bank has devoted the major part of its resources to helping Third World economies.
- I.3 The concept of multilateral defense of a currency did not exist under the original rules of the Bretton Woods system. It began in 1964 with an international "package" of measures to defend the pound and has later been implemented under the various European common floats.
- I.4 The IMF rules did allow a 10% leeway in parity changes before prior consultation was required.

- I.5 While it is relatively easy to define strong or weak currencies and deduce the level of confidence that they are held in, this does not necessarily mean that their exchange rate behavior can be explained only by these criteria. In most countries outside Western Europe and North America, currencies are supported by the regulations that their governments put on.
- I.6 The Swiss secrecy laws, according to the Swiss, were established to protect foreigners persecuted in their own countries for political reasons. The numbered accounts were devised to shield Jewish account holders from the Gestapo, which had gained access to lists of Swiss bank accounts during World War II.
- I.7 In the late 1970s, the law prescribing that a specific percentage of Swiss currency in circulation be backed by gold was considerably relaxed.
- I.8 In 1974, U.S. citizens were again allowed to hold gold. Before that, many sidestepped the law by opening accounts in Toronto, thereby contributing to the Canadian city's growth as a major gold center.
- I.9 The Versailles Treaty that formally concluded World War I imposed economic sanctions and war reparation fines on Germany and its allies of such size that it crippled the German economy and was partly responsible for the unstable conditions that led to the rise of the Nazis.
- I.10 The expressions "vicious circle" and "virtuous circle" describe the chain of events and circumstances that create increasing upward or downward pressure on currencies. The cause and effect relationship goes like this: A weak economy, political unrest, low productivity, and high inflation lead to capital outflows and trade deficits, which produce high interest rates, higher inflation and loss of confidence, and pressures for devaluation. Intervention pushes interest rates higher, forces increases on the money supply, leads to a depletion of foreign exchange reserves and to external borrowings. Devaluation is accompanied by restrictions, higher external debts because of the depreciation of the currency, higher inflation that eats up the temporary competitive export advantage, and the cycle can start again. The virtuous circle goes the opposite way.
- I.11 Interestingly enough, no provision had been made in the Bretton Woods system for U.S. actions to support the dollar against other currencies beyond the obligation to exchange gold for dollars at the fixed rate of \$35.00 per ounce. In some ways, the system reflected what was to become for a long time the official U.S. attitude that there was no dollar problem, only other currency problems.

- I.12 That is, by contracting to buy or sell currencies at a date beyond the spot date. The par values and bands in a fixed rate system apply only to spot rates. Forwards (or future) rates are also determined by interest rate differentials, which cannot be internationally regulated.
- I.13 The systematic draining of short-term liquidity by the Bank of England, which made it prohibitively expensive to finance short Sterling positions.
- I.14 The Russian-owned Banque Commerciale pour l'Europe du Nord in Paris claims to have been the first institution to have provided Eurodollar facilities together with the Moscow Narodny Bank in London, and still retains the cable address "Eurobank."
- I.15 One of the best theoreticians of foreign exchange, Paul Einzig, wrote the first comprehensive study of the Euromarket in 1964:

Paul Einzig, The Eurodollar System: Practice and Theory of International Interest Rates. London: Macmillan, 1964.

For a more recent edition, see:

Paul Einzig and Brian Scott Quinn, The Eurodollar System: Practice and Theory of International Interest Rates. (6th ed.) London: Macmillan, 1977.

- I.16 The Fed did indirectly impact the Euromarket by imposing marginal reserve requirements on offshore dollar liabilities of American banks.
- I.17 The influx of American banks in London during the 1960s was such that Moorgate, the small street in the City where many of these branches were then located, was called locally "Yank Alley."
- I.18 Banks began to use the Cayman Islands when fears began to mount about political strife in the Bahamas. The Cayman Islands, a small British dominion in the Carribeans, has such a tiny population that the political risk is held to be nil.
- I.19 Fed funds deposited on a Friday earned interest over the weekend, while Clearing House funds (non-interest-bearing funds) deposited on a Friday became Fed funds only on Monday.
- I.20 A currency swap is an exchange of currencies over a given period of time. The interest rate differentials between the two currencies swapped are reflected in the rates of exchange at either end of the swap.
- I.21 The "Bardepot" sterilized Capital inflows by forcing German banks to deposit any amount received from abroad above a certain quota with the Bundesbank, in interest-free accounts. Banks who did not comply were heavily penalized.

- I.22 In the spring of 1974, Citibank chairman Walter Wriston predicted that the prime rate would fall by the summer from 8% to 6%. Instead, it climbed to 13%. The unexpected rise in interest rates was the catalyst for the Franklin National Bank failure.
- I.23 The system became popularly known as the "Snake," a reference to a chart plotting the course of several currencies with fixed bands fluctuating in concert against the dollar.
- I.24 See, International Monetary Fund, International Finance Statistics. Washington, D.C.: International Monetary Fund, January 1948 --.
- One of the countries whose currency is now pegged to the franc, Guinea Bissau, is not a former French colony. The others are.
- I.25 Many U.S. and Canadian companies borrowed Swiss francs by issuing medium-term bonds when the currency had an exchange rate of SF4.3000 per dollar. These bonds were redeemed five to seven years later when the SF had climbed to 2.50-2.70 per dollar.
- I.26 Only in 1978 did the U.S. current account swing into surplus (\$14 billion), offsetting deficits incurred in prior years (1975 = \$11 billion, 1976 = \$1.3 billion, 1977 = \$16 billion). It swung back into a small deficit in 1979, and a modest surplus (\$4 billion) in 1980.
- I.27 The argument that the weaker dollar would enhance the U.S. trade competitiveness was countered by those who claimed that it allowed foreigners to purchase American assets cheaply.
- I.28 Many former members of the Carter administration have since come to recognize it and have expressed it privately.
- I.29 The Treasury Department learned a lesson that it would not forget in a long time. No U.S. official would be caught thereafter making comments about the high dollar. On the contrary, the Reagan administration, while sticking to its policy of non-intervention, has basked in the glow of the strong dollar, taking credit for the aura of confidence that the U.S. currency now generates.
- I.30 Diversification also included until 1980 purchases of precious metals such as gold and silver, especially in the Middle East.
- I.31 The EMS officially began in January 1979.
- I.32 There is an unverified story that one day when the dollar was under heavy pressure the Fed tried repeatedly to obtain permission from the Treasury to intervene, but could not do so because only the Under-Secretary for Monetary Affairs (the third ranking Treasury official) was authorized to permit intervention, and he was unavailable.

- I.33 An early version of the Carter package was presented by Fed Chairman Burns at the last Bank for International Settlements (BIS) meeting that he attended earlier that year.
- I.34 Cooperation did not last. The Germans did not want a crisis, but they did not want a stronger dollar either. As soon as the emergency was over, they tried to stop the dollar from rising through periodic central bank sales and through "open mouth" policy, especially by Bundesbank president Emminger, a past master at the game.
- I.35 The following is an ironic study of the international monetary scene in the post-war period through six U.S. administrations to the fall of the dollar in 1978. Designed for the general public and written by an outsider, the book offers good hindsight, but falters badly in its conclusions:
- Martin Mayer, The Fate of the Dollar. New York: Times Books, 1980.
- I.36 An inkling that the cycle of rising commodity prices was coming to an end was the peaking of gold prices and the "silver crisis" in early 1980.
- I.37 An example of space arbitrage: Buying marks against dollars in New York, selling marks against Sterling pounds in London, and selling pounds against dollars in Frankfurt. The first modern electronic calculators were introduced in the U.S. around 1972 by Wang Laboratories. The package consisted of two desktop machines (which could not function at the same time) connected to a briefcase-sized unit. The cost was close to \$5000.
- I.38 When the Monitor became widely used, some of the banks whose display was most commonly watched were accused by many of showing distorted rates in order to influence the market.
- I.39 This technical development was pioneered by Telerate in the early 1970s.
- I.40 Technical analysis is the study of prices behavior through the use of historical data arranged in predetermined models.
- I.41 A number of large international banks have been accused of such violations in recent years. The most widely publicized case was that of Citibank, which was supposed to have evaded French tax laws by switching profitable positions to the Bahamas and showing losses in their Paris branch.
- I.42 The following guide details banking hours and banking holidays throughout the world:

Morgan Guarantee Trust Company of New York, World Holiday and Time Guide. New York: Morgan Guarantee Trust Company of New York, 1982 ---.

- I.43 The IMM operates roughly between 7:30 a.m. and 1:30 p.m. Central Time. Various "pits," the areas where each currency is traded, have staggered openings and closings within 15 minutes of each other.
- I.44 It is perfectly normal for an American company to transact foreign exchange in Tokyo, for instance. Consequently, the movements that occur in a given marketplace may originate from elsewhere.

## Part II

- II.1 Part II updates a section from a previous book by the author:  
Claude Tygier, Basic Handbook of Foreign Exchange: A Guide to Foreign Exchange Dealing. London: Euromoney Publications, 1983, pp. 32-37, 42.
- II.2 Foreign exchange activities go back to the Middle Ages. In particular, banking families such as the Medici in Florence and the Fuggers in Augsburg were actively involved in currency exchange transactions. The modern foreign exchange market can be traced back to 19th-century Europe.
- II.3 That is, how the pound is performing against Britain's major trading partners, weighted on the basis of the percentage of trade with each country.
- II.4 The Swiss banks, always eager to protect their privileged role as market makers in Switzerland, have never hesitated to report to the National Bank what they considered excessive activities by others. In spite of their reputation as conservative bankers, the Swiss have had their problems at times. The largest reported loss in modern banking history happened in Switzerland (Credit Suisse in Chiasso).
- II.5 This is partly a reminder of the French cultural influence in the Middle East between World War I and the immediate post-World War II period. Many in the Middle East were French educated and prefer to do their business in the French-speaking part of Switzerland.
- II.6 The Edge Act allows U.S. banks to establish wholly owned subsidiaries in areas where full branches are normally prohibited, for the purpose of engaging in international banking activities. These subsidiaries usually take the name of the parent bank, or one close to it, adding the suffix "International." For example, the Edge Act subsidiaries of Bank of America N.T. & S.A. are called "Bank of America International."

