Economic Environment and Business Strategy
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Week- 06
Lecture- 28

Foreign exchange

Welcome to the next session on the economic environment and business strategy. Today, we continue our exploration of the external sector by focusing on a fundamental driver of international economic interaction, foreign exchange rate determination. We begin by understanding how exchange rates are set through the basic forces of demand and supply for foreign currencies. This market-driven mechanism is central to how currencies gain or lose value in the global economy. Next, we will examine the various types of exchange rate regimes practiced around the world. We begin with a flexible or floating exchange rate system, where market forces interact freely to determine the foreign exchange rate.

Then we will discuss a fixed exchange rate system, in which a currency is pegged to another currency or a basket of currencies. Subsequently, we will discuss the managed float system, in which the central bank intervenes occasionally to stabilize or guide currency values without committing to a fixed peg. We'll also explore how these regimes vary across countries and the strategic trade-offs they entail, such as the balance between stability and autonomy in monetary policy. Understanding these exchange rate mechanisms is essential not only for interpreting macroeconomic trends but also for evaluating the risks and opportunities businesses face in an increasingly integrated global marketplace.

Let us begin by defining the foreign exchange rate and then examining the demand and supply dynamics in the foreign exchange market. So, coming to the definition of the foreign exchange rate. The exchange rate refers to the price of one unit of a foreign currency. For example, when we discuss the exchange rate against the US dollar, stating that the exchange rate is 85 means that to buy one unit of the US dollar, we need to pay 85 rupees. So that is how, simply in layman's language, the exchange rate is defined.

The exchange rate is simply defined as the price of one currency in terms of another. To buy one unit of foreign currency, that is how we define the foreign exchange rate. To define the foreign exchange market globally, there are three major types of foreign exchange market regimes: one is called a floating currency, or in other words, a flexible exchange rate system. A flexible exchange rate system means that these rates are primarily determined by the forces of supply and demand, driven by market mechanisms.

In countries such as the US, Japan, the European Union, Australia, and Sweden, they have floating currencies or a flexible exchange rate system.

Then some countries have fixed or pegged currencies under the fixed exchange rate system. That means pegging a currency to another currency or a basket of currencies. These are often implemented through a currency board. We will discuss this in more detail in one of the later slides. Then we have managed floating, which is also referred to as managed in record; that is, fixed float, which is a mix of floating and fixed to some extent.

What matters here is that, in general, the central bank would allow its currency to interact freely in the forex market. That means simply allowing it to respond to the forces of supply and demand. However, in some instances, when the central bank believes that intervention is necessary, such as when the domestic currency is performing poorly in the foreign exchange market, it may opt to intervene in the market at that time. That means a kind of managed fraud. It allows fraud, but sometimes it intervenes.

Because of this, it is also known as a dirty bag. Dirty bag in a way that normally allows the free play of demand and supply, but when it feels that there is a requirement to intervene to protect the domestic currency, then the central bank intervenes. So the countries whose central banks intervene enough that we can't classify them as freely floating countries, for example, Brazil, Colombia, India, Indonesia, Russia, and South Africa, follow a managed floating system that is a mix of both fixed exchange rate systems and flexible exchange rate systems, but for the most part, it deals with the flexible exchange rate system, and sometimes when the central bank intervenes, it becomes a managed floating system. So, there is another concept called the gold standard. The gold standard refers to a monetary system in which currencies are defined in terms of a fixed weight of gold, operating under a stable exchange rate regime.

That means the currencies are pegged to gold, which we will discuss in more detail in a later slide. Then we have purchasing power parity, where the exchange rates between currencies are in equilibrium when their purchasing power is the same in each country. So, here it compares the price of a standard good that is identical in all countries. To illustrate this, there is an example known as the Hamburger Index. It means a light-hearted version of the PPP from the economics magazine.

It publishes an annual report, comparing the prices of MC's hamburgers around the world. That means you can be assured that this product is uniform and homogeneous worldwide. Therefore, you can see that, for example, if you have a product in India at 200 and in the US at double the price, you can accordingly define the exchange rate by dividing the price in India by the price in the US. That is actually a slightly more

lighthearted version of the purchasing power parity method. Now, let me move on to how a floating or flexible foreign exchange market works.

