WILEY FINANCE

FOREIGN EXCHANGE

A Practical Guide to the FX Markets

TIM WEITHERS

UBS

CHAPTER 4

Brief History of Foreign Exchange

HISTORICAL BACKGROUND

Foreign exchange has been around as long as transactions have involved crossing country borders. No doubt, trade took place even before national boundaries and modern currencies existed. But once a country or region established a money of their own, then currency transactions became necessary. (Strictly speaking, this need not always have been the case if the two currencies were convertible. In other words, if two countries both used gold coins and the values of those coins were based entirely on the weights of the metal they contained, then there should have been a single exchange rate between those currencies).[1]

Although there are many interesting accounts of the early forms of money[2] (dealing primarily with the use of precious metal in the form of coins), the fundamental economic principle on this topic typically goes by the name of Gresham's Law. Thomas Gresham, in 1558, stated that bad money always drives out good money. What this means is that currency which has been debased (such as clipped or "sweated" coins or coins made of an inferior or lower precious metal content) tends to drive "better money" (whole coins or coins with a higher metal content) out of circulation (i.e., induce hoarding). When was the last time you saw a "real silver" U.S. dime, quarter, or half-dollar? John Kenneth Galbraith wrote, "It is perhaps the only economic law that has never been challenged."[3]

Prior to 1900, most national currencies were backed by gold and/or silver (and were, therefore, in a sense, immediately and directly comparable). Britain adopted a gold standard around 1820. Germany and France also moved to a gold standard for their currencies in 1871 and 1876, respectively. In China, they resisted a gold-backed currency because of the dominance of silver in that part of the world. On paper, the official gold

standard in the United States set the value of one ounce of gold at USD 20.67—from 1834 through 1933. The United States, during the recovery after the Civil War, guaranteed that the Dollar could actually be converted into gold (but not silver) via the Coinage Act of 1873 (despite many political objections in the ensuing years); the most eloquent dissent was William Jennings Bryan's famous "Cross of Gold" speech (advocating "easy money," meaning currency not backed by the presence of ever scarce gold) delivered during his unsuccessful bid for the presidency in the Election of 1896). Bimetallism (the backing of fiat currency by silver and gold) was instituted soon thereafter in the United States, but the U.S. currency reverted to convertibility into gold alone in 1900.

It is important to note that prior to 1900, with some high profile exceptions (such as England, Spain, and Portugal), international trade was not a significant part of many countries' economic activity. Wheat was grown in a country, it was turned into flour in that country, it was baked into bread in that country, and that bread was consumed in that country. As transportation technology advanced (as well as the state of the art of preserving previously perishable products for extended conveyance), local specialization and the trade associated with it became increasingly important, and, consequently, more extensive economic interaction between geographies.

Following World War I, Germany was burdened with large reparation payments, so large in fact that some economists (including John Maynard Keynes of Keynesian Economics fame) thought them unrealistic and potentially debilitating. As Germany (whose currency was no longer backed by gold) expanded their money supply, in part in an effort to help meet their payment responsibilities, the economy spiraled out of control. One U.S. Dollar exchanged for around 8 Marks at the end of the World War I (1918–1919); by November 1923, at the peak of the hyperinflation, one Dollar was worth 4.2 trillion Marks. Workers were paid every day before noon and then raced to the stores to buy anything they could, aware that prices changed hourly. Eventually, political intervention (the Dawes Plan) and the introduction of a new currency (the Rentenmark, so named because of its backing by land and industrial plants) together helped somewhat to stabilize the German economy. Clearly the excessive growth of money in an economy can have negative effects.

Up until the global depression of the late 1920s and 1930s, most major currencies, with the exception of the German Mark, were freely traded and, as mentioned, via the gold standard, convertible into precious metal. The Great Depression changed all that. On April 5, 1933, with approximately 25% of the U.S. work force unemployed and with the world in the throes of a global depression, U.S. President Franklin Delano Roosevelt

abandoned the gold standard, suspending the convertibility of Dollars into gold, and ordered all U.S. citizens to surrender their gold holdings. Milton Friedman and Anna Schwartz, in their classic *A Monetary History of the United States, 1867–1960*, assert that one of the primary causes of the Great Depression, and a significant factor in both the length and severity of that economic crisis, was the reduction in the supply of money in the economy; they estimate that the money supply fell by about a third between 1929 and 1933. In their words, the Great Depression was a "testimonial to the importance of monetary forces." If money serves to facilitate trade, obviously the scarcity of money can grind an economy to a halt. It appears as if, for an economy, too much money can be a bad thing and not enough money can be a bad thing as well.

Although the United States did abandon the gold standard, gold, nevertheless, did continue to be used as a settlement vehicle for international trade at the national/central bank level. In 1933, the United States officially reset the price of gold to USD 35 per ounce. This peg was maintained until 1971.

As Europe entered World War II, many large economic powers were forced off the gold standard. In the case of England, their gold reserves were depleted in an effort to arm themselves for the impending military conflict. As the war approached its conclusion (July 1944), a landmark event took place: the Bretton Woods Conference. This is recognized as the first attempt ever to institute an international monetary system. As a student of economics, I always envisioned this event as taking place on a smoky battlefield in France; Bretton Woods is actually a beautiful resort community in New Hampshire, U.S.A. and the sessions were held at the Mount Washington Hotel. At these meetings, attended by representatives from the Allied countries, there was a strong resolve to avoid the previous mistakes of past postwar settlements. John Maynard Keynes, the same prominent British economist who had misgivings over the World War I German reparations, was an active and vocal participant at this conference, and an important contributor to the ultimate results of this meeting.