- II.7 An "offshore" facility, be it a Cayman or Nassau branch or an International Banking Facility (I.B.F.), is identified by a separate set of books. Thus, a trader sitting at his desk on Park Avenue can transact simultaneously on behalf of his New York office, his Cayman branch, or his I.B.F.
- II.8 The "swap network," officially known as the "Federal Reserve Reciprocal Currency Arrangements," totals \$30.1 billion as of 1986. The major lines are with the National Bank of Belgium (\$1 billion), the Bank of Canada (\$2 billion), the Bank of England (\$3 billion), the Bank of France (\$2 billion), the Bundesbank (\$6 billion), the Bank of Italy (\$3 billion), the Bank of Japan (\$5 billion), and the Swiss National Bank (\$4 billion). The lines can only be activated by mutual consent.
- II.9 The ascendance of Toronto over Montreal, the historical financial center in Canada, can be directly attributed to the growing tensions in the 1970s between English and French-speaking communities.
- II.10 The practice of extending foreign exchange credit lines began in earnest around 1973. Prior to that time, only vague guidelines existed and the criterion was the judgment of the traders rather than that of a credit committee. In many European countries, such guidelines did not exist. The usual practice was to restrict activities with organizations known or rumored to have run into difficulties.
- II.11 The nature of turnover is not as precise as the term seems to indicate. In general, it refers to the aggregate (as opposed to net) total of transactions done over a certain period, regardless of the nature of these transactions. Turnover studies must be treated with caution, because there are repetitive elements. For example, if a bank sell \$3 million to another bank in the same center, a turnover study would indicate \$6 million in transactions, in reference to that one operation. In the same vein, a forward outright sale of \$3 million to a customer usually results in a purchase of \$3 million in the spot market, then a \$3 million swap (sale of spot, purchase of forward dollars) just to cover the operation. Similarly, holding a position overnight, if that position is in spot, necessitates a rollover swap in order to finance the position. A simple change in "normal amounts" traded in the spot market results in a large increase of turnover, just because of all activities connected with spot operations. Taking the case of our forward outright deal with a client, the \$3 million transaction results in a total turnover -- including the activity reported by counterparts -- of \$24 million! If the amount of the deal is \$5 million, the total turnover is now \$40 million. In addition, it must be presumed that the bank from whom we purchased the \$3 million spot and the bank with whom we do the swap are likely to do some operations of their own as a result.

- II.12      Meaning that when traders receive orders of such a size that their execution may have an impact on the market they first position themselves so that they can subsequently take advantage of the move that they precipitate.
- II.13      It was far easier to force the market into a trend 10 years ago, for two reasons: First, the centers were more isolated from each other and large participants in one market had fewer counterparts to contend with. Second, the overall size of the market was much smaller than it is today.
- II.14      The definition of "normal size" when referring to transactions varies with centers, currencies and market participants. In the case of the most commonly traded currencies, the dollar/-mark, normal size in the 1970s was considered \$3 million; and in the early 1980s, \$5 million.
- II.15      Covering, cutting, flattening, neutralizing, squaring are all terms that have the same meaning: doing the inverse of whatever transaction(s) created a position, i.e., selling a long position or buying back a short position.
- II.16      Traditionally, U.S. banks have avoided the small client business, especially individuals. Those who do accept such business often require hefty margin accounts or large compensatory balances.
- II.17      Corporate traders want to increase their clientele and press the traders to make more competitive prices, while the latter are mainly interested in their own positions.
- II.18      Whether a commercial order is profitable or not does not depend on the rate at which it is done, but on the rate at which the transaction is neutralized on the trader's book. For instance, if a trader sells a customer Sterling pounds at \$1.4000, he can only make a profit if he manages to buy the pounds back in the market at a rate lower than \$1.4000.
- II.19      Despite corporate clients' public protestations to the contrary, many traders claim that the activities of some of their corporate clients far exceed what could be considered legitimate hedging transactions.
- II.20      The following Financial Times Survey provides additional information regarding the evolution of the foreign exchange brokering business, with an emphasis on the London market:
- "Foreign Exchange and Money Broking," Financial Times, February 14, 1984, pp. 11-15.
- II.21      When problems arise, brokers are forced to assume a position temporarily, until they find suitable counterparts to the litigants. For instance, if Bank A does not agree to a deal done with Bank B, either because of amounts or rates, and Bank

B wishes to stick to the deal, the broker must find Bank C who will deal with A and B in a manner satisfactory to both, and who will then settle the differences with the broker.

- II.22 Commissions are negotiable. Larger customers request and usually obtain discounts based on minimum volume. Such negotiations must be one on one, between broker and client. A few years ago, the Justice Department enjoined the now-defunct Foreign Exchange Brokers Association and the Forex Association of North America against fixing of commissions. The brokerage business can be affected by exchange rate fluctuations: back in 1978, a \$3 million transaction amounted to roughly DM5.4 million, for a commission of \$67.50. In 1984, such a transaction was worth DM9 million, for a commission of \$112.50. Therefore, when the dollar rises significantly, one can expect more direct business in the U.S., or more pressures for discounts on commissions.
- II.23 Most foreign exchange brokers have deposit sections dealing with the Euromarkets. The larger firms have expanded their services into other financial markets.
- II.24 The following article exemplifies press reporting of the most recent innovations in financial markets, including new financial instruments and their best uses.

James Sterngold, "Currency Option Gets Respect," The New York Times, August 2, 1984, p. D1.

The following are good primers for understanding options and option strategies:

Lawrence G. McMillan, Options as a Strategic Investment: A Comprehensive Analysis of Listed Option Strategies. New York: New York Institute of Finance, 1980.

Gary L. Gastineau, The Stock Options Manual. New York: McGraw-Hill, 1979.

- II.25 There is a generic distinction between futures and forwards. A currency future is a contract traded on an exchange. Its pricing is a function of forward rates in the interbank market.
- II.26 IMM contracts are standard. For the five major currencies, they amount to DM125,000 (approx. \$41,000), SF125,000 (approx. \$45,000), Pds25,000 (approx. \$27,000), Y12,500,000 (approx. \$48,000) and \$Can 50,000 (approx. \$37,000) per contract.
- II.27 A pit is the area on the exchange floor where a specific commodity is traded. One refers to the mark pit, or the swiss pit, for example.
- II.28 Open interest is the sum of outstanding contracts in a given currency for one of the maturities.

- II.29 The four yearly maturities are the third Wednesday of March, June, September, and December.
- II.30 A bid of 3370 for marks in the IMM (meaning \$0.3370 per DM1.00) is equivalent to an outright forward offer for dollars of 2.9674 (1/.3370) in the interbank market.
- II.31 American terms = U.S. cents per 1 currency. European terms = currency per 1 dollar.
- II.32 The premium can be expressed either as a percentage of the face value of the option or as a specific sum of money. Usually, the former is used in over-the-counter options and the latter (under the form of an amount per contract) in formal marketplaces.
- II.33 For example, the buyer of a Sterling Call option with a strike price of 1.20 is purchasing the right to buy pounds from the seller at 1.20 at any time between the moment when the deal is agreed upon and the expiration of the option. Leaving aside the impact of the premium on the effective purchase price, it can be assumed that the buyer is likely to exercise his option whenever the pound rate is above 1.20, and that he won't if the rate is below 1.20. Similarly, the seller (or writer) of that option has an exchange risk whenever the pound rate is above 1.20 (in effect, he is short pounds at 1.20) and does not when the rate is below 1.20.
- II.34 The Philadelphia market uses contracts whose face value is half that of the IMM. The Chicago Mercantile exchange uses the IMM face value.
- II.35 The Chicago Mercantile Exchange plans to expand to other currency options, while the C.B.T. and the New York Cotton Exchange plan the introduction of some form of currency options in 1985.
- II.36 Many third-world central banks also diversified into precious metals, especially gold. Besides the usual safety factor, gold could be used as collateral against external borrowings.
- II.37 In 1984, a spate of newspaper and magazine articles have considered the role that the Russians play in the foreign exchange market. See:
- Nancy L. Ross, "Russia, Muscling into the Dollar Game," International Herald Tribune, September 29, 1984.
- Ben Franklin, "The Big Bad Bear," Intermarket, Vol. 1, No. 6, November 1984, pp. 1, 27-31, 57.
- II.38 In early 1985, Wozchod was rumored to have incurred heavy losses in gold trading.

- II.39 The behavior of a Russian trader who acts with the knowledge, say, of a grain deal, is no different from that of the trader in a major commercial bank who has been informed ahead of the market that his organization is about to change its prime rate.
- II.40 Brokers have been known to caution their clients that "The Russian is in," i.e., the Bank for Foreign Trade is buying -- or selling -- dollars.
- II.41 The following Board of Governors of the Federal Reserve Staff Studies cover the questions and problems associated with exchange market intervention. In particular see studies 127, 128, and 129.

126. Donald B. Adams and Dale W. Henderson, Definition and Measurement of Exchange Market Intervention. Washington, D.C.: Board of Governors of the Federal Reserve System, August 1983.

127. Margaret L. Greene, U.S. Experience with Exchange Market Intervention: January-March 1975. Washington, D.C.: Board of Governors of the Federal Reserve System, August 1984.

128. Margaret L. Greene, U.S. Experience with Exchange Market Intervention: September 1977-December 1979. Washington, D.C.: Board of Governors of the Federal Reserve System, October 1984.

129. Margaret L. Greene, U.S. Experience with Exchange Market Intervention: October 1980-October 1981. Washington, D.C.: Board of Governors of the Federal Reserve System, August 1984.

130. Victoria S. Farrell with Dean A. DeRosa and T. Ashby McCown, Effects of Exchange Rate Variability on International Trade and Other Economic Variables: A Review of the Literature. Washington, D.C.: Board of Governors of the Federal Reserve System, January 1984.