This works operates mainly through the forces of demand and supply. Regarding the demand for foreign exchange, consider India; we are in need of forex. For example, we are demanding US dollars. So why do we want to demand, uh, what is the rational motive behind, uh, demanding, uh, US dollars? Because we demand forex or US dollars because we want to import from the US, right? This means that Indian demand for US dollars or any other foreign currency stems from the country's demand for imports from the USA and other countries. Similarly, from Indian unilateral transfers to the USA or the rest of the world.

To make that transfer, we need to convert Indian currency into foreign currency, which means we are demanding foreign currency. Similarly, Indian investment in the US and the rest of the world represents a capital outflow from India. Similarly, when tourists visit another country and need to exchange their national currency for the local currency, in all these cases, what it means is that we are demanding foreign currency. In other words, the demand for foreign exchange is a derived demand for foreign goods and services. All four items I listed here actually mean the demand for foreign goods and services, as well as foreign capital outflow.

To do that, the first step is to convert our Indian currency, which is our asset, into a foreign currency. In that context, the demand for foreign exchange arises. Then, regarding the supply of foreign exchange, it mainly comes from foreigners, who supply their own currency. That means in the forex market, if more dollars, pounds, or yen are coming, the supply of foreign exchange increases. Why? Why should they pump money into the forex market? Mainly because they want to demand our goods and services, in other words, from India's exports of goods and services to foreign countries.

So, when that means Indian exports, it means foreigners are demanding our goods and services. When they demand our goods and services, they will first convert the foreign exchange into Indian currency to purchase them. Therefore, this means that it is the supply of foreign exchange. Then come the unilateral transfers received from the IUSA from the US or the rest of the world, as well as investment in India, which represents capital inflow when foreigners make direct investments or portfolio investments here. To do that, they need to first convert their foreign currency into Indian currency, which essentially involves supplying foreign exchange in the forex market.

Similarly, when foreigners visit, their tourist expenditures in India also contribute to the supply of forest resources. So, let me now show you, using the demand and supply diagram, how forest rates are determined. As you can see, you are now familiar with the

demand and supply framework. As you can see, on the y-axis, we denote the foreign exchange rate. On the y-axis, we have the foreign exchange rate.

On the x-axis, we have the supply and demand for foreign nesting. In other words, this is the quantity of forex. As you can see here, the demand curve slopes downward from left to right. What does it mean? It means that when the foreign exchange decreases, and the foreign exchange rate is lower, we demand more foreign currency. That means we are importing more.

So, recall that the demand for foreign exchange, or the demand for foreign currency, is a derived demand for foreign goods, which means it is a demand for imports. So, let us suppose this is the equilibrium rate, the equilibrium forex rate; for example, just take this one for example: 80. Let us say this one we are dealing with is the US dollar and the Indian currency. From our perspective, the demand for this Forex diagram is sloping downward. This represents our demand for U.S. goods and services, as well as our demand for U.S. imports. That means this exchange rate is, for example, 80; in other words, to get one dollar, we need to pay 80 rupees, right? Then, when the foreign exchange rate reaches 100, it means that to obtain one dollar, we need to pay 100. What does it mean? So that means the foreign exchange rate has increased, but actually, what happened here is that it has depreciated.

That means when the forex initially, we needed to pay only 80, but now we need to pay 100. Although the foreign exchange rate in this example has increased in value terms, if we report it, there is a depreciation of the domestic currency. That means we already know that right now it is 85; when it becomes 95 or 100, how do we interpret that? Though the foreign exchange rate has increased, there is a depreciation. So, what does it mean? So that means when the foreign exchange rate depreciates or the forex increases, the demand for foreign currency decreases; in other words, the demand for foreign goods and services decreases. It means that when we initially paid 80 rupees, we got one dollar; now we need to pay 100 rupees to get one dollar.