Among other things, the Bretton Woods Agreement set up both the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development, which later morphed into the World Bank, and resurrected the importance of the Bank for International Settlements (or BIS). More relevant for this book was the establishment of a fixed exchange rate system in which most of the major European currencies were pegged to the U.S. Dollar and, in an effort to provide even more stability to the new world economic order, the Dollar was pegged to gold (at the aforementioned rate of USD 35 per ounce).

These fixed exchange rates (sometimes referred to as "parity" values) were to be maintained (+/–1%—that is, within a "band") through the active market intervention of the governments and central banks of the ratifying countries. The supranational organizations mentioned above were to help facilitate these pegs. Of course, it was understood that there may be a need for a periodic adjustment of those par rates or par values (in the presence of serious international trade imbalances and with the permission of the IMF). The Bretton Woods Agreement effectively established the U.S. Dollar as the "reserve currency" of the world and, contrary to what many economists today would have conjectured, the Bretton Woods system worked quite well for about 25 years.

What was happening in the late 1960s (25 years or so later)? Well for one thing, in 1967, the British Pound was attacked and, for the first time since Bretton Woods, central bank intervention via currency market operations failed. More importantly, by 1968, the United States was deeply involved in the Viet Nam War and was financing it, in large part, through the printing press. There are only three ways for a government to get and spend money: taxation, borrowing, and printing. Of course, as the United States created money and spent it, there was pressure on the U.S. Dollar to weaken relative to other currencies. Eventually, it became clear that the lynchpin of the global monetary system was in trouble. On August 15, 1971, gold convertibility was suspended (at USD 35 per ounce); President Richard M. Nixon imposed wage and price controls. Something had to give. The U.S. Dollar was devalued later that year (reflected in a new gold peg of USD 38 per ounce) and further devalued (to USD 42 per ounce) in 1973.

Although the fixed exchange rate system seemed to be falling apart, the European Economic Community (EEC) recognized the difficulties that could result from a floating exchange rate system among the larger European currencies. For example, if one sold Italian shoes and handbags in Paris, then not knowing what the French Franc-Italian Lira exchange rate might be would tend to add potential risks, costs, and uncertainty to this international trade. As a result, in 1972, the EEC established tight "bands" between member country currencies; later that year, the "snake" (the name given to the exchange rate movements within the narrow permissible "band") died. The Deutsche Mark continued to strengthen, Italian Lira weakened, and the U.S. Dollar devalued by a full 10%. By the mid-1970s, we effectively had the beginning of floating exchange rates.

The European countries, though, continued to feel the need for some stability between their currencies. In 1978–1979, the European Monetary System (EMS) was established; this effectively maintained the exchange rates of the major European currencies relative to each other, through the

support of the European central banks. The name for this new arrangement was the Exchange Rate Mechanism (ERM). Although there was occasional pressure, this system was effective for a number of years. Nevertheless, for several years, the U.S. Dollar continued to weaken (versus the European complex). By 1986, the Dollar was down 25% versus the major European currencies; because of the economic implications (which is explained in more detail in Chapter 11, but here we simply note that this was viewed unfavorably by the European community), many central banks coordinated their activities in a successful effort to halt the decline of the Dollar. Such intervention in a nominally floating exchange rate environment is sometimes called a "dirty float."

In 1992, an unprecedented event occurred. George Soros, who ran the Quantum Fund—a global macro hedge fund—took on some large positions in the FX markets. Specifically, he thought both the British Pound and the Italian Lira were overvalued in the market, so he sold them. Effectively, his actions (as well as the trading of others who may have taken on the same bet) served to undermine and ultimately undo the Exchange Rate Mechanism. England was forced to withdraw from the European Monetary System.

Later that year, the Maastricht Treaty replaced the old European Economic Community (EEC) with the new European Union (EU), but, in 1993, the bands were widened from 2.25% to 15% and so, there was effectively a floating exchange rate system in place among the important European currencies. It is the author's opinion that this, as much as any other political or economic factor, led to the introduction and acceptance of the Euro—the single European currency for the largest and most important European economies.

Although FX trading technology continued to advance steadily from the TELEX platform of the 1950s, with an obvious impetus for trading, hedging, and investment in the mid-1970s as fixed exchange rates were abandoned, volumes exploded and FX volatility created a new frontier for both proprietary ("prop") traders and marketmakers alike. There were some significant advances on this trading technology front in the early 1990s. At the time, much of the FX dealing was still done in the direct (over the phone, bank-to-bank) market or through the various voice brokers (that is, through the "squawk boxes" on every trading floor). The year 1993 is generally recognized as the birth of modern electronic FX trading; that year, the Electronic Brokering System (EBS), affectionately known as "the robot," brought a degree of transparency to the FX markets that had never existed before. EBS was founded by 15 member banks as a dealer-to-dealer trading tool. Many FX spot traders felt this served to drive out any remaining edge in their product area. In addition, other trading platforms,

such as the Reuters Matching System, helped streamline trading in the interbank market. FX dealing systems, consortiums, and platforms continue to evolve.

In the early to mid-1990s, equity markets around the world were booming, but it seemed as if performance was particularly spectacular in the emerging markets of Southeast Asia. There was a flood of investment funds into Thailand, South Korea, Malaysia, and Indonesia; to foster this global trend and encourage those continued capital flows, many of these countries pegged their currencies to the U.S. Dollar. Preceded by a drop in the Japanese convertible bond market and exacerbated by an exodus from faltering returns in Thailand, the Asian bubble burst. As western investors attempted to flee the local instruments and to return their cash to more stable currencies, the Asian exchange rates crashed. Hedge funds only added to the frenzy. In 1997, currency crises in Asia were spreading across the region in a phenomenon that became known as the "Asian contagion." The explanations for this crisis are more complicated than simply identifying a speculative attack, but currency misalignments, interest rate issues, underlying economic factors, as well as the collapse of local stock markets all contributed to the FX crises.

