Fixed Exchange Rates

Throughout recent history however, there have been extended periods of time when exchange rates were not market determined; instead governments announced fixed exchange rates for their currencies and then took actions to try to maintain these rates. As it turns out, even though rates were fixed, some small movements were allowed from one day to the next.

The first modern historical experience with an international system of fixed exchange rates was known as the "gold standard", which prevailed from about 1870-1914 and then again (but much less successfully) in the late 1920s. This arrangement was not a formal agreement between countries, but arose because of common practices followed by central bankers around the world. It worked as follows:

1. Central bankers would declare a fixed price (denominated in local currency) for a given quantity of gold. This price was known as the mint parity.

2. Central bankers acted to maintain the mint parity price by offering to buy or sell gold for domestic currency in unlimited amounts to anyone at the mint parity price.

3. In each country, the mint parity never changed and was never expected to change.

If any two countries followed these rules, this would establish fixed exchange rates between them. To see that consider the following example:

Suppose the French central bank sets the mint parity at FF 40 = 1 oz. gold and the Federal

1 These practices have become known as the "rules of the game". Whether they were rigidly adhered to is now thought to be unlikely. However, they were followed closely enough so that the gold standard prevailed for more than 40 years with remarkable stability.

2 For reasons that will become clearer shortly, the examples discussed in this section will make the assumption that the home country is France. Thus, exchange rates will be expressed as the number of FF it takes to buy $1. It is straightforward to convert FF exchange rates into $ terms.
Reserve sets the dollar mint parity at $10 = 1 oz. So long as these parities are maintained, arbitrage in the gold market assures that

\[ \text{FF 40} = \$10 \]

or

\[ \text{FF 4} = \$1 \]

Now, how does this relationship between mint parities relate to activities in the foreign exchange market? Recall that the principal participants in the foreign exchange market are commercial banks; they buy and sell foreign money today much as they did under the gold standard. Now suppose that you run a French firm that is considering importing some wine from California. To pay for the wine you need dollars and go to your local bank to buy them (with FF). Suppose the foreign exchange desk says that the demand for dollars has been really high this week and even though the mint parity is 4, the bank wants to charge you FF 4.05 per dollar. Would you pay this price? It depends. Consider your options.

**Case 1 (No shipping costs):** If it costs nothing to ship gold between the two countries, then you should turn down your bank. Instead, take your FF to the Bank of France (the central bank) and buy gold at the rate of FF 40 per oz. Ship the gold to the United States. Sell the gold to the Fed for $ (at the rate of $10 per oz). In so doing, you have guaranteed yourself an exchange rate of FF 4 = $1, a rate that is significantly better for you than what your bank was willing to charge. Thus, in this case, you would never pay more (or less) than FF 4 per $.

**Case 2 (shipping costs):** In the real world however, shipping gold is not costless. Suppose, therefore, that it costs FF .9 to ship 1 oz of gold between the two countries. The cost to you of converting FF into gold and shipping the gold to the United States in order to acquire dollars now becomes:
FF 40 (cost of gold) + FF .9 (shipping costs) = $10

or

FF 4.09 = $1

Thus, in this case, the best you can do if you ship gold is to buy dollars at the rate of FF 4.09 per $. If your commercial bank offers to sell you dollars at the rate of FF 4.05, you should accept the price.

Thus, the existence of shipping costs establishes a price ceiling on foreign exchange (in the example above, the ceiling is FF 4.09). By similar logic, shipping costs also establish a price floor (in the example it is FF 3.91)\(^3\). The actual exchange rate that would prevail at the local banks on any given day could range from 3.91 to 4.09. To see this more clearly consider the figure on the following page. There I have plotted three alternative situations that could prevail in the French foreign exchange market.

Situation A illustrates a case when the prevailing exchange rate lies between the price ceiling and price floor. In this situation, private market demand equals private market supply and there is no incentive for firms or individuals to buy or sell gold from the central bank in order to acquire or sell foreign exchange. Note that small changes in demand and supply will cause some movement in the exchange rate without any changes in central bank holdings of gold. This situation is analogous to exchange rate determination under perfect flexibility.