Assuming the price level in the foreign country, such as the US, remains the same, it means that to buy goods, we now need to spend more. Initially, to get $1, we need to pay only $0.80. Now we need to pay $100. That means the demand for imports decreases.

That means this is how to interpret it here. As you can see, the demand for forex has declined. Why? What is the economic logic behind it? As you can see, foreign goods have become expensive in the country. That means initially, by paying $ 80, we used to get $1, and then we could buy goods worth $1. However, now, to purchase the same $1 product, we need to pay $100.

Therefore, if that is the case, we can observe that the demand for forex has declined. In other words, the demand for foreign goods and services declined. Similarly, here, when

the foreign exchange rate declines, that means it appreciates. That means now we need to pay, for example, only 60 rupees to get one dollar. That means the imports of foreign goods and services become cheaper in the country because, as I already mentioned, by paying 60, we are getting.

1 dollar means that, as a result, the demand for imports increases, and when the demand for imports increases, the demand for forex also increases. Now, let us move to the supply side. So, what does it mean by the supply side? Suppose the forex rate is, for example, 100. That means that by paying $1, foreigners are now getting 100 rupees. Initially, when this equilibrium position is reached, you can see that a foreigner, by paying $1, used to get 80.

So, what does that mean? When the foreign exchange rate depreciates, it means it increases in value. Now, you can see that for foreigners, if the price levels in India and the US remain constant, they can now buy more Indian currency by paying one dollar, which means they can purchase more Indian goods and services. That means the higher the foreign exchange rate, the more the currency depreciates, making Indian goods and services cheaper for foreigners; consequently, India's exports become more competitive. So, as a result, when the forex rate appreciates, the supply of forex in the market increases. Similarly, the same interpretation applies when the exchange rate is low or appreciates at a rate of 60, for instance. In this case, you can have the same interpretation as well. Let me now move to the factors that affect the demand and supply of foreign exchange.

Using the previous diagram, we discussed the spot exchange rate, which is the price at which a currency can be bought or sold for immediate delivery. That means if you are going to a bank and buying foreign exchange, you are engaging in a spot transaction, which is based on the spot rate. The fact is that a currency spot rate is affected by several factors, including changes in the differential between Indian inflation and foreign country inflation, as this will have implications for exports and imports. Similarly, changes in the differential between Indian interest rates and foreign countries will also have an impact. Interest rates and the changing differential between Indian income levels and those of foreign countries, for example, if foreign income increases, it means their purchasing power increases; consequently, they will demand more of Indian exports.

Similarly, if our income increases, domestic income also increases, which means we will demand more foreign goods and services, leading to an increase in the demand for imports and, consequently, an increase in the demand for foreign exchange. An increase in demand for foreign exchange rates means the exchange rate is likely to rise, indicating depreciation. Similarly, changes in government control and shifts in the expectation of future exchange rates will all affect the demand and supply of foreign exchange. In brief, the support exchange rate reflects the interplay between inflation, interest rates, and

income, encompassing both domestic and foreign sources. Government policies and market expectations, along with the constant adjustment of supply and demand for currencies, drive the foreign exchange (forex) market.

So, let's make a distinction between two interrelated concepts. One is called depreciation, and the other is called appreciation. Therefore, depreciation and appreciation primarily occur in the flexible foreign exchange market. Depreciation means when the currency decreases. When the forex rate from 80 rupees per dollar increases to 100 rupees per dollar, it means the value of the rupee has decreased relative to the dollar, which is referred to as depreciation.

And appreciation means the same thing in both directions. So, when depreciation occurs, the cost of exports becomes cheaper, and foreigners find Indian goods and services more affordable because, if there is a depreciation of the forex, the cost of imports becomes dearer. Devaluation and revaluation are primarily carried out by the government through government intervention. That means devaluation refers to the government's and the Reserve Bank of India's deliberate efforts to devalue the currency, much like increasing the foreign exchange rate. A revaluation is to reduce the exchange rate, which means a kind of appreciation. In the Indian context, the devaluation of the Indian currency has happened over time.