131. Laurence R. Jacobson, Calculations of Profitability for U.S. Dollar-Deutsche Mark Intervention. Washington, D.C.: Board of Governors of the Federal Reserve System, October 1983.

132. Kenneth Rogoff, Time-Series Studies of the Relationship between Exchange Rates and Intervention: A Review of the Techniques and Literature. Washington, D.C.: Board of Governors of the Federal Reserve System, October 1983.

133. Bonnie E. Loopesko, Relationships among Exchange Rates, Intervention, and Interest Rates: An Empirical Investigation. Washington, D.C.: Board of Governors of the Federal Reserve System, November 1983.

134. Ralph W. Tryon, Small Empirical Models of Exchange Market Intervention: A Review of the Literature. Washington, D.C.: Board of Governors of the Federal Reserve System, October 1983.

135. Deborah J. Danker, Richard A. Haas, Dale W. Henderson, Steven A. Symansky, and Ralph W. Tryon, Small Empirical Models of Exchange Market Intervention: Applications to Canada, Germany, and Japan. Washington, D.C.: Board of Governors of the Federal Reserve System.

- II.42 Gerard Aubanel, "The Central Banks' Role of "Last Resort" on the International Markets," (Translation, internal study) Paris: Banque de France, August 12, 1981.
- II.43 Such conclusions were reached by a joint working group of the seven countries who participated in the Williamsburg economic summit in 1983. However, their study also pointed out that limited objectives could be achieved and that joint intervention was more effective than individual efforts. (Donald H. May, United Press International, April 29, 1983.)
- II.44 A market where normal business cannot be transacted because of the lack of prices, inordinate spreads between bids and offers, the disappearance of rate levels, rapid unexplained rate movements, and exaggerated volatility is disorderly.
- II.45 Scott Pardee has a comprehensive definition of an efficient market:

A smoothly functioning market is said to have depth, breadth and resiliency. Depth means that a sizeable amount of business can be done without having a significant impact on the exchange rate. In practice this means that the market-makers in the interbank market are prepared to absorb temporary excesses of supply and demand into their own position. . . . Breadth means that many traders are willing to make a market at any particular time. . . . Resiliency means that a large order to buy or sell a particular currency can be absorbed without generating a cumulative movement in the rate. (Scott Pardee, Remarks before Forex Canada in Toronto, January 26, 1979.)

### Part III

- III.1 The EMS differs from the previous European floats by establishing a reserve unit -- the European Currency Unit (ECU) -- which is a basket of currencies of the participants. See Note VI.2.
- III.2 The composition of the S.D.R. has changed several times since its inception. See the introduction in IMF, International Financial Statistics.

- III.3 A multi-tiered market is the result of segregating exchange transactions according to the nature of the underlying business, as outlined in the regulations. For instance, a country may decide to subsidize its oil imports by pegging a special exchange rate, while allowing capital transactions to be done at a free market rate. Other commercial transactions may be partially subsidized at yet another rate. Such regulations require a great deal of supervision: documentation has to be checked against possible violations, and non-resident accounts must be segregated according to the type of business that they are used for.
- III.4 Besides, trade between two countries is not necessarily settled in the currency of either partner. Moreover, trade financing can also be done through another currency.
- III.5 There has been a shift in analyzing the economic performance of a country, from a view that this performance is self-contained, i.e., results in certain patterns of currency behavior, to that which considers that the performance itself results from exchange rate fluctuations. For example, the trade performance of Germany used to be described as stemming from domestic factors, whereas it is now considered as depending on the exchange rate of the mark. The level of inflation in the U.S. is now largely held to be a function of the strength of the dollar in international markets: The stronger the dollar, the lower the inflation.
- III.6 The more subdued performance of the Swiss franc in the past few years is probably the result of less capital inflows from France and Italy. The increased sophistication of the international markets makes it easier to transfer capital to outside centers and the idea of lugging suitcases full of banknotes is becoming obsolete -- except in the case of criminal activities. In addition, the dollar has largely replaced the franc as a haven.
- III.7 Henry C. Wallich, "Capital Movements -- The Tail that Wags the Dog," presented at the Bretton Woods II Conference in Bretton Woods, New Hampshire, May 19, 1984.
- III.8 Most oil industry experts predicted back in 1980 and 1981 that within a year or two oil prices would reach \$50 a barrel, that the oil spot market would be an additional force for higher prices, and that demand would continue to outstrip production. Few, if any, foresaw either the drop in demand or the fall in prices.
- III.9 The distinction between external and domestic markets (or between dollars and Eurodollars) is a fine one. Credit pressures in the external markets will impact the domestic ones unless the two are insulated by regulation. Eurodollars, even those created outside of the U.S. (such as interest on Eurodollar loans), ultimately end up as domestic dollars.

- III.10 Purchasing power parity is a method of establishing criteria for exchange rates based on what given amounts of various currencies can buy in terms of goods and services in different countries. The more sophisticated research compares purchasing power with net income and tries to use roughly similar types of staple goods for comparison purposes.
- III.11 A 4% inflation rate is considered a superb performance in France or Great Britain, good in the U.S. by current standards but historically poor, not very good in Germany, and just short of disastrous in Switzerland.
- III.12 On a longer term basis, rate distortions lead to drastic changes in corporate strategies. The strong post-War dollar induced American corporations to purchase plants and equipment abroad, thus leading to the creation of multinational corporations. It was then a leading contributor to long-term capital outflows.
- III.13 See note II.46.
- III.14 Related to this subject:
- Michael Blumstein, "A Case Study on Wall Street: How News Feeds Volatility," The New York Times, March 13, 1984, p. A1.
- III.15 The release of the long-awaited event often triggers reactions opposite to what would normally be expected, usually for two reasons: 1) the event was anticipated and 2) the market now deals with the fait-accomplis rather than the expectation. Often what the market fears most is uncertainty.
- III.16 Jack D. Schwager, A Complete Guide to the Futures Markets: Fundamental Analysis, Technical Analysis, Trading, Spreads, and Options. New York: John Wiley & Sons, 1984.
- III.17 Technology itself is also responsible for the increased use of technical analysis. Traders now can routinely make use of computers that plot charts in detailed maps and are capable of drawing from extensive databases for various types of models, almost instantly.
- III.18 Different models can show different "critical" levels. On balance, the market tends to be impressed by round numbers, i.e., dollar/mark at 3.0000 rather than at 2.9925. Yet, in the absolute, they are equally meaningful.
- III.19 One highly successful technical analyst, asked why he was selling his information rather than making use of it for himself, gave a rather bizarre answer -- that he had not been too successful at trading based on his models because he could not discipline himself to follow them to the letter.

- III.20 A stop-loss order is an order to execute one or several transactions if rates reach certain levels. The purpose of such orders is to limit the risks incurred by open positions if market conditions become unfavorable.
- III.21 Most traders assert that there is little gain and many potential problems in handling stop-loss orders for others. They do it more as a matter of good will -- and reciprocity -- than for profits.
- III.22 Dow Jones provides its service through an international banking wire prepared in cooperation with Associated Press.
- III.23 Barnaby J. Feder, "Markets Role Aids Growth at Reuters," The New York Times, May 28, 1984, p. B36.
- III.24 When the British pound was major news, many traders suspected Reuters of accentuating positive developments and skipping the bad ones. Some traders used to quip that Reuters must have had a Sterling pound position. This was of course a subjective interpretation.
- III.25 Dow-Jones was also successful because it was often able to report U.S. news and data a couple of minutes ahead of Reuters -- no small advantage for its subscribers. This is no longer true.
- III.26 All the major central banks and such supranational organizations as the BIS and the IMF publish extensive research material that includes comprehensive reports on exchange rates and related matters.
- III.27 It was during the Carter administration that some economists began to claim that one of the reasons for the then high rate of inflation was the weak dollar. Needless to say, the Treasury then gave that theory short shrift.
- III.28 Mercedes Benz cars have always sold well in the U.S., regardless of the exchange rate of the mark.
- III.29 The British merchandise trade, minus oil, has never been positively affected by drops in the value of the pound for extended time periods. In the same vein, the drop in value of the French franc in recent years, while helping a bit, did not succeed in putting the French merchandise trade back in the black. On the import side, the level of domestic growth has been a dominant factor in most of the industrialized world. Thus, the 1982 recession was a major reason for sharp import cutbacks in many countries.
- III.30 A few years ago, monthly trade figures were among the most eagerly awaited news in the foreign exchange market. Today, they are virtually ignored.

- III.31 These phenomena are often referred to as virtuous or vicious circles. Such definitions underline the cause and effect relationship that tends to accentuate each situation. See note I.10.
- III.32 On the other hand, miscalculations by central banks who try to browbeat the market with too little ammunition have been the rule rather than the exception. The worst thing that can happen is a central bank withdrawing from the market after a relatively token appearance. This encourages the market in the impression that the central bank is powerless.
- III.33 Central banks seldom publicly report details about their interventions. Usually, the market tries to extrapolate such information from the published foreign exchange reserves, but this is a very imprecise method, at best. The Board of Governors of the Federal Reserve System reports intervention taken on its own and the Treasury Department's behalf in quarterly releases distributed to the press and to Congress, and in the semiannual "Treasury and Federal Reserve Foreign Exchange Operations," usually published in the March and September issues of the monthly Federal Reserve Bulletin, beginning in September 1962.
- III.34 See note II.8.
- III.35 Traders pass judgment on intervention only in the context of the market at the time the intervention takes place. From the standpoint of a central bank, intervention is only one aspect of longer-term policies.
- III.36 However, when such regulations keep being enforced over a long period of time, they can have a significant impact and can promptly reverse capital flows. The problem is that they also adversely impact other sectors of the economy or other financial markets. Thus, regulations can only be considered as last-ditch measures to counter what is perceived as a major problem, rather than as solutions to that problem.
- III.37 Stephen Grover, "Banks' Foreign Exchange Revenues Dive After Wrong Guessing on Dollar's Strength," Wall Street Journal, August 12, 1984.
- III.38 Tran Q. Hung and Steven Blitz, "Recent International Banking Inflows and Their Implications for the Dollar and U.S. Financial Market," International Flow-of-Funds Analysis, Salomon Brothers Inc. Bond Market Research, February 14, 1984.
- III.39 The troubles in Poland, raising the possibility of Soviet intervention, prompted capital outflows from Western Europe as nervous investors began to envision a Russian march into Germany.