The Euro arrived on the scene, literally if not physically, at the start of January 1999. This was a watershed event in the history of foreign exchange. The founding members of the Euro community included: Germany, Italy, France, Spain, Portugal, Ireland, Belgium, Netherlands, Luxembourg, Austria, and Finland. With the initial move from 11 major European currencies to the Euro, convergence required, at some point, fixing the exchange rates. This was done (except for Greece) prior to January 1, 1999 and became effective on that date. Greece was not one of the charter members, joining Euro membership on January 1, 2001; the Euro-Greek Drachma exchange rate was fixed on that date. A summary of the final fixed exchange rate conversions versus the Euro is seen in Table 4.1.

The European Central Bank (ECB) reflects an interesting mix of banking, politics, and finance. The home for the ECB is Frankfurt am Main, Germany (given its central location in continental Europe). The first ECB President, Willem F. Duisenberg, was something of a compromise candidate; someone quipped at the time that the Germans (known for their conservative monetary policy and aversion to inflation) did not want someone from France running the ECB; the French did not want a German; and no one wanted an Italian (although Italy, which had not been known for restraint in their monetary policy, often enjoying double-digit inflation over the years, was the first country to meet the relatively demanding economic requirements for Euro membership). So the role of the first president of the ECB fell to "Wim"

TABLE 4.1 Fixed Euro Conversion Rates versus the Legacy European Currencies*

(fixed January 1, 1999, except for Greek Drachma—fixed January 1, 2001)	
Austrian Schilling	€1 = ATS 13.760300 (Austrian Schillings)
Belgian Franc	€1 = BEF 40.339900 (Belgian Francs)
Finnish Markka	€1 = FIM 5.945730 (Finnish Markkas)
French Franc	€1 = FRF 6.559570 (French Francs)
German Deutsche Mark	€1 = DEM 1.955830 (Deutsche Marks)
Greek Drachma	€1 = GRD 340.750000 (Greek Drachmas)
Irish Punt	€1 = IEP 0.787564 (Irish Punts)
Italian Lira	€1 = ITL 1936.270000 (Italian Lire)
Luxembourg Franc	€1 = LUF 40.339900 (Luxembourg Francs)
Netherlands Guilder	€1 = NLG 2.203710 (Dutch Guilders)
Portuguese Escudo	€1 = PTE 200.482000 (Portuguese Escudos)
Spanish Peseta	€1 = ESP 166.386000 (Spanish Pesetas)

*For example, when the Euro was introduced and the German deutsche Mark (DEM) was first tied to the Euro at a fixed rate of exchange in anticipation of its retirement, this table indicates that 1.95583 Deutsche Marks were to be viewed as equivalent to 1 Euro and subsequently exchanged exclusively at this one rate.

The European Central Bank web site (www.ecb.int) designates the time frame that the various national central banks have set in terms of honoring the conversion of their legacy currencies. These range from unlimited conversion opportunities (offered by Germany, Ireland, Spain, and Austria on their notes and coins), to unlimited conversion on notes, but limitations on coin conversion (Belgium, Luxembourg), to limited coin and note conversion (France, Italy, Netherlands, Finland, Portugal, and Greece).

Duisenberg from the Netherlands. His involvement as the former head of a European central bank and one of the primary leaders of the European Monetary Institute (EMI), which transitioned into the ECB, recommended him highly for this role. Indeed, Wim was expected to step down soon after the Euro was "launched" (as an electronic book-entry unit of account), but he seemed to enjoy the role, ultimately wanting to see the birth, introduction, and distribution of the Euro in physical form (notes and coins) in January 2002. His prearranged successor, interestingly, was Jean-Claude Trichet; although Trichet is French, he possesses a very positive reputation among European central bankers and was acknowledged as an excellent succession candidate. Unfortunately, while he was waiting to succeed Duisenberg, he was charged with complicity in a French banking scandal and became embroiled in legal proceedings which delayed his assuming the reins of the ECB which (from which he was ultimately exonerated). All of this uncertainty did not serve the early performance of the Euro well. The Euro

was introduced at a value of USD 1.1800 per Euro 1 (though one sees values of 1.2000 down to 1.1700 reported) and the Euro proceeded to plummet to USD .8252 per Euro 1 over the course of less than two years. The Euro became the sole legal tender in the EuroZone on March 1, 2002; all national currencies were to be retired by the end of March 2002; and Jean-Claude Trichet replaced Wim Duisenberg as the president of the European Central Bank toward the end of 2003.

Attributed largely to the immense U.S. trade imbalance (the United States is a significant net importer of goods and services, which implies that it is exporting U.S. Dollars all over the world with the concomitant implication that the value of the Dollar should fall, the Euro-Dollar exchange rate has risen to as high as USD 1.3633 per Euro on December 28, 2004, before subsequently coming back down. See Figure 4.1 for a graph of the exchange rate between the Euro and U.S. Dollars since its inception.

As of May 2004, 10 countries were admitted into a holding pattern for Euro membership. These are: Poland, Hungary, the Czech Republic, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Malta, and Cyprus.