One instance occurred during the economic crisis of 1991, followed by political instability and an oil price shock in 1973, during the formation of OPEC, as well as during the wars with China and Pakistan in 1966. In 1949, the government of India opted for the devaluation of the Indian currency, making exports more affordable and thereby increasing its foreign exchange earnings. Moving to the fixed exchange rate, in a fixed exchange rate system, foreign central banks buy and sell their currencies at a fixed price in terms of the U.S. dollar. So, this ensures that market prices are equal to the fixed rate. In this case, if there is a fixed exchange rate regime, no one will buy dollars for more than the fixed rate, as they know they can obtain them at the fixed rate.

Similarly, no one will sell dollars for less than the fixed rate, as they know they can sell them for the fixed rate. The foreign central bank holds reserves to sell when it must intervene in the foreign exchange market; thus, it has a fixed exchange rate regime. Primarily, the central bank's intervention is in the form of buying or selling foreign exchange, which is typically done by the central bank. Let us examine how foreign exchange rates fluctuate in response to changes in demand and supply under both flexible and fixed exchange rate regimes.

So let us begin with a flexible exchange rate regime. Assume that, in the beginning, the exchange rate is, for example, here. This represents the foreign exchange rate, which in turn represents the quantity demanded and supplied in the foreign exchange market. And

due to some external factors, suppose there is an autonomous increase in demand for imports; that means, perhaps during COVID times, there will be a sudden surge in demand for foreign vaccines and other COVID-19 protection gear, etc. So, as a result, you know that the foreign exchange is the same, but due to some external factors, there may be an autonomous increase in imports. If there is a shift, although the exchange rate remains the same, the market determines that this is the new exchange rate; a shift occurs in the forex market, and the demand curve shifts primarily due to an autonomous increase in demand.

Now, you can see that the demand curve shifts to the right; this is evident from the diagram, which shows a rightward shift. Now, what happened is that when we demand more goods and services from abroad, it means our demand for imports increases, which means we are demanding more US dollars, putting the Indian currency at a disadvantage, as we are demanding more foreign currency. As a result, there will be depreciation of the Indian currency, or in other words, an increase in the foreign exchange rate. So finally, you can see that the forex rate has become this one.

This is the new equilibrium in the Foreign Exchange market. Initially, this is the equilibrium point. But when there is an autonomous increase in exports, this becomes the new equilibrium point. And this is all about the flexible exchange rate system. Let us now see what happened under the fixed exchange rate regime. Suppose you talk about here; this is a market-determined forex rate.

Assume that the forex rate is, for example, 1.25. This is determined by the forces of demand and supply. However, assume that these two countries are already operating under a fixed exchange rate regime; they have already agreed that the foreign exchange rate should be 1. However, market forces dictate that the forex rate is 1.25. So, what you can see is that at this rate, this is the supply; you can see the supply curve intersect here with this forex, and demand is this much.

So, you can see this is the demand. So this much is the excess demand in the market. So, in this case, what has to be done? This excess demand should be met with excess supply. In this case, the central bank needs to intervene in the market to force the market to determine the exchange rate to 1. It must supply more foreign exchange at the same exchange rate. That means, for example, in the Indian case, the RBI of India must supply more forex in the market from its reserves.

See, if they do, then you can observe that the supply curve shifts to the right. This is a new supply curve, SF2. This is the new supply curve. This occurs when the Reserve Bank of India sells its reserves, as it holds more than $500 billion in foreign exchange reserves with the RBI. This will then be the new supply curve. Then, accordingly, you can see that this is the new intersection point. This is the initial equilibrium. This is the new

equilibrium. So then this equilibrium is attained through the intervention of the Reserve Bank of India. Thus, this is how the central bank ensures adherence to the fixed exchange rate regime.

As I mentioned earlier regarding the fixed exchange rate regime, I have some additional text here. I suggest that you review this carefully. And just to see, for example, suppose that India and Japan are under a fixed exchange rate system. This is only an illustrative example.