Box B illustrates the case where private market demand and supply intersect above the price ceiling. In this case, the equilibrium exchange rate (here 4.15) does not equal the actual exchange

\(^3\) To understand why this is so, consider the case of a French exporter who has earned dollars but is having trouble finding any local bank to buy them. It can sell the dollars to the Fed, buy gold, ship it back to France, and sell the gold for FF at the Bank of France.
rate (4.09). As we have already seen, when the exchange rate rises to 4.09, individuals have an incentive to buy gold from the central bank and ship it overseas. Thus, when the exchange rate hits 4.09, France begins to lose gold. How much gold actually flows out? This is determined by the size of the excess demand. As the diagram illustrates, in this case France would lose gold equal in value to the difference between Q1 and Q2. This loss of gold represents a loss of international reserves and corresponds to an official settlements balance deficit in France's BOP (equal in value to the difference between Q1 and Q2). In summary, when the exchange rate under the gold standard hits the price ceiling, the country in question begins to lose gold. Thus, the price ceiling is sometimes called the gold export point. Note as well that the gold export point represents the lowest (highest) value of the FF (dollar) allowed under this system.

Situation C depicts a case essentially the opposite of situation B. Here, the equilibrium exchange rate (3.80) lies below the exchange rate floor, 3.91, which turns out to be the prevailing exchange rate. That is, in this case there is an excess supply of foreign exchange in the foreign exchange market. French firms or citizens who are holding these dollars can convert them into FF by exchanging them for gold purchased from the Fed, shipping the gold to France, and then selling the gold to the Bank of France. Thus, the Bank of France is gaining international reserves; France in this case has an official settlements balance surplus (equal in value to the difference between Q3 and Q4). Following the convention described above, the price floor is sometimes known as the gold import point. This exchange rate represents the highest (lowest) allowable value of the FF (dollar).

Clearly the three situations described in the figure cannot prevail simultaneously. France can experience only one at any given point in time. Is any one of these worse than the others for France's central bank? Situation A presents no problem, since no action by the Bank of France is required in order to maintain the system. Situation C also presents the potential for somewhat more trouble. The Bank of
France in this case is acquiring gold (i.e. international reserves). As it does so, it increases the supply of money in circulation in France. This could be inflationary, but the central bank has options that it can take to reduce these pressures.

However, so long as the central bank desires to maintain the status quo, situation B is the most problematic for the country. This is because here the country is losing gold. The problem is that it does not have an infinite supply of gold to sell to the market. Ultimately, something must change or else the system will collapse.

The second global system of fixed exchange rates was the Bretton Woods System, which prevailed from 1945 until February 1973 (except from August 1971-December 1971). The mechanics of this system differed somewhat from those of the gold standard. First, the system was the creation of the International Monetary Fund (IMF), which supervised its operation and, from time to time, supplied it with additional reserves. The IMF was created at the end of World War II as an international organization to help safeguard the international financial system.

To participate in the Bretton Woods system countries had to become members of the IMF. During the Bretton Woods era, when a country joined the IMF it was required to declare a par value for its currency in terms of dollars. So, for instance, France might declare a par value for the FF of, say, FF 4 = $1. It was then up to France as a condition of membership in the IMF to take actions to maintain the value of its currency within a band of 2¼ percent on either side of par. Thus, in our example, France's job was to keep its exchange rate in a band from 3.91 to 4.09.

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4 This system has also been called the gold exchange standard, the IMF system, and the dollar standard.

5 From 1945 until 1971 the band was 1 percent on either side of par.

6 Note that the way I have set up this example, the band conforms to the example of the gold standard.
How did France maintain its exchange rate within this range? If France was in situation A, then it need do nothing. Private demand and supply equalize at an exchange rate that is permitted by the IMF. If France found itself in situation B, then it faced an excess demand for dollars in the private market. To keep the price from rising, it would sell additional dollars to the market at a price of FF 4.09. The Bank of France would get these dollars from its international reserves, some of which might be held in the form of dollar assets such as U.S. Treasury Bills. If France did not have sufficient dollars on hand, it could obtain more by selling gold to the United States in exchange for dollars, at a fixed price of $35 per ounce.

Situation C represents an excess supply of dollars at existing exchange rates. If France was in situation C, it would buy up the excess supply of dollars (at a price of FF 3.91) in order to keep the exchange rate from falling further. In this case, the Bank of France finds itself acquiring U.S. dollars. What were its options? It could continue to hold the dollars in liquid, interest-bearing form, either by buying U.S. government treasury bills or by depositing the dollars in special accounts created by the Federal Reserve. If it didn’t want to hold on to these dollars, it could use them to buy gold from the United States, at the fixed price of $35 per ounce. Why would France ever choose to hold dollars instead of gold? The answer has to do with whether or not government officials had confidence in U.S. policy. So long as France (or any other country in the system) believed that U.S. inflation would remain low and hence there would be no pressure on the price of gold to rise, then holding dollars would be preferable to holding gold. Dollar assets earn interest, but gold does not. However, if governments were to lose confidence in the U.S. government ability to keep the price of gold fixed at $35 per ounce, then they would want to try to convert their dollar assets into gold before any increase in the price of gold.