- III.40 By early 1985, the basic perception has radically changed and the general outlook is for a very strong dollar, despite still-rising trade and current account deficits.

#### Part IV

- IV.1 Under a floating rate system, there is no such thing as a revaluation or devaluation. The terms apply only to changes in pre-established par values.
- IV.2 Short sales are sales of instruments or currencies that are not owned.
- IV.3 It would make little sense, for instance, to forbid a trader to have more than a \$10 million exposure, while encouraging him to do business with a corporation that does transactions in the \$50 million range.
- IV.4 A forward currency swap is a function of the spot, the time period, and the interest rates of the two currencies involved. Short-term swaps up to one year are easy to calculate, but longer-term swaps, involving yearly interest payments, are more complex.
- IV.5 When the contract is voided, the bank that held it automatically assumes a position that is the opposite of the face value of the contract. For example, the voiding of a \$1 million purchase contract means that the contract holder is now short \$1 million, which it must purchase in the market in order to neutralize the position.
- IV.6 Many traders become suspicious when counterparts are willing to deal at sometimes unfavorable rates with no questions asked: This seems to indicate that the other party has difficulty finding other counterparts and cannot afford to be picky.
- IV.7 The following book is a comprehensive source of information on policies or strategies for handling foreign exchange risks:
- Boris Antl and Richard Ensor, ed., Management of Foreign Exchange Risk. (2d. ed.) London: Euromoney Publications, 1982.
- IV.8 The distinction should be made between externally imposed restrictions, such as official guidelines and limits, and internal policies imposed by a trading room's management. However, the result of either still forces the adoption of certain trading patterns.
- IV.9 For example, Bank A in New York sold lire to Bank B, also in New York. Bank B asks that the lire be paid to its account at Banca C in Milan, but Bank A pays them by mistake to Banca Z. As a result, the account that Bank B keeps with Banca C will be

overdrawn if outgoing payments are made. (Banks keep minimum balances in their accounts abroad since they earn no interest, and try as much as possible to balance incoming and outgoing payments on a day-to-day basis.) Consequently, payments that Bank B had asked Banca C to make are not being honored, and one or several accounts of other banks are not in balance, with similar results.

- IV.10 On the other side, tough capital controls may force capital repatriation since alternate borrowing possibilities usually become scarce and expensive.
- IV.11 The penalty for moving capital into Germany or Switzerland was greater than the rate of return that such capital would earn in the Euromarkets. (Non-residents were barred from depositing money in the domestic markets.) Therefore, if the penalty for holding marks was, say, 10% p.a., and the Euromark rates were 4%, the real Euromark rate was -6%.
- IV.12 Beyond the trading room the revaluation of a foreign exchange exposure becomes more complex because it is subjected to various tax interpretations and accounting rules. A bank will treat differently its trading positions and its foreign securities portfolio, the translation of the value of buildings that it owns abroad and the mortgages that it pays for these buildings.
- IV.13 It is remarkable that whenever large trading losses have occurred, regulatory authorities were rarely involved in the discovery of these losses. This leaves one to wonder about the efficiency of central bank examiners.

#### Part V

- V.1 Sharon Weier, "Wall Street muscles in on foreign exchange," Institutional Investor, January 1984, pp. 133-134.
- V.2 They also lose some control since they have no regulatory authority over their activities.
- V.3 The adoption of FASB/8 (the accounting standard for reporting and translating foreign assets and liabilities) in 1976 was a primary reason why banks developed advisory services.
- V.4 A "below the line" entry, also known as a "contingent liability," does not appear on a balance sheet as either an asset or a liability because it really qualifies as both, and also because it involves current commitments that will be consummated in the future. As a balance sheet footnote, it appears below the asset and liabilities bottom line.

- V.5 Options are also "below the line" items. Thus far, no standards have been established for reporting currency option positions in the U.S., or for reporting profits or losses for tax purposes.
- V.6 Steven Blitz and Richard Segal, "Monthly Review of Futures and Options -- August 1984," International Flow-of-Funds Analysis, Salomon Brothers, Inc. Bond Market Research, August 16, 1984.
- V.7 One of the attractive -- and potentially dangerous -- features of options is the high leverage. Premiums can range from practically nothing to somewhere around 5% of the face value of the option.
- V.8 Common expressions used in the market: "Mine!" (I buy); "Yours!" (I sell).
- V.9 There have often been problems in the implementation of foreign exchange software by programmers who have only a slight knowledge of the market and little awareness of what traders want, for traders who know next to nothing about computers.
- V.10 The following article outlines technological changes and the impact they may have on organized markets:  
  
Robert Winder, "The Final Days of the Trading Floor," Euromoney, October 1984, pp. 80-91.
- V.11 The following short yet comprehensive survey is one of the best articles written about the market. Regretably, issues that may be considered controversial, such as the question of official intervention and central bank relationships, market volatility, or the role that some large players assume in the market, were ignored.  
  
Michael D. Andrews, "Recent Trends in the U.S. Foreign Exchange Market," Quarterly Review, Vol. 9, No. 2, Federal Reserve Bank of New York, Summer 1984, pp. 38-47.
- V.12 In the U.S., the Fed and the members of the interbank market have organized a Foreign Exchange Committee composed of representatives of various groups of banks (foreign, regional, etc.), brokers, and the Fed itself. This Committee, which has no legal power and is an informal body, examines problems relating to the market. In addition, the various Forex associations throughout the world have Market Practices committees. In the U.S., the Market Practices Committee of Forex- USA is a body that stands ready to arbitrate disputes that are brought to its attention (it has no powers of enforcement and can only issue recommendations) relating to market activities.

Part VI. Conclusion

- VI.1 Such systems cost approximately \$500 per month in the U.S. for basic service involving one screen.
- VI.2 In early 1985, the composition of the ECU is as follows: Mark, 32.1448%; French franc, 19.1162%; Pound sterling, 14.75%; Guilder, 10.1527%; Lira, 10.1440%; Belgian (and Luxembourg) franc, 8.5199%; Danish crown, 2.6925%; Greek drachma, 1.2725%; Irish pound, 1.2090%. All 10 countries are members of the European Monetary System, but the currencies of two of them (Great Britain and Greece) are not actually part of it. The ECU interest rate is computed on the basis of a percentage of the external rates of each member similar to that which makes up the ECU (32 % of Euromarks, 19% of Eurofrancs, etc.). If Eurorates do not exist, as is the case for drachmas, they are extrapolated from forward swap rates. The rise of the ECU in international markets has been nothing short of spectacular. According to a 1984 OECD study, it is now the fifth "currency" in international debt markets -- after the dollar, yen, mark and Swiss franc.
- VI.3 Central banks were losers, because they were obligated to defend their currency whenever pressures for parity changes occurred. Consequently, they either sold their foreign exchange reserves or acquired new reserves which automatically appreciated or depreciated after the changes in parity. In the case of a devaluation, lost reserves had to be replenished at higher prices and in the opposite case acquired reserves were worth less. That is why the U.S. Congress was always loath to give the Treasury free rein for intervention, fearing that this would entail excessive costs and would be a "waste of the taxpayer's money."
- VI.4 A footnote in Martin Mayer's book, The Fate of the Dollar, deserves to be reprinted in its entirety:

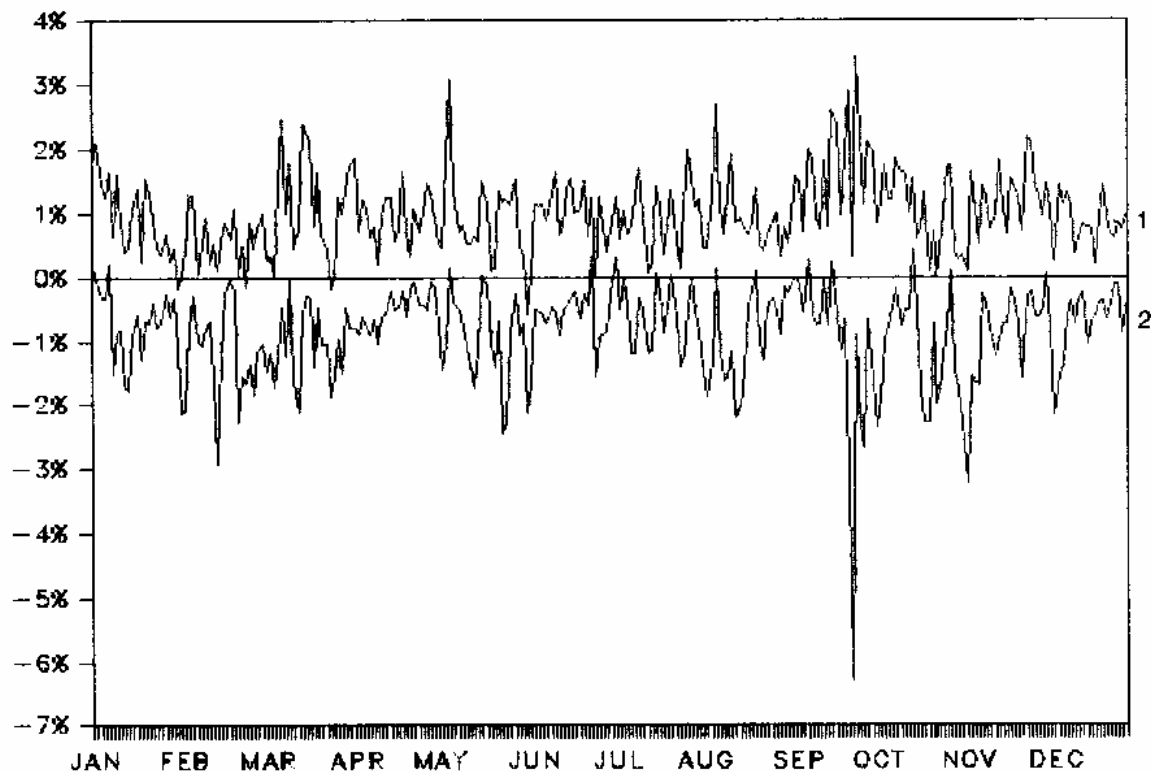
A first-class demolition of floating theories was available but not used in the debate [to set up a joint European float in 1973]. In 1947, the English economist Joan Robinson had proved the impossibility of the "equilibrium" [Professor Milton] Friedman insisted would be attained automatically: "There is no one rate of exchange which is the equilibrium rate corresponding to a given state of world demands and techniques. In any given situation there is an equilibrium rate corresponding to each rate of interest and level of effective demand . . . The notion of the equilibrium exchange rate is a chimera. The rate of exchange, the rate of interest, the level of effective demand and the level of money wages react upon each other . . . and no

one is determined unless all the rest are given." Yet "every economist in the country," Paul Volcker says with some disgust, "conservative or liberal, said floating rates would solve the domestic problem." (citation deleted) (Martin Mayer, The Fate of the Dollar. New York: Times Books, 1980, p. 358.)