Incorporation into the EuroZone is likely to provide a significant eco-

FIGURE 4.1 Bloomberg History of the Euro (Price)
Source: © 2006 Bloomberg LP. All rights reserved. Reprinted by permission.

nomic boost to these economies through the reduction of trade barriers and the possibility of freer pan-European investing, stimulating further development, growth, and industry in these burgeoning nations. There are economic criteria, though, that must first be met (as was the case with the earlier Euro members) including price stability or controlled inflation, sound fiscal circumstances or debt solvency, stable exchange rates, and the ability to have long-term interest rates converge to their Euro replacement.

Maybe more interesting than the list of who is in (and/or would like to be in), is the list of the European countries who have not adopted the Euro as their official currency. These countries include Great Britain, Switzerland, Denmark (which has repeatedly just marginally missed achieving the required majority vote in general elections), and the other Scandinavian countries (Sweden and Norway). It will certainly be interesting to watch.

One might think that the likelihood of currency crises would wane over time as international banking supervision, regulatory convergence, and financial media coverage advance, but, as mentioned earlier (in Note 4 of Chapter 1), the Turkish Lira experienced a devastating depreciation in 2001 following their forced abandonment of a fixed exchange rate regime. Media accounts at the time seemed more focused on the potential political fallout, the existence of local corruption, and the possible overthrow of the government rather than the financial consequences. The Argentinian Peso Crisis occurred the following year, in 2002, with the collapse of their Currency Board. Both these crises were driven by the inability to maintain the stated fixed exchange rate due to the lack of international reserves. We have probably not seen the last of the currency crises. More on crises in Chapter 12.

Where do we go from here?

To quote a prominent former foreign exchange dealer and distinguished author on FX markets, Claude Tygier:

> *There is no absolute way to know if the dollar will go up, down or sideways—it may well do all of these things. The only certainty is that it will move.*

THE FX MARKETS TODAY

The foreign exchange market is the world's largest financial market. Because of the lack of a central organizing body, the size and scope of the global foreign exchange markets are not known with exact precision, but the Bank for International Settlements (BIS),[4] which coordinates their fact finding with many central banks, conducts a triennial survey of the FX markets. Obviously they have many challenges not the least of which is dealing with the

issue of double counting. (Recall that when one party buys Euros and sells Dollars, another party buys Dollars and sells Euros.) Nevertheless, the BIS statistics are generally viewed as fairly comprehensive and relatively reliable. We summarize their latest findings and identify the trends in this market as we address the development of this industry. (See Table 4.2.)

The dip from 1998 to 2001 can be explained by the introduction of the Euro [and the retirement of a number of the legacy European currencies (DEM, FRF, ITL, ESP)] that subsequently eliminated the need to trade the European crosses (which had not been an insignificant portion of annual FX trading volume).

To put this in perspective, average daily turnover in foreign exchange now exceeds USD 2 trillion in U.S. Dollar equivalent terms compared to an average daily turnover on the New York Stock Exchange (NYSE) of USD 40–50 billion. You could claim, rather justifiably, that this is not a fair comparison because the NYSE represents only a fraction of the U.S. (not global) equity market, but it does provide some sense as to the magnitude of daily FX volume.

Kenneth Froot and Richard Thaler cited the magnitude of FX trading volume in another illustrative manner.[5] They noted that daily U.S. GNP was approximately twice that of daily world trade in goods and services; more impressive was the fact that daily volume in FX at the time was approximately 20 times daily U.S. GNP. By their reckoning, FX trading volume was roughly around 40 times what the volume of international trade would warrant (and that assumes that all international trade transactions require a foreign exchange trade to unwind any currency risk, which clearly might not be true).

To put the magnitude of FX trading in perspective in one other way, the current volume of foreign exchange transactions corresponds

TABLE 4.2 Global Foreign Exchange Market Turnover (Daily Averages in April, in Billions of U.S. Dollars)

	1989	1992	1995	1998	2001	2004
Total Traditional Turnover	590	820	1,190	1,490	1,200	1,880

Source: "Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2004," Monetary and Economic Department, Bank for International Settlements (September 2005).

to every person on the planet trading the equivalent of over USD 300 (PER DAY)!

Although the FX market has generally grown at an impressive pace, there has been a continued maturing and commoditization of this aspect of the financial industry. To give a few concrete examples of the evolution and consolidation of the FX market, the former Union Bank of Switzerland (UBS) and Swiss Bank Corporation (SBC) together employed around 300 FX spot traders in over 16 locations prior to their merger. Today, UBS (the new, merged entity) has less than 30 FX spot traders in three locations (Singapore, London, and Stamford, Connecticut) despite its 12+% market share. Another incredible fact is that, according to the BIS Survey, the number of FX dealing firms halved in the three years between 2001 and 2004. Possibly even more significant than the previous two facts, liquidity in the United States-versus-Europe exchange rate (as reflected by USD|DEM prior to the Euro and subsequently by EUR|USD)—indicative of the ability to obtain a dealable quote from the set of all marketmakers—has fallen by a factor of around 10 over the past 16 years or so.

Which currencies are traded? The breakdown in terms of the currencies making up the aforementioned volume is seen in Table 4.3.

TABLE 4.3 Selected Currency Distribution of Reported Foreign Exchange Market Turnover*

	1989	1992	1995	1998	2001	2004
U.S. Dollar (USD)	90%	82%	83%	87%	90%	89%
Euro (EUR)	—	—	—	—	38%	37%
German Deutsche Mark (DEM)	27%	40%	36%	30%	—	—
French Franc (FRF)	2%	4%	8%	5%	—	—
Other EMS currencies	4%	12%	16%	17%	—	—
Japanese Yen (JPY)	27%	23%	24%	20%	23%	20%
Pound Sterling (GBP)	15%	14%	9%	11%	13%	17%
Swiss Franc (CHF)	10%	8%	7%	7%	6%	6%
Australian Dollar (AUD)	2%	2%	3%	3%	4%	6%
Canadian Dollar (CAD)	1%	3%	3%	4%	5%	4%

**Note:* Recalling that every trade involves one currency pair (two currencies), the complete columns (i.e., including every traded currency) should add to 200 percent. *Source:* "Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2004," Monetary and Economic Department, Bank for International Settlements (September 2005).