We are not under a fixed exchange rate regime. If India were running a current account deficit versus Japan, then it would need to, because if it had already agreed to a fixed exchange rate regime, obviously, if there is a current account deficit for India, then it has two options: the RBI sells yen from its foreign exchange reserves so that the supply of forex increases in the market. or the Bank of Japan by INR with a newly issued yen. So, that means the forex market is increasing again. Normally, with the necessary reserve, the central bank of a country can continues to intervene in the foreign exchange markets to maintain a stable exchange rate. Now, let me discuss the fixed exchange rate regime a little bit more.

One you might have heard about is the Bretton Woods system, which operated from 1946 to 1971. The Bretton Woods system made the US dollar the central anchor of the world monetary system, with all the other major currencies pegged to its fixed rates. So, you can see the dollar itself; you can see that the one dollar was pegged to gold, making gold the ultimate basis of the system. The non-US countries that agreed upon the exchange rate during the Bretton Woods system are listed here, so you can see the rate they agreed upon for one dollar. This is the exchange rate for obtaining one US dollar; this is the agreed-upon rate.

Simply put, this means that central banks in countries like Japan, Germany, and the UK had to buy or sell dollars to maintain a fixed exchange rate. So, simply put, the US focused on domestic price stability and didn't have to intervene. You can just follow the rule of winning, neglecting, and doing nothing. This means that it is the responsibility of foreign countries and other countries to ensure that the foreign exchange rate is maintained at the initial exchange rate, as mentioned here, as per the listed rate.

However, you know that it lasted only until 1971. In 1971, the Bretton Woods System collapsed. The main reason was that by the early 1970s, the Bretton Woods system was under severe strain. So, the US printed more dollars than it could back with its gold reserve because the agreement with the Bretton Woods system stated that for every dollar the US issued, there should be an equivalent backup of gold, but in the 1970s, it had printed more currency, more dollars than it could back with its gold reserve. It could be attributed to the gold resource, partly due to spending on the Vietnam War and domestic

programs. So, in 1971, President Nixon suspended the dollar's convertibility into gold, a move known as the Nixon Shock.

This effectively broke the golden link. And by 1973, the Bretton Woods system had officially collapsed. After the collapse, countries could choose their own exchange rate arrangements, ranging from pegging to another currency or a basket of currencies. To adopt a freely floating exchange rate determined by market forces. The only thing they couldn't do was peg directly to gold. However, the institutional legacy, as I have just listed here, of the Bretton Woods system lived on.

You are aware that the IMF and the World Bank, both established under the original system, continue to operate and remain central to the global financial system today. As I mentioned at the beginning, I started with a flexible exchange rate system, then transitioned to a fixed exchange rate system, where we discussed the Bretton Woods system and its subsequent collapse. Then, we have managed floating, which means a mix of a flexible exchange rate system and a fixed exchange rate system. India follows a managed floating system, where countries whose central banks intervene enough that the IMF can't classify them as free floating. I am showing you a screenshot from the IMF website that illustrates how the international forex markets are categorized.

For example, some countries don't have a separate legal tender; instead, they use the US dollar as their own currency. For example, you can see the countries listed here. They all use Panama. For example, they use the US dollar as their own currency.

And some countries use the euro as their domestic currency. Then these are the countries that belong there. And some countries use the Australian dollar as their currency. Then, some of them are currency bodies.

And then there is a conventional fixed rate. And there is a floating rate. I have noted that India is listed here. India is moving to a managed floating exchange rate. And there are only a few countries that follow a free-floating exchange rate. That means they completely leave the determination of the foreign exchange rate to the market. Countries such as Australia, Canada, Japan, and Mexico follow a free-floating exchange rate system.

Overall, in this session, we discussed the determination of foreign exchange rates. We primarily covered three types of regimes. One is called a flexible exchange rate regime. The second one is a fixed exchange rate regime.

The third one is managed floating, which is mainly followed by countries like India. Additionally, I have also shown the forex regime worldwide. Thank you for watching this session. We look forward to seeing you at the next one. Thank you.