APPENDIX A

DAILY VOLATILITY OF FOUR MAJOR CURRENCIES

Volatility, or the amount of fluctuation of exchange rates over a certain period of time, is expressed in different manners, but market participants pay particular attention to changes from one day to the next. As can be seen in Figures 27 through 30, covering the year 1984, volatility is different for various currencies and also can vary sharply from time to time.



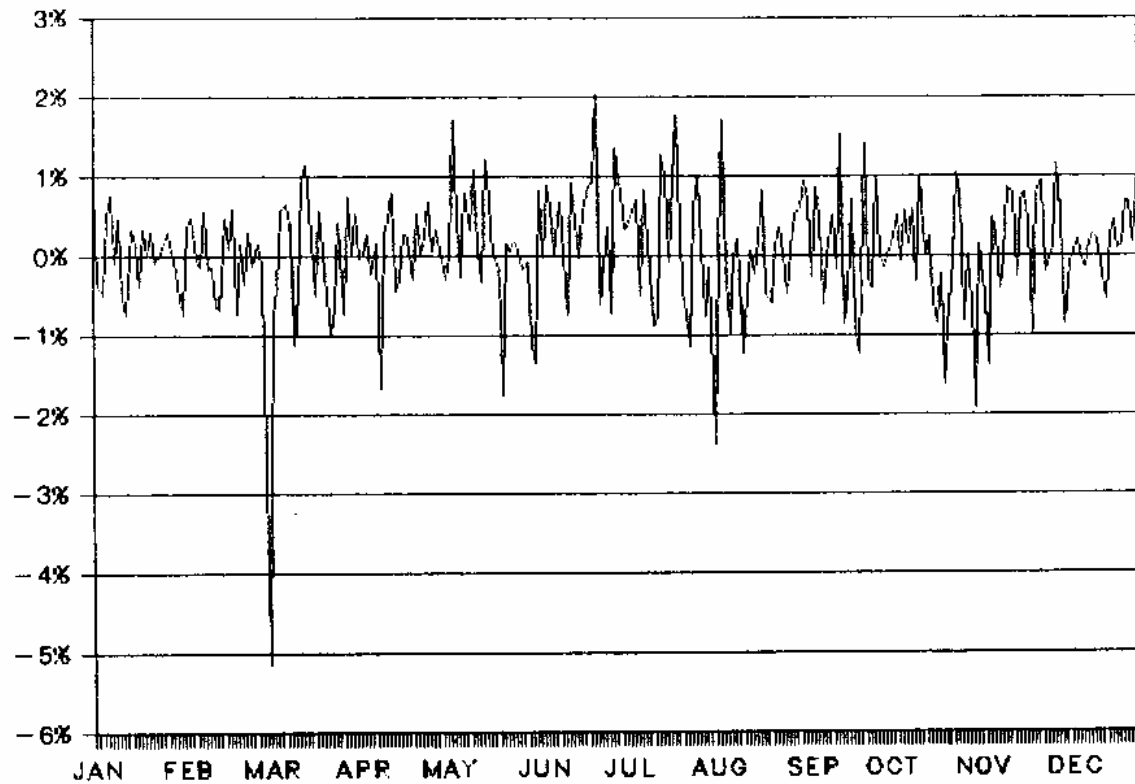
1 - DayHigh-Prev.DayLow

2 - DayLow-Prev.DayHigh

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Figure 27

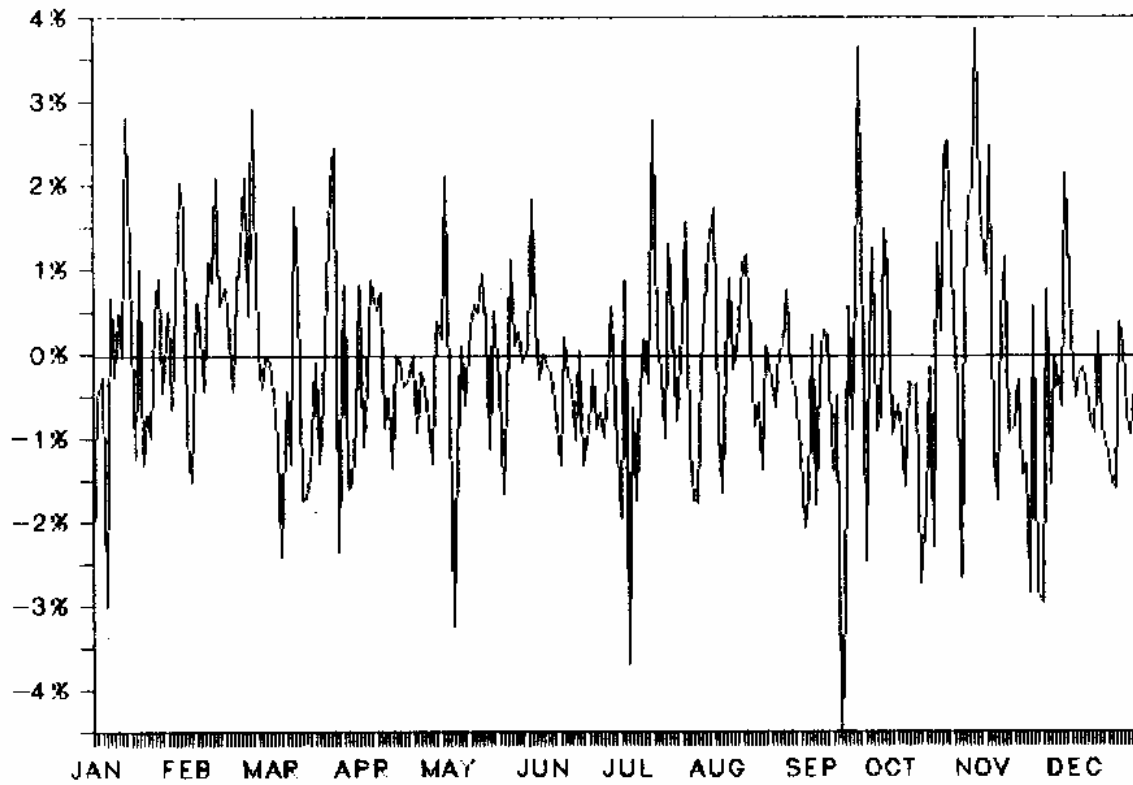
Dol/Dm Volatility -- 1984  
(Percent Differential Between Daily High and Previous Day Low;  
Daily Low and Previous Day High)



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Figure 28

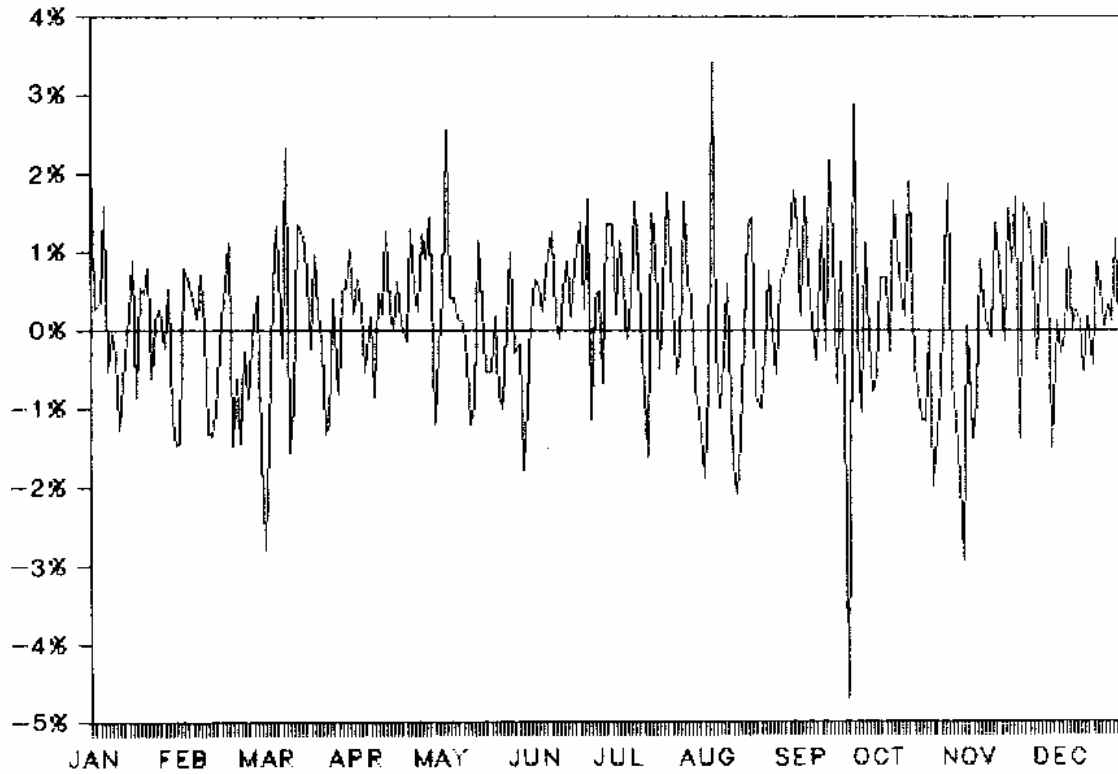
Dol/Yen Volatility -- 1984  
(Percent Changes in Daily Averages)



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Figure 29

Stg/Dol Volatility -- 1984  
(Percent Changes in Daily Averages)



• 1986 Program on Information Resources Policy, Harvard University.