The Foreign Exchange Market Participants

Who are the market participants? Just about everybody! (See Table 4.4.)

Any corporation or company engaging in international business (either buying inputs abroad or selling their products/services "overseas") potentially has to deal with foreign exchange.

As the world shrinks, cross-border capital flows become more commonplace [e.g., U.S. investors putting their wealth into Swiss pharmaceutical stocks, Euro-denominated German bunds, Japanese government bonds (JGBs), or maybe even Australian commodities]; institutional fund managers who invest in assets denominated in other than their home currency must make an active decision either to hedge their currency risk or to leave their position open to (hopefully favorable) movements in foreign exchange rates. The process of entering into foreign exchange transactions on top of a traditional investment portfolio is often referred to as a "currency overlay" and the decision process that assesses the likelihood of the changes in value among the various classes of securities and commodities is called "asset allocation."

Hedge funds try to identify profitable opportunities in their attempt (1) to generate absolute returns of 10% to 15% per year regardless of the direction of market trends, (2) to achieve low portfolio or trading volatility—the "hedged" in hedge funds—and (3) to generate a low correlation with the traditional asset classes (equity, fixed income).

Banks are big in the FX markets. Both investment banks and commercial banks serve to facilitate their clients' foreign exchange transactions. Moreover, some central banks trade actively in these markets for a variety of reasons.

We even have seen participation on the part of high net worth individuals, and increasingly foreign exchange products are being packaged and distributed to retail clients (primarily in the form of structured notes and deposits).

In the textbooks, one sees reference to "hedgers" and "speculators"; while I'm not sure exactly who these are, on any given day, any one of the FX market participants might be engaging in either of these sorts of

TABLE 4.4 FX Market Participants

Investment Banks	Corporations
Institutional Investors (Mutual Funds, Pension Funds)	Hedge Funds
Commercial Banks and Supranationals	Central Banks and Governments
High Net Worth Individuals	Day Traders

trades. Presumably "hedging" involves offsetting risks that one has and "speculating" implies taking on risk in the hope of generating a positive return.

Institutional Information

Effectively, the foreign exchange markets are a (close to) 24-7 institution. To be precise, the FX markets open in Wellington, New Zealand, on (their) Monday at 7:00 A.M. and close on Friday evening in the United States when you can no longer get a dealable quote from any of the banks or broker/dealers. While this, in principle, leaves a little time gap (relative to a full 24-hour-a-day, 7-day-a-week continuously traded market), some FX market facilitators now provide nonstop, 24-hour a day, 7-day-a-week (usually electronic) coverage with live dealing capability, so the FX market today is both in theory and in fact a continuous market.

Furthermore, there has been a dramatic move to electronic execution over the past 10 years. At UBS in 2005, over 80% of all transactions ("tickets") are now being done electronically, while over 60% of the volume is made up of "e-trades." Prior to 1990, there was no electronic FX trading to speak of; by the mid-1990s, e-trades accounted for less than a third of the volume.

Drivers of the Foreign Exchange Market

What drives the FX markets? "Buyers and sellers" is the best and most correct (if rather simplistic) answer. What drives the buying and selling? International trade is considered an important determining factor, but so too are capital flows, foreign direct investment (which involves, for example, a Japanese investor allocating resources to a U.S. firm directly, not simply buying stock in that company), interest rates, monetary policy, expectations of inflation, and even rumors.

Unlike the market for a given stock (which is driven largely by the operations, performance, and competitive environment of that particular firm, possibly evaluated relative to its industry or sector), foreign exchange markets incorporate all the aspects of macroeconomic phenomenon directly into their pricing and trading. Having said that, FX also responds to political news and events. Moreover, as mentioned, governments sometimes become participants in these markets; this is often referred to as intervention.

On occasion, central banks have coordinated their behavior to arrive at an exchange rate level that they find mutually attractive.