Note that, by design, the United States played a very special role in this system. Its primary job had to do with supplying additional international reserves to the system, while stabilizing their value. If the
French (or any other) government thought that its holdings of international reserves were too low, it could adopt policies to try to move its economy into a balance of payments surplus (situation C) vis-à-vis the United States. In the process, it would acquire additional holdings of U.S. dollar assets and the supply of international reserves would rise. However, should the United States enter into policies that pushed itself into BOP deficit leading other countries to accumulate dollars beyond desired levels, these countries could exchange their dollars for gold. Since the United States did not have an unlimited supply of gold, the threat of massive losses of gold in response to excessive U.S. BOP deficits was viewed as imposing discipline on U.S. economic policy making.

As the figure demonstrates, there were many similarities between the gold standard and the Bretton Woods system. In both cases, exchange rates enjoyed limited flexibility around a central par value. One major difference between the two systems was related to whether or not the par value could be changed. Under the gold standard, the par value was determined by mint parity, and the principal rule of the game for central bankers was to follow monetary policy aimed at maintaining a constant price of gold and hence a constant mint parity. Therefore, under the gold standard, market participants viewed the par value as being immutable, and indeed, over the forty year span of the classic gold standard era central rates did not change.

Under the Bretton Woods system, things were different. Par values were established as part of entry into the IMF. Money supplies were no longer explicitly tied to gold in many countries, and greater flexibility was required of the system. Consequently, IMF rules authorized each country to be able to...

7 Examples of such policies are described in later sections of this handout.

8 Note that U.S. dollar assets are not considered to be international reserves from the point of view of the United States.
change its par value by up to ten percent, without permission from the Fund or by greater amounts after receiving Fund advice. If a country found itself continually in situation B, one of its policy options thus became to increase the par value price of the $. In the process, this would shift the bands upward, hopefully moving the country toward situation A (or even C). An increase in the par value price of the dollar is known as a devaluation of the local currency. Alternatively, if a country found itself repeatedly in situation C, it could lower the par value price of the dollar. This is known as a revaluation; it indicates a general rise in the value of the local currency vis-à-vis the dollar.

Between 1946 and 1973, many countries did change their par values. In 1967, after a number of years of large official settlements balance deficits, Britain devalued the pound. France devalued the FF in 1969. Germany revalued the DM in 1961 and again in 1969. And, in 1971, the United States devalued the dollar by raising the official price of gold from $35 to $38 per ounce.

The ability to change the par value of a currency meant new opportunities for market participants to make money by speculating in the foreign exchange market. In particular, suppose that France had been in situation B for some time and that speculators had begun to suspect that France was about to devalue its currency, say from a par value of 4FF = $1 to 5FF = $1. This would induce them to enter the market seeking to sell FF for dollars. Why? Under the current rate they would have paid 4.09 FF per dollar. After the devaluation, they would sell dollars back for FF at the rate of about 5 FF, earning almost 1 FF for every dollar originally purchased.

Note that speculation puts additional pressure on the central bank to carry out the devaluation. That is, a rise in speculative activities against the local currency means that the demand for foreign exchange shifts out. This leads to a wider OSB deficit and larger reserve outflows. As reserve levels drop, the central bank is forced to take action. Market participants knew this, and so, if currency traders began to sense that
speculative activity was on the rise, they would join the process, creating a bandwagon effect. This is known as a run on a currency, and almost every major country currency was attacked in such a manner during the Bretton Woods era.

Today, we are no longer on a global system of fixed exchange rates, although some countries choose to fix the value of their currencies against one or more partner currencies. Such a system is currently in place in Western Europe, where twelve countries within the European Union have established immutably fixed exchange rates between their currencies without any bands and without any possibility for devaluation. This is the forerunner of the full introduction of the Euro that will take place in 2002. Note that the decision to establish rigid exchange rates and the conversion of twelve currencies into a single currency eliminates the opportunity for speculators to disrupt the internal exchange rate values of the member countries.