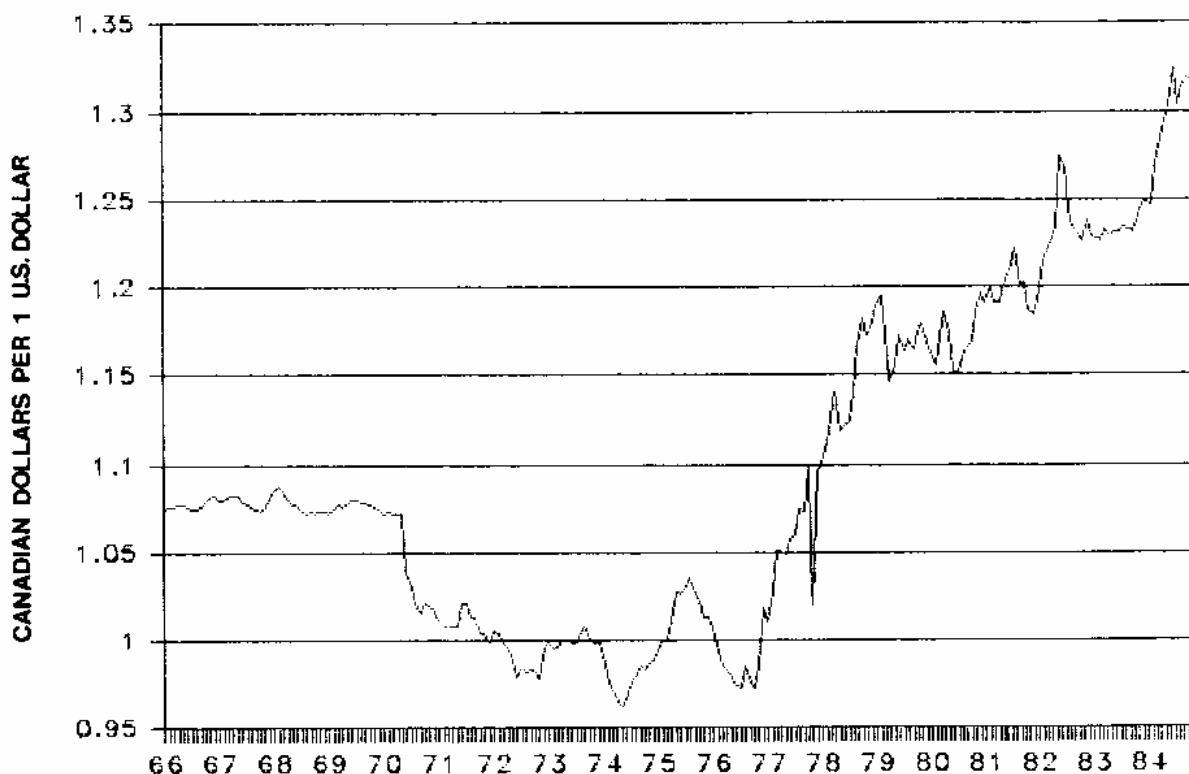
Figure 30

Dol/Sf Volatility -- 1984  
(Percent Changes in Daily Averages)

## APPENDIX B

### HISTORICAL RATES

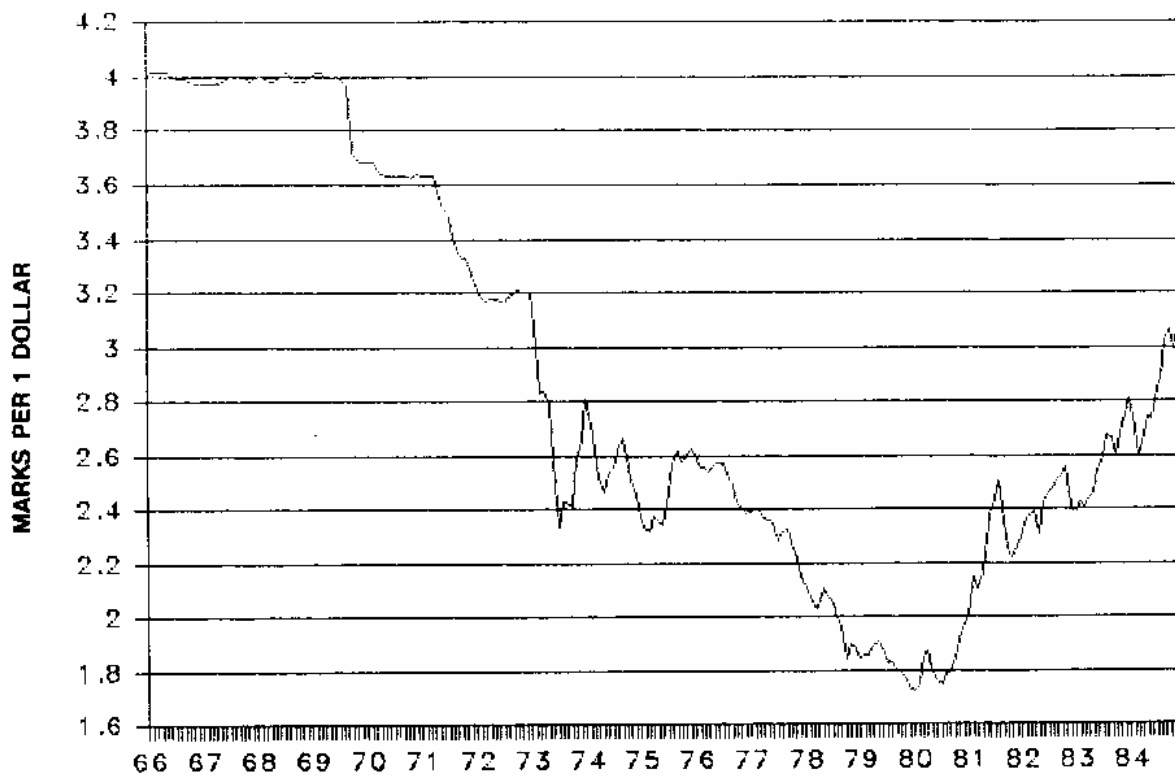
At times when exchange rates can move sharply and when record levels are attained, a historical perspective can add objectivity to one's judgment. Even though the performance of the dollar is usually measured in terms of the deutschemmark, over the years even the major currencies did not necessarily perform in tandem. The most striking aspect to Figures 31 through 36 is how little exchange rates moved under the Bretton Woods system, even when one includes revaluations or devaluations, and how much they have moved ever since.



Source: IMF

Figure 31

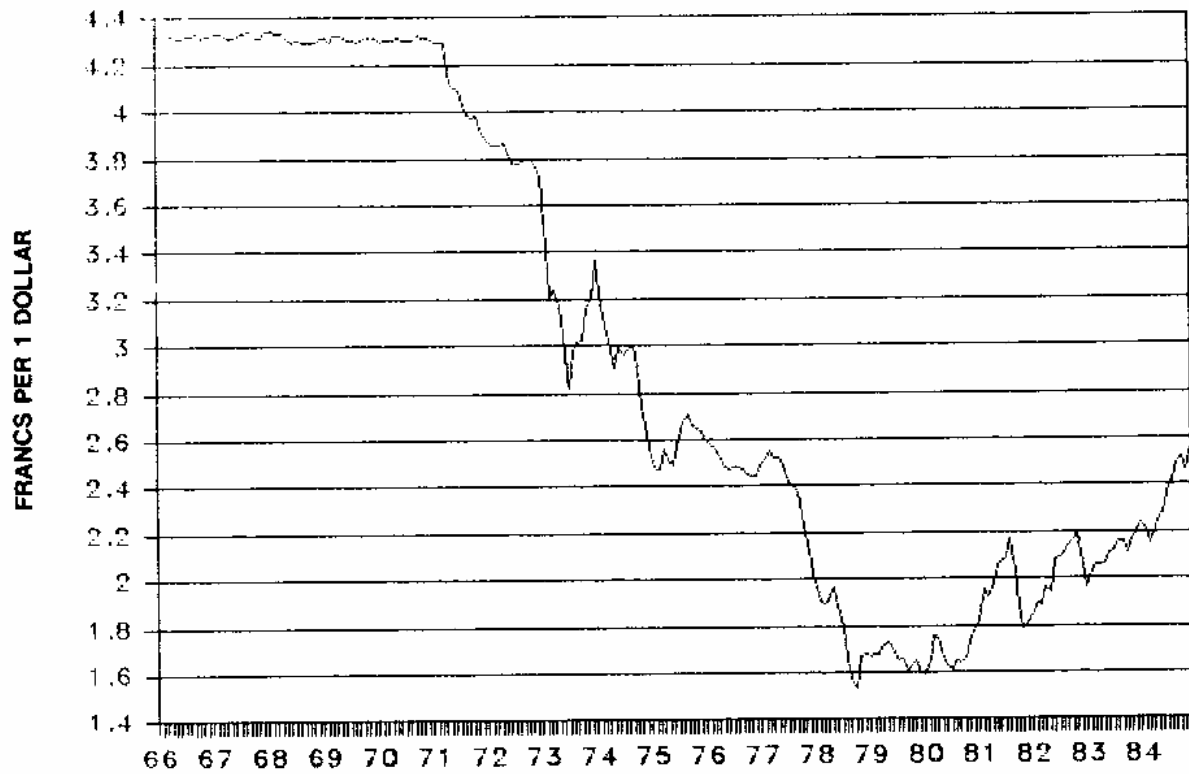
The U.S. Dollar vs. the Canadian Dollar 1966-1984