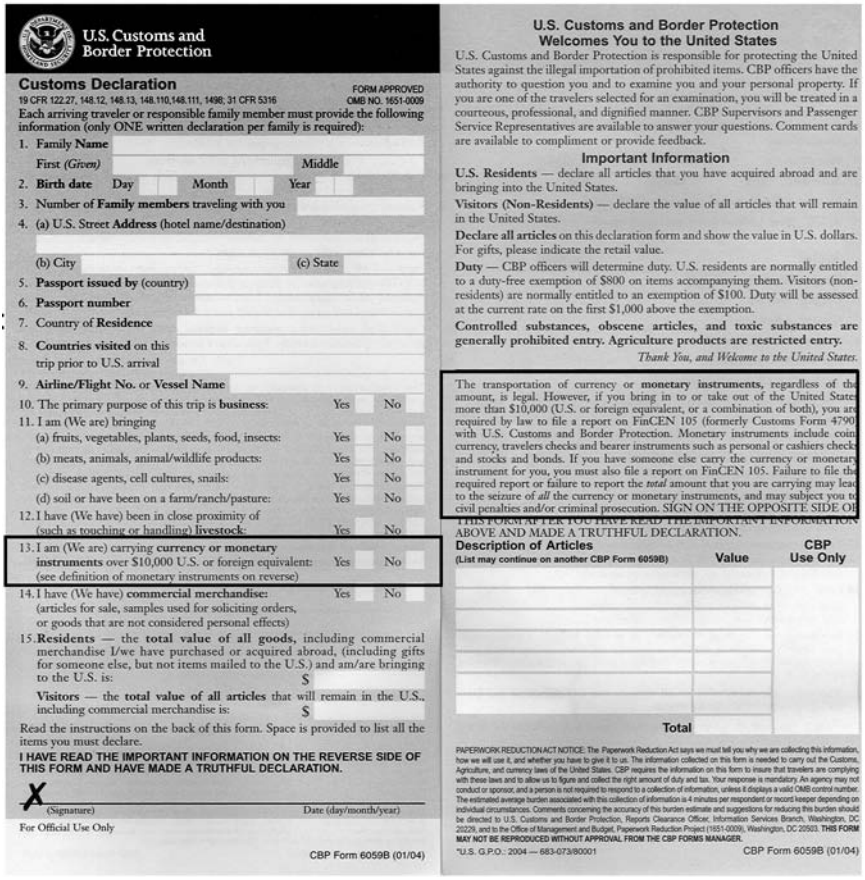
THE REGULATORY ENVIRONMENT AND CENTRAL BANK INTERVENTION

Regulations and Government Involvement

It has been noted that the FX markets are essentially unregulated, but, in the United States there is some oversight to these markets (as most central banks retain their authority to monitor, regulate, and intervene) and there are some restrictions (admittedly relatively nonbinding for most market participants). An example involves the effectively absolute U.S. embargo of Cuba (U.S. Department of the Treasury 31 C.F.R. Part 515—Cuban Assets Control Regulations and the U.S. Department of Commerce Export Administration Regulation 15 C.F.R. Parts 770-785 with its related implication for U.S. currency). Also, the control of U.S. bank notes (for which the Federal Reserve Bank estimates that between one-half and two-thirds of the supply of issued U.S. currency in circulation resides outside the United States) is, at least in principle, under the control of the Federal Reserve and the U.S. Treasury (as the sanctioned monopolist of U.S. currency). Further, oversight in the United States involves the Office of the Comptroller of the Currency (OCC[6]), which charters, regulates, and supervises all national banks, supervises the federal branches and agencies of foreign-based banks, and has connections with the Federal Deposit Insurance Corporation (FDIC). Finally, although not a significant part of the market, foreign exchange futures and options on those futures are listed on the International Monetary Market (IMM) and on the Chicago Mercantile Exchange (the Merc); because these are futures contracts, they are regulated by the Commodity Futures Trading Commission (CFTC).

One of the few hard and fast rules relating to foreign exchange involves the regulation regarding the conveyance of more than USD 10,000 (or foreign currency equivalent) in any form into or out of the United States (as seen on U.S. Customs and Border Protection Declaration 6059B, which is the form that one perfunctorily fills out with every international flight into the United States). (See Figure 4.2.) And even in this case, it is not automatically disallowed, but, as is often the case with regulation, simply requires the proper notification, reporting, and filing (involving, in this case, Report of International Transportation of Currency or Monetary Instruments—Customs Form 4790).

On a larger scale, the Basel Committee on Banking Supervision (of the BIS) has been a staunch advocate of improvements in risk management on the part of the international banking community, in particular the implementation of settlement risk reduction processes for FX trans-



U.S. Customs and Border Protection

Customs Declaration

19 CFR 122.27, 148.12, 148.13, 148.110,148.111, 1498; 31 CFR 5316

FORM APPROVED OMB NO. 1651-0009

Each arriving traveler or responsible family member must provide the following information (only ONE written declaration per family is required):

1. **Family Name** — First *(Given)* — Middle
2. **Birth date** Day Month Year
3. Number of **Family members** traveling with you
4. (a) U.S. Street **Address** (hotel name/destination)
   (b) City (c) State
5. **Passport issued by** (country)
6. **Passport number**
7. Country of **Residence**
8. **Countries visited** on this trip prior to U.S. arrival
9. **Airline/Flight No.** or **Vessel Name**
10. The primary purpose of this trip is **business**: Yes No
11. I am (We are) bringing
    (a) fruits, vegetables, plants, seeds, food, insects: Yes No
    (b) meats, animals, animal/wildlife products: Yes No
    (c) disease agents, cell cultures, snails: Yes No
    (d) soil or have been on a farm/ranch/pasture: Yes No
12. I have (We have) been in close proximity of (such as touching or handling) **livestock**: Yes No
13. I am (We are) carrying **currency or monetary instruments** over $10,000 U.S. or foreign equivalent: Yes No
    (see definition of monetary instruments on reverse)
14. I have (We have) **commercial merchandise:** Yes No
    (articles for sale, samples used for soliciting orders, or goods that are not considered personal effects)
15. **Residents** — the **total value of all goods**, including commercial merchandise I/we have purchased or acquired abroad, (including gifts for someone else, but not items mailed to the U.S.) and am/are bringing to the U.S. is: $
    Visitors — the **total value of all articles** that will remain in the U.S., including commercial merchandise is: $

Read the instructions on the back of this form. Space is provided to list all the items you must declare.

I HAVE READ THE IMPORTANT INFORMATION ON THE REVERSE SIDE OF THIS FORM AND HAVE MADE A TRUTHFUL DECLARATION.

X (Signature) Date (day/month/year)

For Official Use Only

CBP Form 6059B (01/04)

U.S. Customs and Border Protection Welcomes You to the United States

U.S. Customs and Border Protection is responsible for protecting the United States against the illegal importation of prohibited items. CBP officers have the authority to question you and to examine you and your personal property. If you are one of the travelers selected for an examination, you will be treated in a courteous, professional, and dignified manner. CBP Supervisors and Passenger Service Representatives are available to answer your questions. Comment cards are available to compliment or provide feedback.

Important Information

U.S. Residents — declare all articles that you have acquired abroad and are bringing into the United States.

Visitors (Non-Residents) — declare the value of all articles that will remain in the United States.

Declare all articles on this declaration form and show the value in U.S. dollars. For gifts, please indicate the retail value.

Duty — CBP officers will determine duty. U.S. residents are normally entitled to a duty-free exemption of $800 on items accompanying them. Visitors (non-residents) are normally entitled to an exemption of $100. Duty will be assessed at the current rate on the first $1,000 above the exemption.

Controlled substances, obscene articles, and toxic substances are generally prohibited entry. Agriculture products are restricted entry.

Thank You, and Welcome to the United States.

The transportation of currency or **monetary instruments**, regardless of the amount, is legal. However, if you bring in to or take out of the United States more than $10,000 (U.S. or foreign equivalent, or a combination of both), you are required by law to file a report on FinCEN 105 (formerly Customs Form 4790) with U.S. Customs and Border Protection. Monetary instruments include coin, currency, travelers checks and bearer instruments such as personal or cashiers checks and stocks and bonds. If you have someone else carry the currency or monetary instrument for you, you must also file a report on FinCEN 105. Failure to file the required report or failure to report the *total* amount that you are carrying may lead to the seizure of *all* the currency or monetary instruments, and may subject you to civil penalties and/or criminal prosecution. SIGN ON THE OPPOSITE SIDE OF THIS FORM AFTER YOU HAVE READ THE IMPORTANT INFORMATION ABOVE AND MADE A TRUTHFUL DECLARATION.

Description of Articles (List may continue on another CBP Form 6059B)	Value	CBP Use Only
Total		

PAPERWORK REDUCTION ACT NOTICE: The Paperwork Reduction Act says we must tell you why we are collecting this information, how we will use it, and whether you have to give it to us. The information collected on this form is needed to carry out the Customs, Agriculture, and currency laws of the United States. CBP requires the information on this form to insure that travelers are complying with these laws and to allow us to figure and collect the right amount of duty and tax. Your response is mandatory. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information, unless it displays a valid OMB control number. The estimated average burden associated with this collection of information is 4 minutes per respondent or record keeper depending on individual circumstances. Comments concerning the accuracy of this burden estimate and suggestions for reducing this burden should be directed to U.S. Customs and Border Protection, Reports Clearance Officer, Information Services Branch, Washington, DC 20229, and to the Office of Management and Budget, Paperwork Reduction Project (1651-0009), Washington, DC 20503. **THIS FORM MAY NOT BE REPRODUCED WITHOUT APPROVAL FROM THE CBP FORMS MANAGER.**

*U.S. G.P.O.: 2004 — 683-073/80001

CBP Form 6059B (01/04)

FIGURE 4.2 One of the Few Examples of FX Regulation
Source: U.S. Customs and Border Protection, U.S. Department of Homeland Security.

actions. And there may be required registration on the part of an FX dealer with the National Futures Association (NFA) or the CFTC, but it should be noted that such registration does not necessarily provide counterparty protection or a guarantee of contract performance. In the United Kingdom, a dealer's registration with the Financial Services Authority (FSA), based on their stricter regulatory and reporting requirements, would presumably carry greater weight, but, globally, there is no single dealer network or ubiquitous regulatory framework that covers every country.

In general, when a trader hears that a market is not regulated, they understand it to mean that transactions are not subject to past price movements (such as the up-tick rule in securities markets whereby, for a SHORT sale, the last directional movement in the price must have been up—U.S. Exchange Act Rule 10a-1 and NASD Rule 3350), reporting requirements (such as the 5% beneficiary ownership reporting rule with U.S. equities—Regulation 13D-G), limit moves, circuit breakers, or other interferences or hindrances to trade that, while they may have an issuer's or investor's best interest in mind, restrict their fundamental activity of buying and selling. In this sense, the sort of activities that involve the rules on information flow (keeping client names confidential, alerting others to central bank intervention, not front-running a customer's order, attempting to push a price in a certain direction, and so on), while possibly not illegal in the world of FX, could have a devastating impact and deleterious implications for a dealer's reputation. The self-regulation imposed as a result seems to have served this industry and its clients well to date.

Central Bank Intervention

Although not formally regulation, central banks have intervened (and sometimes still do intervene) in the foreign exchange markets. On some occasions, one central bank will enter the market and engage in transactions on behalf of another central bank. For example, the Fed in New York might trade USD|JPY on behalf of the Bank of Japan (the BoJ) during North American trading hours; interestingly, when the Fed has done this, they would claim NOT to have intervened, but simply to have executed an order or a series of orders for a fellow central bank.

At times in the past, the Fed has definitely actively traded foreign exchange with the intent of impacting exchange rates in a way consistent with U.S. economic policy. Although the Fed, the U.S. central bank, is probably one of the most autonomous central banks [that is, independent of political influence, one of the reasons that a full term of office for a Member of the Board of Governors lasts 14 years (i.e., long enough to provide effective insulation from any given president or Congress)], it lists among its objectives [aside from the implementation of monetary policy, its supervisory role for banking institutions, and its critical role in the payments (i.e., check clearing) system], "influencing the value of the Dollar in relation to foreign currencies, primarily with the goal of stabilizing disorderly market conditions."[7] More precisely, the Federal Reserve works in consultation with the U.S. Treasury in setting exchange rate policy and the Federal Reserve Bank of New York is responsible for executing the associated FX transactions.