Source: IMF

Figure 32

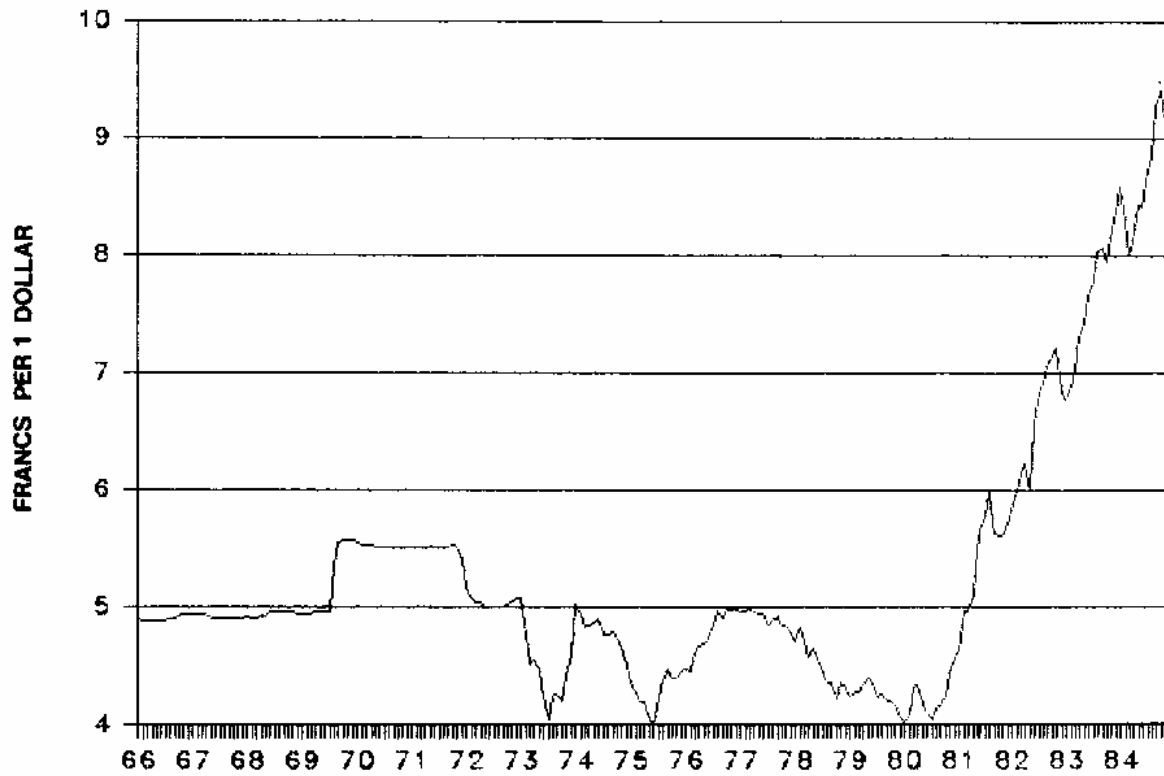
The U.S. Dollar vs. the Deutschemmark 1966-1984



Source: IMF

Figure 33

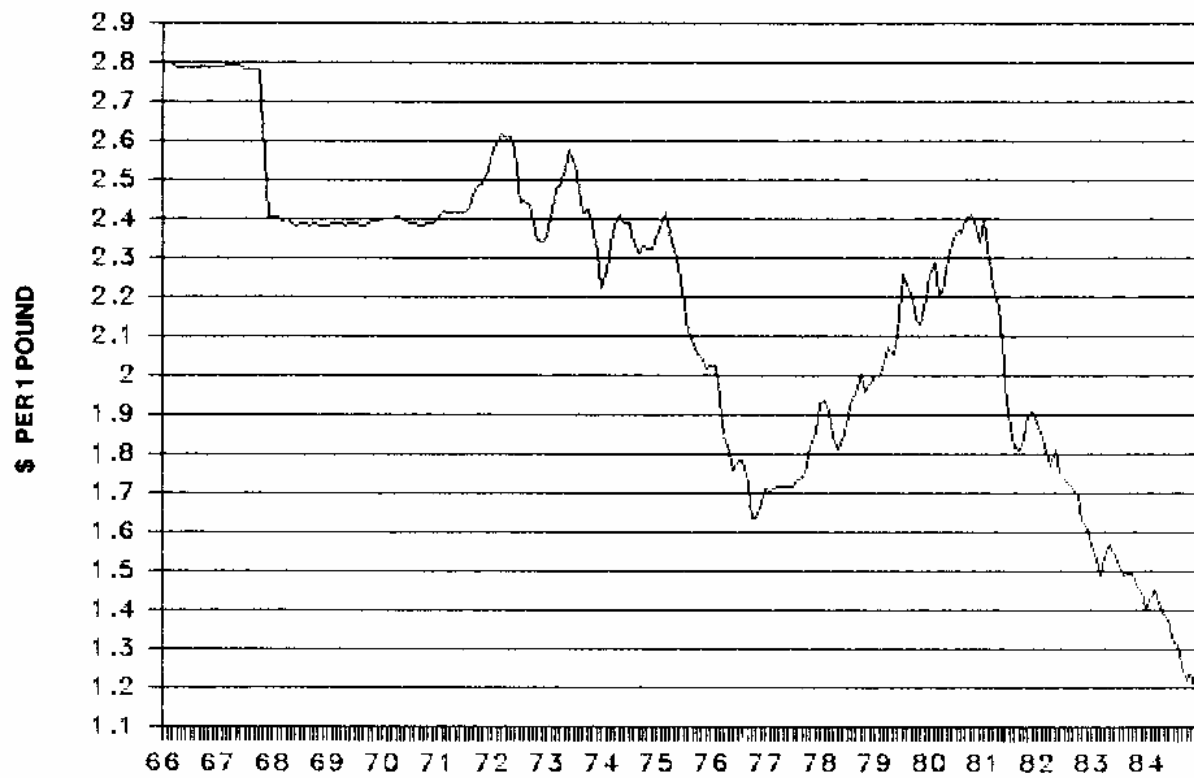
The U.S. Dollar vs. the Swiss Franc 1966-1984



Source: IMF

Figure 34

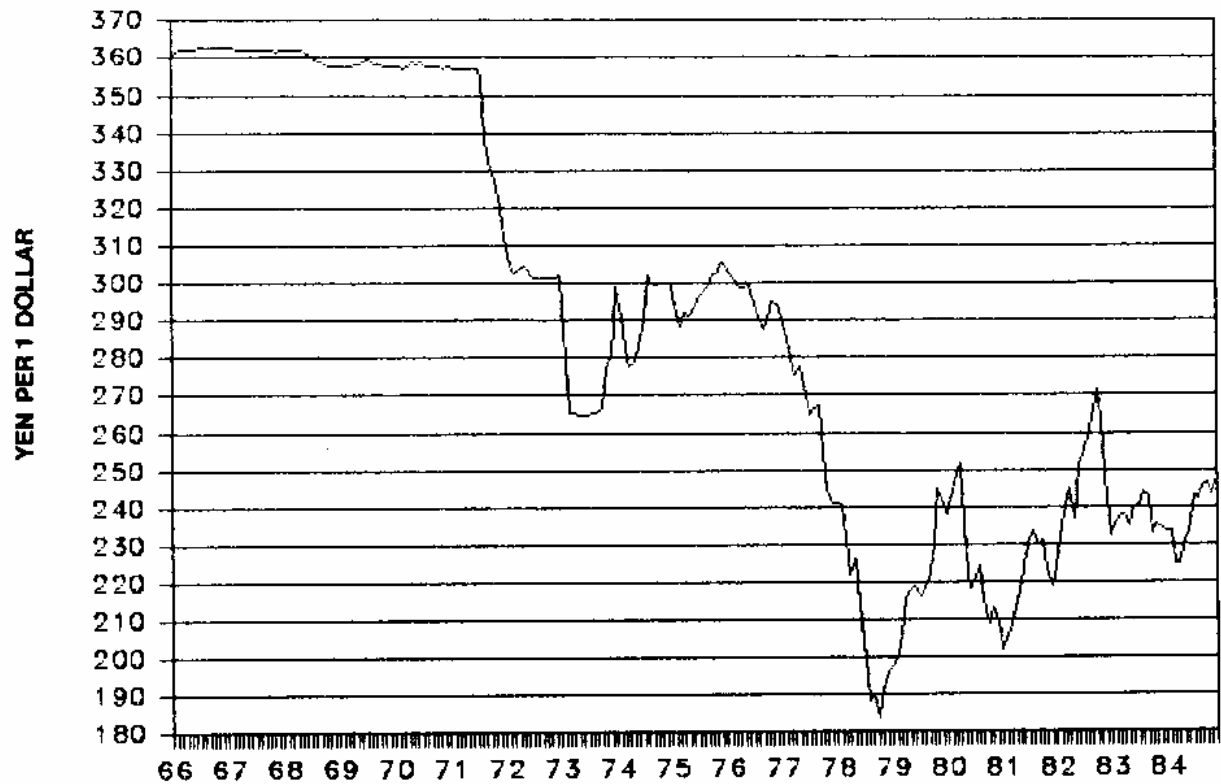
The U.S. Dollar vs. the French Franc 1966-1984



Source: IMF

Figure 35

The British Pound vs. the U.S. Dollar 1966-1984



Source: IMF

Figure 36

The U.S. Dollar vs. the Japanese Yen 1966-1984

APPENDIX C

ACRONYMS

CBT	Chicago Board of Trade
CFTC	Commodities Futures Trading Commission
CME	Chicago Mercantile Exchange
CPI	Consumer Price Index
ECU	European Currency Unit
EEC	European Economic Community
EMS	European Monetary System
GDP	Gross Domestic Product
GNP	Gross National Product
IMF	International Monetary Market
LIFFE	London International Financial Futures Exchange
MAS	Monetary Authority of Singapore
OECD	Organization for Economic Cooperation and Development
PPI	Producer Price Index
PPP	Purchasing Power Parity
SAMA	Saudi Arabia Monetary Authority
SDR	Special Drawing Rights
SIMEX	Singapore International Monetary Exchange
WPI	Wholesale Price Index

APPENDIX D

GLOSSARY

**Arbitrage** - In the foreign exchange market, an operation predicated on taking advantage of an existing discrepancy between related markets. For instance, interest arbitrage consists in borrowing cheaper in one market and lending higher in another, two closely related instruments. Space arbitrage involves simultaneously purchasing and selling the same currencies in different marketplaces to take advantage of a temporary difference in rates between these marketplaces.