The primary objectives identified by most of the major central banks (the European Central Bank, the Swiss National Bank, the Bank of England, the Bank of Japan, and the Fed) include many of the following:

- Monitoring and Managing Monetary and Credit Conditions (through Monetary Policy).
- The Pursuit of Full or Maximum or a High Level of Employment (or the Reduction of Unemployment).
- Maintaining Stable Prices (or Avoiding Inflation).
- Preserving the Purchasing Power of the Currency (or Reducing the Volatility of Exchange Rates).
- Issuing Bank Notes or Currency Consistent with Economic Policy.
- Encouraging Moderate Long-Term Interest Rates or Controlling the Money Supply.
- Promoting Real or Sustainable Economic Growth and Development.
- Improving the Welfare of its Citizens.
- Ensuring the Soundness and Stability of the Banking and Financial Systems.
- Providing Financial Services (to the Government, Banks, and other Financial Institutions).
- Supporting the Smooth Operation of the Payment System.

Over the years, assessment of the short-term and longer-term impact of foreign exchange intervention has met with mixed reviews. Lucio Sarno and Mark Taylor (2001) wrote an excellent survey article, "Official Intervention in the Foreign Exchange Market: Is It Effective and, If So, How Does It Work?,"[8] for anyone wishing to pursue this topic in greater detail. In several relatively recent articles, though, it is argued convincingly that central bank intervention has become slightly more effective in recent years than it has been in the past.

There have been two trends on the part of the U.S. central bank in recent years: increased transparency and severely diminished instances of their direct intervention. Approximately a month after each calendar quarter, the New York Fed issues a report to Congress documenting their foreign exchange dealings; this report is made public as "Treasury and Federal Reserve Foreign Exchange Operations." Officially (as of mid-year 2005), the Fed last intervened in the third quarter (Q3) of 2000 (and prior to that, one has to go back to 1998 to find documented confirmation of any intervention at all) (see Figure 4.3), whereas the European Central Bank (ECB) launched its first intervention on September 22, 2000 (less than two years after the introduction of the Euro).

This leads us to consider the positive (what has happened) and the

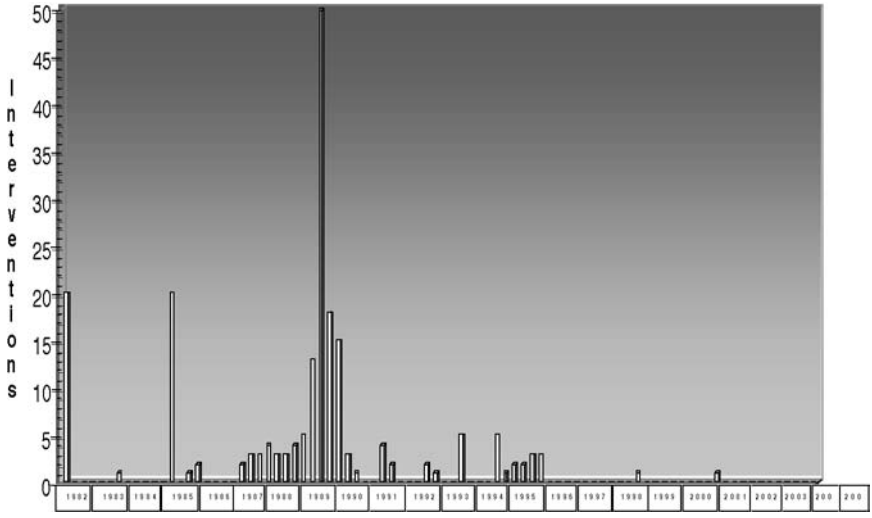


FIGURE 4.3 U.S. Foreign Exchange Intervention: 1982–2005
Source: New York Federal Reserve.

normative (what should happen from a policy perspective). As mentioned, empirically the United States has historically not been an active market agent of late when it comes to FX intervention, but that begs the question of whether they, or any and every central bank, should take a more proactive role in essentially influencing their global terms of trade. Given the experiences of those central banks who have made unsuccessful bids to influence their currency's market value, Jacob Frenkel has an unambiguous policy recommendation:

> *Foreign exchange intervention should only be done in very extreme cases and for the maintenance of orderly markets rather than for the determination of an exchange rate. First, you cannot do it. And, second, if you do it, you create moral hazard that will come back to haunt you."*
>
> —Jacob Frenkel in Overview from "New Challenges for Monetary Policy" Symposium Proceedings (1999), pp. 397–403

SUMMARY

The Foreign Exchange markets are much larger, more liquid, and less regulated than all of the other financial markets. As currencies have evolved

from gold and silver coins, to notes backed by, and convertible into, precious metal, to today's fiat money, and as the world has gotten smaller (more globally interdependent), the trading of foreign exchange has grown—and grown rapidly. One of the most significant events for FX in recent years has been the introduction of the Euro. A number of countries are in a queue for consolidation into the EuroZone. The range of market participants in the FX markets is broad: institutional funds, corporations, banks, hedge funds, high net worth individuals, and even the periodic involvement of a central bank. How these markets will continue to develop is anyone's guess, but the trends suggest that the volume of trade in FX will continue to expand to accommodate the hedging and positioning done by these players, that there will be further exodus and/or consolidation on the part of the broker/dealers, and that the general movement toward electronic FX execution platforms will show no sign of slowing.