**Balance of payments** - The total measure of capital inflows and outflows of a country. The components of a balance of payments are current account (see definition), unilateral transfers, short- and long-term capital flows, and errors and omissions.

**Band** - The zone within which a currency is permitted to fluctuate in a fixed rate system. In the EMS the band for all currencies except the lira is 4.5%. The top of the band is the ceiling, the bottom is the floor, and the middle is the mid-point.

**Bid** - The price at which a market-maker is prepared to buy. If the transaction is consummated, the bid has been hit.

**Capital transaction** - A transaction with an underlying purpose related to an investment.

**Ceiling** - See Band.

**Central bank** - The organization whose function is to issue currency and whose responsibility is the management of the money supply. Central banks usually supervise their domestic banking systems. In some countries, the organization that has these responsibilities is called the Monetary Authority.

**Convertible currency** - A currency that can be freely exchanged for another.

**Current account** - A measure of capital flows that comprises trade and services.

**Delivery** - The date for which a transaction is executed (Also called maturity). A foreign exchange transaction is a contingent liability until the delivery date.

**Devaluation** - In the context of a fixed rate system, an action that debases the ratio of one currency vs. its counterparts. A devaluation is expressed as a percentage change of the new rate against the old one. For example, the 1967 Sterling devaluation, when the par-value of the pound dropped from \$2.80 to \$2.40, was a 14.29% devaluation.

**Direct trading** - Trading between two principals without the involvement of a broker.

**Discount** - Related to forward prices, the term refers to rates cheaper than the spot price. For instance, if spot Sterling is \$1.2000 and the six months price is \$1.1550 the forward is at a discount.

**External market** - Also called offshore market. A market outside the jurisdiction of the countries' authorities.

**Eurocurrency** - A currency domiciled outside its country of origin. Eurocurrencies are not directly subjected to the regulations of their domestic counterparts.

**Eurorate** - The rate of interest (expressed in percent per annum) of a Eurocurrency -- usually meant for time deposits.

**Euromarkets** - The debt markets of Eurocurrencies. Major markets are time-deposits, EuroCDs, and Eurobonds. the principal Eurocurrencies are the Eurodollar, the Euromark, the Euroyen, the Eurosterling and the Euroswiss.

**Exchange rate** - The ratio of one currency to another. The spot rate (see definition) is usually meant when currencies are quoted.

**Fixed rates** - Any international monetary system that imposes on its members the obligation to maintain their currency within a permissible zone.

**Fixing** - A session during which buy and sell orders are matched until a final rate emerges.

**Floating** - A policy of a system under which exchange rates are allowed to seek their own levels through the interplay of market forces. Dirty floating is a market expression for a situation where the authorities of a country seek to influence the course of rates through official actions in a floating environment.

**Floor** - See Band.

**Foreign exchange** - A transaction where one currency is exchanged for another at a given rate and for a specific delivery date. Because of its nature, a foreign exchange transaction does not intrinsically involve an extension of credit, since both currencies are exchanged on the same date, although in different centers.

**Foreign exchange market** - The market where foreign exchange transactions are executed (Also called "the market" or "the street" in the U.S.)

**Forward** - A foreign exchange transaction whose delivery date falls beyond the spot date. In the interbank market the forward prices are expressed as differentials between the spot and forward rates. For instance, if spot Sterling is \$1.2000 and the six months forward is \$1.1550, the forward rate is quoted as 450 discount. Forwards can be

either at a discount, a premium, or flat, if the price is the same as the spot.

**Forward outright** - The rate at which a currency can be exchanged for a forward delivery. Using the example above, the six months forward outright rate for Sterling is \$1.1550.

**Forward swap** - A currency swap where two currencies are simultaneously bought and sold for two different delivery dates. The rate differential between each leg of the swap reflects the spot price, the time period and the interest rate differences between the two currencies. As an example, a six months Sterling swap is an operation where a given amount of Pounds is bought for spot at \$1.2000 and sold six months away at \$1.1550 (or vice versa). In effect, such an operation is similar to simultaneously borrowing Sterling and lending dollars.

**Funding - Financing** (of a loan, or a position).

**Future** - A currency contract on one of the organized markets such as the I.M.M.

**Futures market** - Formal marketplaces where futures are traded. Currency futures markets in existence in 1985 were the I.M.M. in Chicago, L.I.F.F.E. in London and S.I.M.E.X. in Singapore.

**Hedging** - One or several operations whose purpose is to neutralize a known risk. A perfect hedge is a situation where the risk has been eliminated. Covering is somewhat synonymous with hedging.

**Interbank market** - The network of banks who deal with each other in foreign exchange, directly or through brokers. The interbank market (also called the cash market by futures traders) is a global worldwide market.

**Limits** - Maximum exposures that traders are allowed to keep.

**Long** - Used in the context of a position, the term implies ownership. To be long Sterling means having bought pounds.

**Market** - A bid and an offer - also called a "two-way price". Making a market implies a willingness to deal.

**Market-maker** - Anyone who stands ready to make a two-way price to an acceptable counterpart.

**Offer** - The price at which a market-maker is prepared to sell. If the deal is consummated, the offer has been taken.

**Option** - An instrument that gives its owner the right, but not the obligation to buy (Call option) or sell (Put option) currency at a predetermined price (the strike price) during the life of the option.

**Outright transaction** - A permanent exchange of currencies (as opposed to a swap). An outright can be a spot or a forward transaction.

**Par-value** - In a fixed rate system, the predetermined ratio of one currency against another. The par-value can be changed either through a devaluation or a revaluation. Par-values have also been called central rates (Smithsonian agreement) or mid-points (EMS).

**Point** - a fraction of a currency equivalent to 1/10,000 or 1/100 in the case of the yen or the lira. Foreign exchange quotations always include points (Also known as pips). For instance, a dollar/mark rate of 3.1020 is quoted with a "big figure" of 10 (pfennigs), often omitted in the quotation, unless market conditions are volatile and there could be some misunderstanding as to whether the rate is 3.09, 3.10 or 3.11. In the market, a two way price of 3.1020-3.1030 would be quoted as just 20-30.

**Position** - The netted total of all commitments in a given currency. A position can be long (overbought), short (oversold) or square (no position). Flat is synonymous with square.

Taking a position means creating an exposure.

Taking a spot position means purchasing or selling a currency with a view that the trend of the currency will ultimately make the position profitable. Taking a forward position implies one more element, that is a view on the evolution of one or the two interest rates of the currencies that constitute the spot ratio. By comparison, a spot position is similar to buying a stock (in the hope that it will appreciate) or selling it short (with a view that it will depreciate). A forward position is in effect a choice between multicurrency investments: Is it preferable to invest in dollars at x%, or Sterling at y%, or marks at z%? What is the cost of opportunity when one choice is made rather than another, and what is the risk-reward of the spot fluctuations compared to that of the different interest rates?

**Price** - A bid or an offer (as opposed to a market).

**Quote** - An indicative price. As opposed to market, a quote is made for information only and does not imply the willingness to deal.

**Reserve currency** - A currency kept or used by foreign central banks for trade, investment, or financing purposes, or for the management of their own currencies in international markets.

**Revaluation** - In the context of a fixed rate system, an action which increases the value of a currency vs. its counterparts.

**Rollover** - A one-day swap, normally used to finance a position. As an example, a trader who is long Sterling (and consequently short dollars) needs to invest these pounds for as long as the position is kept and has to finance the short dollar position. This is normally done on a day by day basis through a rollover.

**Short** - In the context of a position, being short implies having sold short, i.e., having sold a currency that one does not have.

**Spot** - A foreign exchange transaction for delivery in two business days (or one business day for certain currencies such as Canadian dollar in the U.S. or Yen in Japan).

**Spot rate** - The ratio of one currency to another, expressed in terms of 1 of the first currency listed vs. units of the second. For example, a spot dollar/mark at 3.1020 means that 1 dollar equals 3.1020 marks. A spot rate is a rate at which currencies can be exchanged on the given spot date. A spot market consists of the bid and the offer for the first currency of the ratio. For instance, a market for dollar/marks of 3.1020-30 means that the bid for dollars (against marks) is 3.1020 and the offer is (3.10)30.

**Spread** - The price difference between a bid and an offer. If a spot dollar/mark market is 3.1020-30, the spread is 10 points.

**Square** - Having no position.

**Swap transaction** - A temporary exchange of currencies for a given time-span.

**Trade** - The net exports and imports of a country. Trade is composed of merchandise trade (including goods and services) and "invisibles" such as insurance, custom duties etc.

**Trader (or dealer)** - An individual whose job is to service clients or generate profits by purchasing or selling foreign currencies, acting as principal on behalf of his/her firm.

**Unilateral transfers** - As a measure of international capital flows, unilateral transfers include foreign aid, remittances by foreign workers, remittance to foreign students.

**Volatility** - The magnitude of exchange rate fluctuations over a certain period of time.

In options pricing, volatility is a mathematically expressed ratio (also known as delta) which is one of the factors that determine the premium.